



North American Energy Standards Board

801 Travis, Suite 1675, Houston, Texas 77002
Phone: (713) 356-0060, Fax: (713) 356-0067, E-mail: naesb@naesb.org
Home Page: www.naesb.org

NAESB WHOLESALE ELECTRIC QUADRANT EXECUTIVE COMMITTEE MEETING

ASSEMBLED MEETING MATERIALS

MAY 4, 2010



North American Energy Standards Board

801 Travis, Suite 1675, Houston, Texas 77002
Phone: (713) 356-0060, Fax: (713) 356-0067, E-mail: naesb@naesb.org
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NORTH AMERICAN ENERGY STANDARDS BOARD WHOLESALE ELECTRIC QUADRANT EXECUTIVE COMMITTEE MEETING MATERIALS

Tuesday, May 4, 2010 – 10:00 am to 4:00 pm E
Pennsylvania Public Utility Commission in Harrisburg, PA

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Attire – Business Casual



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NAESB ANTITRUST GUIDELINES STATEMENT

ANTITRUST GUIDELINES

- The following guidelines will be reviewed by counsel at the meeting. The meeting will be monitored, transcribed, and minutes will be taken. The guidelines are as follows:

Antitrust guidelines direct meeting participants to avoid discussion of topics or behavior that would result in anticompetitive behavior including: restraint of trade and conspiracies to monopolize, unfair or deceptive business acts or practices, price discriminations, division of markets, allocation of production, imposition of boycotts, and exclusive dealing arrangements.

Any views, opinions or positions presented or discussed by meeting participants are the views of the individual meeting participants and their organizations. Any such views, opinions or positions are not the views, positions or opinions of NAESB, the NAESB Board of Directors, or any NAESB Committee or Subcommittee, unless specifically noted otherwise.

As it is not the purpose of the meeting to discuss any antitrust topics, if anyone believes we are straying into improper areas, please let us know and we will redirect the conversation.



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NORTH AMERICAN ENERGY STANDARDS BOARD 2010 EXECUTIVE COMMITTEE TERMS – Wholesale Gas Quadrant

PRODUCERS SEGMENT		TERM END:
Jim Busch	Director of Energy Policy and Regulation, BP Energy Company	12-31-2010
Pete Frost	Director – Regulatory Affairs, ConocoPhillips Gas and Power Marketing	12-31-2010
Chuck Cook	Manager - Regulatory Affairs, Chevron	12-31-2011
Richard D. Smith	Regulatory & Compliance Manager, Noble Energy, Inc.	12-31-2011
Mike Shepard	General Counsel, Mewbourne Oil Company	12-31-2011
PIPELINE SEGMENT		
Bill Griffith	Consultant, El Paso Natural Gas Company	12-31-2011
Kathryn Burch	Project Manager - Standards and Regulatory, Spectra Energy Transmission	12-31-2011
Dale Davis	Consultant, Williams Gas Pipeline	12-31-2010
Randy Young	Vice President - Regulatory Compliance and Corporate Services, Boardwalk Pipeline Partners, LP	12-31-2012
Kim Van Pelt	Regulatory Compliance Manager, Panhandle Eastern Pipe Line	12-31-2012
LOCAL DISTRIBUTION COMPANY (LDC) SEGMENT		
Rodger Schwecke	Director – Energy Markets and Capacity Products, Sempra Energy - Southern California Gas	12-31-2011
Phil Precht	Management Consultant – Pricing & Regulatory Services Department, Baltimore Gas and Electric Company	12-31-2011
Paul Buckley	Director of Rates and Regulatory Affairs, Washington Gas	12-31-2010
Mike Novak	Assistant General Manager, National Fuel Gas Distribution	12-31-2012
Craig Colombo	Energy Trader III, Dominion Resources	12-31-2012
END USERS SEGMENT		
Norm Spooner	Supply Chain Manager – Fuel & Term Trading Department, Arizona Public Service Company	12-31-2010
Valerie Crockett	Senior Program Manager - Energy Markets & Policy, Tennessee Valley Authority	12-31-2010
Lori-Lynn C. Pennock	Senior Fuel Supply Analyst, Salt River Project	12-31-2011
Dona Gussow	Manager, Contract Administration, Florida Power and Light Company	12-31-2011
Tina Burnett	Natural Gas Operations Administrator, The Boeing Company	12-31-2011
SERVICES SEGMENT		
Steve Abbey	Manager of Regulatory Affairs in the Marketing Department of Anadarko	12-31-2010
Lisa Simpkins	Vice President, Energy Policy – Natural Gas, Constellation Energy Commodities Group	12-31-2010
Leigh Spangler	CEO, Latitude Technologies, Inc.	12-31-2011
Jim Buccigross	Vice President, 8760 Inc.	12-31-2011
Jeff Jarvis	Senior Counsel, EnCana Marketing (USA), Inc.	12-31-2011

EXECUTIVE COMMITTEE OFFICERS: Jim Buccigross is WGQ chairman of the Executive Committee, Dale Davis is WGQ vice chairman, Mike Novak is the RGQ chairman, Phil Precht is the REQ chairman, Jim Minneman is REQ vice chairman, Kathy York is the WEQ chairman and Alan Johnson is the WEQ vice chairman.



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SERVICE PROVIDERS/SUPPLIERS SEGMENT		TERM END:
Bill Barkas	Manager of Retail State Government Relations, Dominion Retail, Inc.	12-31-2011
Jim Minneman	Controller, PPL Solutions, LLC	12-31-2011
Jennifer Teel	Vice President of Client Services, ista	12-31-2010
Susan Munson	ERCOT Retail Market Liaison, Electric Reliability Council of Texas (ERCOT)	12-31-2010
UTILITIES SEGMENT		
Phil Precht	Management Consultant - Pricing and Regulatory Services Department, Baltimore Gas & Electric Company	12-31-2011
Patrick Eynon	Supervisor – Retail Access, Ameren Services	12-31-2011
Judy Ray	Industrial Segment Manager – Contract Administrator, Alabama Power Company	12-31-2010
Michael J. Jesensky	Director – Demand –Side Analysis, Dominion Resources Services, Inc. (representing Dominion Virginia Power)	12-31-2010
END USERS/PUBLIC AGENCIES SEGMENT		
V A C A N C Y		12-31-2011
V A C A N C Y		12-31-2011
Annunciata E. Marino	Utility Energy Policy and Technology Analyst, Pennsylvania Public Utility Commission	12-31-2010
Christopher Kotting	Administrator – Energy Assurance, Public Utility Commission of Ohio	12-31-2010



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NORTH AMERICAN ENERGY STANDARDS BOARD 2010 EXECUTIVE COMMITTEE TERMS – Wholesale Electric Quadrant

TRANSMISSION SEGMENT		TERM END:	SUBSEGMENT:
Patrick McGovern	Manager - System Services, Georgia Transmission Corporation	12-31-20011	Muni/Coop
Wendy D. Weathers	System Operations, Salt River Project	12-31-2010	Fed/State/Prov.
Daryl McGee	Manager – Transmission Services, Southern Company Services	12-31-2010	IOU
Edward Davis	Policy Consultant, Entergy Services, Inc.	12-31-2011	IOU
Mark Hackney	Section Leader of Transmission Services Trading, Arizona Public Service	12-31-2010	at large
Bob Harshbarger	OASIS Trading Manager, Puget Sound Energy	12-31-2011	at large
Michelle Mizumori	Director of Market – Operations Interface, Western Electricity Coordinating Council (WECC)	12-31-2011	At-Large
GENERATION SEGMENT			
William J. Gallagher	Special Contracts Chief, Vermont Public Power Supply Authority	12-31-2011	Muni/Coop
Kathy York	Sr. Energy Markets & Policy Specialist, Tennessee Valley Authority	12-31-2010	Fed/State/Prov.
V A C A N C Y		12-31-2010	IOU
John Ciza	Project Manager Energy Policy and Regulatory Affairs, Southern Company Services	12-31-2011	IOU
Alan Johnson	Director Regulatory Compliance – Commercial Operations & Commodities, NRG Energy, Inc.	12-31-2010	Merchant
Trent Carlson	Vice President – Regulatory Affairs, RRI Energy Services, Inc.	12-31-2011	at large
Shah Hossain	Senior Regulatory Specialist, Westar Energy, Inc.	12-31-2011	at large
MARKETERS/BROKERS SEGMENT			
Chris Norton	Director of Market Regulatory Affairs, American Municipal Power, Inc.	12-31-2010	Muni/Coop
Belinda Thornton	General Manager - Energy Origination, Tennessee Valley Authority	12-31-2011	Fed/State/Prov.
V A C A N C Y		12-31-2010	at large
Richard Lehman	Supply and Trading, Salt River Project	12-31-2011	at large
John Apperson	Director – Commercial and Trading, PacifiCorp Energy	12-31-2010	IOU
Roy True	Manager of Regulatory and Market Affairs, ACES Power Marketing	12-31-2011	at large
Barry Green	Barry Green Consulting (representing Electric Power Supply Association (EPSA))	12-31-2011	at large



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DISTRIBUTION/LOAD SERVING ENTITIES (LSE) SEGMENT		TERM END:	SUBSEGMENT:
Ray Phillips	Manager of Compliance and Special Projects, Alabama Municipal Electric Authority	12-31-2010	Muni/Coop
V A C A N C Y		12-31-2011	at large
Alan Pritchard	Senior Engineer, Duke Energy Corporation	12-31-2010	IOU
Rufus D. Gladney	Executive Manager of Energy Services West, Consumers Energy Company	12-31-2011	IOU
Robert Martinko	Consultant FERC Compliance, FirstEnergy Service Company	12-31-2010	at large
Syd Berwager	Industry Restructuring Project Manager, Bonneville Power Administration/Power Business Line	12-31-2011	Other
Andy Rodriquez	Manager of Business Practice Coordination, NERC	12-31-2011	At-Large
END USERS SEGMENT			
V A C A N C Y		12-31-2011	at large
Aaron Breidenbaugh	Senior Manager - Regulatory Affairs and Public Policy - New York, EnerNOC, Inc.	12-31-2010	at large
Lou Ann Westerfield	Policy Strategist, Idaho Public Utilities Commission, rep. National Association of Regulatory Utility Commissioners	12-31-2010	Regulator
V A C A N C Y		12-31-2011	at large
Christopher Kotting	Administrator – Energy Assurance, Public Utility Commission of Ohio	12-31-2010	at large
V A C A N C Y		12-31-2011	at large
Paul Sorenson	Vice President - Central Markets Strategy, Open Access Technology International, Inc.	12-31-2011	At-Large
INDEPENDENT GRID OPERATORS/PLANNERS			
Thomas Bowe	Executive Director – Reliability Integration, PJM Interconnection, LLC	12-31-2010	
Jim Castle	Manager - Grid Operations, New York Independent System Operator, Inc.	12-31-2010	
Matt Goldberg	Director Reliability & Operations Compliance ISO New England, Inc.	12-31-2010	
Nancy Traweek	Director – Market Services, California ISO	12-31-2010	
Joel Mickey	Director of Grid Operations, Electric Reliability Council of Texas	12-31-2011	
Ed Skiba	Consulting Advisor, Standards Compliance & Strategy, Midwest ISO	12-31-2011	
Charles Yeung	Executive Director Interregional Affairs, Southwest Power Pool	12-31-2011	



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TECHNOLOGY AND SERVICES

Jim Buccigross	Vice President Energy Industry Practice, 8760, Inc.	12-31-2010
VACANCY		12-31-2010
VACANCY		12-31-2010
VACANCY		12-31-2010
VACANCY		12-31-2011
VACANCY		12-31-2011
VACANCY		12-31-2011



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SERVICE PROVIDERS/SUPPLIERS SEGMENT		TERM END:
V A C A N C Y		12-31-2011
V A C A N C Y		12-31-2011
Richard Zollars	Director - Data and Billing, Dominion Retail, Inc.	12-31-2010
V A C A N C Y		12-31-2010
DISTRIBUTORS SEGMENT		
Dan Jones	Supervisor - Certified Supplier Business Center, Duke Energy	12-31-2011
V A C A N C Y		12-31-2011
Michael Novak	Assistant General Manager, National Fuel Gas Distribution Corporation	12-31-2010
V A C A N C Y		12-31-2010
END USERS/PUBLIC AGENCIES SEGMENT		
V A C A N C Y		12-31-2010
V A C A N C Y		12-31-2010
V A C A N C Y		12-31-2011
V A C A N C Y		12-31-2011



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END USER SEGMENT

Paul A. Jones	Senior Marketing Representative, Salt River Project
Art Morris	Gas Originator, Florida Power & Light Company
Kenneth Nordlander	Fuel Procurement, Arizona Public Service Company
Katherine C. Zeitlin	Legal Department, Arizona Public Service Company

DISTRIBUTION SEGMENT

Rick Ishikawa	Interconnect Account Manager in Capacity Products Group, Southern California Gas Company
Donald Petersen	Senior Gas Resource Analyst, Pacific Gas and Electric Company
Jim Blasiak	Specialist Federal Regulatory Affairs, Washington Gas Light Company
George Simmons	FERC Specialist, NiSource Inc.
Scott Butler	Project Manager, Energy Markets Policy Group, Consolidated Edison Company of New York, Inc.

PIPELINE SEGMENT

Bill Grygar	Vice President, Panhandle Eastern Pipe Line
Scott Hansen	Questar Pipeline Company
Ronald G. Tomlinson	Manager – Business Technology, Dominion Gas Transmission, Inc.
Paul Love	Director, Electronic Customer Services, Natural Gas Pipe Line Company of America
Mark Gracey	Consultant, Tennessee Gas Pipeline Company
Christopher Burden	Consultant e-Commerce & Service Delivery, Williams Gas Pipeline
Tom Gwilliam	Iroquois Gas Transmission System

PRODUCER SEGMENT

David Ogden	Manager, Marketing Administration, Dominion Exploration & Production, Inc.
Rhonda Denton	Regulatory Affairs, BP Energy Company

SERVICES SEGMENT

Keith Sappenfield	Director, US Regulatory Affairs, Midstream and Marketing, EnCana Oil and Gas (USA), Inc.



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NORTH AMERICAN ENERGY STANDARDS BOARD 2010 EXECUTIVE COMMITTEE ALTERNATES – Retail Electric Quadrant

UTILITIES SEGMENT

Keith P. Hock	Director ARES Business Center, Ameren Services Company
H. Neal Allen	Profitability & Economic Analysis Manager, Alabama Power Company
Debbie McKeever	Market Advocate, Oncor
William J. Welzant	Principal Supplier Services Analyst, Supplier Account Management, Baltimore Gas and Electric

END USERS/PUBLIC AGENCIES SEGMENT

SERVICE PRODUCERS/SUPPLIERS SEGMENT

Brandon S. Siegel	Manager – Market Management, E:SO



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NORTH AMERICAN ENERGY STANDARDS BOARD 2010 EXECUTIVE COMMITTEE ALTERNATES – Wholesale Electric Quadrant

END USER SEGMENT		SUB-SEGMENT
DISTRIBUTION/LSE SEGMENT		SUB-SEGMENT
Gerry Adamski	Vice President of Standards, NERC	At-Large
Paul K. Jett	Director – RTO Activities, Duke Energy Corporation	IOU
Lee Hall	Coordination Manager – Power Services, Bonneville Power Administration	Other
GENERATION SEGMENT		SUB-SEGMENT
Joel Dison	Project Manager, Southern Company Generation and Energy Marketing	IOU
Lou Oberski	Director – Electric Market Policy, Dominion Resources Services, Inc	IOU
Francis Halpin	Bonneville Power Administration	Fed/State/Prov.
MARKETER/BROKER SEGMENT		SUB-SEGMENT
Jeff Ackerman	Manager, CRSP-Energy Mgmt., Western Area Power Administration	Fed/State/Prov
Brenda Anderson	Bonneville Power Administration	Fed/State/Prov
Valerie Crockett	Senior Program Manager, Energy Markets & Policy, Tennessee Valley Authority	Fed/State/Prov
TRANSMISSION SEGMENT		SUB-SEGMENT
Barbara Rehman	Policy Development & Analysis, Bonneville Power Administration	Fed/State/Prov.
Chuck Feagans	Tennessee Valley Authority	Fed/State/Prov.
Shay Labray	Transmission Strategy Consultant, PacifiCorp	IOU
Jane Daly	Rate & Regulatory Advisor, Arizona Public Service Company	IOU
Marceline Otondo	Regulatory Compliance Advisory, Arizona Public Service Company	IOU
Narinder Saini	Policy Consultant, Entergy Services, Inc.	IOU
J.T. Wood	Southern Company Services	IOU
Dean Ulch	Principal Engineer – Transmission Policy and Services, Southern Company Services, Inc.	IOU
Hasnah Mat-Amin	Market Interface Manager, Western Electricity Coordinating Council	At Large
Ross Kovacs	Transmission Strategic Coordinator, Georgia Transmission Corporation	Muni/Coop



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INDEPENDENT GRID OPERATORS/PLANNERS SEGMENT		SUB-SEGMENT
Paul Wattles	Supervisor Demand Side Programs, Electric Reliability Council of Texas (ERCOT)	
Bill Blevins	Sr. Market Support Analyst, Electric Reliability Council of Texas (ERCOT)	
Heather Sanders	Renewable Integration Support Manager, California ISO	
Robert Coughlin	Principal Scientist Reliability & Operations Compliance, ISO New England, Inc.	
Eric Winkler	Project Manager – FCM and Tariff Administration, ISO New England, Inc.	
Cheryl Mendrala	Principal Engineer, ISO New England, Inc.	
Jason Marshall	Technical Manager, Midwest ISO	
Marie Knox	Sr. Standards Compliance Analyst, Midwest ISO	
Dean Hartung	Manager Real Time Market Operations, PJM Interconnection, LLC	
Cathy Wesley	Sr. Analyst, PJM Interconnection, LLC	
Carl Monroe	Sr. Vice President Operations & Chief Operating Officer, Southwest Power Pool	
Greg Campoli	Supervisor – Reliability Compliance and Assessment, New York ISO	
Diana Pommen	Director Interjurisdictional Affairs, Alberta Electric System Operator	
Jimmy Womack	Manager-Tariff Administration, Southwest Power Pool	
Terry Bilke	Director Standards Compliance and Strategy, Midwest ISO	



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NORTH AMERICAN ENERGY STANDARDS BOARD 2010 EXECUTIVE COMMITTEE ALTERNATES – Retail Gas Quadrant

DISTRIBUTORS SEGMENT

Joe Stengel	Manager, Federal Regulatory Affairs, Philadelphia Gas Works

END USERS/PUBLIC AGENCIES SEGMENT

SERVICE PROVIDERS/SUPPLIERS SEGMENT

Paul Cherevka	Project Manager Data Warehouse, Dominion Retail



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April 12, 2010

TO: NAESB Wholesale Electric and Retail Gas and Electric Quadrant Executive Committee Members,
Alternates and Interested Industry Participants

FROM: Rae McQuade, NAESB President

RE: Quadrant Executive Committee Meeting Announcements and Draft Agendas with links to Meeting
Materials **Revised¹**

NORTH AMERICAN ENERGY STANDARDS BOARD EXECUTIVE COMMITTEE MEETINGS Hosted by Pennsylvania Public Utility Commission in Harrisburg, PA

First, let me thank the Pennsylvania PUC and Annunciata Marino for the generosity and commitment to the NAESB organization through hosting this series of meetings. Without such support, it would be very difficult to maintain the NAESB budget and provide various locations around the country to encourage attendance at the NAESB in-person meetings.

As we have announced at prior Executive Committee meetings, meeting announcements and in other communications, the Executive Committee (EC) will meet in Harrisburg, PA hosted by the Pennsylvania PUC. Below are the meeting arrangements:

Where: 400 North Street, Keystone Building, Harrisburg, PA 17120
Contact: Veronica Thomason, 713-356-0060
When: Tuesday, May 4 -- 10:00 a.m. to 4:00 p.m. Eastern – Wholesale Electric Quadrant
Wednesday, May 5 -- 10:00 a.m. to 4:00 p.m. Eastern – Retail Gas Quadrant and Retail Electric Quadrant

If you plan to attend any of the above EC meetings and have not already RSVPed to our office through the other announcements, please do so at your earliest convenience to the NAESB office (naesb@naesb.org) so that proper meeting arrangements can be made by NAESB and our host. Travel information is posted on the NAESB web site on the EC pages and can be directly accessed from the following links: <http://www.naesb.org/pdf4/ec050410ma.doc> and <http://www.naesb.org/pdf4/ec050410ma2.pdf>. If you plan to participate by conference call, the information to do so is provided in this document. The EC meetings will be web cast as well. The meeting, conference calling and web casting is open to any interested party.

The materials for the meeting will be emailed to the participants and posted on the web site shortly. In an effort to control costs and be more environmentally aware, we are not printing Executive Committee books any longer, they will be posted in an assembled pdf document for each quadrant meeting, in addition to the links to the native formatted documents provided in the agendas. For agenda items where materials are already available and have been sent to you in prior communications, or posted on the web site, the links to those documents are included in the agenda for your convenience, and to help you prepare for the meetings. The links are formatted in blue underlined text. As the meeting approaches, this agenda with additional links to documents will be posted on the web site, along with the pdf assembled books.

Please note that in discussions with the Retail Quadrants EC chairs and vice chairs, it has been determined that all Retail EC meetings for 2010 will be conference call/web casts in recognition of the small number of in-person attendance from the 2009 records, and also in recognition of the reduced travel budgets for 2010 of many of the Retail EC members. However, since NAESB staff will be on location to provide support for the retail EC meetings, any Retail EC participant may choose to join the staff and participate in-person.

As always, the chair reserves the right to extend the time of the meeting to ensure that agenda items are addressed. The times indicated on the agenda will be followed to ensure that agenda items are allotted appropriate time slots. Should an agenda item conclude earlier than its stated time slot, the remaining time could be allotted to other agenda items at the discretion of the chair.

¹ Additions to the agendas are highlighted in yellow, including additional materials



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There are other NAESB subcommittee meetings being held in conjunction with the EC meetings. They are held in various locations, and available via conference call and web cast. The details are:

Date	Time	Meeting/Location
Monday, May 3	12 pm to 4 pm E	Retail BPS Meeting – Day 1 Conference Call Number: 866-740-1260 Access Code: 7133560 Security Code: 7342 Web Cast: http://www.readytalk.com (please use same codes)
Tuesday May 4	10 am to 4 pm E	WEQ EC Meeting Conference Call Number: 866-740-1260 Access Code: 7133562 Security Code: 5812 Web Cast: http://www.readytalk.com (please use same codes)
	9 am to 3 pm E	Retail BPS Meeting – Day 2 Conference Call Number: 866-740-1260 Access Code: 7133560 Security Code: 7342 Web Cast: http://www.readytalk.com (please use same codes)
Wednesday, May 5	10 am to 4 pm E	Retail EC Meeting by phone/web cast/ for in person attendance, please join NAESB staff Conference Call Number: 866-740-1260 Access Code: 7133562 Security Code: 8724 Web Cast: http://www.readytalk.com (please use same codes)
	9 am to 4 pm E	Day 1 of WEQ OASIS Subcommittee Conference Call Number: 866-740-1260 Access Code: 7133564 Security Code: 1301 Web Cast: http://www.readytalk.com (please use same codes)
Thursday, May 6	9 am to 4 pm E	Day 2 of WEQ OASIS Subcommittee Conference Call Number: 866-740-1260 Access Code: 7133564 Security Code: 1301 Web Cast: http://www.readytalk.com (please use same codes)

You can access the materials for this meeting from the NAESB web site, at the page specific for the subcommittee noted (WEQ: <http://www.naesb.org/weq/default.asp> and Retail: <http://www.naesb.org/RGQ/default.asp>).

Please feel free to call the NAESB office should you have any questions or comments.

Best Regards, *Rae*



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NORTH AMERICAN ENERGY STANDARDS BOARD EXECUTIVE COMMITTEE MEETING WHOLESALE ELECTRIC QUADRANT DRAFT AGENDA

Tuesday, May 4, 2010 – 10:00 am to 4:00 pm E
Pennsylvania Public Utility Commission in Harrisburg, PA

#	Agenda Item
1.	Welcome
a.	Antitrust Guidelines http://www.naesb.org/misc/antitrust_guidance.doc
b.	Welcome to members and attendees
c.	Quorum Establishment: Roll Call of WEQ EC Members and Alternates: http://www.naesb.org/pdf4/ec_terms.pdf (EC) and http://www.naesb.org/pdf4/alt_ec_members.pdf (EC Alt)
d.	Adoption of WEQ Agenda (simple majority) http://www.naesb.org/pdf4/ec050410a.doc
2.	Adoption of Wholesale Electric Quadrant Draft Minutes (simple majority to approve): February 2, 2010: http://www.naesb.org/pdf4/weq_ec020210dm.doc
3.	Update on Confidentiality Agreement Decisions: http://www.naesb.org/pdf4/weq_ec_conf_agreement_031210a1.doc (Recommendation to the EC), http://www.naesb.org/pdf4/weq_ec_conf_agreement_031210notes.doc (Notes from the EC Task Force Call)
4.	Update on 2009 WEQ Annual Plan Item 5(b) Modify NAESB definitions for consistency – ratified March 24, 2010, (review only): http://www.naesb.org/doc_view4.asp?doc=weq_rat022210_2009_weq_ap5b_rec_clean.doc
5.	Update on progress on 2009 WEQ Annual Plan Items 5(a)(2), 5(i)/R08004/R09011 Affecting WEQ-011 Gas/Electric Coordination – (review only), WGQ comment period ends April 29, 2010 for WGQ. <i>[A single topic review session and joint EC voting session will be scheduled.]</i>
a.	Recommendation: http://www.naesb.org/pdf4/weq_2009_api_5a2_5i_r08004_r09011_rec.doc Attachment WEQ-011 (Redline): http://naesb.org/pdf4/weq_2009_api_5a2_5i_r08004_r09011_rec_attach1.doc Attachment WEQ-011 (Clean): http://naesb.org/pdf4/weq_2009_api_5a2_5i_r08004_r09011_rec_attach2.doc
b.	Formal comment period ended November 2, 2009 - http://naesb.org/pdf4/weq_100209_reqcom.doc Comments submitted by the NAESB Standards Review Subcommittee - http://naesb.org/pdf4/weq_100209weq_srs.doc Comments submitted by M. Kulas, Consumers Energy Company - http://naesb.org/pdf4/weq_100209consumers.doc Late comments in response to the Consumers Energy Comments submitted by the WEQ and WGQ BPS Co-Chairs - http://naesb.org/pdf4/weq_100209_weq_wgq_bps_late.doc
c.	Related WGQ R09011 Recommendation: http://naesb.org/pdf4/r09011_rec.doc
d.	WGQ Formal comment period ends April 29, 2010 - http://naesb.org/pdf4/wgq_033010reqcom.doc (No comments to date)
6.	Update on WEQ/REQ Recommendations for smart grid standards for NIST PAPs 3,4 and 9. <i>[This request will be the subject of a single topic review conference call and single topic WEQ EC conference call for vote on PAP9 and joint WEQ/REQ EC call for vote on PAPs 3 and 4].</i>
a.	WEQ Request for Comments, Due April 9, 2010: http://www.naesb.org/pdf4/weq_030910_reqcom.doc
b.	REQ Request for Comments, Due April 9, 2010: http://www.naesb.org/pdf4/req_030910_reqcom.doc
c.	Recommendation 2010 WEQ Annual Plan Item 6(a): Requirements Specifications for Common Electricity Product and Pricing Definition for NIST PAP03, (Same for REQ): http://naesb.org/pdf4/weq_2010_ap6a_retail_2010_ap9a_rec.doc
d.	Recommendation 2010 WEQ Annual Plan Item 6(b): Requirements Specifications for Common Scheduling Mechanism for Energy Transactions for NIST PAP04 (Same for REQ): http://naesb.org/pdf4/weq_2010_ap6b_retail_2010_ap9b_rec.doc
e.	Recommendation 2010 WEQ Annual Plan Item 6(c): Requirements Specifications for Wholesale Standard DR Signals for NIST PAP09: http://naesb.org/pdf4/weq_2010_ap_6c_rec.doc
f.	Recommendation 2010 REQ Annual Plan Item 9(c): Requirements Specifications for Wholesale Standard DR Signals for NIST PAP09: http://naesb.org/pdf4/retail_2010_ap_9c_rec.doc
g.	Comments Due April 9, 2010: PAP 03 (WEQ/REQ): Comments submitted by Standards Review Subcommittee - http://naesb.org/pdf4/weq_req_030910_pap03_weq_srs.doc



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NORTH AMERICAN ENERGY STANDARDS BOARD EXECUTIVE COMMITTEE MEETING WHOLESALE ELECTRIC QUADRANT DRAFT AGENDA

Tuesday, May 4, 2010 – 10:00 am to 4:00 pm E
Pennsylvania Public Utility Commission in Harrisburg, PA

#	Agenda Item
	Comments submitted by B. Rehman, BPA - http://naesb.org/pdf4/weq_req_030910_pap03_bpa.doc Comments Submitted by K. York, TVA: http://naesb.org/pdf4/weq_req_030910_pap03_tva.doc Cover Letter Submitted by S. Gabel, Honeywell: http://naesb.org/pdf4/weq_req_030910_pap03_honeywell_cover.pdf Comments Submitted by S. Gabel, Honeywell: http://naesb.org/pdf4/weq_req_030910_pap03_honeywell.doc Comments Submitted by the IRC: http://naesb.org/pdf4/weq_req_030910_pap03_irc.doc Comments Submitted by Midwest ISO: http://www.naesb.org/pdf4/weq_req_030910_pap03_miso_late.doc PAP04 (WEQ/REQ): Comments submitted by Standards Review Subcommittee - http://naesb.org/pdf4/weq_req_030910_pap04_weq_srs.doc Comments submitted by B. Rehman, BPA - http://naesb.org/pdf4/weq_req_030910_pap04_bpa.doc Comments Submitted by K. York, TVA: http://naesb.org/pdf4/weq_req_030910_pap04_tva.doc Cover Letter Submitted by S. Gabel, Honeywell: http://naesb.org/pdf4/weq_req_030910_pap04_honeywell_cover.pdf Comments Submitted by S. Gabel, Honeywell: http://naesb.org/pdf4/weq_req_030910_pap04_honeywell.doc Comments Submitted by the IRC: http://naesb.org/pdf4/weq_req_030910_pap04_irc.doc Comments Submitted by Midwest ISO: http://www.naesb.org/pdf4/weq_req_030910_pap04_miso_late.doc PAP09 (WEQ): Comments submitted by Standards Review Subcommittee - http://naesb.org/pdf4/weq_030910_pap09_weq_srs.doc Comments submitted by B. Rehman, BPA - http://naesb.org/pdf4/weq_030910_pap09_bpa.doc Comments Submitted by K. York, TVA: http://naesb.org/pdf4/weq_030910_pap09_tva.doc Comments Submitted by the IRC: http://naesb.org/pdf4/weq_030910_pap09_irc.doc Comments Submitted by Midwest ISO: http://www.naesb.org/pdf4/weq_030910_pap09_miso_late.doc PAP09 (Retail): Cover Letter Submitted by S. Gabel, Honeywell: http://naesb.org/pdf4/req_030910_pap09_honeywell_cover.pdf Comments Submitted by S. Gabel, Honeywell: http://naesb.org/pdf4/req_030910_pap09_honeywell.doc Comments Submitted by the IRC: http://naesb.org/pdf4/req_030910_pap09_irc.doc
7.	Discussion and Possible Action (Simple Majority Vote) on Minor Correction a. MC10019: Joint NAESB WEQ Version 002.1 Standard WEQ-014-A and WGQ Version 1.9 Standard No. 11.4.1 (Implementation Guide for Electronic Tariff Filing), Submitted by D. Davis, Williams Gas Pipeline - http://naesb.org/pdf4/weq_ec050410w1.doc - for WGQ and WEQ EC consideration.
8.	Subcommittee Updates (meeting materials for updates will be provided by leadership as they are available): a. Triage Subcommittee: http://www.naesb.org/pdf4/tr040210agenda.doc (Requests), http://www.naesb.org/pdf4/tr040210disposition.doc (Disposition) b. Business Practices Subcommittee (BPS) TLR and Parallel Flow Visualization c. Demand Side Management – Energy Efficiency (DSM-EE) Subcommittee d. OASIS Subcommittee and Scoping Task Force e. Joint Electric Scheduling Subcommittee (JESS) and eTag Testing f. Standards Review Subcommittee (SRS) g. Glossary Efforts h. Smart Grid Standards Task Force (SGSTF) i. Publication Schedule: WGQ Publication Schedule (April 12, 2010): http://naesb.org/misc/wgq_pub_schedule_041210.doc, WEQ Publication Schedule (April 12, 2010): http://naesb.org/misc/weq_pub_schedule_041210.doc, Retail Publication Schedule (April 12, 2010): http://naesb.org/misc/retail_pub_schedule_041210.doc (Retail and WGQ provided for context)
9.	Review, discuss, identify changes and vote to approve changes to the 2010 Annual Plan to be proposed to the Board of Directors: http://www.naesb.org/pdf4/weq_2010_annual_plan.doc (simple majority vote for EC endorsement of proposed changes to be forwarded for Board approval)



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NORTH AMERICAN ENERGY STANDARDS BOARD EXECUTIVE COMMITTEE MEETING WHOLESALE ELECTRIC QUADRANT DRAFT AGENDA

Tuesday, May 4, 2010 – 10:00 am to 4:00 pm E
Pennsylvania Public Utility Commission in Harrisburg, PA

-
#	Agenda Item
10.	Board of Directors, Board Committee and Regulatory Updates (no votes or action to be taken): a. Board Updates – Board Meeting March 25, 2010: http://www.naesb.org/pdf4/bd032510dm.doc b. Advisory Council Updates: http://naesb.org/pdf4/advisory021310notes.doc c. Board Critical Infrastructure Committee – Meeting March 22, 2010: http://www.naesb.org/pdf4/bd_cic_032210notes.doc d. Monthly Update Meeting on March 10: http://www.naesb.org/pdf4/update031010mn.pdf e. Quadrant Updates: Wholesale Gas and Retail key activities – WGQ Annual Plan, Retail Annual Plan http://www.naesb.org/pdf4/wgq_2010_annual_plan.doc (WGQ), http://www.naesb.org/pdf4/retail_2010_annual_plan.doc (Retail) f. Regulatory Efforts: April 28, 2010 - NAESB Comments on "Time Error Correction Reliability Standard" (Docket No. RM09-13-000) WEQ-006 Business Practice Standards - Version 002.1 : http://www.naesb.org/pdf4/ferc042810.pdf April 15, 2010 - FERC Final Rule - WEQ Phase 1 DR M&V - Standards for Business Practices and Communication Protocols for Public Utilities - (Docket No. RM05-5-017; Order No. 676-F): http://www.naesb.org/pdf4/ferc041510_final_rule_dr_phase1_mv_standards.doc April 8, 2010 – NAESB Comments on “Draft National Action Plan on Demand Response” (Docket No. AD09-10-000): http://www.naesb.org/pdf4/ferc040810_NAESB_Comments_dr_natl_action_plan.pdf March 26, 2010 – NAESB Comments to the FERC Notice of Inquiry (Docket No. RM10-9-000): http://www.naesb.org/pdf4/ferc032610_NAESB_NOI_Comments.pdf March 24, 2010 - FERC Final Rule - Standards for Business Practices for Interstate Natural Gas Pipelines (WGQ Version 1.9) (Docket Nos. RM96-1-030 and RM96-1-036; Order No. 587-U): http://www.naesb.org/pdf4/ferc032410.pdf g. EIR Administrator RFP: http://www.naesb.org/pdf4/tsin_registry_rfp_022210.pdf
11.	Other Business 2010 Schedule: http://www.naesb.org/misc/2010_schedule.pdf
12.	Adjourn

Attire – Business Casual



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NORTH AMERICAN ENERGY STANDARDS BOARD EXECUTIVE COMMITTEE MEETING RETAIL QUADRANTS DRAFT AGENDA

Wednesday, March 5, 2010 – 10:00 am to 4:00 pm E
Pennsylvania Public Utility Commission in Harrisburg, PA

#	Agenda Item
1.	Welcome - Antitrust Guidelines http://www.naesb.org/misc/antitrust_guidance.doc (Guidance) - Welcome to members and attendees - Quorum Establishment: Roll Call of Retail EC Members and Alternates: http://www.naesb.org/pdf4/ec_terms.pdf (EC) and http://www.naesb.org/pdf4/alt_ec_members.pdf (EC Alt) - Adoption of Retail Agenda (simple majority) http://www.naesb.org/pdf4/ec050410a.doc
2.	Adopt Retail Quadrants February 3, 2010 Draft Minutes (simple majority to approve): http://www.naesb.org/pdf4/retail_ec020310dm.doc
3.	TO START AT 10:30 am E Presentation on NAESB Retail Activities
4.	Review and Discuss for Possible Notational Vote in mid-May: REQ/RGQ Request for Formal Comments on 2009 Retail Annual Plan Item No. 10 (a) and (c): Service Request, Disconnection and Reconnection in the Registration Agent Model: http://www.naesb.org/pdf4/retail_040710_reqcom.doc (request for comments, due May 7, 2010), http://www.naesb.org/pdf4/retail_2009_ap_10a_10c_rec.doc (Recommendation) Comments Due May 7, 2010: Comments submitted by J. Cargas, City of Houston - http://naesb.org/pdf4/retail_040710cityofhouston.doc
5.	Update on WEQ/REQ Recommendations for smart grid standards for NIST PAPs 3,4 and 9. <i>[This request will be the subject of a single topic review conference call and single topic WEQ EC conference call for vote on PAP9 and joint WEQ/REQ EC call for vote on PAPs 3 and 4].</i> - REQ Request for Comments, Due April 9, 2010: http://www.naesb.org/pdf4/req_030910_reqcom.doc - WEQ Request for Comments, Due April 9, 2010: http://www.naesb.org/pdf4/weq_030910_reqcom.doc - Recommendation 2010 WEQ Annual Plan Item 9(a): Requirements Specifications for Common Electricity Product and Pricing Definition for NIST PAP03, (Same for REQ): http://naesb.org/pdf4/weq_2010_ap6a_retail_2010_ap9a_rec.doc - Recommendation 2010 WEQ Annual Plan Item 9(b): Requirements Specifications for Common Scheduling Mechanism for Energy Transactions for NIST PAP04 (Same for REQ): http://naesb.org/pdf4/weq_2010_ap6b_retail_2010_ap9b_rec.doc - Recommendation 2010 REQ Annual Plan Item 9(c): Requirements Specifications for Wholesale Standard DR Signals for NIST PAP09: http://naesb.org/pdf4/retail_2010_ap_9c_rec.doc - Recommendation 2010 WEQ Annual Plan Item 6(c): Requirements Specifications for Wholesale Standard DR Signals for NIST PAP09: http://naesb.org/pdf4/weq_2010_ap_6c_rec.doc - Comments Due April 9, 2010: PAP 03 (WEQ/REQ): Comments submitted by Standards Review Subcommittee -http://naesb.org/pdf4/weq_req_030910_pap03_weq_srs.doc Comments submitted by B. Rehman, BPA - http://naesb.org/pdf4/weq_req_030910_pap03_bpa.doc Comments Submitted by K. York, TVA: http://naesb.org/pdf4/weq_req_030910_pap03_tva.doc Cover Letter Submitted by S. Gabel, Honeywell: http://naesb.org/pdf4/weq_req_030910_pap03_honeywell_cover.pdf Comments Submitted by S. Gabel, Honeywell: http://naesb.org/pdf4/weq_req_030910_pap03_honeywell.doc Comments Submitted by the IRC: http://naesb.org/pdf4/weq_req_030910_pap03_irc.doc Comments Submitted by Midwest ISO: http://www.naesb.org/pdf4/weq_req_030910_pap03_miso_late.doc PAP04 (WEQ/REQ): Comments submitted by Standards Review Subcommittee - http://naesb.org/pdf4/weq_req_030910_pap04_weq_srs.doc Comments submitted by B. Rehman, BPA - http://naesb.org/pdf4/weq_req_030910_pap04_bpa.doc Comments Submitted by K. York, TVA: http://naesb.org/pdf4/weq_req_030910_pap04_tva.doc Cover Letter Submitted by S. Gabel, Honeywell: http://naesb.org/pdf4/weq_req_030910_pap04_honeywell_cover.pdf



North American Energy Standards Board

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NORTH AMERICAN ENERGY STANDARDS BOARD EXECUTIVE COMMITTEE MEETING RETAIL QUADRANTS DRAFT AGENDA

Wednesday, March 5, 2010 – 10:00 am to 4:00 pm E
Pennsylvania Public Utility Commission in Harrisburg, PA

#	Agenda Item
	Comments Submitted by S. Gabel, Honeywell: http://naesb.org/pdf4/weq_req_030910_pap04_honeywell.doc Comments Submitted by the IRC: http://naesb.org/pdf4/weq_req_030910_pap04_irc.doc Comments Submitted by Midwest ISO: http://www.naesb.org/pdf4/weq_req_030910_pap04_miso_late.doc PAP09 (WEQ): Comments submitted by Standards Review Subcommittee - http://naesb.org/pdf4/weq_030910_pap09_weq_srs.doc Comments submitted by B. Rehman, BPA - http://naesb.org/pdf4/weq_030910_pap09_bpa.doc Comments Submitted by K. York, TVA: http://naesb.org/pdf4/weq_030910_pap09_tva.doc Comments Submitted by the IRC: http://naesb.org/pdf4/weq_030910_pap09_irc.doc Comments Submitted by Midwest ISO: http://www.naesb.org/pdf4/weq_030910_pap09_miso_late.doc PAP09 (Retail): Cover Letter Submitted by S. Gabel, Honeywell: http://naesb.org/pdf4/req_030910_pap09_honeywell_cover.pdf Comments Submitted by S. Gabel, Honeywell: http://naesb.org/pdf4/req_030910_pap09_honeywell.doc Comments Submitted by the IRC: http://naesb.org/pdf4/req_030910_pap09_irc.doc
6.	Discuss Retail Version 1.3, scheduled for publication in 1 st Q 2011: Publication Schedule: WGQ Publication Schedule (April 12, 2010): http://naesb.org/misc/wgq_pub_schedule_041210.doc , WEQ Publication Schedule (April 12, 2010): http://naesb.org/misc/weq_pub_schedule_041210.doc , Retail Publication Schedule (April 12, 2010): http://naesb.org/misc/retail_pub_schedule_041210.doc (WGQ and WEQ provided for context)
7.	Update on Subcommittee Activities (meeting materials for updates will be provided by leadership as they are available): a. Triage Subcommittee: http://www.naesb.org/pdf4/tr040210agenda.doc (Requests), http://www.naesb.org/pdf4/tr040210disposition.doc (Disposition) b. Business Practices Subcommittee (BPS) and Texas Task Force c. DSM-EE Subcommittee d. Information Requirements Subcommittee (IR – Not Active) e. Technical Electronic Implementation Subcommittee (TEIS) f. Glossary Efforts g. Smart Grid Standards Task Force
8.	Review, discuss, identify changes and vote to approve changes to the 2010 Annual Plan to be proposed to the Board of Directors: http://www.naesb.org/pdf4/retail_2010_annual_plan.doc (simple majority vote for EC endorsement of proposed changes to be forwarded for Board approval)
9.	Board of Directors, Board Committee and Regulatory Updates (no votes or action to be taken): a. Board Updates – Board Meeting March 25, 2010: http://www.naesb.org/pdf4/bd032510dm.doc b. Advisory Council Updates: http://naesb.org/pdf4/advisory021310notes.doc c. Board Critical Infrastructure Committee – Meeting March 22, 2010: http://www.naesb.org/pdf4/bd_cic_032210notes.doc d. Monthly Update Meeting on March 10: http://www.naesb.org/pdf4/update031010mn.pdf e. Wholesale Gas and Wholesale Electric key activities – WGQ Annual Plan, WEQ Annual Plan - http://www.naesb.org/pdf4/wgq_2010_annual_plan.doc (WGQ), http://www.naesb.org/pdf4/weq_2010_annual_plan.doc (WEQ)



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Wednesday, March 5, 2010 – 10:00 am to 4:00 pm E
Pennsylvania Public Utility Commission in Harrisburg, PA

#	Agenda Item
	f. Regulatory Actions: April 28, 2010 - NAESB Comments on "Time Error Correction Reliability Standard" (Docket No. RM09-13-000) WEQ-006 Business Practice Standards - Version 002.1 : http://www.naesb.org/pdf4/ferc042810.pdf April 15, 2010 - FERC Final Rule - WEQ Phase 1 DR M&V - Standards for Business Practices and Communication Protocols for Public Utilities - (Docket No. RM05-5-017; Order No. 676-F): http://www.naesb.org/pdf4/ferc041510_final_rule_dr_phase1_mv_standards.doc April 8, 2010 – NAESB Comments on “Draft National Action Plan on Demand Response” (Docket No. AD09-10-000): http://www.naesb.org/pdf4/ferc040810_NAESB_Comments_dr_natl_action_plan.pdf
10.	Other Business 2010 Schedule: http://www.naesb.org/misc/2010_schedule.pdf
11.	Adjourn

Attire – Business Casual



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February 25, 2010

TO: NAESB Wholesale Electric Quadrant Executive Committee and Interested Industry Participants
FROM: Cory Galik Cummings, NAESB Staff Attorney
RE: Wholesale Electric Quadrant Executive Committee Meeting Call Draft Minutes

**NORTH AMERICAN ENERGY STANDARDS BOARD
WHOLESALE ELECTRIC QUADRANT
EXECUTIVE COMMITTEE
SINGLE TOPIC CONFERENCE CALL
Tuesday, February 2, 2010 – 10:00 am to 4:00 pm Mountain
DRAFT MINUTES**

1. Welcome

Ms. York called the meeting to order and welcomed the Wholesale Electric Quadrant (“WEQ”) Executive Committee (“EC”) members, alternates and other participants. Ms. Cummings gave the antitrust guidance and called the roll of the WEQ EC members and alternates. Quorum was established. The third agenda item was moved to later in the meeting to allow participants more time to arrive to the meeting. A bullet item for the Smart Grid Task Force was added to agenda item 6 and the glossary update was removed. Mr. Hossain moved, seconded by Ms. Crockett, to adopt the agenda as modified. The motion passed unanimously.

2. Wholesale Electric Quadrant Draft Minutes

The October 27, 2009 minutes were reviewed. Revisions were made to clarify item 3 and minor corrections were made throughout the document. The motion to adopt the minutes as revised was made by Mr. Skiba and seconded by Mr. Hackney. The motion passed unanimously. The December 3, 2009 minutes were reviewed. Minor revisions were made throughout the document. Mr. True moved, seconded by Mr. Skiba, to adopt the minutes as modified. The motion passed unanimously.

3. 2009 WEQ Annual Plan Item 5(b) Modify NAESB definitions for consistency

Mr. Skiba provided a review of the recommendation. This effort was a collaboration of the OASIS, SRS, BPS and JESS co-chairs to create a common glossary to address internal inconsistencies as well as inconsistencies between NERC and NAESB. Included in the recommendation is WEQ 000, which will allow the WEQ to pull all of the definitions out of the business practice standards and move them to a common glossary. He reviewed the three sections of the recommendation, 1) abbreviations or acronyms, 2) abbreviations and acronyms that were not used and 3) definitions of terms. For some terms, the multiple NAESB definitions were blended to create a more consistent definition. For terms used in standards that were coordinated with NERC, some NERC definitions were used, where appropriate. NAESB subcommittees and NERC committees were consulted in an effort to ensure consistency between the definitions and the standards. The document was posted for informal comment in late August and those comments were reviewed.

Mr. Davis noted that the acronym EIR, for Electric Industry Registry, is not a defined term. Ms. Otondo stated that the decision was made that some abbreviations and acronyms would not require a definition. The purpose of the abbreviations and acronyms was to create a common understanding rather than a list of defined terms. The goal of the glossary effort was to create consistency among previously defined terms, not to create new definitions. Mr. Saini added that the purpose of the table was to list the acronyms used throughout the standards, several of which have not been defined. Mr. Skiba suggested that the creation of this potential definition be assigned to the appropriate subcommittee.

Mr. Sorenson asked about the potential inconsistencies between the new acronyms and abbreviations and the current ratified standards. Mr. Skiba answered that the NAESB office would go through the standards and make all



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necessary conforming changes to the business practices. The NAESB office will make the business practices available to EC members who wish to go through them, as well. They will be posted as protected on the NAESB website.

A motion to approve the recommendation was made by Mr. Davis and seconded by Mr. McGovern.

Ms. Mizumori noted that the definition for “Bulk Electric System” is similar to the NERC definition with the exception of the introductory phrase. She offered as a friendly amendment, the addition of the introductory phrase to maintain consistency between the NERC and NAESB definitions. The introductory statement reads, “As defined by the regional reliability organization...” Mr. Davis and Mr. McGovern accepted the friendly amendment. Mr. Rodriguez suggested the introductory statement be left out of the NAESB definition; it was still unknown how those evolving definitions are going to be developed by NERC in the future. Leaving it out would allow the regions to define it if they want, but it would not be required. Some EC members agreed with Ms. Mizumori that the definitions should be identical and others were concerned about the uncertainty of the NERC definition in the future. Mr. Saini stated that the glossary work group kept the NAESB version of the definition, which does not contain the introductory statement. Mr. Wood made a friendly amendment to remove the introductory statement. Mr. Davis did not accept the friendly amendment. Mr. True noted that the term regional reliability organization was an antiquated term and has been replaced with the term regional entity. Ms. Mizumori made a friendly amendment to adopt the NERC definition of “regional reliability organization.” Mr. Davis did not accept the friendly amendment. Mr. McGovern made a friendly amendment to change regional reliability organization to RRO and add it to the acronym list. Mr. Davis agreed to the friendly amendment made by the seconder of the original motion.

Mr. Skiba reviewed the rest of the formal comments. WE Energy expressed concern with non-members not having access to standards with which they must comply. Ms. York stated that they are able to purchase the standards for a nominal fee.

Midwest ISO commented on the term Constraint and suggested the definition be revised to be more straightforward. He proposed new language as a friendly amendment. Mr. Davis did not accept the friendly amendment. Mr. Skiba moved to change the definition of Constraint to “a constrained facility or constrained flow gate.” Ms. Wesley seconded the motion. The motion unanimously passed a simple majority vote.

Next, Mr. Skiba moved to change the definition of Constrained Flow Gate to “a flow gate that is approaching, is at or beyond its TFC.” Mr. Hossain seconded the motion. Mr. Davis expressed concern that the new definition removed the concept of first contingency outages being used in this definition and either IROL or SOL. The NERC definition does not contain IROL and he was concerned with losing the true meaning of the term. Mr. Rodriguez stated that the NERC and NAESB definitions are used in two different contexts. The motion failed a simple majority roll call vote, with four in support, 22 in opposition and one abstention.

Next, Mr. Skiba reviewed the definition of Region. Two different sets of comments were received on this term. The IGOs suggested that the definition change to read, “one of the regional entities that works with NERC to improve the reliability of the Bulk Electric System.” The SRS suggested that Region be lowercased, the business practice standards in WEQ-007 be deleted and strike the definition of Region altogether. Mr. Castle stated that these changes to the definitions were beyond the scope of the original glossary group and should not be addressed. Mr. Skiba moved to change bulk power system to Bulk Electric System in the definition of Region. Mr. Hossain seconded the motion. Mr. Skiba noted that the term Bulk Electric System already exists in the NAESB glossary. The motion unanimously passed a simple majority vote.

Mr. Sorenson moved to change the acronym TFC from total flowgate capacity to total flowgate capability. Mr. Hansen seconded the motion. The motion passed a simple majority vote with no opposition.

Mr. Sorenson moved to revise the definition Bulk Electric System by removing the introductory statement added by Ms. Mizumori and adding “or as established by a recognized regional entity,” or “or as established by a Region.” Mr. Hackney seconded the motion. Ms. Mizumori did not want a change made, but stated that between the two options she preferred the former change over the latter. Mr. Saini expressed confusion as to why the EC was making a change that would make the definition inconsistent with both NERC and NAESB. Ms. Skiba questioned



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whether this was a change that NAESB should be making or if the definition should be created by NERC. The motion failed a simple majority roll call vote with 21 opposed and five in support. Mr. Gallagher moved to return to the original definition of Bulk Electric System as proposed by the subcommittee and to remove RRO from the acronym list. Mr. McGovern seconded the motion. Mr. Johnson stated that if the point of the glossary group was to make definitions consistent, why not do so. Mr. Skiba answered that RRO was an outdated term and removing the introductory statement kept the intent of the definition without using the outdated term. Mr. Saini stated that the definition in the recommendation was a current NAESB definition. The motion passed a simple majority roll call vote with 15 in support and 8 opposed.

The main motion passed a super majority vote.

4. Review and Vote on 2009 WEQ Annual Plan Items 3(a)(ii)(1)/R07013: Develop a Confidentiality Agreement

Mr. Harshbarger offered JESS's responses to the formal comments received on the recommendation, as well as a history of the recommendation. A few years ago, the then-Joint Interchange Scheduling Work Group (JISWG) was approached by an e-Tag vendor about restrictions in supplying data to other companies. NERC asked Balancing Authorities to sign a nondisclosure agreement for information they needed. A standards request was submitted to create a parallel agreement for purchasing/selling entities. The JISWG (now JESS) based their agreement off the NERC confidentiality agreement. It took a few years and several drafts to create the agreement that was currently before the EC. The JESS reviewed the formal comments that were submitted and developed its response for today's EC meeting. Mr. Davis asked why the EC was being asked to approve a nondisclosure agreement (NDA) between NAESB, a corporation and another corporation. Ms. McQuade answered that the NDA would be a template document that the industry can use. Mr. Rodriguez noted that others have expressed confusion to him over the purpose of the contract. Is it between NAESB and an industry member or is it a multi-party contract? Ms. McQuade suggested member company attorneys meet with NAESB's General Counsel Mr. Boswell to address the legal concerns that were expressed in the comments. Mr. McGovern expressed concern with the level of confidentiality required in the document. Ms. McQuade answered that the purpose of the NDA was to keep information confidential but if there was nothing confidential on the e-Tag system, the agreement would be unnecessary.

Mr. True asked if signing an NDA was a requirement for registering on TSIN. Mr. Rodriguez answered that it was not a requirement. He also asked if NAESB had the authority to enforce the exclusion of entities that do not sign the NDA. Ms. McQuade answered that NAESB would be administering the software for the Registry, which would require that a participant signs an NDA, if created.

Ms. Mizumori stated that she believed this should be a business practice standard rather than an agreement. She also expressed concern that this agreement would allow NAESB to control who can do business in trading electricity. Ms. Rehman added that not signing the agreement would do more than just remove a company from the Registry; it would also impact OASIS transactions. She also noted that several trading partners have their own NDA and she asked if it would be adequate for them to use their own rather than the NAESB NDA.

Mr. Goldberg noted four possible solutions; 1) revisit whether or not the NDA is necessary; 2) determine whether or not NERC has any provisions in place that obligates entities to keep information confidential; 3) determine whether or not this information should be in a contract or a business practice standard; and 4) would it be more beneficial to have participants check a box when they register, which could be addressed in the specs.

Mr. Hackney stated that he did not believe an NDA was necessary. He agreed that any confidentiality concerns could be addressed through the software registration. Mr. Berwager and Mr. Sorenson agreed.

Mr. Skiba moved, seconded by Mr. Pritchard, to not go forward with the NDA. The motion unanimously passed a simple majority vote.

Ms. York created an ad hoc task force (Mr. Hackney, Mr. Rodriguez, Mr. Sorenson, Mr. Harshbarger, Mr. Berwager, Mr. Gallagher, Mr. Yeung and Mr. Green) to discuss how to best address the issues discussed regarding the confidentiality of information on the EIR and present their decision at the May EC meeting.



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5. 2009 WEQ Annual Plan Items 5(a)(2)/R08004/R09011 Affecting WEQ-011 Gas/Electric Coordination

Ms. York asked that this discussion be tabled for a single topic conference call in order to allow the WEQ and the WGQ to discuss this item together. All concurred.

6. Subcommittee Updates

Triage Subcommittee: Ms. McQuade provided the update and reviewed the requests that were assigned to WEQ. She noted R09023 and R09024, which were submitted by Ms. Rehman of Bonneville Power and assigned to the WEQ OASIS subcommittee. Ms. Rehman requested that those two items receive high priority in the OASIS subcommittee. R09023 relates to conditional firm transactions, which Bonneville will be implementing soon. R09024 relates to the implementation of ATC standards, which will occur in 2011. Her experience has been that if she did not express urgency in these items, it would take several years for them to be addressed. Mr. Skiba noted that Ms. Rehman's two requests were duplicative of current annual plan items 7(a) and 7(b). Ms. Rehman agreed that they could be addressed in the two annual plan items cited. She withdrew her two requests and offered the documents from her requests as work papers for those annual plan items. Ms. Otondo, speaking as a co-chair of the OASIS subcommittee, stated that the subcommittee was continuing its work on FERC Order No. 890, which has been very time consuming. She asked Ms. Rehman for clarification on the prioritization of work. Ms. Rehman stated that she wanted this work done as soon as possible, but she did not want work on NITS to stop. Mr. Castle asked about a language change in R09016. Ms. McQuade answered that the submitter asked that some typos be corrected before the request was triaged.

Business Practice Subcommittee: Mr. Skiba provided a power point slide on the BPS update. They have met with the NERC TLR standards drafting team to review comments submitted on IRO-006. There was a request for rehearing from EPSA, RGT and Constellation regarding the TLR standards. That request was denied but a notice of inquiry was released on January 21 on the relationship between the IRO-006, the TLR standards and the pro forma OATS. He was not sure what type of impact this would have on the BPS work on parallel flow visualization. The BPS is also involved in the reporting of the reliability coordinators in the Eastern Interconnect on their gen-to-load impact to the IDC on a real time basis. The current discussion revolves around the information as input to the IDC. The BPS has also been involved in the Time Inadvertent Management Task Force, which is tied to the work that the Balancing Authority Control standards drafting team. The BPS is monitoring NERC's standards development process.

DSM-EE Subcommittee: Mr. Winkler provided the update. The wholesale demand response work group created three task forces to address the glossary, the performance evaluation methodologies and the business practice standards. The glossary task force presented a work paper at the last wholesale DR work group meeting, which compared the retail and wholesale DR terms and made modifications to the wholesale definitions. Two definitions sparked further discussion and the glossary task force will meet again to review those items prior to sending their work product to the full DSM-EE subcommittee.

The retail demand response work group is in the process of updating the retail DR standards. They are reviewing the formal comments that the Retail EC voted to send back to the work group for further review.

The wholesale and retail energy efficiency groups met for the first time since the scoping task force completed their work. There was discussion on the scope of the work product. Ms. Kirn has volunteered to lead the retail energy efficiency work group. They will meet offline to begin the discussion of their work product. The wholesale energy efficiency group will begin their standards development process by reviewing the standards created by ISO New England and PJM.

OASIS Subcommittee: Mr. Wood provided the update and reviewed the OASIS progress report. OASIS is currently working on NITS. In June, FERC expects a progress report on the standards to support service across multiple transmission systems (SAMTS). Mr. Wood anticipates that the work should take six months to complete and will begin at the conclusion of the NITS effort. Mr. Sorenson asked for the EC provide boundaries or scope for the development of standards for SAMTS, and after discussion, Ms. York agreed. Mr. True, Mr. Sorenson, Ms.



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Otondo, Mr. Wood, Mr. Skiba, Mr. Pritchard, Mr. Manning, Ms. Rehman, Mr. Hossain, Mr. Saini and Mr. Eckelkamp were all added to this EC task force by Ms. York. It is an ad hoc named group that form and submit recommendations on the scope of SAMTS to the WEQ EC.

Joint Electric Scheduling Subcommittee: Mr. Harshbarger provided the review. In January, the subcommittee finalized the e-Tag 1.8.1 related documents, one of which was a test plan. The test plan has four formal test dates, the first of which was today. Three of the five vendors participated and all were successful. The goal for the cutover is still March 16, 2010. A letter to the industry has been forwarded with a synopsis of the effort and the expected dates for cutover.. The JESS is also working on modifications of WEQ-004 to coordinate with NERC project 2008-12, which is a coordinate interchange standards drafting team effort.

Standards Review Subcommittee: Mr. Skiba provided the review and presented a power point presentation. The SRS continues to monitor NERC activities to identify the projects that should be tracked. The SRS is currently tracking Project 2007-02 and 2009-03. They also provided comments for the two recommendations discussed today, the Glossary and the Non-Disclosure Agreement.

Smart Grid Task Force: Ms. McQuade provided the review. The task force is currently working on four of the Priority Action Plans (PAPs), PAPs 3, 4, 9 and 10 out of the 17 PAPs posted on the NIST TWIKI site. NAESB is coordinating with OASIS, EPRI, FIX, CalConnect and several other groups. The work being done to date is specific to use cases, the actors lists and the framework for requirements that will comprise the first stage of the business practice standards that the EC will be asked to approve. The task force will be voting on the PAPs throughout February. She encouraged EC members to join the task force discussion in an effort to familiarize themselves with the work products they will be voting on in the future. She also underlined the need for transparency not only for the work products themselves but also for the decisions made. Transparency is the ability to access the information and the ways in which decisions are made, who made the decisions and how they were chosen to make the decisions. It does not necessarily translate into free access. The NAESB work products have a retail and a wholesale component to the work products. It is unclear how the other PAPs are developing their work products. The NAESB office is working with the FERC and NIST on the procedures to file the NAESB standards. The first phase of standards will be published as part of WEQ Version 2.2 and Retail Electric Version 1.3. Until publication, the standards will be available as final actions. NAESB and OASIS are now members of each other's standards organizations and NAESB is discussing similar arrangements with Financial Information eXchange.

7. Review, Discuss, Identify Changes and Vote to Approve Changes to the 2010 Annual Plan

The 2010 WEQ Annual Plan was reviewed and revised. Ms. Otondo asked to assign a completion date for the two annual plan items discussed during the Triage Subcommittee report (Annual Plan Items 7(a) and 7(b)). The completion date was changed from TBD to 2011. It was agreed that Annual Plan Item 7(c) would have an ongoing completion date. Other completion date changes were made throughout the annual plan. Mr. Castle moved, seconded by Mr. Davis, to adopt the annual plan as modified. The motion unanimously passed a simple majority vote.

8. Board of Directors, Board Committee and Regulatory Updates

The technology segment was created in the WEQ last month and an announcement will go out this month for membership. The new segment was created to include technical services and software. If a company is a member of the technology segment they cannot have a seat in another segment within the WEQ. Due to time constraints, Ms. McQuade asked participants if they objected to reading the reports and asking questions rather than hearing an oral update. There was no objection and there were no questions.

9. Adjourn

Mr. Hackney moved, seconded by Ms. Crockett, to adjourn the meeting at 4:13 PM Mountain.



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10. Attendance

October 27, 2009 – WEQ EC Attendance and Voting Record

ATTENDANCE	AP ITEM 5(B)	Motions are included within the meeting minutes. Y – indicates an affirmative vote, N indicates a vote in opposition, RB indicates that the voter requested and/or received a notational ballot to cast his or her vote during the notational balloting period, A – indicates an abstention, (NB) – indicates that the vote was made through a notational ballot, a blank cell indicates that the voter was not present when the vote was called.		
TRANSMISSION SEGMENT		SUBSEGMENT:		
In Person	Y	Patrick McGovern	Georgia Transmission Corporation	Muni/Coop
In Person	Y	Wendy D. Weathers	Salt River Project	Fed/State/Prov.
In Person	Y	Daryl McGee	Southern Company Services	IOU
In Person	Y	Edward Davis	Entergy Services, Inc.	IOU
In Person	Y	Mark Hackney	Arizona Public Service	at large
In Person	Y	Bob Harshbarger	Puget Sound Energy	at large
In Person	Y	Michelle Mizumori	WECC	At-Large
GENERATION SEGMENT				
Phone	Y	William J. Gallagher	Vermont Public Power Supply Authority	Muni/Coop
In Person	Y	Kathy York	Tennessee Valley Authority	Fed/State/Prov.
		Jalal Babik	Dominion Resource Services, Inc.	IOU
Phone	Y	John Ciza	Southern Company Services	IOU
Phone	Y	Alan Johnson	NRG Energy, Inc.	Merchant
Phone		Trent Carlson	RRI Energy Services, Inc.	at large
In Person	Y	Shah Hossain	Westar Energy, Inc.	at large
MARKETERS/BROKERS SEGMENT				
In person		Chris Norton	American Municipal Power	Muni/Coop
In Person	Y	Valerie Crockett alt. for B. Thornton	Tennessee Valley Authority	Fed/State/Prov.
		VACANCY		
In Person	Y	Richard Lehman	Salt River Project	at large
		John Apperson	PacifiCorp Energy	IOU
In Person	Y	Roy True	ACES Power	at large
In Person	Y	Barry Green	Electric Power Supply Association (EPSA)	at large
DISTRIBUTION/LOAD SERVING ENTITIES (LSE) SEGMENT		SUBSEGMENT:		
		Ray Phillips	Alabama Municipal Electric Authority	Muni/Coop
		VACANCY		
Phone	Y	Alan Pritchard	Duke Energy Corporation	IOU
		Rufus D. Gladney	Public Service Electric and Gas Company	IOU
Phone	Y	Robert Martinko	FirstEnergy Service Company	at large
		Syd Berwager	Bonneville Power Administration	Other



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October 27, 2009 – WEQ EC Attendance and Voting Record

ATTENDANCE	AP ITEM 5(B)	Motions are included within the meeting minutes. Y – indicates an affirmative vote, N indicates a vote in opposition, RB indicates that the voter requested and/or received a notational ballot to cast his or her vote during the notational balloting period, A – indicates an abstention, (NB) – indicates that the vote was made through a notational ballot, a blank cell indicates that the voter was not present when the vote was called.		

In Person	Y	Andy Rodriquez	NERC	At-Large

END USERS SEGMENT

		VACANCY		
		Aaron Breidenbaugh	EnerNOC, Inc.	At- Large
		Lou Ann Westerfield	Idaho Public Utilities Commission, rep. National Association of Regulatory Utility Commissioners	Regulator
		VACANCY		
		VACANCY		
		VACANCY		
In Person	Y	Paul Sorenson	Open Access Technology International, Inc.	At-Large

INDEPENDENT GRID OPERATORS/PLANNERS SEGMENT

Phone	Y	Thomas Bowe	PJM Interconnection
In Person	Y	Jim Castle	New York Independent System Operator, Inc.
Phone	Y	Matt Goldberg	ISO New England, Inc.
		VACANCY	
In Person	Y	Joel Mickey	Electric Reliability Council of Texas
In Person	Y	Ed Skiba	Midwest ISO
In Person	Y	Charles Yeung	Southwest Power Pool

TOTALS	Votes possible	Votes Cast	Percentage Affirmative Votes Cast	Reaching the 40% Segment Affirmative Vote Threshold?	Motion Passing
		Super Majority V1			
TOTAL	35	26affirmative 0 abstention 0 opposed	74%	Y	Passes Super Majority Vote

Other Participant Attendance

Participant	Organization	Attendance
Cory Cummings	NAESB	In Person
Jane Daly	Arizona Public Service	Phone
John Goodin	California ISO	Phone
Michelle Greening	PPL EnergyPlus, LLC	Phone



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Other Participant Attendance

Participant	Organization	Attendance
Marie Knox	Midwest ISO	In Person
Shay LaBray	PacifiCorp	Phone
Hasnah Mat-Amin	WECC	In Person
Rae McQuade	NAESB	In Person
Marcie Otondo	Arizona Public Service	In Person
Barbara Rehman	BPA	Phone
Veronica Thomason	NAESB	In Person
Jill Vaughn	Court Reporter	In Person
Cathy Wesley	PJM	Phone
Eric Winkler	ISO New England	Phone
JT Wood	Southern Company	In Person



North American Energy Standards Board

1301 Fannin, Suite 2350, Houston, Texas 77002
Phone: (713) 356-0060, Fax: (713) 356-0067, E-mail: naesb@naesb.org
Home Page: www.naesb.org

via posting

TO: NAESB Web Site for Posting

RE: Recommendation to the Wholesale Electric Quadrant Executive Committee Regarding the Status of the Non Disclosure Agreement

DATE: March 12, 2010

**Recommendation to the Wholesale Electric Quadrant Executive Committee
Regarding the Status of the Non Disclosure Agreement
March 12, 2010**

Background

For background, when NAESB originally defined the request to develop a nondisclosure agreement ("NDA"), it was to address a broad number of issues and to mirror similar agreements in place at the North American Electric Reliability Corporation. When the final product was prepared, the scope had been narrowed so that it only addressed the data going into the Registry (for which there is now an open RFP -- the Registry from NERC to NAESB). The recommended NDA came to the WEQ EC for vote at the last EC meeting, and it was determined not to go forward with the approval of the document. There were a number of comments provided during the formal comment period that an NDA was no longer needed -- the Registry data is not in form that would require the level of confidentiality indicated by the NDA. It was noted that the work to prepare the NDA was a productive effort, as the language in the NDA would be used if it is was determined later that the need for an NDA is warranted. To conclude the effort, the WEQ EC asked that a small group meet with NAESB General Counsel Bill Boswell to discuss the direction the WEQ EC should take.

The group (Bill Boswell, Bill Gallagher Barry Green, Mark Hackney, Rae McQuade, Paul Sorenson, Charles Yeung, Kathy York) met on March 12 and prepared the following recommendation.

Recommendation

Since the Electric Industry Registry Administrator will have a acceptable use policy for the users of the Registry data and will also have an arrangement with data submitters that the data submitted is accurate, and since there has not been a strong indication by industry participants that the data collected and accessed is of a sensitive nature, and since the NAESB WEQ-004 Coordinate Interchange standards address the sharing of information, then at this time, the NDA will not be acted upon, but held for future needs. Should a need for an agreement to protect data sensitivity be identified and supported, the NDA will be used as the basis for such development.

Supporting Documents

Recommendation: http://www.naesb.org/pdf4/weq_2009_api_3aii1_r07013_rec.doc

- Formal Comment Period ended January 15, 2010:
 - A. Rodriquez, NERC: http://www.naesb.org/pdf4/weq_121609_nerc.pdf
 - E. Davis, Entergy: http://www.naesb.org/pdf4/weq_121609_entergy.doc
 - M. Mizumori, WECC: http://www.naesb.org/pdf4/weq_121609_wecc.doc
 - R. Martinko, FirstEnergy Service Company: http://www.naesb.org/pdf4/weq_121609_firstenergy.doc
 - E. Skiba, Midwest ISO: http://www.naesb.org/pdf4/weq_121609_midwestiso.doc
 - B. Huey, BC Transmission Corporation: http://www.naesb.org/pdf4/weq_121609_bctc.doc
 - B. Rehman, Bonneville Power Administration: http://www.naesb.org/pdf4/weq_121609_bpa.doc



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- NAESB WEQ SRS: http://www.naesb.org/pdf4/weq_121609_weq-srs.doc
- ISO/RTO Council: http://www.naesb.org/pdf4/weq_121609_iso-rto.pdf



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via posting

TO: NAESB Web Site for Posting
RE: Notes from the Wholesale Electric Quadrant (WEQ) Executive Committee (EC)
Task Force for Confidentiality Agreement Conference Call
DATE: March 15, 2010

NORTH AMERICAN ENERGY STANDARDS BOARD MEETING NOTES

Conference Call

March 12, 2010 – 2:30 PM to 5:00 PM Central

1. Welcome

Ms. McQuade welcomed participants to the meeting and introductions were made over the telephone. Mr. Culliton provided antitrust guidance. The proposed agenda was adopted without opposition following a motion by Mr. Gallagher and a second from Mr. Hackney.

2. Discussion of status of non-disclosure agreement

Ms. McQuade summarized that the WEQ EC had recently considered the WEQ JESS subcommittee's recommendation of a standard non-disclosure agreement (NDA). The WEQ EC has determined not to take action, but rather to ask that a group consider the status of the recommendation given that the recommendation's applicability had changed from a very broad application to the current thinking of a narrow application only to the eTag data and the Registry. She further noted that there is an open RFP for the Electric Industry Registry (EIR) Administrator.

In the need for an NDA, several participants spoke up that an NDA is probably not needed at this time. Mr. Hackney stated that there has been an unspoken rule that e-Tag data be kept confidential from non-parties to the specific transactions. The affected purchasing and selling entities have not been outspoken about the need for an NDA for the data.

An acceptable-use waiver as an alternative to the NDA was considered. NAESB regularly uses waivers in relation to the copyrighted materials. On enforcement of an acceptable-use waiver, it would be assumed that NAESB would follow the same mechanism that is used for protecting its copyrights. On the concern of limited transparency by enacting such a waiver, the FERC has consistently supported NAESB's ability to create reasonable limitations to access.

There is a threshold question of whether industry participants consider confidentiality necessary for the data composing eTag transactions. Since the EIR Administrator will have an acceptable use policy for the users of the Registry data and will also have an arrangement with data submitters that the data submitted is accurate, there may be no need at this time for either an NDA or an acceptable use waiver. Moreover, for the transactional data, NAESB's existing Coordinate Interchange standards¹ may provide adequate protection.

Ms. McQuade offered that NAESB could draft a paper for the Task Force to review communicating the following to the WEQ EC: after discussion, the Task Force advises that: 1) the EIR administrator create an e-Tag registry acceptable-use policy; 2) NAESB's existing Coordinate Interchange standards adequately protect e-Tag transactional information; 3) the NDA could be used as a basis for additional work should the requirements for such

¹ WEQ 004-15 states that "[a]ll Reliability Coordinators, Balancing Authorities, Transmission Service Providers, Generator-Providing Entity, Load-Serving Entity, and other entities involved in an Interchange request shall not disclose the Interchange Transaction information to any PSE not involved in the Interchange transaction."



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be identified. The group collectively approved this suggestion and thanked the WEQ JESS for all their work on this product.

The meeting was adjourned by consensus at 3:05pm CST.

3. Attendance

First Name	Last Name	Organization
Bill	Boswell	NAESB
James	Culliton	NAESB
Bill	Gallagher	Vermont Public Power
Barry	Green	EPSA
Mark	Hackney	Arizona Public Service
Rae	McQuade	NAESB
Paul	Sorenson	OATI
Charles	Yeung	Southwest Power Pool
Kathy	York	Tennessee Valley Authority



**RECOMMENDATION AS APPROVED BY THE WEQ EXECUTIVE COMMITTEE ON
FEBRUARY 2, 2010**

For Quadrant: WEQ

Requesters: Co-Chairs BPS, OS and SRS
Request No.: WEQ 2009 AP Item 5.b
Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

1. RECOMMENDED ACTION:

☒ Accept as requested
☐ Accept as modified below
☐ Decline

**EFFECT OF EC VOTE TO ACCEPT
RECOMMENDED ACTION:**

☒ Change to Existing Practice
☐ Status Quo

2. TYPE OF DEVELOPMENT/MAINTENANCE

Per Request:

☒ Initiation
☒ Modification
☐ Interpretation
☐ Withdrawal

☐ Principle
☐ Definition
☐ Business Practice Standard
☐ Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

Per Recommendation:

☐ Initiation
☒ Modification
☐ Interpretation
☐ Withdrawal

☐ Principle
☐ Definition
☐ Business Practice Standard
☐ Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

3. RECOMMENDATION

SUMMARY:

Provide consistent definitions for terms included in the Business Practice Standards.

RECOMMENDED STANDARDS:

In addition to the changes proposed below, approval by the EC of this recommendation will also include incorporation of any changes and deletions to abbreviations, acronyms and definitions approved by the EC during the period October 27, 2009 through the approval date of this recommendation. Any new abbreviations, acronyms and definitions approved by the EC after October 27, 2009 will be included in the Business Practice Standards WEQ-000 and will not be defined in the individual Business Practice Standards.



**RECOMMENDATION AS APPROVED BY THE WEQ EXECUTIVE COMMITTEE ON
FEBRUARY 2, 2010**

For Quadrant: WEQ

Requesters: Co-Chairs BPS, OS and SRS
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Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

New Business Practice Standards WEQ-000

Abbreviations, Acronyms, and Definition of Terms

Introduction

"Abbreviations, Acronyms, and Definition of Terms" provides a common location for all abbreviations, acronyms, and definitions of terms that are referenced in the Business Practice Standards. Since these abbreviations, acronyms, and definitions are not requirements, they are not enumerated in this Business Practice Standards WEQ-000, similar to Business Practice Standards WEQ-003.

Applicability

Refer to specific Business Practice Standards for applicability.

000-1 ABBREVIATIONS AND ACRONYMS

The abbreviations and acronymns listed in the following table are used in the Business Practice Standards and shall have the meaning specified in the table.

<u>Abbreviation / Acronym</u>	<u>Meaning</u>
<u>ACE</u>	<u>Area Control Error</u>
<u>AFC</u>	<u>Available Flowgate Capability</u>
<u>AGC</u>	<u>Automatic Generation Control</u>
<u>ASCII</u>	<u>American Standard Code for Information Interchange</u>
<u>ASN.1</u>	<u>Abstract Syntax Notation One</u>
<u>ATC</u>	<u>Available Transfer Capability</u>
<u>ATCID</u>	<u>Available Transfer Capability Implementation Document</u>
<u>BA</u>	<u>Balancing Authority</u>
<u>BAA</u>	<u>Balancing Authority Area</u>
<u>CBM</u>	<u>Capacity Benefit Margin</u>
<u>CBMID</u>	<u>Capacity Benefit Margin Implementation Document</u>
<u>CCO</u>	<u>Conditional Curtailment Option</u>
<u>CEII</u>	<u>Critical Energy Infrastructure Information</u>
<u>CF</u>	<u>Coordinated Flowgate</u>
<u>CFR</u>	<u>Code of Federal Regulations</u>
<u>CGI</u>	<u>Common Gateway Interface</u>
<u>CP</u>	<u>Certificate Policy</u>
<u>CRL</u>	<u>Certificate Revocation List</u>



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<u>Abbreviation / Acronym</u>	<u>Meaning</u>
<u>CRLF</u>	<u>Carriage Return/Line Feed</u>
<u>CSV</u>	<u>Comma Separated Value</u>
<u>DC</u>	<u>Direct Current</u>
<u>DNR</u>	<u>Designated Network Resource</u>
<u>DN</u>	<u>Distinguished Name</u>
<u>DNS</u>	<u>Domain Name Service</u>
<u>DoS</u>	<u>Denial of Service</u>
<u>Dth</u>	<u>Dekatherm</u>
<u>DUNS</u>	<u>Data Universal Numbering System</u>
<u>E-commerce</u>	<u>Electronic commerce</u>
<u>eFiling</u>	<u>Electronic Filing</u>
<u>eLibrary</u>	<u>Electronic Library</u>
<u>E-mail</u>	<u>Electronic mail</u>
<u>eRegistered</u>	<u>Electronic Registered</u>
<u>e-Tag</u>	<u>Electronic Tag</u>
<u>eTariff</u>	<u>Electronic Tariff</u>
<u>EIDE</u>	<u>Electric Industry Data Exchange</u>
<u>EIR</u>	<u>Electric Industry Registry</u>
<u>ERCOT</u>	<u>Electric Reliability Council of Texas</u>
<u>ETC</u>	<u>Existing Transmission Commitments</u>
<u>FDDI</u>	<u>Fiber Distributed Data Interface</u>
<u>FERC</u>	<u>Federal Energy Regulatory Commission</u>
<u>FIPS</u>	<u>Federal Information Processing Standards</u>
<u>FOTC</u>	<u>Financially Obligated Transmission Customer</u>
<u>FTAA</u>	<u>Funds Transfer Agent Agreement</u>
<u>FTP</u>	<u>File Transfer Protocol</u>
<u>GCA</u>	<u>Generating Control Area</u>
<u>GLDF</u>	<u>Generator-to-Load Distribution Factor</u>
<u>GOP</u>	<u>Generator Operator</u>
<u>GPE</u>	<u>Generator-Providing Entity</u>
<u>GPS</u>	<u>Global Positioning System</u>
<u>GSE</u>	<u>Generator Shift Factor</u>
<u>HTML</u>	<u>Hypertext Markup Language</u>
<u>HTTP</u>	<u>Hypertext Transport Protocol</u>
<u>Hz</u>	<u>Hertz</u>
<u>IA</u>	<u>Interchange Authority</u>
<u>IDC</u>	<u>Interchange Distribution Calculator</u>
<u>InterNIC</u>	<u>Internet Network Information Center</u>
<u>IP</u>	<u>Internet Protocol</u>
<u>IPCP</u>	<u>Internet Protocol Control Protocol</u>



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For Quadrant: WEQ

Requesters: Co-Chairs BPS, OS and SRS
Request No.: WEQ 2009 AP Item 5.b
Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

<u>Abbreviation / Acronym</u>	<u>Meaning</u>
<u>IROL</u>	<u>Interconnection Reliability Operating Limit</u>
<u>ISO</u>	<u>Independent System Operator</u>
<u>JOU</u>	<u>Jointly Owned Units</u>
<u>kV</u>	<u>Kilovolt</u>
<u>LDAP</u>	<u>Lightweight Directory Access Protocol</u>
<u>LMP</u>	<u>Locational Marginal Pricing</u>
<u>LSE</u>	<u>Load-Serving Entity</u>
<u>LSF</u>	<u>Load Shift Factor</u>
<u>MIME</u>	<u>Multipurpose Internet Mail Extensions</u>
<u>MRO</u>	<u>Midwest Reliability Organization</u>
<u>MVar</u>	<u>Megavolt Ampere Reactive</u>
<u>MW</u>	<u>Megawatt</u>
<u>MWh</u>	<u>Megawatt Hour</u>
<u>NAESB</u>	<u>North American Energy Standards Board</u>
<u>NERC</u>	<u>North American Electric Reliability Corporation</u>
<u>NHM</u>	<u>Next Hour Market</u>
<u>NIST</u>	<u>National Institute of Standards and Technology</u>
<u>NITS</u>	<u>Network Integration Transmission Service</u>
<u>NL</u>	<u>Native Load</u>
<u>NNL</u>	<u>Network and Native Load Calculations</u>
<u>NTP</u>	<u>Network Time Protocol</u>
<u>OASIS</u>	<u>Open Access Same-Time Information System</u>
<u>OATT</u>	<u>Open Access Transmission Tariff</u>
<u>PDF</u>	<u>Portable Document Format</u>
<u>PKI</u>	<u>Public Key Infrastructure</u>
<u>POD</u>	<u>Point of Delivery</u>
<u>POP</u>	<u>Post Office Protocol</u>
<u>POR</u>	<u>Point of Receipt</u>
<u>PPO</u>	<u>Power Plant Operator</u>
<u>PPP</u>	<u>Point-to-Point Protocol</u>
<u>PSE</u>	<u>Purchasing-Selling Entity</u>
<u>PTP</u>	<u>Point-to-Point Transmission Service</u>
<u>RA</u>	<u>Registration Authority</u>
<u>RC</u>	<u>Reliability Coordinator</u>
<u>RCIS</u>	<u>Reliability Coordinator Information System</u>
<u>RFC</u>	<u>Request for Comments</u>
<u>RFI</u>	<u>Request for Interchange</u>
<u>RTO</u>	<u>Regional Transmission Organization</u>
<u>S&CP</u>	<u>Standards and Communication Protocols</u>
<u>SLIP</u>	<u>Serial Line Internet Protocol</u>



**RECOMMENDATION AS APPROVED BY THE WEQ EXECUTIVE COMMITTEE ON
FEBRUARY 2, 2010**

For Quadrant: WEQ

Requesters: Co-Chairs BPS, OS and SRS
Request No.: WEQ 2009 AP Item 5.b
Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

<u>Abbreviation / Acronym</u>	<u>Meaning</u>
<u>SMTP</u>	<u>Simple Messaging Transfer Protocol</u>
<u>SNMP</u>	<u>Simple Network Management Protocol</u>
<u>SOC</u>	<u>Secretary of the Commission (FERC)</u>
<u>SOL</u>	<u>System Operating Limit</u>
<u>SPP</u>	<u>Southwest Power Pool</u>
<u>SSL</u>	<u>Secure Sockets Layer</u>
<u>TCP/IP</u>	<u>Transmission Control Protocol/Internet Protocol</u>
<u>TDF</u>	<u>Transfer Distribution Factor</u>
<u>TFC</u>	<u>Total Flowgate Capability</u>
<u>TLR</u>	<u>Transmission Loading Relief</u>
<u>TO</u>	<u>Transmission Owner</u>
<u>TPSE</u>	<u>Transmission Purchase Selling Entity</u>
<u>TRM</u>	<u>Transmission Reliability Margin</u>
<u>TRMID</u>	<u>Transmission Reliability Margin Implementation Document</u>
<u>TSIP</u>	<u>Transmission Services Information Provider</u>
<u>TSIN</u>	<u>Transmission System Information Network</u>
<u>TTC</u>	<u>Total Transfer Capability</u>
<u>URL</u>	<u>Uniform Resource Locator</u>
<u>USF</u>	<u>Unschedule Flow Reduction Procedure</u>
<u>WECC</u>	<u>Western Electric Coordinating Council</u>
<u>WECCNet</u>	<u>Western Electric Coordinating Council Network</u>
<u>WEQ</u>	<u>Wholesale Electric Quadrant</u>
<u>WGO</u>	<u>Wholesale Gas Quadrant</u>
<u>WWW</u>	<u>World Wide Web</u>
<u>WWVB</u>	<u>See definition for WWVB</u>
<u>XML</u>	<u>Extensible Markup Language</u>
<u>XSD</u>	<u>XML Schema Definition Language</u>



**RECOMMENDATION AS APPROVED BY THE WEQ EXECUTIVE COMMITTEE ON
FEBRUARY 2, 2010**

For Quadrant: WEQ

Requesters: Co-Chairs BPS, OS and SRS

Request No.: WEQ 2009 AP Item 5.b

Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

000-1.1 Abbreviations and Acronyms Do Not Use

The following abbreviations and acronyms should not be used in the Business Practice Standards. Though the abbreviations and acronyms are commonly accepted, they may have multiple meanings when used in these standards.

<u>Abbreviation / Acronym</u>	<u>Meanings</u>
<u>CA</u>	<u>Control Area</u> <u>Certificate Authority</u>
<u>TSP</u>	<u>Transmission Service Provider</u> <u>Transportation Service Provider</u>
<u>CPS</u>	<u>Certificate Practice Statement</u> <u>Control Performance Standard</u>

000-2 DEFINITION OF TERMS

The terms listed in the following table are used in the Business Practice Standards and shall have the definitions specified in the table.

<u>TERM</u>	<u>DEFINITION</u>
<u>Actual Daily Native Peak Load</u>	<u>Shall have the meanings as defined in Business Practice Standards WEQ-001-17.</u>
<u>Actual Daily System-Wide Peak Load</u>	<u>Shall have the meanings as defined in Business Practice Standards WEQ-001-17.</u>
<u>Actual Daily Zonal Load</u>	<u>Shall have the meanings as defined in Business Practice Standards WEQ-001-17.</u>
<u>Affiliate</u>	<u>(1) For any exempt wholesale generator, as defined under section 32(a) of the Public Utility Holding Company Act of 1935, as amended, the same as provided in section 214 of the Federal Power Act; and (2) For any other entity, the term Affiliate has the same meaning as given in Title 18 CFR 161.2(a).</u>
<u>Applicant</u>	<u>An authorized individual of a registered End Entity that may submit applications for issuance of Certificates to an Authorized Certification Authority for the End Entity.</u>
<u>Approval Entity</u>	<u>An entity that has approval rights for Arranged Interchange.</u>



**RECOMMENDATION AS APPROVED BY THE WEQ EXECUTIVE COMMITTEE ON
FEBRUARY 2, 2010**

For Quadrant: WEQ

Requesters: Co-Chairs BPS, OS and SRS

Request No.: WEQ 2009 AP Item 5.b

Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

<u>TERM</u>	<u>DEFINITION</u>
<u>Area Control Error (ACE)</u>	<u>The instantaneous difference between a BA's Net Actual Interchange and Net Interchange Schedule, taking into account the effects of Frequency Bias and correction for meter error.</u>
<u>Arranged Interchange</u>	<u>The state where the IA has received the Interchange information (initial or revised).</u>
<u>Assignee</u>	<u>An Eligible Transmission Customer that receives PTP rights from a Reseller either through a Resale or a Transfer.</u>
<u>Assignment Reference Number</u>	<u>The unique accounting number that marks each request for purchase of transmission or ancillary services.</u>
<u>Authorized Certification Authority</u>	<u>A certification authority that complies with the Business Practice Standards WEQ-012, has met all terms and conditions and executed all requirements as set forth by the NAESB certification program for the Business Practice Standards WEQ -012, and is registered in the EIR.</u>
<u>Automatic Generation Control (AGC)</u>	<u>Equipment that automatically adjusts generation in a BAA from a central location to maintain the BA's Interchange Schedule plus Frequency Bias. AGC may also accommodate automatic Inadvertent Interchange payback and Time Error Correction.</u>
<u>Balancing Authority (BA)</u>	<u>The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a BAA, and supports Interconnection frequency in real time.</u> <u>(Note: This definition also applies to NAESB WGQ Standard Number 0.3.15)</u>
<u>Balancing Authority Area (BAA)</u>	<u>The collection of generation, transmission, and loads within the metered boundaries of the BA. The BA maintains load-resource balance within this area.</u>



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<u>TERM</u>	<u>DEFINITION</u>
<u>Biennial Reassessment</u>	<u>A study performed by the Transmission Provider to reassess the provision of service under a CCO Reservation and service agreement once every two years to determine if (i) the Curtailment condition(s) in the service agreement needs to be modified for purposes of maintaining reliability, or (ii) the CCO Reservation can no longer be reliably provided.</u>
<u>Book of Flowgates</u>	<u>The master list of Flowgates used by the IDC.</u>
<u>Bulk Electric System</u>	<u>The electrical generation resources, transmission lines, interconnections with neighboring systems, and associated equipment, generally operated at voltages of 100 kV or higher. Radial transmission facilities serving only load with one transmission source are generally not included in this definition.</u>
<u>Business Practice</u>	<u>Refers collectively to any practices adopted by the Transmission Provider as defined in their OATT, or Transmission Provider specific practices or requirements.</u>
<u>Business Practice Standards</u>	<u>Refers to the collection of ratified NAESB WEQ practices or requirements.</u>
<u>Capacity Available to Redirect</u>	<u>The granted capacity of the Parent Reservation at the time of Transmission Customer confirmation (CAPACITY GRANTED) less all confirmed reassignments (e.g., Resales), confirmed Redirects on a firm basis, confirmed Redirects on a non-firm basis, displacements, and approved schedules.</u>
<u>Certificate</u>	<u>A digital document that typically includes the public key, information about the identity of the party holding the corresponding private key, the operational periods of the Certificate, and the Issuing Certification Authority's own digital signature.</u>
<u>Certificate Policy (CP)</u>	<u>A named set of rules that indicates the applicability of a Certificate to a particular community and/or class of application with common security requirements. For example, a particular CP might indicate applicability of a type of Certificate to the authentication of electronic data Interchange Transactions for the trading of goods within a given price range.</u>



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FEBRUARY 2, 2010**

For Quadrant: WEQ

Requesters: Co-Chairs BPS, OS and SRS

Request No.: WEQ 2009 AP Item 5.b

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<u>TERM</u>	<u>DEFINITION</u>
<u>Certificate Revocation List (CRL)</u>	<u>A list of Certificate serial numbers which have been revoked, are no longer valid, and should not be relied upon by any system user.</u>
<u>Certification Path</u>	<u>An ordered sequence of Certificates which, together with the public key of the initial object in the path, can be processed to obtain that of the final object in the path.</u>
<u>Certification Practice Statement</u>	<u>A statement of the practices which a certification authority employs in issuing Certificates.</u>
<u>Checkout Partners</u>	<u>Entities that perform a checkout process. Most commonly two adjacent BAs checking net Interchange. It might also be two marketers checking sales and purchases, or a Transmission Customer checking schedules with a Transmission Service Provider.</u>
<u>Commission</u>	<u>The FERC, or other entity which has regulating authority over a given Transmission Provider.</u>
<u>Conditional Curtailment Option (CCO)</u>	<u>An option subject to either a Number-of-Hours Criteria or a System-Conditions Criteria that may be specified in a service agreement for long-term firm PTP when a Transmission Provider determines that it cannot accommodate a request because of insufficient transfer capability.</u>
<u>Conditional Curtailment Option (CCO) Reservation</u>	<u>A Transmission Service reservation defined by a long-term firm PTP agreement wherein the Transmission Customer has chosen the CCO.</u>
<u>Conditional Curtailment Priority Level</u>	<u>A Curtailment priority level associated with a CCO Reservation equal to the priority level of Secondary Network Transmission Service.</u>
<u>Confirmed Interchange</u>	<u>The state where the IA has verified the Arranged Interchange.</u>
<u>Constrained Facility</u>	<u>A transmission facility (line, transformer, breaker, etc.) that is approaching, is at, or is beyond its SOL or IROL.</u>
<u>Constrained Flowgate</u>	<u>A Flowgate that is approaching, is at, or is beyond SOL or IROL.</u>
<u>Constraint</u>	<u>A Constrained Facility or Constrained Flowgate.</u>



**RECOMMENDATION AS APPROVED BY THE WEQ EXECUTIVE COMMITTEE ON
FEBRUARY 2, 2010**

For Quadrant: WEQ

Requesters: Co-Chairs BPS, OS and SRS

Request No.: WEQ 2009 AP Item 5.b

Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

<u>TERM</u>	<u>DEFINITION</u>
<u>Contract Path</u>	<u>A predetermined Transmission Service electrical path between contiguous Transmission Providers established for scheduling and commercial settlement purposes that represents the continuous flow of electrical energy between the parties to a transaction.</u>
<u>Control Area</u>	<u>An electric power system or combination of electric power systems to which a common AGC scheme is applied in order to:</u> <u>1. match, at all times, the power output of the generators within the electric power system(s) and capacity and energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);</u> <u>2. maintain scheduled interchange with other Control Areas, within the limits of good utility practice;</u> <u>3. maintain the frequency of the electric power system(s) within reasonable limits in accordance with good utility practice; and</u> <u>4. provide sufficient generating capacity to maintain operating reserves in accordance with good utility practice.</u>
<u>Control Performance Standard</u>	<u>The reliability standard that sets the limits of a BA's ACE over a specified time period.</u>
<u>Curtailment</u>	<u>A reduction in the scheduled capacity or energy delivery of an Interchange Transaction.</u>
<u>Curtailment Threshold</u>	<u>The minimum TDF which, if exceeded, will subject an Interchange Transaction to Curtailment to relieve a transmission facility Constraint.</u>
<u>Data Element</u>	<u>Refers generically, by either full name or alias, to a Data Element defined in Business Practice Standards WEQ-003 or WEQ-014. No distinction between the use of full name or alias is intended.</u>
<u>Denial of Service (DoS)</u>	<u>The intentional or unintentional degradation of OASIS performance that impacts all customer interactions with OASIS by consuming cyber resources.</u>



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For Quadrant: WEQ

Requesters: Co-Chairs BPS, OS and SRS

Request No.: WEQ 2009 AP Item 5.b

Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

<u>TERM</u>	<u>DEFINITION</u>
<u>Distribution Factors</u>	<u>The portion of an Interchange Transaction, typically expressed in per unit that flows across a transmission facility (Flowgate).</u>
<u>Dynamic Schedule</u>	<u>A telemetered reading or value that is updated in real time and used as a schedule in the AGC/ACE equation and the integrated value of which is treated as a schedule for Interchange accounting purposes. Commonly used for scheduling jointly owned generation to or from another BAA.</u>
<u>Eastern Interconnection</u>	<u>One of the major electric system networks in North America.</u>
<u>Electric Reliability Council of Texas (ERCOT) Interconnection</u>	<u>One of the major electric system networks in North America.</u>
<u>Eligible Transmission Customer</u>	<u>Shall have the same meaning as the term Eligible Customer defined in the FERC Pro Forma OATT.</u>
<u>End Entity</u>	<u>A registered business entity or other recognized organization to which Certificates are issued by one or more Authorized Certification Authorities.</u>
<u>Electronic Tag (e-Tag)</u>	<u>Information describing a physical Interchange Transaction and its participants.</u>
<u>Electronic Tariff (eTariff) Submission Data Dictionary</u>	<u>eTariff Submission Data Dictionary as defined in Business Practice Standards WEQ-014 Appendix A.</u>
<u>Electronic Tariff (eTariff) Submission Implementation Guide</u>	<u>eTariff Submission Implementation Guide as defined in Business Practice Standards WEQ-014 Appendix A.</u>
<u>Facility Rating</u>	<u>The maximum or minimum voltage, current, frequency, or real or reactive power flow through a facility that does not violate the applicable equipment rating of any equipment comprising the facility.</u>
<u>Financially Obligated Transmission Customer (FOTC)</u>	<u>The Transmission Customer financially obligated to the Transmission Provider for Transmission Service (i.e., service procured either through direct purchase from the Transmission Provider, Reseller, or through a Transfer of transmission rights).</u>



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For Quadrant: WEQ

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Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

TERM	DEFINITION
<u>Firm Transmission Service</u>	<u>The highest quality service offered to Transmission Customers under a filed rate schedule that anticipates no planned interruption. Firm Transmission Service includes firm PTP and firm NITS.</u>
<u>Flowgate</u>	<u>1.) A portion of the transmission system through which the IDC calculates the power flow from Interchange Transactions.</u> <u>2.) A mathematical construct, comprised of one or more monitored transmission facilities and optionally one or more contingency facilities, used to analyze the impact of power flows upon the Bulk Electric System.</u>
<u>Forecasted Daily Native Peak Load</u>	<u>Shall have the meanings as defined in Business Practice Standards WEQ-001-17.</u>
<u>Forecasted Daily System-Wide Peak Load</u>	<u>Shall have the meanings as defined in Business Practice Standards WEQ-001-17.</u>
<u>Forecasted Daily Zonal Load</u>	<u>Shall have the meanings as defined in Business Practice Standards WEQ-001-17.</u>
<u>Frequency Bias</u>	<u>A value, usually expressed in MWs per 0.1 Hz (MW/0.1 Hz), associated with a BAA that approximates the BAA's response to Interconnection frequency error.</u>
<u>Frequency Bias Setting</u>	<u>A value, usually expressed in MW/0.1 Hz, set into a BA ACE algorithm that allows the BA to contribute its frequency response to the Interconnection.</u>
<u>Generator Shift Factor (GSF)</u>	<u>A factor to be applied to a generator's expected change in output to determine the amount of flow contribution that change in output will impose on an identified transmission facility or Flowgate.</u>
<u>Generator-Providing Entity (GPE)</u>	<u>The PSE who is responsible for providing the source generation from owned, affiliated, or contractually bound generation.</u>
<u>Generator-to-Load Distribution Factor (GLDF)</u>	<u>The algebraic sum of a GSF and a LSF to determine the total impact of an Interchange Transaction on an identified transmission facility or Flowgate.</u>
<u>GET</u>	<u>An HTTP method to request a representation of the specified information.</u>



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For Quadrant: WEQ

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<u>TERM</u>	<u>DEFINITION</u>
<u>Hypertext Markup Language (HTML) Form</u>	<u>A section of a document containing normal content, markup, special elements called controls (checkboxes, radio buttons, menus, etc.), and labels on those controls. Users generally "complete" a form by modifying its controls (entering text, selecting menu items, etc.), before submitting the form.</u>
<u>Identical Service Requests</u>	<u>Those OASIS Transmission Service requests that have exactly the same values for the following OASIS Template Data Elements:</u> • <u>CUSTOMER CODE</u> • <u>CUSTOMER DUNS</u> • <u>SERVICE INCREMENT</u> • <u>TS CLASS</u> • <u>START TIME</u> • <u>STOP TIME</u> • <u>POR*</u> • <u>POD*</u> • <u>PATH*</u> <u>*Service requests where any combination of PATH, POR and/or POD represent exactly the same commercial transmission elements shall be considered as "having the exact same value."</u>
<u>Implemented Interchange</u>	<u>The state where the BA enters the Confirmed Interchange into its ACE equation.</u>
<u>Inadvertent Interchange</u>	<u>The difference between the BA's Net Actual Interchange and Net Scheduled Interchange.</u>
<u>Interchange</u>	<u>Energy transfers that cross BA boundaries.</u>
<u>Interchange Authority (IA)</u>	<u>The responsible entity that authorizes implementation of valid and balanced Interchange Schedules between BAAs, and ensures communication of Interchange information for reliability assessment purposes.</u>



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Request No.: WEQ 2009 AP Item 5.b

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<u>TERM</u>	<u>DEFINITION</u>
<u>Interchange Authority (IA) Service Entity</u>	<u>The entity that provides the IA service for an e-Tag. The IA service itself is typically a computer system that maintains the master database for the e-Tag and communicates status with other computer systems. The IA Service Entity is the utility industry entity that is responsible for providing the service. In e-Tag 1.8.0, this entity is the Sink BA.</u>
<u>Interchange Block Accounting</u>	<u>Energy accounting that assumes a beginning and ending ramp time of zero minutes. For accounting purposes, this moves the energy associated with the starting and ending ramps into the adjacent starting and ending clock time of the Interchange.</u>
<u>Interchange Distribution Calculator (IDC)</u>	<u>The mechanism used by RCs in the Eastern Interconnection to calculate the distribution of Interchange Transactions over specific Flowgates. It includes a database of all Interchange Transactions and a matrix of the Distribution Factors for the Eastern Interconnection.</u>
<u>Interchange Schedule</u>	<u>An agreed-upon Interchange Transaction size (MWs), start and end time, beginning and ending ramp times and rate, and type required for delivery and receipt of power and energy between the Source and Sink BAs involved in the transaction.</u>
<u>Interchange Transaction</u>	<u>An agreement to transfer energy from a Seller to a buyer that crosses one or more BAAs boundaries.</u>
<u>Interconnected Operations Service</u>	<u>A service (exclusive of basic energy and Transmission Services) that is required to support the reliable operation of the interconnected Bulk Electric Systems.</u>
<u>Interconnection</u>	<u>Any one of the four major electric system networks in North America: Eastern Interconnection, Western Interconnection, ERCOT Interconnection, and Quebec Interconnection.</u>
<u>Interconnection Reliability Operating Limit (IROL)</u>	<u>A SOL that, if violated, could lead to instability, uncontrolled separation, or cascading outages that adversely impact the reliability of the Bulk Electric System.</u>



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<u>TERM</u>	<u>DEFINITION</u>
<u>Interconnection Time Monitor</u>	<u>An entity that monitors Time Error and initiates and terminates Time Error Corrections.</u>
<u>Internet</u>	<u>A global network of interconnected computers, enabling users to share information along multiple channels.</u>
<u>Issuing Certification Authority</u>	<u>In the context of a particular Certificate, the Issuing Certification Authority is the certificate authority that has digitally signed and issued the Certificate to a Subscriber.</u>
<u>Jointly Owned Unit (JOU)</u>	<u>A unit in which two or more entities share ownership.</u>
<u>L₁₀</u>	<u>A control error limitation specified in NERC standards.</u>
<u>Leap Second</u>	<u>A second of time added to coordinated Universal Time to make it agree with astronomical time to within 0.9 seconds. Historically, Leap Seconds are implemented as needed on June 30th or December 31st. (NIST)</u>
<u>Load Shift Factor (LSF)</u>	<u>A factor to be applied to a load's expected change in demand to determine the amount of flow contribution that change in demand will impose on an identified transmission facility or Flowgate.</u>
<u>Load-Serving Entity (LSE)</u>	<u>The responsible entity that secures energy and Transmission Service (and related Interconnected Operations Services) to serve the electrical demand and energy requirements of its end-use customers.</u>
<u>Market Period</u>	<u>The period of time beginning with the Requesting PSE, or its designee, making required purchase, sale, and Transmission Service arrangements to support the Arranged Interchange through the period of time when the IA receives the Arranged Interchange.</u>
<u>May, should, or optional</u>	<u>Define optional requirements that are recommended for implementation but are not specifically required under these Business Practice Standards.</u>
<u>Must, shall, or required</u>	<u>Define specific requirements that are not optional and must be implemented as described under these Business Practice Standards.</u>



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<u>TERM</u>	<u>DEFINITION</u>
<u>Native Load (NL)</u>	<u>The demand imposed on an electric utility or an entity by the requirements of all customers located within a franchised service territory that the electric utility or entity has statutory or contractual obligation to serve.</u> <u><i>Note: This definition is only applicable to Business Practice Standards WEQ-008.</i></u>
<u>Native Load Customer</u>	<u>The wholesale and retail power customers of the Transmission Provider on whose behalf the Transmission Provider, by statute, franchise, regulatory requirement, or contract, has undertaken an obligation to construct and operate the Transmission Provider's system to meet the reliable electric needs of such customers.</u> <u><i>Note: This definition is only applicable to Business Practice Standards WEQ-001, WEQ-002, WEQ-003, and WEQ-013.</i></u>
<u>Net Actual Interchange</u>	<u>The algebraic sum of all metered Interchange over all interconnections between two physically adjacent BAAs.</u>
<u>Net Interchange Schedule</u>	<u>The algebraic sum of all Interchange Schedules with each adjacent BAA.</u>
<u>Network Integration Transmission Service (NITS)</u>	<u>As specified in the Transmission Provider's tariff, service that allows an electric Transmission Customer to integrate, plan, economically dispatch and regulate its network resources in a manner comparable to that in which the Transmission Provider serves Native Load Customers.</u>
<u>Non-Firm Transmission Service</u>	<u>As specified in the Transmission Provider's tariff, Transmission Service that is reserved and scheduled on an as-available basis, is subject to Curtailment or interruption, and has less priority than Firm Transmission Service.</u>



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<u>TERM</u>	<u>DEFINITION</u>
<u>Number-of-Hours Criteria</u>	<u>The maximum number of hours in a defined period (e.g., annually) that the Transmission Provider is allowed to curtail Transmission Service for reliability reasons at the Conditional Curtailment Priority Level, as specified in the long-term firm PTP agreement which specifies a CCO.</u>
<u>Open Access Same-Time Information System (OASIS)</u>	<u>Comprises the computer systems and associated communications facilities that public utilities are required to provide for the purpose of making available to all transmission users comparable interactions with Transmission Service Information and any back-end supporting systems or user procedures that collectively perform the transaction processing functions associated with handling of requests on OASIS.</u>
<u>Open Access Same-Time Information System (OASIS) Data Dictionary</u>	<u>Business Practice Standards WEQ-003, NAESB Open Access Same-Time Information System (OASIS) Data Dictionary Business Practice Standards, Version 1.5</u>
<u>Open Access Same-Time Information System (OASIS) Implementation Guide</u>	<u>Business Practice Standards WEQ-013, NAESB Open Access Same-Time Information System (OASIS) Implementation Guide Business Practice Standards, Version 1.5</u>
<u>Open Access Same-Time Information System (OASIS) Node</u>	<u>Is a subsystem of the OASIS. It is one computer system in the OASIS that provides access to Transmission Service Information to a Transmission Customer.</u>
<u>Open Access Same-Time Information System (OASIS) Standards and Communication Protocols (S&CP)</u>	<u>Business Practice Standards WEQ-002, NAESB Open Access Same-Time Information System (OASIS) Business Practice Standards & Communication Protocol (S&CP), Version 1.5</u>
<u>Open Access Same-Time Information System (OASIS) Template</u>	<u>Refers generically, or by reference to a specifically named OASIS Template, to the OASIS Templates defined for the Transmission Customer interface to OASIS in Business Practice Standards WEQ-002, including the displays and forms associated with the web browser based user interface implementing the functions of an OASIS defined OASIS Template.</u>
<u>Option Set</u>	<u>Alternate sets of Tariff Records.</u>



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<u>TERM</u>	<u>DEFINITION</u>
<u>Parent Reservation</u>	<u>An existing, confirmed reservation (original, Redirect, Transfer, Resale, etc.) being modified by a Redirect, Transfer, Resale, etc.</u>
<u>Partial Service</u>	<u>Transmission Service offered or granted by a Transmission Provider that is for a shorter duration than requested (start-time through stop-time), less capacity than requested, or both.</u>
<u>Path Participant</u>	<u>Any of the entities that are part of an Interchange Transaction.</u>
<u>Per Generator Method</u>	<u>A methodology used by the IDC to calculate the portion of parallel flows on any Constrained Facility or Flowgate due to NITS customers and service to NL customers for each BA.</u>
<u>Point-to-Point Transmission Service (PTP)</u>	<u>The reservation and transmission of capacity and energy on either a firm or non-firm basis from the PORs to the PODs as specified in the Transmission Provider's tariff.</u>
<u>Policy Qualifier</u>	<u>Policy-dependent information that accompanies a CP Identifier in an X.509 Certificate.</u>
<u>POST</u>	<u>An HTTP method that submits data to be processed to an identified resource.</u>
<u>Postback</u>	<u>A variable component of the Transmission Provider's selected ATC or AFC calculation methodology that positively impacts ATC or AFC based on a change in status of a Transmission Service reservation or use of reserved capacity, or other conditions as specified by the Transmission Provider.</u>



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<u>TERM</u>	<u>DEFINITION</u>
<u>Posted Path</u>	<u>Shall mean any Control Area to Control Area interconnection; any path for which service is denied, curtailed or interrupted for more than 24 hours in the past 12 months; and any path for which a Transmission Customer requests to have ATC or TTC posted. For this last category, the posting must continue for 180 days and thereafter until 180 days have elapsed from the most recent request for service over the requested path. For purposes of this definition, an hour includes any part of an hour during which service was denied, curtailed or interrupted.</u>
<u>Power Plant Operator (PPO)</u>	<u>The entity(ies) that has responsibility for gas requirements for a natural gas-fired electric generating facility(ies) and is responsible for coordinating natural gas deliveries with the appropriate Transportation Service Provider(s) to meet those requirements. The PPO performs a number of coordinated activities, including, but not limited to, power plant operations, unit dispatch, natural gas procurement and/or gas transportation arrangements. Because each PPO is structured differently, specific responsibilities within each PPO should be determined by the PPO and the point of contact for the PPO should be communicated to the Transmission Service Provider(s).</u> <u>(Note: This definition applies NAESB WGQ Standard Numbers 0.2.2, 0.3.11, 0.3.12, 0.3.13, 0.3.14, and 0.3.15.)</u>
<u>Power Plant Operator (PPO) Facility</u>	<u>The natural gas-fired electric generating unit(s) under the direct control of the PPO.</u> <u>(Note: This definition applies to NAESB WGQ Standard Numbers 0.3.12 and 0.3.13.)</u>
<u>Pseudo-Tie</u>	<u>A telemetered reading or value that is updated in real time and used as a "virtual" tie line flow in the AGC/ACE equation but for which no physical tie or energy metering actually exists. The integrated value is used as a metered MWh value for Interchange accounting purposes.</u>



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<u>TERM</u>	<u>DEFINITION</u>
<u>Purchasing-Selling Entity (PSE)</u>	<u>The entity that purchases or sells, and takes title to, energy, capacity, and Interconnected Operations Services. PSEs may be affiliated or unaffiliated merchants and may or may not own generating facilities.</u>
<u>Quebec Interconnection</u>	<u>One of the major electric system networks in North America.</u>
<u>Query Variables</u>	<u>A list of query variables with their settings formatted as defined by the HTTP protocol (i.e., OASIS URL encoded separated by ampersands).</u>
<u>Queue Flooding</u>	<u>Excessive submission of Identical Service Requests.</u>
<u>Queue Hoarding</u>	<u>This is the act, intentionally or unintentionally, of not confirming or withdrawing an accepted service request such that it impacts the ability of other willing buyers to secure service in a timely fashion.</u>
<u>Reallocation</u>	<u>The process used to totally or partially curtail Transactions during TLR levels 3a, 3b or 5a events to allow Transactions using equal or higher priority to be implemented.</u>
<u>Redirect</u>	<u>A modification to all or a portion of a transmission reservation to an alternate POR/POD and/or make other changes to the terms of service as permitted.</u>
<u>Region</u>	<u>One of the regional entities that work with NERC to improve the reliability of the Bulk Electric System.</u>
<u>Registration Authority (RA)</u>	<u>An entity that is responsible for identification and authentication of Certificate subjects, but that does not sign or issue Certificates (i.e., an RA is delegated certain tasks on behalf of a certificate authority).</u>



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<u>TERM</u>	<u>DEFINITION</u>
<u>Reliability Coordinator (RC)</u>	<u>The entity that is the highest level of authority who is responsible for the reliable operation of the Bulk Electric System, has the wide area view of the Bulk Electric System, and has the operating tools, processes and procedures, including the authority to prevent or mitigate emergency operating situations in both next-day analysis and real-time operations. The RC has the purview that is broad enough to enable the calculation of IROLs, which may be based on the operating parameters of transmission systems beyond any Transmission Operator's vision.</u> <i>(Note: This definition also applies to the NAESB WGQ Standard Numbers 0.2.4 and 0.3.14 through 0.3.15)</i>
<u>Reliability Coordinator Information System (RCIS)</u>	<u>The system that RCs use to post messages and share operating information in real time.</u>
<u>Relinquish</u>	<u>Release of all or a portion of the capacity of a Redirect on a non-firm basis to the firm Parent Reservation.</u>
<u>Relying Party</u>	<u>A recipient of a Certificate who acts in reliance on that Certificate and/or digital signatures verified using that Certificate. In this document, the terms "certificate user" and "Relying Party" are used interchangeably.</u>
<u>Repository</u>	<u>A database of active digital signatures for a certificate authority system. Certificate authorities post Certificates and CRLs to Repositories that allows Relying Parties to confirm the status of the digital signatures.</u>
<u>Request for Interchange (RFI)</u>	<u>A collection of required data, as defined in Business Practice Standards WEQ-004-C, necessary for the purpose of submitting to the IA as an Arranged Interchange.</u>
<u>Requesting Purchasing-Selling Entity (PSE)</u>	<u>The entity that prepares and submits the RFI to the IA also referred to as the e-Tag author.</u>
<u>Resale</u>	<u>The request to convey scheduling rights associated with a reservation for PTP from a Reseller to an Assignee.</u>



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<u>TERM</u>	<u>DEFINITION</u>
<u>Reseller</u>	<u>The Transmission Customer that holds PTP rights and offers those rights for sale on the (secondary) transmission market.</u>
<u>Reserve Sharing Group</u>	<u>A group whose members consist of two or more BAs that collectively maintain, allocate, and supply operating reserves required for each BA's use in recovering from contingencies within the group. Scheduling energy from an adjacent BA to aid recovery need not constitute reserve sharing provided the transaction is ramped in over a period the supplying part could reasonably be expected to load generation in (e.g., ten minutes). If the transaction is ramped in quicker (e., between zero and ten minutes) then, for the purposes of disturbance control performance, the BAs become a Reserve Sharing Group.</u>
<u>Secondary Network Transmission Service</u>	<u>Transmission Service provided to a network customer to deliver energy to network loads from non-DNRs.</u>
<u>Section-Based Format</u>	<u>Describes the subdivision into sections of a tariff, rate schedule, or service agreement for purposes of a Tariff Filing.</u>
<u>Seller</u>	<u>Reseller or Transmission Provider</u>
<u>Service Request Tiers</u>	<u>Relative queue priorities when negotiating Transmission Service.</u>
<u>Set of Provisions</u>	<u>A collection of practice and/or policy statements, spanning a range of standard topics, for use in expressing a CP definition or Certificate Practice Statement employing the approach described in this framework.</u>
<u>Sheet-Based Format</u>	<u>Describes the subdivision into sheets of a tariff, rate schedule, or service agreement for purposes of a Tariff Filing.</u>
<u>Sink Balancing Authority (BA)</u>	<u>The BA in which the load (sink) is located for an Interchange Transaction. (This will also be a receiving BA for the resulting Interchange Schedule.)</u>



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<u>TERM</u>	<u>DEFINITION</u>
<u>Source Balancing Authority (BA)</u>	<u>The BA in which the generation (source) is located for an Interchange Transaction. (This will also be a sending BA for the resulting Interchange Schedule.)</u>
<u>Standards of Conduct</u>	<u>The regulations contained in Title 18 CFR Part 358, Standards of Conduct for Transmission Providers.</u>
<u>Straddle Ramp</u>	<u>Ramp that divides the start ramp duration equally across the profile block start or end time.</u>
<u>Subscriber</u>	<u>An authorized individual, application, server, or 'role' associated with a registered End Entity that has been issued a Certificate by an Authorized Certification Authority.</u>
<u>Supplemental Regulation Service</u>	<u>A method of providing regulation service in which the BA providing the regulation service receives a signal representing all or a portion of the other BA's ACE.</u>
<u>System-Conditions Criteria</u>	<u>One or more specific system conditions during which the Transmission Provider is allowed to curtail Transmission Service for reliability reasons at the Conditional Curtailment Priority Level, as specified in the long-term firm PTP agreement which specifies a CCO.</u>
<u>System Impact Study</u>	<u>An assessment by the Transmission Provider of (i) the adequacy of the transmission system to accommodate a request for either firm PTP or NITS and (ii) whether any additional costs may be incurred in order to provide Transmission Service.</u>
<u>System Impact Study Agreement</u>	<u>An agreement to perform a System Impact Study.</u>



**RECOMMENDATION AS APPROVED BY THE WEQ EXECUTIVE COMMITTEE ON
FEBRUARY 2, 2010**

For Quadrant: WEQ

Requesters: Co-Chairs BPS, OS and SRS

Request No.: WEQ 2009 AP Item 5.b

Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

<u>TERM</u>	<u>DEFINITION</u>
<u>System Operating Limit (SOL)</u>	The value (such as MW, MVar, Amperes, frequency or volts) that satisfies the most limiting of the prescribed operating criteria for a specified system configuration to ensure operation within acceptable reliability criteria. SOL are based upon certain operating criteria. These include, but are not limited to: • <u>Facility Rating (applicable pre- and post- contingency equipment or Facility Ratings)</u> • <u>Transient stability ratings (applicable pre- and post-contingency stability limits)</u> • <u>Voltage stability ratings (applicable pre- and post-contingency voltage limits)</u> • <u>System Voltage Limits (applicable pre- and post-contingency voltage limits)</u>
<u>Tariff Filing</u>	<u>A compilation of all document(s), associated data and supporting documents that is required to be filed electronically by a Tariff Submitter pursuant to Title 18 CFR Parts 35, 154, 284, 300, 341 or other parts as required by the FERC.</u>
<u>Tariff Record</u>	<u>The part of a Tariff Filing that consists of the Data Elements that relate to a sheet, section, or entire tariff, rate schedule, or service agreement that is required to be filed with the FERC.</u>
<u>Tariff Submitter</u>	<u>Any entity that is required to submit a Tariff Filing.</u>
<u>Tie Facility(ies)</u>	<u>The transmission facility(ies) interconnecting BAAs.</u>
<u>Time Error</u>	<u>The difference between the Interconnection time measured at the BA(s) and the time specified by the NIST. Time Error is caused by the accumulation of frequency error over a given period.</u>
<u>Time Error Correction</u>	<u>An offset to the Interconnection's scheduled frequency to return the Interconnection's Time Error to a predetermined value.</u>
<u>Transfer</u>	<u>Request to convey all rights and obligations associated with a reservation for PTP from a Reseller to an Assignee.</u>



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FEBRUARY 2, 2010**

For Quadrant: WEQ

Requesters: Co-Chairs BPS, OS and SRS

Request No.: WEQ 2009 AP Item 5.b

Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

<u>TERM</u>	<u>DEFINITION</u>
<u>Transfer Distribution Factor (TDF)</u>	<u>The portion of an Interchange Transaction, expressed in percent that flows across a transmission facility (Flowgate).</u>
<u>Transmission Customer</u>	<u>Any Eligible Transmission Customer (or its designated agent) that can or does execute a service agreement or can or does receive Transmission Service.</u>
<u>Transmission Loading Relief (TLR)</u>	<u>A procedure used in the Eastern Interconnection to relieve potential or actual loading on a Constrained Facility or Flowgate.</u>
<u>Transmission Operator</u>	<u>The entity responsible for the reliability of its "local" transmission system, and that operates or directs the operations of the transmission facilities.</u>
<u>Transmission Provider</u>	<u>A utility (or its designated agent) that owns, controls, or operates facilities used for the transmission of electric energy in interstate commerce and provides Transmission Service.</u>
<u>Transmission Purchasing Selling Entity (TPSE)</u>	<u>PSE that holds the transmission rights on a physical path segment referenced in an e-Tag.</u>
<u>Transmission Service</u>	<u>Services needed to move energy from a POR to a POD provided to Transmission Customers by Transmission Providers.</u>
<u>Transmission Service Provider</u>	<u>The entity that administers the transmission tariff and provides Transmission Service to Transmission Customers under applicable transmission service agreements.</u>
<u>Transmission Services Information</u>	<u>Transmission and ancillary services information that must be made available by public utilities on a non-discriminatory basis to meet the regulatory requirements of transmission open access.</u>
<u>Transmission Services Information Provider (TSIP)</u>	<u>Transmission Provider or agent to whom the Transmission Provider has delegated the responsibility of meeting any of the requirements associated with OASIS.</u>



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FEBRUARY 2, 2010**

For Quadrant: WEQ

Requesters: Co-Chairs BPS, OS and SRS

Request No.: WEQ 2009 AP Item 5.b

Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

<u>TERM</u>	<u>DEFINITION</u>
<u>Transportation Service Provider</u>	<u>The entity that is providing natural gas delivery services (e.g., transportation).</u> <i>(Note: This definition also applies to the NAESB Business Practices WGQ Standard Numbers 0.2.1 and 0.3.11 through 0.3.15)</i>
<u>Unexercised Rollover Rights</u>	<u>The amount of capacity that is held on a long-term firm PTP Transmission Service reservation and is eligible for ongoing rollover or renewal of service as established by the Transmission Provider at the time service was granted, less the capacity held on any confirmed service reservations for renewal of those rollover rights for a subsequent term of service, and less any capacity conveyed as an on-going rollover right to a qualifying confirmed Redirect on a firm basis.</u>
<u>Western Electric Coordinating Council Network (WECCNet)</u>	<u>A messaging system used by the WECC for use by participating utility's dispatchers and network administrators.</u>
<u>Western Interconnection</u>	<u>One of the major electric system networks in North America.</u>
<u>Whole Document Format</u>	<u>Describes a tariff, rate schedule, or service agreement submitted as a single document within a Tariff Record for purposes of a Tariff Filing.</u>
<u>WWVB</u>	<u>The NIST time-signal radio station near Fort Collins, Colorado, co-located with WWV. WWVB is the station that radio-controlled clocks throughout North America use to synchronize themselves.</u>



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FEBRUARY 2, 2010**

For Quadrant: WEQ

Requesters: Co-Chairs BPS, OS and SRS

Request No.: WEQ 2009 AP Item 5.b

Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

Updates to Existing Business Practice Standards WEQ-001 through WEQ-014

Conforming changes to the existing Business Practice Standards version 002.1 will be made by the NAESB office after this recommendation has been ratified. The subcommittee co-chairs will work with the NAESB office to ensure the appropriate application of the ratified recommendation to Business Practice Standards Version 2.1.

It should be noted that, as part of the recommendation, conforming changes will need to be made to all recommendations within the approval queue and all final actions that were not included in Business Practice Standards version 002.1

Additionally, any new definitions or revised definitions approved since the Business Practice Standards version 002.1 were published will be need to be moved to Business Practice Standards WEQ-000-2.



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FEBRUARY 2, 2010**

For Quadrant: WEQ

Requesters: Co-Chairs BPS, OS and SRS

Request No.: WEQ 2009 AP Item 5.b

Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

4. SUPPORTING DOCUMENTATION

a. Description of Request:

In FERC Order 676-C, the Commission noted:

8. In the NOPR, we asked for comment on differences in definitions in a few of the NERC's and NAESB's TLR standards. The comments indicate that NERC and NAESB have formed a subcommittee to ensure that their definitions are complementary in the future. We are very pleased that NERC and NAESB have taken active steps to ensure that their respective definitions are harmonized so as to ensure that these standards will operate efficiently in the future.

The following line item was added to the 2009 WEQ Annual Plan, which was approved by the NAESB Board of Directors on March 26, 2009.

- 5.b Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary. Revise existing NAESB glossary/definition of terms to be applicable to entire set of WEQ Business Practices.
(http://www.naesb.org/pdf3/weq_ec051308w3.doc)

b. Description of Recommendation:

The recommendation is intended to address the differences in definitions within the Business Practice Standards and between the NERC Glossary and the NAESB Definition of Terms.

c. Business Purpose:

Address consistency of definitions as discussed in FERC Order 676-C.

d. Commentary/Rationale of Subcommittee(s)/Task Force(s):

To the extent possible, the differences between the Business Practice Standards and NERC Standards have been reconciled. The developers of this recommendation accepted the NERC definitions in most instances. However, there are a few exceptions where the drafters of the recommendation consider the NAESB definitions superior to the NERC definitions. In those instances, we would request that NERC modify their definitions to be consistent with the NAESB definitions.

Supporting Documentation:

- [Comparison on NERC/NAESB Definitions.](#)
- [Docket No. RM05-5-005 Order No.676-C Standards for Business Practices and Communication Protocols for Public Utilities](#)
- [Docket No. RM05-5-005 Standards for Business Practices Communication Protocols for Public Utilities \(NOPR\)](#)

The subcommittee co-chairs utilized the following logic to develop the recommendation:

- Acronyms



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- o Acronyms would be listed in only Business Practice Standards sections WEQ-000-1 and in WEQ-000-2 of Business Practice Standards WEQ-000 along with the definition if the acronym was also representing a defined term.
- o Values for Data Elements were not included in the acronym list. Values for Data Elements are documented in Business Practice Standards WEQ-003 and WEQ-013.
- o If an acronym had more than one meaning in the Business Practices Standards, a decision was made to not use the acronym. These acronyms were documented in Business Practice Standards WEQ-000-1.1
- o If an acronym was only occasionally used rather than the term, where the acronym was listed it was replaced by the term.
- o Acronyms only used in algorithms were not included in the acronym list since they are defined for the algorithm.
- Definitions
 - o In addition to the terms listed in each standard, the co-chairs identified all terms that were listed as proper case in the entire set of standards. Upper case terms were excluded as they referred to Data Element values. This became the set of terms that needed to be addressed.
 - o Existing terms with definitions
 - If a term was defined and was not used in any of the standards, the term was not added to Business Practice Standards WEQ-000-2
 - If the term had multiple definitions, one definition was selected. If the definition was also defined by NERC, to the extent appropriate, the NERC definition was used.
 - If the term had only one definition, but also had a NERC definition, to the extent appropriate, the NERC definition was used.
 - If there were multiple terms which had the same meaning, one term was selected and the other terms were replaced with the selected term throughout the document.
 - OASIS standards used terms commonly used in FERC Orders such as Control Area and Transmission Provider to be consistent with FERC.
 - Standards tightly coupled with NERC standards such as Transmission Loading Relief used NERC terminology such as Balancing Authority Area and Transmission Service Provider.
 - o Data Element names were not defined since they are addressed in Business Practice Standards WEQ-003 and WEQ-014.
 - o If a term was not defined, an attempt was made to define the term by:
 - Reviewing the NERC glossary;



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Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

- Reviewing FERC Orders;
 - Reviewing functional specifications;
 - Reviewing public internet sites;
 - Soliciting input from JESS and the WGQ BPS; and
 - Contacting Subject Matter Experts.
- o If a term was a NERC term that is no longer used by NERC, the term was replaced with the current NERC term. For example, Security Coordinator was replaced with Reliability Coordinator.
 - o If a term could not be defined, it was changed from proper to lower case.
 - o The following terms were removed from the NAESB glossary. A brief explanation for each removal is provided by term.
 - Appropriate Regulating Authority – Revised the definition for Commission to remove Appropriate Regulating Authority.
 - Eligible Customer – Replaced with Eligible Transmission Customer.
 - FERC – Moved to list of acronyms.
 - Interchange Transaction Tag (Tag) – Decision was made to use the term e-Tag.
 - Market Assembly – In latest changes for Coordinate Interchange to support the Electronic Tagging Functional Specification, the references to Market Assembly are being removed from the Business Practice Standards.
 - NERC – Moved to list of acronyms.
 - Primary Provider – Decision was made to use only the term Transmission Provider for OASIS related standards and Transmission Service Provider for standards that are tightly coupled with NERC Standards.
 - Reliability Area – Term was defined but not used in the Business Practice Standards.
 - Reliability Period – Term was defined but not used in the Business Practice Standards.
 - Responsible Party – Deleted since it is a Data Element name.
 - Secondary Provider – decision was made to use only the term “Reseller”.
 - Secondary Transmission Provider – decision was made to use only the term “Reseller”
 - Tag – Replaced with the term “e-Tag”



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- Template – Replaced with “Open Access Same-Time Information System (OASIS) Template”.
- Value-Added Transmission Services Information Provider (VTSIP) – the term was defined but not used.
- Wholesale Merchant Function – Term was defined but not used in the Business Practice Standards.
- o Definitions were created for the following proper case terms in the Business Practice Standards. In several instances, the terms were defined in the Business Practice Standards.
 - Actual Daily Native Peak Load
 - Actual Daily System-Wide Peak Load
 - Actual Daily Zonal Load
 - Assignment Reference Number
 - Business Practice Standards
 - Checkout Partner
 - Distribution Factor
 - Eastern Interconnection
 - Electric Reliability Council of Texas (ERCOT) Interconnection
 - eTariff Submission Data Dictionary
 - eTariff Submission Implementation Guide
 - Facility Rating
 - Forecasted Daily Native Peak Load
 - Forecasted Daily System-Wide Peak Load
 - Forecasted Daily Zonal Load
 - GET
 - Hyper Text Markup Language (HTML) Form
 - Interchange Authority (IA) Service
 - Internet
 - Net Interchange Schedule
 - Open Access Same-Time Information System (OASIS) Data Dictionary
 - Open Access Same-Time Information System (OASIS) Implementation Guide



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For Quadrant: WEQ

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Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

- Open Access Same-Time Information System (OASIS) Standards and Communication Protocols (S&CP)
 - Open Access Same-Time Information System (OASIS) Template
 - Path Participant
 - POST
 - Posted Path
 - Pseudo-Tie
 - Quebec Interconnection
 - Query Variables
 - Reserve Sharing Group
 - Seller
 - Service Request Tiers
 - Standards of Conduct
 - System Impact Study
 - System Impact Study Agreement
 - Western Interconnection
 - WWWB
- o The following proper case terms in the Business Practice Standards and either are not proper cased (because they were not defined) or have been replaced with another defined term. Where a term has been replaced with another term, the replacement term is also identified.
- Access Privileges
 - Administrator
 - Ancillary Service Type (note: this is a Data Element)
 - Approval Service
 - Associated Filing
 - Authority Service
 - Authorized Certificate Authority
 - Certificate Application Procedure
 - Certificate Authority
 - Certificate Management Practice
 - Certificate Management Program
 - Certificate Policy Extension (note: only "Extension" was lower cased)



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For Quadrant: WEQ

Requesters: Co-Chairs BPS, OS and SRS

Request No.: WEQ 2009 AP Item 5.b

Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

- Certificate Policy Identifier (note: only "Identifier" was lower cased)
- Certificate User
- Common Name
- Conditional Curtailment Options Provisions (note: only "provisions" was lower cased)
- Confirmation of Receipt
- Constraint Path
- Daily Firm Service (replaced with daily Firm Transmission Service)
- Data Records
- DC Tie
- Dynamic Transfer
- Electronic Control Area (replaced with Control Area)
- Energy Profile
- Energy Title Holder
- FERC Policy (note: only "Policy" was lower cased)
- FERC Regulation (note: only "Regulation" was lower cased)
- FERC Statutes and Regulation (note: only "Statues and Regulations" was lower cased)
- Firm (defined as Firm Transmission Service)
- Firm Point-to-Point (defined as Firm Transmission Service and Point-to-Point Transmission Service)
- FORM (replaced with Hyper Text Markup (HTML) Form)
- Host Balancing Authority (note: "host" was lower cased)
- Host Control Area (note: "host" was lower cased)
- Input
- Input/Response
- Inadvertent Energy
- Internet Service Provider (note: only "Service Provider" was lower cased)
- Investigation Requestor
- Issuing CA (note: only "Issuing" was lower cased and CA was spelled out to Control Area)
- Load CA (note: only "Load" was lower case and CA was spelled out to Control Area)



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- Long-Term Firm Point-to-Point Transmission Service
- Market Operator
- Methodology Contact
- Multi-Balancing Authority Energy Market (note: only lower cased "Multi-" and "Energy Market")
- Next Hour
- Non-Firm Next Hour Market Services (note: defined as Non-Firm Transmission Service)
- Non-Firm Point-to-Point Transmission Service [note: defined as Non-Firm Transmission Service and Point-to-Point Transmission Service (Non-Firm is an attribute of Point-to-Point Transmission Service)]
- Numbers
- Observers
- Organizational
- Open Access Same-Time Information System (OASIS) Users (note: "users" was lower cased)
- Part II (note: removed references to Part II due to pre-FERC Order 890 concepts)
- Part III (note: removed references to Part II due to pre-FERC Order 890 concepts)
- Phase 1A (note: removed references to Part II due to pre-FERC Order 890 concepts)
- Policy Object ID
- Receiving Balancing Authority (replaced with Sink BA)
- Receiving Control Area (replaced with Sink BA)
- Redirect on a Firm Basis
- Redirect on a Non-Firm basis
- Regional Reliability Organization (replaced with Reliability Entity)
- Request for Investigation
- Scheduling Entity
- Sending Balancing Authority (replaced with Source BA)
- Sending Control Area (replaced with Sending BA)
- Security Coordinator (replaced with Reliability Coordinator with the exception of code values and Data Element names)
- Security Officer



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FEBRUARY 2, 2010**

For Quadrant: WEQ

Requesters: Co-Chairs BPS, OS and SRS

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Request Title: Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary

- Service Agreement
 - Service Level Agreement
 - Service Requestor
 - Short-Term
 - Short-Term Firm Point-to-Point Transmission Service
 - State Regulatory Authorities (revised definition of Commission)
 - Tag Authority Service Operator
 - Temporary Logs
 - Transient Stability Ratings
 - Transmission Customer Confirmation Time Limit (note: "Confirmation Time Limit" was lower cased)
 - Transmission Service Agreement
 - Transmission System Information Networks (replaced with Electric Industry Registry)
 - FORM (replaced with Hyper Text Markup (HTML) Form)
 - Transmission Service Provider Counter Time Limit (note: "Counter Time Limit" was lower cased)
 - Transmission Service Provider Evaluation Time Limit (note: "Evaluation Time Limit" was lower cased)
 - Transmission Service Provider Loss Table (note: references a specific table in the Business Practice Standards so no definition was developed)
 - Transmission Service Provider Product (note: "Product" was lower cased)
 - Same-Day
 - Unscheduled Flow Reduction Procedure
 - User
 - User Interface
 - Voltage Stability Ratings
 - Want-ad (note: lower cased when not referencing a value for a Data Element)
- o The following are a list of terms the NAESB Subcommittee co-chairs identified that NAESB should keep the NAESB definition rather than using the NERC definition
- Network Integration Transmission Service



**RECOMMENDATION AS APPROVED BY THE WEQ EXECUTIVE COMMITTEE ON
FEBRUARY 2, 2010**

For Quadrant: WEQ

Requesters: Co-Chairs BPS, OS and SRS

Request No.: WEQ 2009 AP Item 5.b

**Request Title: Modify NAESB definitions to address internal
inconsistencies and inconsistencies with the
NERC glossary**

- Open Access Same-Time Information System
- Point to Point Transmission Service - The definition included in the recommendation is taken directly from the Pro Forma OATT.
- Postback
- Reallocation



Request No.: WEQ 2009 AP Items 5.a.2 (R08004) and 5.i (R09011)
Request Title: Multiple Annual Plan Items Affecting WEQ-011 Gas/Electric Coordination

1. RECOMMENDED ACTION:

☐ Accept as requested
☒ Accept as modified below
☐ Decline

EFFECT OF EC VOTE TO ACCEPT RECOMMENDED ACTION:

☒ Change to Existing Practice
☐ Status Quo

2. TYPE OF DEVELOPMENT/MAINTENANCE

Per Request:

☐ Initiation
☒ Modification
☐ Interpretation
☐ Withdrawal

☐ Principle
☒ Definition
☒ Business Practice Standard Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

Per Recommendation:

☐ Initiation
☒ Modification
☐ Interpretation
☐ Withdrawal

☐ Principle
☒ Definition
☒ Business Practice Standard Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

3. RECOMMENDATION

Acceptance of this recommendation by the Wholesale Electric Executive Committee and membership ratification is pending approval of the Wholesale Gas Quadrant recommendation.

SUMMARY:

The proposed changes to WEQ-011 fully address WEQ 2009 Annual Plan Items:

5.a.2 Gas / Electric Communication Consistency Changes ([R08004](#))

5.i Change Power Plant Operator to Power Plant Gas Coordinator ([R09011](#))

In addition to these WEQ 2009 AP items the recommendation addresses terms/definitions contained in WEQ-011, which will be revised/added and then moved to WEQ-000. The reasoning for expanding the scope to include definitions that are transitioning to WEQ-000 was to have a common point of contact with the WGQ Business Practices Subcommittee. The changes included in this recommendation have been reviewed with the WGQ Business Practices Subcommittee. The WGQ Business Practices Subcommittee will recommend similar changes in their Business Practices.



Request No.:	WEQ 2009 AP Items 5.a.2 (R08004) and 5.i (R09011)
Request Title:	Multiple Annual Plan Items Affecting WEQ-011 Gas/Electric Coordination

Though the text in the two Quadrants standards may no longer be duplicate language between the two sets of Business Practice Standards, the Joint WEQ and WGQ Business Practices Subcommittees have reviewed the proposed changes and agreed that the differences in the language do not have a material impact on the Business Practice Standards. For example, when describing a term, the WGQ uses the phrase "Is the term used to describe" while the WEQ does not use that phrase. Another example is the WEQ will spell out Transportation Service Provider, while the WGQ will continue to use the acronym TSP for Transportation Service Provider. The WEQ will not use TSP over concern that someone may confuse a Transportation Service Provider with a Transmission Service Provider when reading the NAESB WEQ Business Practices.

RECOMMENDED STANDARDS:

See attached document

4. SUPPORTING DOCUMENTATION

a. Description of Request:

5.a.2 Gas / Electric Communication Consistency Changes ([R08004](#)) - Adding an Introductory and Applicability Section to the document

5.i Change Power Plant Operator to Power Plant Gas Coordinator ([R09011](#))

b. Description of Recommendation:

Added Introduction and Applicability sections to the Business Practice Standards.

Changed Power Plant Operator to Power Plant Gas Coordinator and change Power Plant Operator's Facility to Power Plant Gas Coordinator Facility.

Reviewed definitions that were shared with WGQ and agreed to standardize definitions so that the definitions for NERC terms were consistent with NERC definitions. The definitions will be moved to WEQ-000 under WEQ 2009 Annual Plan Item 5.b "Modify NAESB definitions to address internal inconsistencies and inconsistencies with the NERC glossary. Revised existing NAESB glossary/definition of terms to be applicable to entire set of WEQ Business Practices."

Developed definition for Transportation Service Provider.

Consistently applied Balancing Authority (BA) and Reliability Coordinator (RC) to the Business Practices, which eliminated the need to specify Independent System Operators, Regional Transmission Operators, Regional Reliability Coordinators, and Independent Transmission Operators.

General consistency clean-up throughout the document with capitalization of terms and use of abbreviations and acronyms.



Request No.:	WEQ 2009 AP Items 5.a.2 (R08004) and 5.i (R09011)
Request Title:	Multiple Annual Plan Items Affecting WEQ-011 Gas/Electric Coordination

c. Business Purpose:

Address WEQ 2009 annual plan items 5.a.2 ([R08004](#)) and 5.i ([R09011](#)) and to support WEQ Annual Plan Item 5.b

d. Commentary/Rationale of Subcommittee(s)/Task Force(s):

Please refer to the following meeting minutes:

- WEQ Business Practices Subcommittee – January 12, 2009
http://www.naesb.org/pdf4/weq_bps011209fm.doc
- Joint WEQ and WGQ Business Practices Subcommittee – January 30, 2009
http://www.naesb.org/pdf4/weq_wgq_bps013009fm.doc
- WEQ Business Practices Subcommittee – April 13, 2009
http://www.naesb.org/pdf4/weq_bps041309fm.doc
- WEQ Business Practices Subcommittee – May 18, 2009
http://www.naesb.org/pdf4/weq_bps051809fm.doc
- WEQ Executive Committee Meeting – June 8, 2009
http://www.naesb.org/pdf4/weq_ec060809fm.doc
- WEQ Business Practices Subcommittee – June 16, 2009
http://www.naesb.org/pdf4/weq_bps061609fm.doc
- WEQ Business Practices Subcommittee – July 13, 2009
http://www.naesb.org/pdf4/weq_bps071309fm.doc
- Joint WEQ and WGQ Business Practices Subcommittee – September 14, 2009 (Link to be added by NAESB when available)
- Joint WEQ and WGQ Business Practices Subcommittee – September 28, 2009 (Link to be added by NAESB when available)

Initial Formal Comments submitted on Annual Plan Item 5.a.2:

- Midwest ISO Comments
http://www.naesb.org/pdf4/weq_041309_bps_miso.pdf
- WEQ Standards Review Subcommittee Comments
http://www.naesb.org/pdf4/weq_041309_bps_srs.doc
- Entergy Late Comments
http://www.naesb.org/pdf4/weq_041309_bps_entergy_late.doc

The WEQ BPS originally drafted a recommendation for Annual Plan Item 5a.2 ([R08004](#)) in January 2009 and made the decision to not submit the recommendation



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

For Quadrant: Wholesale Electric Quadrant
Requesters: WEQ Business Practices Subcommittee
Request No.: WEQ 2009 AP Items 5.a.2 (R08004) and 5.i (R09011)
Request Title: Multiple Annual Plan Items Affecting WEQ-011 Gas/Electric Coordination

until it was determined that additional changes were not needed to WEQ-011 to support Annual Plan Item 5.e "Provide for Enhanced Granularity for Public Utilities in Identifying Critical Operational Flow Orders. ([R08020](#))". The subcommittee agreed to post the recommendation for Formal Comments at their April 13, 2009 meeting. When the subcommittee reviewed the initial set of formal comments the WEQ BPS agreed that additional consistency issues should be addressed regarding the references to specific entities. On June 8, 2009 the Executive Committee agreed to remand the Recommendation back to the subcommittee for additional work. Since that time Standards Request [R09011](#) was triaged. Rather than developing multiple recommendations for WEQ-011 Gas/Electric Coordination, the subcommittee agreed to develop a single recommendation to address both Annual Plan Items.

Abbreviations, Acronyms, and Definition of Terms

Introduction

The Abbreviations, Acronyms, and Definition of Terms ~~provides~~provide a common location for all abbreviations, acronyms, and definitions of terms that are referenced in the NAESB WEQ Business Practice Standards. Since these abbreviations, acronyms, and definitions are not requirements they are not enumerated in Business Practice Standard WEQ-000, similarly to what has been done in Business Practice Standard WEQ-003.

Applicability

Refer to specific Business Practice Standards for Applicability.

000-1 ABBREVIATIONS AND ACRONYMS

The abbreviations and acronyms listed in the following table are used in the NAESB WEQ Business Practice Standards and shall have the meaning specified in the table.

Abbreviation / Acronym	Meaning
BA	Balancing Authority
PPGC	Power Plant Gas Coordinator
RC	Reliability Coordinator

000-1.1 Abbreviations and Acronyms Do Not Use

The following abbreviations and acronyms should not be used in the WEQ NAESB Business Practice Standards. Though the abbreviations and acronyms are commonly accepted, they may have multiple meanings when used in these standards.

Abbreviation / Acronym	Meanings
TSP	Transmission Service Provider Transportation Service Provider

000-2 DEFINITION OF TERMS

The terms listed in the following table are used in the NAESB WEQ Business Practice Standards and shall have the definitions specified in the table.

TERM	DEFINITION

NAESB WEQ Abbreviations, Acronyms, and Definition of Terms – WEQ-000

TERM	DEFINITION
Balancing Authority (BA)	The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a BAA, and supports Interconnection frequency in real time. <i>(Note: This definition also applies to NAESB WGQ Standard Nos. 0.2.3, 0.3.14 and 0.3.15)</i>
Power Plant Gas Coordinator (PPGC)	The entity(ies) that has responsibility for gas requirements for a natural gas-fired electric generating facility(ies) and is responsible for coordinating natural gas deliveries with the appropriate Transportation Service Provider(s) to meet those requirements. The PPGC performs a number of coordinated activities, including, but not limited to, power plant operations, unit dispatch, natural gas procurement and/or gas transportation arrangements. Because each PPGC is structured differently, specific responsibilities within each PPGC should be determined by the PPGC and the point of contact for the PPGC should be communicated to the Transportation Service Provider(s). <i>(Note: This also applies to NAESB WGQ Standard Numbers 0.2.1, 0.2.2, 0.3.11, 0.3.12, 0.3.13, 0.3.14, and 0.3.15.)</i>
Power Plant Gas Coordinator Facility (PPGC Facility)	The natural gas-fired electric generating unit(s) under the direct control of the PPGC. <i>(Note: This definition also applies to NAESB WGQ Standard Numbers 0.2.3, 0.3.12 and 0.3.13.)</i>
Reliability Coordinator (RC)	The entity that is the highest level of authority who is responsible for the reliable operation of the Bulk Electric System, has the wide area view of the Bulk Electric System, and has the operating tools, processes and procedures, including the authority, to prevent or mitigate emergency operating situations in both next-day analysis and real-time operations. The RC has the purview that is broad enough to enable the calculation of IROLs, which may be based on the operating parameters of transmission systems beyond any Transmission Operator's vision. <i>(Note: This definition also applies to the NAESB WGQ Standard Numbers 0.2.x-0.2.4 and 0.3.14 through 0.3.15)</i>

NAESB WEQ Abbreviations, Acronyms, and Definition of Terms – WEQ-000

TERM	DEFINITION
Transportation Service Provider	The entity that ~~interstate pipeline or intrastate pipeline~~ that is providing ~~providing the requested~~ natural gas delivery ~~-services~~ (e.g., transportation). <i>(Note: This definition also applies to the NAESB Business Practices WGQ Standard Numbers. 0.2.1 and ~~0.3.11 through 0.3.15~~.)</i>

Gas / Electric Coordination

Introduction

This standard was developed jointly by the WEQ and WGQ with the purpose to improve coordination between the gas and electric industries in daily operational communications between Transportation Service Providers, pipelines and gas-fired power plants.

Communications standards include anticipated power generation fuel requirements for the upcoming day as well as for any operating problems that might hinder gas-fired power plants from receiving required contractual gas quantities when needed.

Applicability

This business practice applies to both the WEQ and WGQ, specifically BA and/or RC, PPGC, and Transportation Service Providers.

Definition of Terms

- 011-0.3** ~~**RESERVED Balancing Authority (BA)**~~ is the term used by the Wholesale Electric Quadrant to describe the entity responsible for integrating electric resource plans ahead of time, for maintaining electric load-interchange-generation balance within its metered boundaries, and for supporting electric interconnection frequency in real time. In certain circumstances, a BA may be a Regional Transmission Organization or Independent System Operator. This definition applies to NAESB WEQ Standard Nos. WEQ-011-1.5 and WEQ-011-1.6 and NAESB WGQ Standard No. 0.3.15.
- 011-0.1** ~~**Power Plant Operator (PPO)**~~ is the term used to describe the entity(ies) that has responsibility for gas requirements for a natural gas-fired electric generating facility(ies) and is responsible for coordinating natural gas deliveries with the appropriate Transportation Service Provider(s) (TSP) to meet those requirements. The PPO performs a number of coordinated activities, including, but not limited to, power plant operations, unit dispatch, natural gas procurement and/or gas transportation arrangements. Because each PPO is structured differently, specific responsibilities within each PPO should be determined by the PPO and the point of contact for the PPO should be communicated to the TSP(s). This definition applies to NAESB WEQ Standard Nos. WEQ-011-0.2, WEQ-011-1.1, WEQ-011-1.2, WEQ-011-1.3, WEQ-011-1.4, WEQ-011-1.5, and WEQ-011-1.6 and NAESB WGQ Standard Nos. 0.2.2, 0.3.11, 0.3.12, 0.3.13, 0.3.14, and 0.3.15.
- 011-0.2** ~~**Power Plant Operator's Facility**~~ is the term used to describe the natural gas-fired electric generating unit(s) under the direct control of the Power Plant Operator. This definition applies to NAESB WEQ Standard Nos. WEQ-011-1.2 and WEQ-011-1.3 and NAESB WGQ Standard Nos. 0.3.12 and 0.3.13.

NAESB WEQ Gas / Electric Coordination Standards – WEQ-011

Business Practice Requirements

011-1.1 The Transportation Service Provider (~~TSP~~) / ~~Power Plant Operator (PPOGC)~~ communication standards set forth in NAESB WEQ ~~Business Practice Standards Nos. WEQ-000-2, WEQ-011-0.1, WEQ-011-0.2, WEQ-011-0.3~~, WEQ-011-1.1, WEQ-011-1.2, WEQ-011-1.3, WEQ-011-1.4, WEQ-011-1.5, and WEQ-011-1.6 and NAESB WGQ Standard Nos. 0.2.1, 0.2.2, 0.2.3, 0.3.11, 0.3.12, 0.3.13, 0.3.14, and 0.3.15 do not convey any rights or services beyond or in addition to those contained in the ~~TSP's Transportation Service Provider's~~ tariff and/or general terms and conditions and/or do not impose any obligations that would otherwise be inconsistent with the requirements of applicable regulatory authorities, ~~including Affiliate code of conduct requirements~~. These communication standards should be used in addition to the NAESB WGQ standard nomination timeline and scheduling processes for the ~~TSP's Transportation Service Provider's~~ contract / tariff services. In the event of a conflict between any of these communication standards and the ~~TSP's Transportation Service Provider's~~ tariff or general terms and conditions, the latter will prevail.

011-1.2 The ~~Power Plant Operator (PPOGC)~~ and the Transportation Service Provider(s) (~~TSP~~) that is directly connected to the ~~PPGC's~~ Facility(ies) should establish procedures to communicate material changes in circumstances that may impact hourly flow rates. The ~~PPO-PPGC~~ should provide projected hourly flow rates as established in the ~~TSP's Transportation Service Provider's~~ and ~~PPO's-PPGC's~~ communication procedures.

011-1.3 Subject to the conditions of NAESB WEQ ~~Business Practice~~ Standard ~~No.~~ WEQ-011-1.1 and NAESB WGQ Standard No. 0.3.11, this standard applies to a ~~Power Plant Operator (PPOGC)~~ and the Transportation Service Provider (~~TSP~~) to whose system the ~~PPOGC's facility~~ Facility(ies) is directly connected or with whom the ~~PPO-PPGC~~ is a ~~sservice r~~Requester.

A ~~PPO-PPGC~~ should not operate without an approved scheduled quantity pursuant to the NAESB WGQ standard nomination timeline and scheduling processes or as permitted by the ~~TSP's Transportation Service Provider's~~ tariff and/or general terms and conditions, and/or contract provisions. However, if the ~~PPO-PPGC~~ reasonably determines that it has circumstances requiring the need to request gas scheduling changes outside of the above-referenced nomination and scheduling processes and the affected ~~Transportation Service Provider TSP(s)~~ supports the processing of such changes, the ~~PPGC~~ should provide its requested daily and hourly flow rates to the ~~Transportation Service Provider TSP(s)~~ (1) as established in the ~~Transportation Service Provider TSP's~~ and ~~PPO's-PPGC's~~ communication procedures pursuant to NAESB WEQ ~~Business Practice~~ Standard ~~No.~~ WEQ-011-1.2 and NAESB WGQ Standard No. 0.3.12 and/or (2) as specified in the ~~Transportation Service Provider TSP's(s')~~ tariff or general terms and conditions.

Based upon whether or not the ~~PPGC's~~ request can be accommodated in accordance with the appropriate application of the affected ~~Transportation Service Provider TSP's(s')~~ tariff requirements, contract provisions, business practices, or other similar provisions, and without adversely impacting other scheduled services, anticipated flows, no-notice services, firm contract requirements and/or general system operations, the ~~PPGC~~ and all of the

NAESB WEQ Gas / Electric Coordination Standards – WEQ-011

affected ~~Transportation Service Provider~~~~TSP~~s should work together to resolve the ~~PPGCO~~'s request.

Where the affected ~~Transportation Service Provider(s)~~ ~~TSP~~ determines that it is feasible to provide the ~~PPGCO~~ with changes in flow rates without additional communications, no additional communications are required. These procedures will govern such communications unless the applicable parties mutually agree to create alternative communication procedures.

011-1.4 The ~~BAs and/or Reliability Coordinators~~~~RCs~~ ~~Regional Transmission Organizations, Independent System Operators, independent transmission operators, and/or PPGCO~~~~ower Plant Operators~~~~Reliability Coordinators~~ should sign up to receive operational flow orders and other critical notices from the appropriate gas Transportation Service Provider(s), pursuant to NAESB WGQ Standard ~~Nes.umbers~~~~os~~. 5.2.2, 5.3.35, and 5.3.37, unless the party(ies) needing the information has arranged to receive it through an alternative communication process(es).

011-1.5 Unless otherwise prohibited by agreement, tariff, or protocol rules, a ~~PPGCO~~~~ower Plant Operator~~ should, upon request, provide pertinent information concerning the service level (i.e., firm or interruptible) of its procured gas transportation and the performance obligation (i.e., firm (fixed or variable quantity) or interruptible) of its procured gas supply to the appropriate ~~independent Balancing Authority-A~~ and/or ~~Reliability Coordinator~~~~RC~~.

011-1.6 ~~Regional Transmission Organizations, Independent System Operators, other independent transmission operators, independent Balancing Authorities~~~~As~~ and/or ~~Regional Reliability Coordinators~~~~RC~~ should establish written operational communication procedures with the appropriate gas Transportation Service Provider(s) and/or ~~Power Plant Operator~~~~PPGCO~~(s). These procedures should be implemented when an extreme condition could occur, as defined in such procedures.

These procedures will govern unless the applicable parties in the gas and electric industry mutually agree to create alternative written communication procedures that are more appropriate and meet the parties' collective regional operational needs.

Training on a ~~Wh~~ communication procedures should occur periodically.

Interpretations

001-INT1 Clarification or interpretation request:

On June 25, 2007, in the proceedings for Docket ~~NesNumbers-~~ RM96-1-027 and RM05-5-001 and Order No. 698, FERC adopted NAESB WEQ ~~Business Practice~~ Standard ~~WEQ-011-1.2~~ (among other NAESB ~~Business Practice s~~Standards not relevant to my question). In its final rule, FERC included a requirement that pipelines and public utilities subject to the standards file a statement with FERC demonstrating compliance therewith on or before November 1, 2007. Allegheny

NAESB WEQ Gas / Electric Coordination Standards – WEQ-011

Energy, Inc. questions whether the WEQ ~~Business Practice~~ Standard ~~WEQ-011-1.2~~ applies to a generation facility that uses natural gas only as a start-up fuel, but not otherwise for operation (i.e. the units are not "natural gas-fired electric generating facilities", at least as the term normally is used). The gas used for the start-up of the two affected generating units is minimal (between 150-750 Dth depending on whether the start-up is from a "cold", "intermediate" or "hot" condition).

Interpretation:

The NAESB WEQ ~~Business Practice Standards WEQ-011 standards (Gas/Electric Coordination)~~ ~~were~~ not intended to be applicable to non-gas-fired generators. The NAESB ~~Business Practice Standards WEQ-000 definitions ((WEQ-011-0.1 and WEQ-011-0.2)WEQ-000-2)~~¹ are specific that:

1. ~~Power Plant Operator~~ PPGC is the term used to describe the entity(ies) that has responsibility for gas requirements for a natural gas-fired electric generating facility(ies) and is responsible for coordinating natural gas deliveries with the appropriate Transportation Service Provider(s) ~~(TSP)~~ to meet those requirements.
2. A ~~Power Plant Operator's~~ PPGC Facility is the term used to describe the natural gas-fired electric generating unit(s) under the direct control of the ~~Power Plant Operator~~ PPGC.

Both of these definitions apply directly to the standard under consideration – WEQ-011-1.2.

Moreover, in FERC Order No. 698 (Docket ~~Not~~ ~~Numbers~~, RM96-1-027 and RM05-5-001), paragraphs 1, 12 and 13, as well as in several other locations, the ~~Commission~~ FERC noted that the coordination and communication required by these standards are applied to gas-fired power plant operators and pipelines.² In paragraph 1, it is noted that the standards will help improve coordination between the gas and electric industries in order to improve communications about scheduling of gas-fired generators. In paragraph 12, it is noted that the standards will ensure that pipelines have relevant planning information that will assist in maintaining the operational integrity and reliability of pipeline service, as well as providing gas-fired power plant operators with information as to whether hourly flow deviations can be honored. Similarly, in paragraph 13, it is noted that the information provided through implementation of the standards should assist ~~reliability coordinators~~ RCs in assessing the relative reliability of various gas-fired generators.

As such, with the NAESB definitions for ~~WEQ-011-0.1 and WEQ-011-0.2~~ PPGC and PPGC Facility and the FERC cites noted, the intent of the standards to be applied to gas-fired generation facilities has been demonstrated. It is not demonstrated that these standards were to be applied to non-gas-fired generation facilities, (i.e., facilities that do not rely upon natural gas for daily operations – such as coal-fired power plants).

End Notes for the interpretation:

¹ The NAESB WEQ definitions cited in the interpretation are:

- ~~WEQ-011-0.1:~~ Power Plant ~~Operator~~ Gas Coordinator (PPGC~~Θ~~) is the term used to describe the entity(ies) that has responsibility for gas requirements for a natural gas-fired electric generating facility(ies) and is responsible for coordinating natural gas deliveries with the appropriate Transportation Service Provider(s)

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~~(TSP)~~ to meet those requirements. The PPGC~~Ø~~ performs a number of coordinated activities, including, but not limited to, power plant operations, unit dispatch, natural gas procurement and/or gas transportation arrangements. Because each PPO-PPGC is structured differently, specific responsibilities within each PPO PPGC should be determined by the PPGC~~Ø~~ and the point of contact for the PPGC~~Ø~~ should be communicated to the Transportation Service Provider ~~TSP~~(s). This definition applies to NAESB WEQ ~~Standard Nos~~Business Practice Standards WEQ-000-2, ~~WEQ-011-0.2~~, WEQ-011-1.1, WEQ-011-1.2, WEQ-011-1.3, WEQ-011-1.4, WEQ-001-1.5, and WEQ-011-1.6 and NAESB WGQ Standard Nos. 0.2.2, 0.3.11, 0.3.12, 0.3.13, 0.3.14, and 0.3.15.

- WEQ-011-0.2: A Power Plant ~~Operator's Gas Coordinator's~~ Facility is the term used to describe the natural gas-fired electric generating unit(s) under the direct control of the ~~Power Plant Operator~~PPGC. This definition applies to NAESB WEQ ~~Business Practice~~ Standards ~~Nos.~~WEQ-011-1.2 and WEQ-011-1.3 and NAESB WGQ Standard ~~Numbers~~. 0.3.12 and 0.3.13.

² For FERC Order No. 698, the cites in the interpretation are:

1. The Federal Energy Regulatory Commission (Commission) is amending parts 38 and 284 of its open access regulations governing standards for business practices and electronic communications with interstate natural gas pipelines and public utilities. The Commission is incorporating by reference certain standards promulgated by the North American Energy Standards Board (NAESB). Incorporation by reference of these standards will establish communication protocols between interstate pipelines and power plant operators and transmission owners and operators. This will help improve coordination between the gas and electric industries in order to improve communications about scheduling of gas-fired generators. Improved communications should enhance reliability in both industries.
12. The coordination and communication required by these standards will help improve the reliability of both the gas and electric industries by ensuring that all parties have information necessary for the scheduling and dispatch of natural gas-fired generation, and for the scheduling of the natural gas transportation necessary to supply fuel to these generators. The standards, for example, would require gas-fired power plant operators and pipelines to establish procedures to communicate material changes in circumstances that may affect hourly flow rates. These standards ensure that pipelines have relevant planning information that will assist in maintaining the operational integrity and reliability of pipeline service, as well as providing gas-fired power plant operators with information as to whether hourly flow deviations can be honored.
13. The standards further improve communication by requiring electric transmission operators and power plant operators to sign up to receive from connecting pipelines operational flow orders and other critical notices. These standards ensure that operators of the electric grid can stay abreast of developments on gas pipelines that can affect the reliability of electric service. The standards require that, upon request, a gas-fired power plant operator must provide to the appropriate independent electric balancing authority or electric reliability coordinator pertinent information regarding its service levels for gas transportation (firm or interruptible) and for gas supply (firm, fixed or variable quantity, or interruptible). This information should assist reliability coordinators in assessing the relative reliability of various gas-fired generators.

Abbreviations, Acronyms, and Definition of Terms

Introduction

The Abbreviations, Acronyms, and Definition of Terms provide a common location for all abbreviations, acronyms, and definitions of terms that are referenced in the NAESB WEQ Business Practice Standards. Since these abbreviations, acronyms, and definitions are not requirements they are not enumerated in Business Practice Standard WEQ-000, similarly to what has been done in Business Practice Standard WEQ-003.

Applicability

Refer to specific Business Practice Standards for Applicability.

000-1 ABBREVIATIONS AND ACRONYMS

The abbreviations and acronyms listed in the following table are used in the NAESB WEQ Business Practice Standards and shall have the meaning specified in the table.

Abbreviation / Acronym	Meaning
BA	Balancing Authority
PPGC	Power Plant Gas Coordinator
RC	Reliability Coordinator

000-1.1 Abbreviations and Acronyms Do Not Use

The following abbreviations and acronyms should not be used in the WEQ NAESB Business Practice Standards. Though the abbreviations and acronyms are commonly accepted, they may have multiple meanings when used in these standards.

Abbreviation / Acronym	Meanings
TSP	Transmission Service Provider Transportation Service Provider

000-2 DEFINITION OF TERMS

The terms listed in the following table are used in the NAESB WEQ Business Practice Standards and shall have the definitions specified in the table.

TERM	DEFINITION

TERM	DEFINITION
Balancing Authority (BA)	The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a BAA, and supports Interconnection frequency in real time. <i>(Note: This definition also applies to NAESB WGQ Standard Nos. 0.2.3, 0.3.14 and 0.3.15)</i>
Power Plant Gas Coordinator (PPGC)	The entity(ies) that has responsibility for gas requirements for a natural gas-fired electric generating facility(ies) and is responsible for coordinating natural gas deliveries with the appropriate Transportation Service Provider(s) to meet those requirements. The PPGC performs a number of coordinated activities, including, but not limited to, power plant operations, unit dispatch, natural gas procurement and/or gas transportation arrangements. Because each PPGC is structured differently, specific responsibilities within each PPGC should be determined by the PPGC and the point of contact for the PPGC should be communicated to the Transportation Service Provider(s). <i>(Note: This also applies to NAESB WGQ Standard Nos. 0.2.1, 0.2.2, 0.3.11, 0.3.12, 0.3.13, 0.3.14, and 0.3.15)</i>
Power Plant Gas Coordinator Facility (PPGC Facility)	The natural gas-fired electric generating unit(s) under the direct control of the PPGC. <i>(Note: This definition also applies to NAESB WGQ Standard Nos. 0.2.3, 0.3.12 and 0.3.13)</i>
Reliability Coordinator (RC)	The entity that is the highest level of authority who is responsible for the reliable operation of the Bulk Electric System, has the wide area view of the Bulk Electric System, and has the operating tools, processes and procedures, including the authority, to prevent or mitigate emergency operating situations in both next-day analysis and real-time operations. The RC has the purview that is broad enough to enable the calculation of IROLs, which may be based on the operating parameters of transmission systems beyond any Transmission Operator's vision. <i>(Note: This definition also applies to the NAESB WGQ Standard Nos. 0.2.x and 0.3.14 through 0.3.15)</i>

NAESB WEQ Abbreviations, Acronyms, and Definition of Terms – WEQ-000

TERM	DEFINITION
Transportation Service Provider	The entity that is providing natural gas delivery services (e.g., transportation). <i>(Note: This definition also applies to the NAESB Business Practices WGQ Standard Nos. 0.2.1 and 0.3.11 through 0.3.15)</i>

Gas / Electric Coordination

Introduction

This standard was developed jointly by the WEQ and WGQ with the purpose to improve coordination between the gas and electric industries in daily operational communications between Transportation Service Providers and gas-fired power plants.

Communications standards include anticipated power generation fuel requirements for the upcoming day as well as for any operating problems that might hinder gas-fired power plants from receiving contractual gas quantities when needed.

Applicability

This business practice applies to both the WEQ and WGQ, specifically BA and/or RC, PPGC, and Transportation Service Providers.

Definition of Terms

011-0 **RESERVED**

Business Practice Requirements

- 011-1.1** The Transportation Service Provider / PPGC communication standards set forth in NAESB WEQ Business Practice Standards WEQ-000-2, WEQ-011-1.1, WEQ-011-1.2, WEQ-011-1.3, WEQ-011-1.4, WEQ-011-1.5, and WEQ-011-1.6 and NAESB WGQ Standard Nos. 0.2.1, 0.2.2, 0.2.3, 0.3.11, 0.3.12, 0.3.13, 0.3.14, and 0.3.15 do not convey any rights or services beyond or in addition to those contained in the Transportation Service Provider's tariff and/or general terms and conditions and/or do not impose any obligations that would otherwise be inconsistent with the requirements of applicable regulatory authorities,. These communication standards should be used in addition to the NAESB WGQ standard nomination timeline and scheduling processes for the Transportation Service Provider's contract / tariff services. In the event of a conflict between any of these communication standards and the Transportation Service Provider's tariff or general terms and conditions, the latter will prevail.
- 011-1.2** The PPGC and the Transportation Service Provider(s) that is directly connected to the PPGC's Facility(ies) should establish procedures to communicate material changes in circumstances that may impact hourly flow rates. The PPGC should provide projected hourly flow rates as established in the Transportation Service Provider's and PPGC's communication procedures.
- 011-1.3** Subject to the conditions of NAESB WEQ Business Practice Standard WEQ-011-1.1 and NAESB WGQ Standard No. 0.3.11, this standard applies to a PPGC and the Transportation Service Provider to whose system the PPGC's Facility(ies) is directly connected or with whom the PPGC is a service requester.

A PPGC should not operate without an approved scheduled quantity pursuant to the NAESB WGQ standard nomination timeline and scheduling processes or as permitted by the Transportation Service Provider's tariff and/or general terms and conditions, and/or contract provisions. However, if the PPGC reasonably determines that it has circumstances requiring the need to request gas scheduling changes outside of the above-referenced nomination and scheduling processes and the affected Transportation Service Provider (s) supports the processing of such changes, the PPGC should provide its requested daily and hourly flow rates to the Transportation Service Provider (s) (1) as established in the Transportation Service Provider's and PPGC's communication procedures pursuant to NAESB WEQ Business Practice Standard WEQ-011-1.2 and NAESB WGQ Standard No. 0.3.12 and/or (2) as specified in the Transportation Service Provider's(s') tariff or general terms and conditions.

Based upon whether or not the PPGC's request can be accommodated in accordance with the appropriate application of the affected Transportation Service Provider's(s') tariff requirements, contract provisions, business practices, or other similar provisions, and without adversely impacting other scheduled services, anticipated flows, no-notice services, firm contract requirements and/or general system operations, the PPGC and all of the affected Transportation Service Providers should work together to resolve the PPGC's request.

Where the affected Transportation Service Provider(s) determines that it is feasible to provide the PPGC with changes in flow rates without additional communications, no additional communications are required. These procedures will govern such communications unless the applicable parties mutually agree to create alternative communication procedures.

- 011-1.4** The BAs and/or RCs and/or PPGCs should sign up to receive operational flow orders and other critical notices from the appropriate gas Transportation Service Provider(s), pursuant to NAESB WGQ Standard Nos. 5.2.2, 5.3.35, and 5.3.37, unless the party(ies) needing the information has arranged to receive it through an alternative communication process(es).
- 011-1.5** Unless otherwise prohibited by agreement, tariff, or protocol rules, a PPGC should, upon request, provide pertinent information concerning the service level (i.e., firm or interruptible) of its procured gas transportation and the performance obligation (i.e., firm (fixed or variable quantity) or interruptible) of its procured gas supply to the appropriate BA and/or RC.
- 011-1.6** BAs and/or RC should establish written operational communication procedures with the appropriate gas Transportation Service Provider(s) and/or PPGC(s). These procedures should be implemented when an extreme condition could occur, as defined in such procedures.

These procedures will govern unless the applicable parties in the gas and electric industry mutually agree to create alternative written communication procedures that are more appropriate and meet the parties' collective regional operational needs.

Training on and testing of such communication procedures should occur periodically.

Interpretations

001-INT1 Clarification or interpretation request:

On June 25, 2007, in the proceedings for Docket Numbers RM96-1-027 and RM05-5-001 and Order No. 698, FERC adopted NAESB WEQ Business Practice Standard WEQ-011-1.2 (among other NAESB Business Practice Standards not relevant to my question). In its final rule, FERC included a requirement that pipelines and public utilities subject to the standards file a statement with FERC demonstrating compliance therewith on or before November 1, 2007. Allegheny Energy, Inc. questions whether the WEQ Business Practice Standard WEQ-011-1.2 applies to a generation facility that uses natural gas only as a start-up fuel, but not otherwise for operation (i.e. the units are not "natural gas-fired electric generating facilities", at least as the term normally is used). The gas used for the start-up of the two affected generating units is minimal (between 150-750 Dth depending on whether the start-up is from a "cold", "intermediate" or "hot" condition).

Interpretation:

The NAESB WEQ Business Practice Standards WEQ-011 was not intended to be applicable to non-gas-fired generators. The NAESB Business Practice Standards WEQ-000 definitions (WEQ-000-2)¹ are specific that:

1. PPGC is the term used to describe the entity(ies) that has responsibility for gas requirements for a natural gas-fired electric generating facility(ies) and is responsible for coordinating natural gas deliveries with the appropriate Transportation Service Provider(s) to meet those requirements.
2. A PPGC Facility is the term used to describe the natural gas-fired electric generating unit(s) under the direct control of the PPGC.

Both of these definitions apply directly to the standard under consideration – WEQ-011-1.2.

Moreover, in FERC Order No. 698 (Docket Numbers RM96-1-027 and RM05-5-001), paragraphs 1, 12 and 13, as well as in several other locations, the FERC noted that the coordination and communication required by these standards are applied to gas-fired power plant operators and pipelines.² In paragraph 1, it is noted that the standards will help improve coordination between the gas and electric industries in order to improve communications about scheduling of gas-fired generators. In paragraph 12, it is noted that the standards will ensure that pipelines have relevant planning information that will assist in maintaining the operational integrity and reliability of pipeline service, as well as providing gas-fired power plant operators with information as to whether hourly flow deviations can be honored. Similarly, in paragraph 13, it is noted that the information provided through implementation of the standards should assist RCs in assessing the relative reliability of various gas-fired generators.

As such, with the NAESB definitions for PPGC and PPGC Facility and the FERC cites noted, the intent of the standards to be applied to gas-fired generation facilities has been demonstrated. It is not demonstrated that these standards

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were to be applied to non-gas-fired generation facilities, (i.e., facilities that do not rely upon natural gas for daily operations – such as coal-fired power plants).

End Notes for the interpretation:

¹ The NAESB WEQ definitions cited in the interpretation are:

- Power Plant Gas Coordinator (PPGC) is the term used to describe the entity(ies) that has responsibility for gas requirements for a natural gas-fired electric generating facility(ies) and is responsible for coordinating natural gas deliveries with the appropriate Transportation Service Provider(s) to meet those requirements. The PPGC performs a number of coordinated activities, including, but not limited to, power plant operations, unit dispatch, natural gas procurement and/or gas transportation arrangements. Because each PPGC is structured differently, specific responsibilities within each PPGC should be determined by the PPGC and the point of contact for the PPGC should be communicated to the Transportation Service Provider (s). This definition applies to NAESB WEQ Business Practice Standards WEQ-000-2, WEQ-011-1.1, WEQ-011-1.2, WEQ-011-1.3, WEQ-011-1.4, WEQ-001-1.5, and WEQ-011-1.6 and NAESB WGQ Standard Nos. 0.2.2, 0.3.11, 0.3.12, 0.3.13, 0.3.14, and 0.3.15.
- WEQ-011-0.2: A Power Plant Gas Coordinator's Facility is the term used to describe the natural gas-fired electric generating unit(s) under the direct control of the PPGC. This definition applies to NAESB WEQ Business Practice Standards WEQ-011-1.2 and WEQ-011-1.3 and NAESB WGQ Standard Numbers. 0.3.12 and 0.3.13.

² For FERC Order No. 698, the cites in the interpretation are:

1. The Federal Energy Regulatory Commission (Commission) is amending parts 38 and 284 of its open access regulations governing standards for business practices and electronic communications with interstate natural gas pipelines and public utilities. The Commission is incorporating by reference certain standards promulgated by the North American Energy Standards Board (NAESB). Incorporation by reference of these standards will establish communication protocols between interstate pipelines and power plant operators and transmission owners and operators. This will help improve coordination between the gas and electric industries in order to improve communications about scheduling of gas-fired generators. Improved communications should enhance reliability in both industries.
12. The coordination and communication required by these standards will help improve the reliability of both the gas and electric industries by ensuring that all parties have information necessary for the scheduling and dispatch of natural gas-fired generation, and for the scheduling of the natural gas transportation necessary to supply fuel to these generators. The standards, for example, would require gas-fired power plant operators and pipelines to establish procedures to communicate material changes in circumstances that may affect hourly flow rates. These standards ensure that pipelines have relevant planning information that will assist in maintaining the operational integrity and reliability of pipeline service, as well as providing gas-fired power plant operators with information as to whether hourly flow deviations can be honored.
13. The standards further improve communication by requiring electric transmission operators and power plant operators to sign up to receive from connecting pipelines operational flow orders and other critical notices. These standards ensure that operators of the electric grid can stay abreast of developments on gas pipelines that can affect the reliability of electric service. The standards require that, upon request, a gas-fired power plant operator must provide to the appropriate independent electric balancing authority or electric reliability coordinator pertinent information regarding its service levels for gas transportation (firm or interruptible) and for gas supply (firm, fixed or variable quantity, or interruptible). This information should assist reliability coordinators in assessing the relative reliability of various gas-fired generators.



North American Energy Standards Board

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Home Page: www.naesb.org

via email and posting

TO: NAESB Wholesale Electric Quadrant (WEQ) Members and Interested Industry Participants
FROM: Cory Galik Cummings, NAESB Staff Attorney
RE: Request for Formal Comments on WEQ Recommendation WEQ 2009 Annual Plan Items 5.a.2 (R08004) and 5.i (R09011)
DATE: October 2, 2009

Dear NAESB WEQ Members and Interested Industry Participants,

An industry formal comment period begins today, October 2, 2009, and ends on November 2, 2009 for a Wholesale Electric Quadrant recommendation voted out of the Business Practice Subcommittee (BPS) meeting on September 28, 2009:

Recommendation:
2009 WEQ Annual Plan Items 5.a.2 (R08004) and 5.i (R09011) – WEQ-011 Gas/Electric Coordination – Recommendation: http://www.naesb.org/pdf4/weq_2009_api_5a2_5i_r08004_r09011_rec.doc WEQ-011 Gas/Electric Coordination – clean: http://www.naesb.org/pdf4/weq_2009_api_5a2_5i_r08004_r09011_rec_attach2.doc WEQ-011 Gas/Electric Coordination – redlined: http://www.naesb.org/pdf4/weq_2009_api_5a2_5i_r08004_r09011_rec_attach1.doc

All interested parties, regardless of membership status within NAESB are eligible to submit comments for consideration. The Wholesale Electric Quadrant Executive Committee will review the recommendation and consider it for vote during an upcoming Executive Committee meeting. The Executive Committee will review all submitted comments.

All comments received by the NAESB office by the end of business, November 2, 2009 will be posted on the Home Page (WEQ Request Page): http://www.naesb.org/weq_request.asp and forwarded to the WEQ Executive Committee members for their consideration. If you have difficulty downloading the recommendations, please call the NAESB office at (713) 356-0060.

Best Regards,

Cory Galik Cummings

NAESB

cc: Rae McQuade, President

FORMAL COMMENTS

Quadrant: Wholesale Electric Quadrant
Recommendation: Multiple Annual Plan Items Affecting WEQ-011 Gas/Electric Coordination
WEQ 2009 AP Items 5.a.2 (R08004) and 5.i (R09011)
Submitted By: Standards Review Subcommittee
Date: October 15, 2009

Under the Standards Review Subcommittee Scope of Work, which was approved by the SRS on March 6, 2008, the SRS agreed to review recommendations and if subcommittee deemed appropriate, they would submit advisory comments to the Executive Committee for consideration. The subcommittee completed its review of the recommendation and does not have any proposed changes for the Executive Committee to consider.

Consumers Energy Company

WEQ Annual Plan Items 5.a.2 (R08004) and 5.i (R09011) Comments

- **Power Plant Gas Coordinator Facility (PPGC Facility)** – This definition is too broad and not applicable to Consumers Energy's actions, particularly if a third party is involved. The third party would not have direct control.
- **Power Plant Gas Coordinator (PPGC)** – This definition is also too broad. For example, it could describe Consumers Energy or a third party. Under the current definition the **RED** items are physically done by a third party and the **GREEN** are the responsibility of Consumers Energy

The PPGC performs a number of coordinated activities, including, but not limited to, power plant operations, unit dispatch, natural gas procurement and/or gas transportation arrangements.

As you can see, this definition creates more questions than answers.

- **Transportation Service Provider** - This definition also creates more questions for Consumers Energy than it provides answers. As an example, Pipeline Company A physically owns the gas transmission line that serves our Generation plant. Pipeline Company A also provides gas transportation services via tariff to its customers. Company B, acting as our Gas Management Services provider, obtains gas transportation service from Company A so it can delivery gas to the Generation plant and sell it to Consumers Energy. So, it is unclear as written if Transportation Service Provider is Pipeline Company A, in our case, or Company B.

Overall, there needs to be more detail to these definitions to better define what they mean, or add some new definitions like "Gas Transportation System Owner" to perhaps contrast this definition versus Transportation Service Provider.

Late Comments Submitted by the WEQ and WGQ BPS Co-Chairs

FORMAL COMMENTS

Quadrant: Wholesale Electric Quadrant

Recommendation: WEQ 2009 AP Items 5.a.2 (R08004) and 5.i (R09011) "Multiple Annual Plan Items Affecting WEQ-011 Gas/Electric Coordination"

Submitted By: Joint Wholesale Electric Quadrant and Wholesale Gas Quadrant Business Practices Subcommittee Co-Chairs

Date: January 6, 2010

On December 15, 2009 and December 18, 2009, the Wholesale Electric Quadrant and Wholesale Gas Quadrant Business Practices Subcommittees held joint conference calls to review formal comments submitted by the Consumers Energy Company (http://www.naesb.org/pdf4/weq_100209consumers.doc) in response to the recommendation for WEQ 2009 AP Items 5.a.2 (R08004) and 5.i (R09011) "Multiple Annual Plan Items Affecting WEQ-011 Gas/Electric Coordination." Based on our review of the comments, the subcommittee co-chairs, on behalf of the subcommittees, offer the following revisions to the proposed definitions for Power Plant Gas Coordinator, Power Plant Gas Coordinator Facility, and Transportation Service Provider. The terms Power Plant Gas Coordinator and Power Plant Gas Coordinator Facility replace existing terms Power Plant Operator and Power Plant Operator Facility, respectively. The term Transportation Service Provider is being defined for the first time within WEQ business practice standards. The subcommittees request the Wholesale Electric Quadrant Executive Committee consider these comments when taking action on this recommendation. The Wholesale Gas Quadrant Business Practices Subcommittee will be proposing similar changes to the proposed revisions to the definitions for Power Plant Gas Coordinator and Power Plant Gas Coordinator Facility when they post their recommendation for the 30-day formal comment period.

Additionally, the Wholesale Electric Quadrant and Wholesale Gas Quadrant Business Practices Subcommittees request that when the Wholesale Electric Quadrant and Wholesale Gas Quadrants take action on the Gas / Electric Coordination standards, they do so in a Joint Executive Committee meeting to ensure these coordination standards remain consistent.

(Note: The Transportation Service Provider term as documented on the following page will not be included in the Wholesale Gas Quadrant Standards.)

Late Comments Submitted by the WEQ and WGQ BPS Co-Chairs

TERM	DEFINITION
Power Plant Gas Coordinator (PPGC)	The entity(ies) responsible for acquiring natural gas to meet a PPGC Facility's operating requirements and for scheduling the delivery of said natural gas to the PPGC Facility~~that has responsibility for gas requirements for a natural gas-fired electric generating facility(ies) and is responsible for coordinating natural gas deliveries~~ with the appropriate Transportation Service Provider(s) ~~to meet those requirements~~. The PPGC may perform some or all ~~a number of the following~~ coordinated activities, including, but not limited to, power plant operations, unit dispatch, natural gas procurement and/or gas transportation arrangements. Because each PPGC is structured differently, specific responsibilities within each PPGC should be determined by the PPGC and the point of contact for the PPGC should be communicated to the Transportation Service Provider(s). <i>(Note: This also applies to NAESB WGQ Standard Nos. 0.2.1, 0.2.2, 0.3.11, 0.3.12, 0.3.13, 0.3.14, and 0.3.15)</i>
Power Plant Gas Coordinator Facility (PPGC Facility)	~~The~~ A natural gas-fired electric generating unit(s) for which its natural gas supply and transportation requirements are coordinated by a ~~under the direct control of the~~ PPGC. <i>(Note: This definition also applies to NAESB WGQ Standard Nos. 0.2.3, 0.3.12 and 0.3.13)</i>
Transportation Service Provider	Interstate pipeline(s), intrastate pipeline(s), natural gas gathering pipeline(s) or a local distribution company(ies) ~~The entity that is providing~~ natural gas delivery services (e.g., transportation). <i>(Note: This definition also applies to the NAESB Business Practices WGQ Standard Nos. 0.2.1 and 0.3.11 through 0.3.15)</i>



RECOMMENDATION TO NAESB WGQ EXECUTIVE COMMITTEE

Request No. R09011

Requester: Midwest ISO

1. RECOMMENDED ACTION:

☐ Accept as requested
☒ Accept as modified below
☐ Decline

EFFECT OF EC VOTE TO ACCEPT RECOMMENDED ACTION:

☒ Change to Existing Practice
☐ Status Quo

2. TYPE OF MAINTENANCE

Per Request:

☐ Initiation
☐ Modification
☐ Interpretation
☐ Withdrawal

☐ Principle (x.1.z)
☐ Definition (x.2.z)
☒ Business Practice Standard (x.3.z)
☐ Document (x.4.z)
☐ Data Element (x.4.z)
☐ Code Value (x.4.z)
☐ X12 Implementation Guide
☐ Business Process Documentation

Per Recommendation:

☒ Initiation
☒ Modification
☒ Interpretation
☐ Withdrawal

☐ Principle (x.1.z)
☐ Definition (x.2.z)
☒ Business Practice Standard (x.3.z)
☐ Document (x.4.z)
☐ Data Element (x.4.z)
☐ Code Value (x.4.z)
☐ X12 Implementation Guide
☐ Business Process Documentation

3. RECOMMENDATION

SUMMARY:

Modify the following NAESB WGQ Definitions:

0.2.1
0.2.2
0.2.3

Add NAESB WGQ Definition:

0.2.z1

Modify the following NAESB WGQ Standards:

0.3.11
0.3.12
0.3.13
0.3.14
0.3.15



RECOMMENDATION TO NAESB WGQ EXECUTIVE COMMITTEE

Request No. R09011

Requester: Midwest ISO

STANDARDS LANGUAGE:

Proposed Revised NAESB WGQ Definition No. 0.2.1

Power Plant Gas Coordinator (PPGC) Operator (PPO) is the term used to describe the entity(ies) responsible for acquiring natural gas to meet a Power Plant Gas Coordinator Facility's (PPGC Facility) operating requirements and for scheduling the delivery of said natural gas to the PPGC Facility with the appropriate Transportation Service Provider(s) (TSP). ~~that has responsibility for gas requirements for a natural gas-fired electric generating facility(ies) and is responsible for coordinating natural gas deliveries with the appropriate Transportation Service Provider(s) (TSP) to meet those requirements.~~ The PPGC PPO ~~may~~ performs some or all of the following ~~a number of~~ coordinated activities, including, but not limited to, power plant operations, unit dispatch, natural gas procurement, and/or gas transportation arrangements. Because each PPGC PPO is structure differently, specific responsibilities within each PPGC PPO should be determined by the PPGC PPO and the point of contact for the PPGC PPO should be communicated to the TSP(s). This definition applies to NAESB WEQ Business Practice Standard Nos. WEQ-011-0.2, WEQ-011-1.1, WEQ-011-1.2, WEQ-011-1.3, WEQ-011-1.4, WEQ-011-1.5, and WEQ-011-1.6; NAESB WEQ Interpretation No. INT-001; and NAESB WGQ Standard Nos. 0.2.2, 0.3.11, 0.3.12, 0.3.13, 0.3.14, and 0.3.15.

Proposed Revised NAESB WGQ Definition No. 0.2.2

A Power Plant Gas Coordinator Operator's Facility is the term used to describe a the natural gas-fired electric generating unit(s) for which its natural gas supply and transportation requirements are coordinated by a Power Plant Gas Coordinator, under the direct control of the Power Plant Operator. This definition applies to NAESB WEQ Business Practice Standard Nos. WEQ-011-1.2 and WEQ-011-1.3; NAESB WEQ Interpretation No. INT-001; and NAESB WGQ Standard Nos. 0.3.12 and 0.3.13.

Proposed Revised NAESB WGQ Definition No. 0.2.3

Balancing Authority (BA) is the term used by the Wholesale Electric Quadrant to describe the entity responsible entity that integrates for integrating electric resource plans ahead of time, maintains for maintaining electric load-interchange-generation balance within a Balancing Authority Area, its metered boundaries, and supports for supporting electric interconnection frequency in real time. In certain circumstances, a BA may be a Regional Transmission Organization or Independent System Operator. This definition applies to NAESB WEQ Business Practice Standard Nos. WEQ-011-1.4, WEQ-011-1.5, and WEQ-011-1.6 and NAESB WGQ Standard Nos. 0.3.14 and 0.3.15.

Proposed NAESB WGQ Definition No. 0.2.z1

A Reliability Coordinator is the term used to describe the entity that is the highest level of authority who is responsible for the reliable operation of the bulk electric system, has the wide area view of the bulk electric system, and has the operating tools, processes and procedures, including the authority, to prevent or mitigate emergency operating situations in both next-day analysis and real-time operations. This definition applies to NAESB WEQ Business Practice Standard Nos. WEQ-011-1.4, WEQ-011-1.5 and WEQ-011-1.6 and NAESB WGQ Standard Nos. 0.3.14 and 0.3.15.

Proposed Revised NAESB WGQ Standard No. 0.3.11

The Transportation Service Provider (TSP) / Power Plant Gas Coordinator (PPGC) Operator (PPO) communication standards set forth in NAESB WEQ Business Practice Standard Nos. WEQ-000-2, WEQ-011-0.1, WEQ-011-0.2, WEQ-011-0.3, WEQ-011-1.1, WEQ-011-1.2, WEQ-011-1.3, WEQ-011-1.4, WEQ-



RECOMMENDATION TO NAESB WGQ EXECUTIVE COMMITTEE

Request No. R09011

Requester: Midwest ISO

011-1.5, and WEQ-011-1.6 and NAESB WGQ Standard Nos. 0.2.1, 0.2.2, 0.2.3, 0.3.11, 0.3.12, 0.3.13, 0.3.14, and 0.3.15 do not convey any rights or services beyond or in addition to those contained in the TSP's tariff and/or general terms and conditions and/or do not impose any obligations that would otherwise be inconsistent with the requirements of applicable regulatory authorities, ~~including affiliate code of conduct requirements.~~ These communication standards should be used in addition to the NAESB WGQ standard nomination timeline and scheduling processes for the TSP's contract / tariff services. In the event of a conflict between any of these communication standards and the TSP's tariff or general terms and conditions, the latter will prevail.

Proposed Revised NAESB WGQ Standard No. 0.3.12

The Power Plant Gas Coordinator (PPGC) Operator (PPO) and the Transportation Service Provider(s) (TSP) that is directly connected to the PPGC's PPO's Facility(ies) should establish procedures to communicate material changes in circumstances that may impact hourly flow rates. The PPGC PPO should provide projected hourly flow rates as established in the TSP's and PPGC's PPO's communication procedures.

Proposed Revised NAESB WGQ Standard No. 0.3.13

Subject to the conditions of NAESB WEQ Business Practice Standard No. WEQ-011-1.1 and NAESB WGQ Standard No. 0.3.11, this standard applies to a Power Plant Gas Coordinator (PPGC) Operator (PPO) and the Transportation Service Provider (TSP) to whose system the PPGC Facility(ies) PPO facility(ies) is directly connected or with whom the PPGC PPO is a Service Requester.

A PPGC PPO should not operate without an approved scheduled quantity pursuant to the NAESB WGQ standard nomination timeline and scheduling processes or as permitted by the TSP's tariff and/or general terms and conditions, and/or contract provisions. However, if the PPGC PPO reasonably determines that it has circumstances requiring the need to request gas scheduling changes outside of the above-referenced nomination and scheduling processes and the affected TSP(s) supports the processing of such changes, the PPGC PPO should provide its requested daily and hourly flow rates to the TSP(s) (1) as established in the TSP's and PPGC's PPO's communication procedures pursuant to NAESB WEQ Business Practice Standard No. WEQ-011-1.2 and NAESB WGQ Standard No. 0.3.12 and/or (2) as specified in the TSP's(s') tariff or general terms and conditions.

Based upon whether or not the PPGC's PPO's request can be accommodated in accordance with the appropriate application of the affected TSP's(s') tariff requirements, contract provisions, business practices, or other similar provisions, and without adversely impacting other scheduled services, anticipated flows, no-notice services, firm contract requirements and/or general system operations, the PPGC PPO and all of the affected TSPs should work together to resolve the PPGC's PPO's request.

Where the affected TSP determines that it is feasible to provide the PPGC PPO with changes in flow rates without additional communications, no additional communications are required. These procedures will govern such communications unless the applicable parties mutually agree to create alternative communication procedures.

Proposed Revised NAESB WGQ Standard No. 0.3.14

A Transportation Service Provider should provide Balancing Authorities (BA) and/or Reliability Coordinators (RC) Regional Transmission Organizations (RTO), Independent System Operators (ISO), any other appropriate independent transmission operators (ITO), and Power Gas Coordinators (PPGC) Plant Operators (PPO) with notification of operational flow orders and other critical notices through the



RECOMMENDATION TO NAESB WGQ EXECUTIVE COMMITTEE

Request No. R09011

Requester: Midwest ISO

~~PPGC's RTO / ISO / ITO / PPO's~~ choice of Electronic Notice Delivery mechanism(s) as set forth in NAESB WGQ Standard Nos. 5.2.1, 5.2.2, and 5.3.35 – 5.3.38.

Proposed Revised NAESB WGQ Standard 0.3.15

~~Regional Transmission Organizations, Independent System Operators, other independent transmission operators, independent~~ Balancing Authorities and/or ~~Regional~~ Reliability Coordinators should establish written operational communication procedures with the appropriate gas Transportation Service Provider(s) and/or Power Plant Gas Coordinator(s). ~~Operator(s)~~. These procedures should be implemented when an extreme condition could occur, as defined in such procedures.

These procedures will govern unless the applicable parties in the gas and electric industry mutually agree to create alternative written communication procedures that are more appropriate and meet the parties' collective regional operational needs.

Training on and testing of such communication procedures should occur periodically.

TECHNICAL CHANGE LOG (all instructions to accomplish the recommendation)

No technical changes are needed.

4. SUPPORTING DOCUMENTATION

a. Description of Request:

The WEQ and WGQ met on January 30, 2009, to discuss standards request R08020. In that meeting the potential of changing the term Power Plant Operator to Generator Operator was suggested, so that the term would be consistent with NERC terms. During the course of the discussion it was clear that the definition of NAESB Power Plant Operator was not synonymous with the NERC Generator Operator and that the term Power Plant Operator may be broader in scope than its definition. It was suggested in that meeting that the term Power Plant Operator be changed to more closely match its definition. The alternative discussed in the meeting was to change Power Plant Operator to Power Plant Gas Coordinator.

Changing the term Power Plant Operator to Power Plant Gas Coordinator will provide enough distinction between NAESB and NERC terms to avoid confusion between a NAESB Power Plant Operator and the NERC Generator Operator terms. Some people in the conference call thought one term was a subset of the other term and vice versa. In the meeting it was explained by those who worked on the original standard that NAESB Power Plant Operator may or may not be a NERC Generator Operator.

b. Description of Recommendation:

Business Practices Subcommittee

See the Joint WGQ and WEQ Business Practices Subcommittee (BPS) meeting minutes for 09/14/2009, 09/28/2009, 12/15/2009, and 12/18/2009.



RECOMMENDATION TO NAESB WGQ EXECUTIVE COMMITTEE

Request No. R09011

Requester: Midwest ISO

c. Business Purpose:

d. Commentary/Rationale of Subcommittee(s)/Task Force(s):



North American Energy Standards Board

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Home Page: www.naesb.org

via email and posting

TO: NAESB Wholesale Gas Quadrant (WGQ) Members and Interested Industry Participants
FROM: James Culliton, Staff Attorney
RE: WGQ Request for Formal Comments
DATE: March 30, 2010

An industry comment period begins today, March 30, 2010 and ends on April 29, 2010 for the following WGQ recommendation that is posted on the NAESB web site:

Recommendation:
R09011 – “Change the term Power Plant Operator to Power Plant Gas Coordinator in WEQ-011” Recommendation: http://naesb.org/pdf4/r09011_rec.doc

This recommendation was jointly developed by the WEQ and WGQ. The comment period for the parallel WEQ recommendation has already closed, but all interested parties, regardless of membership status within NAESB are eligible to submit comments on this WGQ recommendation. Subsequently, a joint WEQ/WGQ Executive Committee conference call will be held where both the WEQ and WGQ recommendations will be considered and a vote will be taken by the Executive Committees.

All comments received by the NAESB office by end of business on April 29, 2010 will be posted on the Request and Standards Activity Applicable to the WGQ page: http://naesb.org/wgq_request.asp and forwarded to the WGQ Executive Committee members for their consideration. If you have difficulty downloading the recommendations, please call the NAESB office at (713) 356-0060.

Best Regards,
James Culliton

cc: Rae McQuade, President



North American Energy Standards Board

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Home Page: www.naesb.org

via email and posting

TO: NAESB Wholesale Electric Quadrant (WEQ) Members and Interested Industry Participants
FROM: Jonathan Booe, Staff Attorney
RE: Request for Formal Comments on the NAESB Smart Grid Standards Task Force Requirements Specifications for NIST Priority Action Plans 3, 4 and 9
DATE: March 9, 2010

Dear NAESB WEQ Members and Interested Industry Participants,

An industry formal comment period begins today, March 9, 2010, and ends on April 9, 2010 for the Wholesale Electric Quadrant recommendations below:

Recommendations:
2010 WEQ Annual Plan Item 6(a): Requirements Specifications for Common Electricity Product and Pricing Definition – for NIST PAP03 Recommendation: http://naesb.org/pdf4/weq_2010_ap6a_retail_2010_ap9a_rec.doc
2010 WEQ Annual Plan Item 6(b): Requirements Specifications for Common Scheduling Mechanism for Energy Transactions – for NIST PAP04 Recommendation: http://naesb.org/pdf4/weq_2010_ap6b_retail_2010_ap9b_rec.doc
2010 WEQ Annual Plan Item 6(c): Requirements Specifications for Wholesale Standard DR Signals – for NIST PAP09 Recommendation: http://naesb.org/pdf4/weq_2010_ap_6c_rec.doc

All interested parties, regardless of membership status within NAESB, are eligible to submit comments for consideration. The Wholesale Electric Quadrant Executive Committee will review the recommendations and consider them for vote during an upcoming Executive Committee meeting. The Executive Committee will review all submitted comments.

All comments received by the NAESB office by the end of business, April 9, 2010 will be posted on the Home Page (WEQ Request Page): http://www.naesb.org/weq_request.asp and forwarded to the WEQ Executive Committee members for their consideration. If you have difficulty downloading the recommendations, please call the NAESB office at (713) 356-0060.

Best Regards,

Jonathan Booe

NAESB

cc: Rae McQuade, President



North American Energy Standards Board

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Home Page: www.naesb.org

via email and posting

TO: NAESB Retail Electric Quadrant (REQ) Members and Interested Industry Participants
FROM: Jonathan Booe, Staff Attorney
RE: Request for Formal Comments on the NAESB Smart Grid Standards Task Force Requirements Specifications for NIST Priority Action Plans 3, 4 and 9
DATE: March 9, 2010

Dear NAESB REQ Members and Interested Industry Participants,

An industry formal comment period begins today, March 9, 2010, and ends on April 9, 2010 for the Retail Electric Quadrant recommendations below:

Recommendations:
2010 Retail Annual Plan Item 9(a): Requirements Specifications for Common Electricity Product and Pricing Definition – for NIST PAP03 Recommendation: http://naesb.org/pdf4/weq_2010_ap6a_retail_2010_ap9a_rec.doc
2010 Retail Annual Plan Item 9(b): Requirements Specifications for Common Scheduling Mechanism for Energy Transactions – for NIST PAP04 Recommendation: http://naesb.org/pdf4/weq_2010_ap6b_retail_2010_ap9b_rec.doc
2010 Retail Annual Plan Item 9(c): Requirements Specifications for Retail Standard DR Signals – for NIST PAP09 Recommendation: http://naesb.org/pdf4/retail_2010_ap_9c_rec.doc

All interested parties, regardless of membership status within NAESB, are eligible to submit comments for consideration. The Retail Electric Quadrant Executive Committee will review the recommendations and consider them for vote during an upcoming Executive Committee meeting. The Executive Committee will review all submitted comments.

All comments received by the NAESB office by the end of business, April 9, 2010 will be posted on the Home Page (WEQ Request Page): http://www.naesb.org/weq_request.asp and forwarded to the REQ Executive Committee members for their consideration. If you have difficulty downloading the recommendations, please call the NAESB office at (713) 356-0060.

Best Regards,

Jonathan Booe

NAESB

cc: Rae McQuade, President



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

For Quadrant: Wholesale Electric Quadrant (WEQ) and Retail Electric Quadrant (REQ)
Requesters: NAESB Smart Grid Task Force (SGTF)
Request No.: 2010 WEQ Annual Plan Item 6(a) / 2010 REQ Annual Plan Item 9(a)
Request Title: Requirements Specifications for Common Electricity Product and Pricing Definition – for NIST PAP03

1. RECOMMENDED ACTION:

☒ Accept as requested
☐ Accept as modified below
☐ Decline

EFFECT OF EC VOTE TO ACCEPT RECOMMENDED ACTION:

☒ Change to Existing Practice
☐ Status Quo

2. TYPE OF DEVELOPMENT/MAINTENANCE

Per Request:

☒ Initiation
☐ Modification
☐ Interpretation
☐ Withdrawal

☒ Principle
☒ Definition
☒ Business Practice Standard
☐ Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

Per Recommendation:

☒ Initiation
☐ Modification
☐ Interpretation
☐ Withdrawal

☒ Principle
☒ Definition
☒ Business Practice Standard
☐ Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

3. RECOMMENDATION

SUMMARY:

The NAESB Smart Grid Task Force (SGTF) submits this Recommendation that provides requirements for common pricing attributes that can be used as a basis for messaging protocols throughout the electrical energy system from producer through to a variety of energy consumers and the future intelligent devices employed by these consumers. These attributes are not meant to be a message protocol in and of themselves and further analysis and design work will be completed as part of several initiatives, such as ZigBee smart energy, OpenHAN, and OASIS eMIX. These requirements should also be used as an input to the CIM maintained by UCAIug.



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

For Quadrant: Wholesale Electric Quadrant (WEQ) and Retail Electric Quadrant (REQ)
Requesters: NAESB Smart Grid Task Force (SGTF)
Request No.: 2010 WEQ Annual Plan Item 6(a) / 2010 REQ Annual Plan Item 9(a)
Request Title: Requirements Specifications for Common Electricity Product and Pricing Definition – for NIST PAP03

New WEQ-016 Abbreviations/Acronyms and Defined Terms to be added to WEQ-000 are included below for reference (*previously added in Recommendation 2010 WEQ Annual Plan Item 6(b) / 2010 Retail Annual Plan Item 9(b)*)
 (NOTE: NAESB Retail numbering convention will replace WEQ numbering convention in NAESB Retail publication)

000-1 ABBREVIATIONS AND ACRONYMS

Abbreviation / Acronym	Meaning
DDE	Designated Dispatch Entity
EA	Environmental Authority
ED	End Device
FR	Federal Regulator
LA	Local Authority
LSE	Load Serving Entity
MA	Metering Authority
MP	Market Participant
RA	Reliability Authority
RM	Response Method
RMA	Response Method Aggregation
SE	Scheduling Entity
SO	System Operator
SP	Service Provider
SR	State Regulator
TDSP	Transmission/Distribution Service Provider
UC	Utility Customer
UDO	Utility Distribution Operator



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000-2 DEFINITION OF TERMS

Term	Definition
Business Entity	The wholesale or retail entity that interacts with other entities in its market.
Communication Method	The method by which an object communicates with another object to instruct, measure or control.
Control	The role associated with the control of an End Device.
Demand Response Objects	Physical and logical types of demand response resource objects.
Designated Dispatch Entity	A role which carries the responsibility of receiving and processing demand resource dispatch instructions or market information and (optionally) providing response information.
End Device	A physical end-use device that consumes or supplies electricity.
Environmental Authority	A regulatory authority responsible for the development, reporting and enforcement of environmental activities.
Facility	The location at which connection to the transmission or distribution system is made.
Federal Regulator	A Federal regulatory authority.
Load Serving Entity	A role which carries the responsibility of serving end-users and selling electric energy to end-users.
Local Authority	A regulatory authority responsible for the oversight and administration of utility service-related functions within its jurisdiction.
Market Enrollment	The collection of enrollment or tariff data for a Demand Resource Object to provide a specific market product or service.
Market Participant	An organization registered with the System Operator that may take on roles such as SP, LSE, TDSP, DDE, SE, and/or MA in accordance with the System Operator's market rules.



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Term	Definition
Measurement	The role associated with the device or algorithm that measures the consumption or supply of an End Device.
Metering Authority	A role which carries the responsibility of providing data necessary to determine the performance of a Resource.
P-Node	The price location of the Facility in the transmission and/or distribution network.
Participant	The entity that represents resources to a market or distribution operator.
Regulator	A rule-making and enforcement entity.
Reliability Authority	A regulatory authority responsible for the development, reporting and enforcement of electric reliability-related activities.
Response Method	A measurable action taken in response to an instruction to change consumption.
Response Method Aggregation	A logical entity that has a reportable interval level consumption, e.g. a site may also be a physical entity that may have its own meter, a neighborhood of homes that has a net meter, or an estimate of consumption of an aggregation of retail customers.
Resource	A market-dependent group of Response Method Aggregations that represents a dispatchable entity.
Scheduling Entity	A role which carries the responsibility of submitting bids/offers and receives Schedules and Awards.
Service Provider	A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.
State Regulator	A regulatory authority responsible for the oversight and administration of electric utilities.
Supporting Objects	Objects that support the interaction of Business Entities and Demand Response Objects.



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Term	Definition
System Operator	An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.
Transmission/Distribution Service Provider	A role which carries the responsibility of operating a local electricity transmission and/or distribution system.
Utility Customer	An end-use customer of the Utility Distribution Operator that takes on roles such as Facility or Resource.
Utility Distribution Operator	An entity which carries the responsibility of operating an electricity distribution system.
Zone	A physical or electrical region.

New Business Practice Standards WEQ-016 – Smart Grid Activities
(NOTE: NAESB Retail numbering convention will replace WEQ numbering convention in NAESB Retail publication)

RECOMMENDED STANDARDS:

Executive Summary

Specifications for Common Electricity Product and Pricing Definition

The following addresses the business objectives and context for capturing the attributes associated with electricity price and product signals as part of the Smart Grid implementation, which is called for by National Institute of Standards and Technology (NIST) Priority Action Plans (PAP) 03. The North America Energy Standards Board (NAESB) Smart Grid Task Force (SGTF) in cooperation with UCA International Users Group (UCAIug) Open Smart Grid (OpenSG) Task Force, the Independent System Operator/Regional Transmission Organization Council (ISO/RTO Council), and other organizations, has developed the use cases that provide requirements for electricity price and product signal standards.

Because the NAESB Smart Grid Task Force is involved in activities related to several of NIST's Priority Action Plans, the SGTF has developed a standard list of actors and related objects for all Priority Action Plan work coming out of the group. This document also contains an overview of the most common retail rate structures and price-related use cases. Finally, a representative list of price and product attributes is provided.



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The following deals exclusively with the pricing related requirements at both the wholesale and retail levels. The requirements are captured in the form of UML models, where business requirements are captured in Use Case narrative format and data requirements are captured in tabular format. The main use cases that are affected by pricing are:

- Demand Shifting
- Demand Reduction
- Non-Price (Environmental) Response
- Load-follower
- Price-takers

Reliability based responses, both wholesale and retail, is addressed by PAP-09 on DR Signaling.

Introduction

Specifications for Common Electricity Product and Pricing Definon

Purpose: The purpose of the following is to capture business and data requirements related to the definition of a common model for capturing the attributes of an electricity product offered at wholesale and/or retail level. Such attributes will mainly include but are not limited to the pricing information of the product being offered to the end consumers of electricity.

Scope: The scope of the following is to provide business and data requirements, not implementation, of a common pricing model for electricity product.

The electricity rate design process is not included in the scope of these use cases.

Assumptions:

- Wholesale market price signals may have different characteristics than retail market signals.
- Attempts to standardize pricing signals must not hinder regulatory changes or market innovations.



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Business Practice Standards

016-3 Specifications for Common Electricity Product and Pricing Definition

016-3.1 Price signals should be flexible enough to accommodate regulatory changes or market innovations.

016-3.2 ACTORS

The actors used in the use cases are role-based, with the Market Participant and Utility Customer business entities taking on one or more roles. This table contains only actors referenced by use cases in this document.

<u>Actor Name</u>	<u>Proposed Definition</u>	<u>Acronym</u>	<u>Actor ID¹</u>	<u>Examples</u>
<u>Utility Customer</u>	<u>An end-use customer of the Utility Distribution Operator that takes on roles such as Facility or Resource.</u>	<u>UC</u>	<u>2.4</u>	<u>Residential, Industrial</u>
<u>Communication Method</u>	<u>The method by which an object communicates with another object to instruct, measure or control.</u>		<u>5.5</u>	
<u>Control</u>	<u>The role associated with the control of an End Device.</u>		<u>5.2</u>	<u>Facility EMS, Energy Services Interface (ESI) or Gateway</u>
<u>End Device</u>	<u>A physical end-use device that consumes or supplies electricity.</u>	<u>ED</u>	<u>4.5</u>	<u>HAN, Electric Vehicle, or Smart Appliance, Display</u>
<u>Facility</u>	<u>The location at which connection to the transmission or distribution system is</u>		<u>4.3</u>	<u>Electricity Consumer</u>

¹ Actor IDs refer to the identifiers associated with NAESB's Smart Grid Task Force Actors List.

http://www.naesb.org/pdf4/smart_grid_ssd012810a1.xls



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<u>Actor Name</u>	<u>Proposed Definition</u>	<u>Acronym</u>	<u>Actor ID¹</u>	<u>Examples</u>
	<u>made.</u>			
<u>Load Serving Entity</u>	<u>A role which carries the responsibility of serving end-users and selling electric energy to end-users.</u>	<u>LSE</u>	<u>3.2</u>	
<u>Measurement</u>	<u>The role associated with the device or algorithm that measures the consumption or supply of an End Device.</u>		<u>5.1</u>	<u>Meter</u>
<u>Resource</u>	<u>A market-dependent group of Response Method Aggregations that represents a dispatchable entity.</u>		<u>4.1</u>	<u>Supplier, Distributed Energy Resource (DER)</u>
<u>Service Provider</u>	<u>A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.</u>	<u>SP</u>	<u>3.1</u>	<u>Retail Service Provider, Demand Response Provider, Dynamic Price Service Provider</u>
<u>System Operator</u>	<u>An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.</u>	<u>SO</u>	<u>2.1</u>	<u>Market and System Operators</u>



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<u>Actor Name</u>	<u>Proposed Definition</u>	<u>Acronym</u>	<u>Actor ID¹</u>	<u>Examples</u>
<u>Transmission/ Distribution Service Provider</u>	<u>A role which carries the responsibility of operating a local electricity transmission and/or distribution system.</u>	<u>TDSP</u>	<u>3.5</u>	<u>Utility Distribution Company</u>
<u>Utility Distribution Operator</u>	<u>An entity which carries the responsibility of operating an electricity distribution system.</u>	<u>UDO</u>	<u>2.3</u>	<u>Distribution Operator</u>

016-3.3

CONVENTIONS

The use case modeling technique is used for capturing business and data requirements relative to electric product and price information. The relationships used in the Use Case diagrams are as follows:

- Includes: this indicates additional scenarios
- Extends: this indicates alternatives scenarios
- Generalization (line with triangle head): this indicates variations (sub-types) of the main use case.
- Precedes: this indicates a time sequence
- Invokes: this indicates a pre-condition or dependency



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016-3.4 USE CASE OVERVIEW

A tariff establishes the prices paid for the services received, and is based on a variety of factors including wholesale prices, quality and type of service and costs associated with transmission and distribution grid infrastructure and operation. The use cases in this document illustrate the high-level activities associated with publishing prices and how the information is used to evoke a change in consumption.

The table below provides information on common types of energy supply rate structures.

<u>Tariff Rate Type</u>	<u>Target Customers</u>	<u>Description</u>
<u>Block Rate</u>	<u>C&I, Residential</u>	<u>An energy supply rate structure in which the per unit energy price increases or decreases for each successive block of energy consumed.</u>
<u>Critical Peak Price (CPP)</u>	<u>C&I, Residential</u>	<u>An energy supply rate structure whereby "Time of Use Pricing" is in effect with the exception of certain "peak days" at which time electric prices may reflect the costs of electricity at the wholesale level.</u>
<u>Demand Rate</u>	<u>Mainly for C&I Customers, Pilot for Residential Customers</u>	<u>A component of an energy supply rate structure based on the highest demand for electricity measured in a billing period.</u>
<u>Day Ahead Market Rate (DAMR)</u>	<u>C&I, Residential</u>	<u>An energy supply rate structure, typically hourly, based on the day-ahead wholesale market price.</u>
<u>Market Clearing Price for Energy (MCPE)</u>	<u>C&I</u>	<u>An energy rate structure that allows for price changes every 15 minutes based on real-time wholesale market prices.</u>
<u>Peak Time Rebate (PTR)</u>	<u>C&I, Residential</u>	<u>An incentive rate in which the utility pays Customers to reduce demand during peak periods on critical days.</u>
<u>Real Time Price Rate (RTP)</u>	<u>C&I</u>	<u>An energy supply rate structure in which prices can vary, typically on an hourly basis, based on forecast (day-ahead) or actual (real-time) market conditions.</u>
<u>Time of Use</u>	<u>C&I, Residential</u>	<u>An energy supply rate structure where the</u>



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<u>Tariff Rate Type</u>	<u>Target Customers</u>	<u>Description</u>
<u>Rate (TOU)</u>		<u>per unit charge (kWh or kW) varies according to the time of day. Time-of-Use rates may have daily and seasonal variations.</u>
<u>Variable Peak Pricing (VPP)</u>	<u>C&I, Residential</u>	<u>An energy supply rate structure that combines features of TOU and RTP structures to include the flexibility of market price variation and the fixed time periods of a time of use rate.</u>

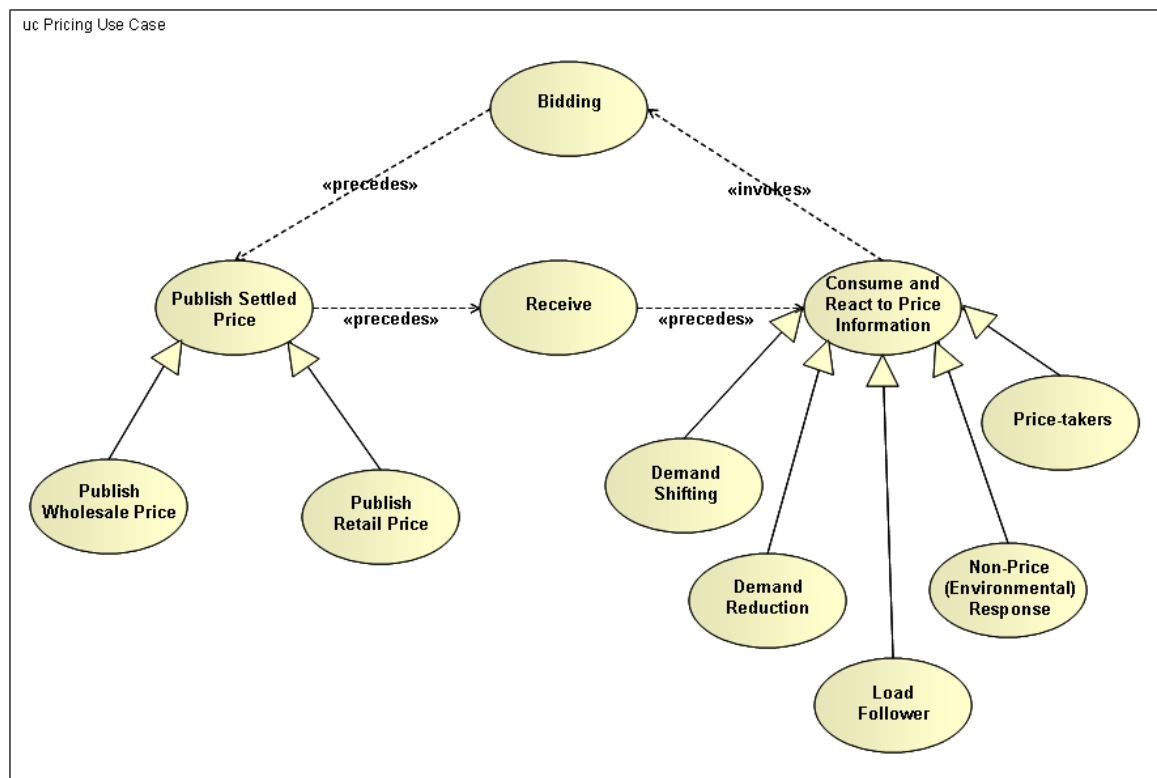


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The Pricing Use Case below provides an overview of the specific use cases described in this document. The results of Bidding produce the Settled Price which is published and then received. The recipient reacts to the price, which affects the next bidding cycle. The following use cases where electricity pricing and product information can be used are described in this document:

- Demand Shifting
- Demand Reduction
- Non-Price (Environmental) Response
- Load-Follower
- Price-takers





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016-3.5 SPECIFIC USE CASES

Specific use cases for what end use consumers of electricity might do when pricing signals are received are listed as follows:

<u>Use Case</u>	<u>Actors</u>	<u>Description</u>	<u>SAMPLE Scenarios</u>
<u>Demand Shifting</u>	<u>Service Provider</u> <u>End Device</u> <u>Facility</u>	<u>Pricing signals are used as a tool to influence when consumers use electricity.</u>	<u>The System Operator published day-ahead prices which are statistically higher than average between 2:30 and 5:30 in the afternoon. Illustrate how different End Devices will respond to a forward energy price signal including:</u> <u>An Energy Management System (EMS) requests Building Automation System (BAS) to “pre-cool” until 2:30 PM.</u> <u>Home-based intelligent device is programmed to operate at a time when electricity is cheaper.</u> <u>An electric plug-in vehicle is programmed to charge when electricity is cheaper.</u>



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<u>Use Case</u>	<u>Actors</u>	<u>Description</u>	<u>SAMPLE Scenarios</u>
<u>Demand Reduction</u>	<u>Control Facility</u>	<u>Pricing signals are used as a tool to influence the quantity of electricity that consumers use.</u>	<u>A Utility Distribution Company's fixed time-of-day tariffs indicates higher price during day, and lower price after 11:00 PM. Demonstrate how different End Devices will response to price differentials:</u> <u>Time-insensitive building systems schedule their run-time programs after 11:00 PM.</u> <u>Homeowner starts appliance at 5:10. The appliance notifies that by waiting 20 minutes to run, the consumer will get lower cost electricity. Homeowner acknowledges.</u>
<u>Environmental Response</u>	<u>Resource End Device Facility</u>	<u>Product characteristics (other than price) are used to influence either the quantity or the time at which the customer uses electricity.</u>	<u>Customer set a price threshold at which "green" power is desirable. Above the "green price" the customer will take any power, below the "green price" the customer will choose suppliers with renewable portfolios.</u> <u>Test the scenario where, at 5:00 PM wind power picks up such that the price of power from renewable sources falls below the "green price" set by the customer.</u> <u>Utility delivers blend of 20% wind, 80% coal during this time of day at .10/kWh. 25% of customers indicate preference to buy pure wind, an over-subscription. Prices for pure wind are bid up to .15/kWh as the wind-sensitive market decreases. 20% of consumers pay the 50% premium to get only wind-only power.</u> <u>1) Local PUC requires that</u>



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<u>Use Case</u>	<u>Actors</u>	<u>Description</u>	<u>SAMPLE Scenarios</u>
			<u>segmentation be revenue-neutral, so bidding for Wind Power reduces undifferentiated power to .0875 kWh.</u> 2) <u>No bidding was required for undifferentiated power, so provider is incentivized to find additional sources of Wind Power.</u> 3) <u>Consumers unable to buy desired Wind Power reduce their aggregate demand.</u> <u>Consumers have programmed non-time-sensitive systems and appliances to not run when Wind Power is not available, time-shifting some demand until Wind Power is available at the desired price.</u> <u>Wind Power always commands a premium over coal power because of higher cost of production. Local regulatory policy requires pass-through of actual market costs for differentiated power. Consumers who buy coal power must buy carbon credits as well. If the [low] cost of coal is combined with the cost of the credit, renewable energy sources become more competitive.</u>
<u>Load Follower</u>	<u>Distributed Energy Resource (DER) and Utility Customer (UC)</u>		<u>A Utility Customer (UC) is also a Distributed Energy Resource (DER). The UC would purchase power up to the price at which they can economically produce power. The use case must prove that such a resource can receive enough information from the pricing signals to change its output according to the resource owner's price curve.</u>



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<u>Use Case</u>	<u>Actors</u>	<u>Description</u>	<u>SAMPLE Scenarios</u>
<u>Price Taker</u>	<u>Distributed Energy Resource (DER)</u>		<u>A DER with no storage capability and zero fuel cost, such as a wind farm or solar array, will produce power at whatever the “market rate” for generation is at the time of production. The use case must prove that such a resource can identify its cost curve (zero in this case), supply energy to the grid, and get paid at the appropriate rate.</u>



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016-3.6 PRICING AND PRODUCT ATTRIBUTES

The following initial attributes were presented early in the PAP-03 meetings and will serve as the initial starting point for further refinement.

016-3.6.1 Product Identification

<u>Attribute</u>	<u>Description</u>	<u>Considerations</u>
<u>Product Identifier</u>	<u>Energy, although largely a non-storable and transitory commodity, is nonetheless still a tradable and sellable entity. Any commodity benefits from having a unique identifier (external) that can unambiguously be used by consumers to identify what it is that they are purchasing.</u>	<u>Examples of product identification scheme used in the financial world is the ISIN (International Security Identifier Number), and Stock ticker symbols used by exchanges.</u> <u>This not a transaction identifier – this would be an industry agreed upon identifier for a particular energy product offering.</u>
<u>Identifier source</u>	<u>Identification of the source of the product identifier.</u>	<u>In most systems there are competing or alternative product identification schemes. The Identifier source reference the product identification scheme for the Product Identifier.</u>
<u>Product Type</u>	<u>A product type.</u>	<u>Attempt to fit the product type within already in place ontologies or product classifications used within industry for trading energy. See 5.1 for suggestions.</u>
<u>Product Sub-Type</u>	<u>The sub-type of product</u>	<u>Products may be further divided into subtypes, for example Reserve products may be 10-minute or 30-minute response.</u>
<u>Unit of Measure for Product</u>	<u>Unit of measure the product.</u>	<u>The unit of measure such as MWh or kWh.</u>



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016-3.6.2 Pricing Attributes

<u>Attribute</u>	<u>Description</u>	<u>Considerations</u>
<u>Total Price</u>	<u>Total Price of the product at point of delivery</u>	<u>Price is expressed as currency per Unit of Measure, i.e. quantity is not required, e.g. \$/MWh</u> <u>Total Price = Sum (Price Components)</u>
<u>Set of 1..n Price Components</u>		
<u>Price Component</u>	<u>A component of the price.</u>	<u>Price may have one or more components. The sum of all Price Components must equal the Total Price</u>
<u>Price Component Type</u>	<u>The type of Price Component</u>	<u>A standard set of price component types shall be enumerated, such as:</u> <u>Wholesale electricity cost</u> <u>Transmission costs</u> <u>Distribution costs</u>
<u>Price Type</u>	<u>Type of price</u>	<u>A standard set of price types will need to be defined Real Time, 5 minute, day ahead, as examples for price types</u>
<u>Override Unit of Measure for the Product</u>	<u>Unit of measure which is used to determine the price</u>	<u>Alternative Unit of Measure used in calculating the price.</u>
<u>Currency</u>	<u>The Currency of the Total Price and Price Components</u>	<u>Currency is required to determine the units of measure of the Total Price and Price Components. The Energy Units of Measure are defined by the Product Type.</u>



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<u>Attribute</u>	<u>Description</u>	<u>Considerations</u>
<u>Time and Interval</u>	<u>Interval of energy delivery</u>	<u>Timezone conventions and use need to be unambiguously defined and agreed upon.</u> <u>Daily blocks, hourly markets, 5 minute markets.</u> <u>A decision in how basic product information will reference and interact with the WS-Calendar initiative being completed as part of PAP-04.</u>
<u>Source Location Identifier</u>	<u>Location of the source of the electric energy</u>	<u>Electrical energy cost and value are greatly impacted by the distance between generation and consumption. Indicating the source of the generation is important in terms of pricing decisions on part of consumers and intermediaries.</u> <u>The use of source location would mainly be used for bilateral transactions.</u>
<u>Source Location Identifier Type</u>	<u>Type of location.</u>	<u>The mechanism used to identify location can be defined in multiple sources based upon specific usage from control areas to GPS coordinates it is anticipated that there may need to be more than one method to identify a geographical location.</u> <u>Where possible existing industry standards should be adopted to identify geographic locations.</u>



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016-3.7 SUPPLEMENTAL MATERIAL

016-3.7.1 Product Types and Sub Type Enumerations

The following values are suggested for use in classification of electrical energy.² NERC document (see section 1.2). These would be in addition to ENERGY and CAPACITY.

<u>Value</u>	<u>Description</u>
<u>REGULATION</u>	<u>The provision of generation and load response capability, including capacity, energy, and MANEUVERABILITY, that responds to automatic controls issued by the OPERATING AUTHORITY.</u>
<u>LOAD FOLLOWING</u>	<u>The provision of generation and load response capability, including capacity, energy, and MANEUVERABILITY, that is dispatched within a scheduling period by the OPERATING AUTHORITY.</u>
<u>CONTINGENCY RESERVE</u>	<u>The provision of capacity deployed by the OPERATING AUTHORITY to reduce AREA CONTROL ERROR to meet the Disturbance Control Standard (DCS) and other NERC and Regional Reliability Council contingency requirements. CONTINGENCY RESERVES are composed of CONTINGENCY RESERVE-SPINNING and CONTINGENCY RESERVE-SUPPLEMENTAL.</u>
<u>REACTIVE POWER SUPPLY FROM GENERATION SOURCES</u>	<u>The provision of reactive capacity, reactive energy, and responsiveness from IOS RESOURCES, available to control voltages and support operation of the BULK ELECTRIC SYSTEM.</u>

² NERC Reference Document Interconnected Operations Services, 1.2 Definition of Terms.



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<u>Value</u>	<u>Description</u>
<u>FREQUENCY RESPONSE</u>	<u>The provision of capacity from IOS RESOURCES that deploys automatically to stabilize frequency following a significant and sustained frequency deviation on the INTERCONNECTION.</u>
<u>SYSTEM BLACK START CAPABILITY</u>	<u>The provision of generating equipment that, following a system blackout, is able to: 1) start without an outside electrical supply; and 2) energize a defined portion of the transmission system. SYSTEM BLACK START CAPABILITY serves to provide an initial startup supply source for other system capacity as one part of a broader restoration process to re-energize the transmission system.</u>



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016-A

Appendix A – Entity-Relationship Model

The following terms and definitions correspond to a set of actor/object classes and sub-classes as illustrated in the entity-relationship model in Figure 1 of Appendix A. Abbreviations/Acronyms correspond to the IDs shown in the figure.

ABBREVIATIONS AND ACRONYMS

Abbreviation / Acronym	Meaning
<u>DDE</u>	<u>Designated Dispatch Entity</u>
<u>EA</u>	<u>Environmental Authority</u>
<u>ED</u>	<u>End Device</u>
<u>FR</u>	<u>Federal Regulator</u>
<u>LA</u>	<u>Local Authority</u>
<u>LSE</u>	<u>Load Serving Entity</u>
<u>MA</u>	<u>Metering Authority</u>
<u>MP</u>	<u>Market Participant</u>
<u>RA</u>	<u>Reliability Authority</u>
<u>RM</u>	<u>Response Method</u>
<u>RMA</u>	<u>Response Method Aggregation</u>
<u>SE</u>	<u>Scheduling Entity</u>
<u>SO</u>	<u>System Operator</u>
<u>SP</u>	<u>Service Provider</u>
<u>SR</u>	<u>State Regulator</u>
<u>TDSP</u>	<u>Transmission/Distribution Service Provider</u>
<u>UC</u>	<u>Utility Customer</u>
<u>UDO</u>	<u>Utility Distribution Operator</u>



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DEFINITION OF TERMS

Term	Definition
<u>Business Entity</u>	<u>The wholesale or retail entity that interacts with other entities in its market.</u>
<u>Communication Method</u>	<u>The method by which an object communicates with another object to instruct, measure or control.</u>
<u>Control</u>	<u>The role associated with the control of an End Device.</u>
<u>Demand Response Objects</u>	<u>Physical and logical types of demand response resource objects.</u>
<u>Designated Dispatch Entity</u>	<u>A role which carries the responsibility of receiving and processing demand resource dispatch instructions or market information and (optionally) providing response information.</u>
<u>End Device</u>	<u>A physical end-use device that consumes or supplies electricity.</u>
<u>Environmental Authority</u>	<u>A regulatory authority responsible for the development, reporting and enforcement of environmental activities.</u>
<u>Facility</u>	<u>The location at which connection to the transmission or distribution system is made.</u>
<u>Federal Regulator</u>	<u>A Federal regulatory authority.</u>
<u>Load Serving Entity</u>	<u>A role which carries the responsibility of serving end-users and selling electric energy to end-users.</u>
<u>Local Authority</u>	<u>A regulatory authority responsible for the oversight and administration of utility service-related functions within its jurisdiction.</u>
<u>Market Enrollment</u>	<u>The collection of enrollment or tariff data for a Demand Resource Object to provide a specific market product or service.</u>
<u>Market Participant</u>	<u>An organization registered with the System Operator that may take on roles such as SP, LSE, TDSP, DDE, SE, and/or MA in accordance with the System Operator's market rules.</u>



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Term	Definition
<u>Measurement</u>	<u>The role associated with the device or algorithm that measures the consumption or supply of an End Device.</u>
<u>Metering Authority</u>	<u>A role which carries the responsibility of providing data necessary to determine the performance of a Resource.</u>
<u>P-Node</u>	<u>The price location of the Facility in the transmission and/or distribution network.</u>
<u>Participant</u>	<u>The entity that represents resources to a market or distribution operator.</u>
<u>Regulator</u>	<u>A rule-making and enforcement entity.</u>
<u>Reliability Authority</u>	<u>A regulatory authority responsible for the development, reporting and enforcement of electric reliability-related activities.</u>
<u>Response Method</u>	<u>A measurable action taken in response to an instruction to change consumption.</u>
<u>Response Method Aggregation</u>	<u>A logical entity that has a reportable interval level consumption, e.g. a site may also be a physical entity that may have its own meter, a neighborhood of homes that has a net meter, or an estimate of consumption of an aggregation of retail customers.</u>
<u>Resource</u>	<u>A market-dependent group of Response Method Aggregations that represents a dispatchable entity.</u>
<u>Scheduling Entity</u>	<u>A role which carries the responsibility of submitting bids/offers and receives Schedules and Awards.</u>
<u>Service Provider</u>	<u>A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.</u>
<u>State Regulator</u>	<u>A regulatory authority responsible for the oversight and administration of electric utilities.</u>
<u>Supporting Objects</u>	<u>Objects that support the interaction of Business Entities and Demand Response Objects.</u>



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Term	Definition
<u>System Operator</u>	<u>An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.</u>
<u>Transmission/Distribution Service Provider</u>	<u>A role which carries the responsibility of operating a local electricity transmission and/or distribution system.</u>
<u>Utility Customer</u>	<u>An end-use customer of the Utility Distribution Operator that takes on roles such as Facility or Resource.</u>
<u>Utility Distribution Operator</u>	<u>An entity which carries the responsibility of operating an electricity distribution system.</u>
<u>Zone</u>	<u>A physical or electrical region.</u>



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

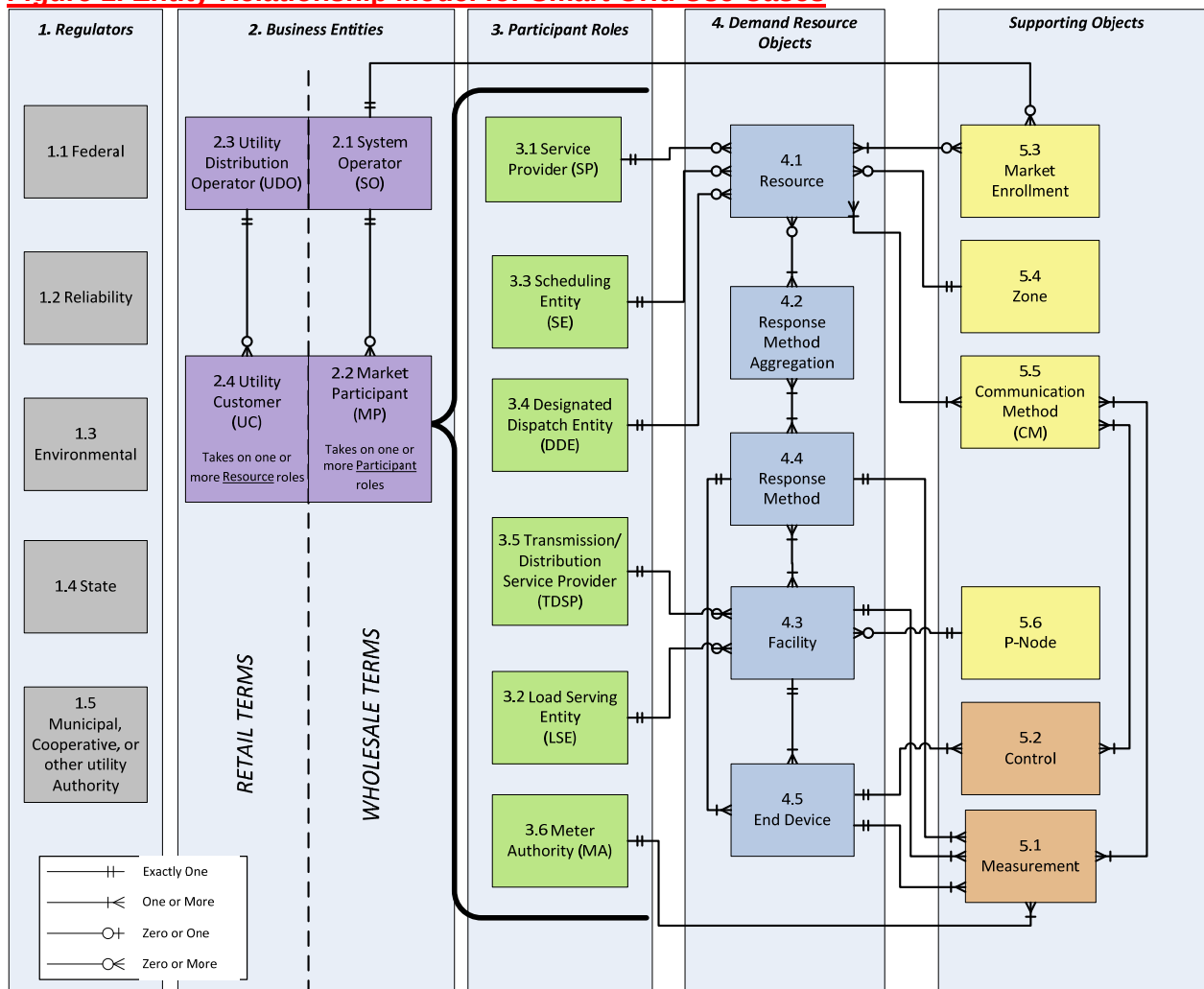
For Quadrant: Wholesale Electric Quadrant (WEQ) and Retail Electric Quadrant (REQ)

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Figure 1. Entity-Relationship Model for Smart Grid Use Cases





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4. Supporting Documentation

a. Description of Request:

On September 30, 2009 the National Institute of Standards and Technology officially assigned NAESB the responsibility to develop Requirements and Use Cases pertinent to Priority Action Plan items 3, 4 and 9. A complete description of each item is available on the NIST Web site located at <http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/WebHome>

This recommendation specifically pertains to PAP 03³, “Develop Common Specification for Price and Product Definition”.

b. Description of Recommendation:

See Section 3 Summary

c. Business Purpose:

This recommendation has been developed in response to a request from NIST to provide use cases and requirements germane to the development of common specification for electric price and production definition.

d. Commentary/Rationale of Subcommittee(s)/Task Force(s):

Joint Smart Grid Standards Task Force and Fix Protocol Meeting Notes/Documents:

- September 17, 2009 Meeting Notes – To be posted
- October 1, 2009 Meeting Notes – To be posted
- October 15, 2009 Meeting Notes – To be posted

NAESB Smart Grid Standards Task Force Sub-Group Meeting Notes/Documents:

- October 13, 2009 Meeting Notes – To be posted
- October 20, 2009 Meeting Notes – To be posted
- October 27, 2009 Meeting Notes – To be posted
- November 3, 2009 Meeting Notes – To be posted
- November 4-6, 2009 Meeting Notes – To be posted
- November 10, 2009 Meeting Notes – To be posted

NAESB Smart Grid Standards Task Force Meeting Notes/Documents:

- October 22, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd102209notes.doc
- October 29, 2009 Meeting Notes – To be posted

³ <http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/PAP03PriceProduct>



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- November 5, 2009 Meeting Notes – To be posted
- November 13, 2009 Meeting Notes – To be posted
- December 3, 2009 Meeting Notes – To be posted
- December 10, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd121009notes.doc
- December 17, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd121709notes.doc
- January 7, 2010 Meeting Notes – To be posted
- January 14, 2010 Meeting Notes – To be posted
- January 21, 2010 Meeting Notes – To be posted
- January 28, 2010 Meeting Notes – To be posted
- February 5, 2010 Meeting Notes – To be posted
- February 18, 2010 Meeting Notes – To be posted



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Request Title: Requirements Specifications for Common Scheduling Mechanism for Energy Transactions – for NIST PAP04

1. RECOMMENDED ACTION:

☒ Accept as requested
☐ Accept as modified below
☐ Decline

EFFECT OF EC VOTE TO ACCEPT RECOMMENDED ACTION:

☒ Change to Existing Practice
☐ Status Quo

2. TYPE OF DEVELOPMENT/MAINTENANCE

Per Request:

☒ Initiation
☐ Modification
☐ Interpretation
☐ Withdrawal

☒ Principle
☒ Definition
☒ Business Practice Standard Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

Per Recommendation:

☒ Initiation
☐ Modification
☐ Interpretation
☐ Withdrawal

☒ Principle
☒ Definition
☒ Business Practice Standard Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

3. RECOMMENDATION

SUMMARY:

The NAESB Smart Grid Task Force (SGTF) submits this Recommendation to define the range of information required to establish the breadth of the communication requirement. There is no need for the cases to be exhaustive, merely illustrative of the full scope.



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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New WEQ-016 Abbreviations/Acronyms and Defined Terms to be added to WEQ-000

(NOTE: NAESB Retail numbering convention will replace WEQ numbering convention in NAESB Retail publication)

000-1 ABBREVIATIONS AND ACRONYMS

Abbreviation / Acronym	Meaning
<u>DDE</u>	<u>Designated Dispatch Entity</u>
<u>EA</u>	<u>Environmental Authority</u>
<u>ED</u>	<u>End Device</u>
<u>FR</u>	<u>Federal Regulator</u>
<u>LA</u>	<u>Local Authority</u>
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000-2 DEFINITION OF TERMS

Term	Definition
<u>Business Entity</u>	<u>The wholesale or retail entity that interacts with other entities in its market.</u>
<u>Communication Method</u>	<u>The method by which an object communicates with another object to instruct, measure or control.</u>
<u>Control</u>	<u>The role associated with the control of an End Device.</u>
<u>Demand Response Objects</u>	<u>Physical and logical types of demand response resource objects.</u>
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<u>Load Serving Entity</u>	<u>A role which carries the responsibility of serving end-users and selling electric energy to end-users.</u>
<u>Local Authority</u>	<u>A regulatory authority responsible for the oversight and administration of utility service-related functions within its jurisdiction.</u>
<u>Market Enrollment</u>	<u>The collection of enrollment or tariff data for a Demand Resource Object to provide a specific market product or service.</u>
<u>Market Participant</u>	<u>An organization registered with the System Operator that may take on roles such as SP, LSE, TDSP, DDE, SE, and/or MA in accordance with the System Operator's market rules.</u>



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Term	Definition
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<u>Regulator</u>	<u>A rule-making and enforcement entity.</u>
<u>Reliability Authority</u>	<u>A regulatory authority responsible for the development, reporting and enforcement of electric reliability-related activities.</u>
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<u>Resource</u>	<u>A market-dependent group of Response Method Aggregations that represents a dispatchable entity.</u>
<u>Scheduling Entity</u>	<u>A role which carries the responsibility of submitting bids/offers and receives Schedules and Awards.</u>
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<u>State Regulator</u>	<u>A regulatory authority responsible for the oversight and administration of electric utilities.</u>
<u>Supporting Objects</u>	<u>Objects that support the interaction of Business Entities and Demand Response Objects.</u>



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Term	Definition
<u>System Operator</u>	<u>An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.</u>
<u>Transmission/Distribution Service Provider</u>	<u>A role which carries the responsibility of operating a local electricity transmission and/or distribution system.</u>
<u>Utility Customer</u>	<u>An end-use customer of the Utility Distribution Operator that takes on roles such as Facility or Resource.</u>
<u>Utility Distribution Operator</u>	<u>An entity which carries the responsibility of operating an electricity distribution system.</u>
<u>Zone</u>	<u>A physical or electrical region.</u>

New Business Practice Standards WEQ-016 – Smart Grid Activities

(NOTE: NAESB Retail numbering convention will replace WEQ numbering convention in NAESB Retail publication)

RECOMMENDED STANDARDS:

Executive Summary

Requirements Specification for Common Scheduling Mechanism for Energy Transactions

The following contains a set of requirements relating to the use of date and time based data elements that are used in transactions for Demand Response Programs. This information is being provided to NIST in order to aid in the development of a standard representation for date/time based data elements derived from an XML representation of iCalendar¹.

Although there are many other areas where date/time based data elements are used in energy industry transactions this recommendation is limited in scope to only those date/time based data elements that are utilized in Demand Response Programs.

Introduction

¹ <http://tools.ietf.org/html/rfc5545>



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Requirements Specification for Common Scheduling Mechanism for Energy Transactions

Smart grid interfaces must communicate between domains, that is between different business and consumer entities with different values and approaches (ontologies). Such interfaces must be simplified to bare essentials, and be understandable by parties with different backgrounds and expectations.

To achieve cross-domain understandability, and thereby enhance interoperation, smart grid transactions must use semantic models from different areas developed by different standards groups. Each of these vocabularies is most fully defined in one area. We have agreed, within the NIST process, to use the vocabularies from the appropriate domain experts to compose the message that flow between domains on the smart grid.

In the following, we defined transactions as grid events that occur between domains, or whose effects and outcomes must be communicated between domains. This activity makes no assertions about any other events.

Smart grid transactions communicate three classes of information. They describe events used within the power management and distribution of the grid. They invoke financial or business transactions concerning those transactions. They communicate schedules and interval information for the flows of energy. Per agreement, all semantics relating to Power Management will use the Common Information Model (CIM) from IEC TC57. All financial and market semantics will be based upon the definitions found in ISO 20022 (Financial Documents) and in their most common expression, FIX. All elements relating to schedule and interval will be expressed in the notation of the IETF iCalendar (RFC 5545) standard, as defined in the XML representation of iCalendar developed by CalConnect. The purpose of this approach is to increase interoperation and understanding between domains.

The group primarily associated with the development of interoperable enterprise date, time, and interval standards for the IETF is the Calendaring and Scheduling Consortium (CalConnect). CalConnect and OASIS will work together to define the common communication of date time and interval to meet the needs of smart grid transaction communications as well as for building systems integration, enterprise interaction, and financial transactions. This commonality is anticipated to reduce barriers to interoperation and thereby to expand participation in DR and DER.

The purpose of this action is to define the requirements for standard communication of date, time, schedule, and interval by smart grid actors, with particular attention to demand response (DR). These requirements will be submitted to the OASIS and CalConnect technical committee to define the applicable communication standards to support them.

Scope: The scope of the following is to define the range of information required to establish the breadth of the communication requirement. There is no need for the cases to be exhaustive, merely illustrative of the full scope.



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Assumptions: We assume as given that common semantics for communicating schedule, interval, and sequence will enhance interoperation between domains and between business entities.

Business Practice Standards

016-1 REQUIREMENTS SPECIFICATION FOR COMMON SCHEDULING MECHANISM FOR ENERGY TRANSACTIONS

016-1.1 USE CASE OVERVIEW

016-1.1.1 Requirements for Date and Time Usage

Demand Response Programs employ a combination of absolute dates/times, absolute periods (range) of dates/times, relative dates/times, recurring dates/times, absolute intervals and absolute durations in order to communicate temporal information pertaining to demand response transactions. Demand Response Programs must also accommodate time zone variations, leap years, leap seconds, and the use of daylight savings time. Any calendaring/scheduling standard that is applicable to Demand Response programs must be capable of supporting this range of requirements.

An incomplete, but representative, set of instances is provided below. The sample data included are non-normative representations; they are included to clarify the expectation of information that will be in the standard.

<u>Type of Representation</u>	<u>Representative Instance</u>	<u>Sample Data</u>
<u>Absolute date/time</u>	<u>Effective start date</u>	<u>2009-11-01</u>
	<u>Effective start date and time</u>	<u>2009-11-01T01:00:00-Z</u>
<u>Absolute Periods (range)</u>	<u>Deployment Period</u>	<u>2009-11-01T01:00:00-Z/ 2009-11-02T24:00:00-Z</u>
<u>Relative date/time (time-point)</u>	<u>Reduction Deadline</u>	<u>30 minutes from a specified point in time</u>
<u>Recurring date/time</u>	<u>Market Closing</u>	<u>Every day at 12:00 noon</u>



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<u>Type of Representation</u>	<u>Representative Instance</u>	<u>Sample Data</u>
<u>Absolute Interval</u>	<u>Meter Data Recording Interval</u>	<u>Every 5 minutes</u>
	<u>System Frequency</u>	<u>60 cycles per second</u>
<u>Absolute Duration</u>	<u>Outage Duration</u>	<u>2 days</u>
	<u>Minimum Run Time</u>	<u>4 hours</u>

It is an additional requirement that all schedule and interval communications be able to express the precision required in the response. For example, an actor may be required to perform within five minutes, or within five milliseconds of the agreed upon time.



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016-1.2 SPECIFIC USE CASES

016-1.2.1 Date and Time Based Data Elements Utilized in Demand Response Programs

The representative instances named in the table below are representative of those used in smart grid transactions. Although some instances may have been seen under other names in different markets, standardizing those names is beyond the scope of this activity, which is limited to standardizing communication of date, time, schedule, and interval. These instances are sufficiently diverse to define the range of communications that the standard must support.

<u>Representative Instances</u>	<u>Description</u>
<u>Adjustment Window</u>	<u>The period prior to a Demand Response Event used for calculating a Baseline Adjustment.</u>
<u>Advance Notification</u>	<u>One or more communications to Demand Resources of an impending Demand Response Event transmitted in advance of the actual event.</u>
<u>Baseline Window</u>	<u>The window of time preceding and optionally following, a Demand Response Event over which electricity consumption data is collected for the purpose of establishing a Baseline.</u>
<u>Demand Response Event</u>	<u>The periods, deadlines, and transitions during which Demand Resources perform. The Program Administrator should specify the duration and applicability of a Demand Response Event. Not all deadlines, periods, and transitions may be applicable to all Demand Response products or services.</u>
<u>Deployment</u>	<u>The time at which a Demand Resource begins reducing Demand on the system in response to an instruction.</u>



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

For Quadrant: Wholesale Electric Quadrant (WEQ) and Retail Electric Quadrant (REQ)
Requesters: NAESB Smart Grid Task Force (SGTF)
Request No.: 2010 WEQ Annual Plan Item 6(b) / 2010 Retail Annual Plan Item 9(b)
Request Title: Requirements Specifications for Common Scheduling Mechanism for Energy Transactions – for NIST PAP04

<u>Representative Instances</u>	<u>Description</u>
<u>Deployment Period</u>	<u>The time in a Demand Response Event beginning with the Deployment and ending with the Release/Recall</u>
<u>Meter Data Recording Interval</u>	<u>The time between electricity meter consumption recordings</u>
<u>Meter Data Reporting Deadline</u>	<u>The maximum allowed time from the end of a Demand Response Event (Normal Operations) to the time when meter data submission is required for performance evaluation and settlement. The Meter Data Reporting Deadline may be either relative (a number of hours/days after Normal Operations) or fixed (a fixed calendar time, such as end-of-month).</u>
<u>Normal Operations</u>	<u>The time following Release/Recall at which a Program Administrator may require a Demand Resource to have returned its Load consumption to normal levels, and to be available again for Deployment</u>
<u>Performance Window</u>	<u>The period in a Demand Response Event analyzed by the Program Administrator to measure and verify the Demand Reduction Value for a Demand Resource.</u>
<u>Ramp Period</u>	<u>The time between Deployment and Reduction Deadline, representing the period of time over which a Demand Resource is expected to achieve its change in Demand</u>
<u>Recovery Period</u>	<u>The time between Release/Recall and Normal Operations, representing the window over which Demand Resources are required to return to their normal Load.</u>
<u>Reduction Deadline</u>	<u>The time at the end of the Ramp Period when a Demand Resource is required to have met its Demand Reduction Value obligation</u>
<u>Release/Recall</u>	<u>The time when a Program Administrator notifies a Demand Resource that the Deployment Period has ended or will end</u>



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<u>Representative Instances</u>	<u>Description</u>
<u>Sustained Response Period</u>	<u>The time between Reduction Deadline and Release/Recall, representing the window over which a Demand Resource is required to maintain its reduced net consumption of electricity</u>
<u>Telemetry Interval</u>	<u>The time unit between communications between a Demand Resource or Demand Response Provider and a Program Administrator</u>



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016-A

Appendix A – Entity-Relationship Model

The following terms and definitions correspond to a set of actor/object classes and sub-classes as illustrated in the entity-relationship model in Figure 1 of Appendix A. Abbreviations/Acronyms correspond to the IDs shown in the figure.

ABBREVIATIONS AND ACRONYMS

Abbreviation / Acronym	Meaning
<u>DDE</u>	<u>Designated Dispatch Entity</u>
<u>EA</u>	<u>Environmental Authority</u>
<u>ED</u>	<u>End Device</u>
<u>FR</u>	<u>Federal Regulator</u>
<u>LA</u>	<u>Local Authority</u>
<u>LSE</u>	<u>Load Serving Entity</u>
<u>MA</u>	<u>Metering Authority</u>
<u>MP</u>	<u>Market Participant</u>
<u>RA</u>	<u>Reliability Authority</u>
<u>RM</u>	<u>Response Method</u>
<u>RMA</u>	<u>Response Method Aggregation</u>
<u>SE</u>	<u>Scheduling Entity</u>
<u>SO</u>	<u>System Operator</u>
<u>SP</u>	<u>Service Provider</u>
<u>SR</u>	<u>State Regulator</u>
<u>TDSP</u>	<u>Transmission/Distribution Service Provider</u>
<u>UC</u>	<u>Utility Customer</u>
<u>UDO</u>	<u>Utility Distribution Operator</u>



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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DEFINITION OF TERMS

Term	Definition
<u>Business Entity</u>	<u>The wholesale or retail entity that interacts with other entities in its market.</u>
<u>Communication Method</u>	<u>The method by which an object communicates with another object to instruct, measure or control.</u>
<u>Control</u>	<u>The role associated with the control of an End Device.</u>
<u>Demand Response Objects</u>	<u>Physical and logical types of demand response resource objects.</u>
<u>Designated Dispatch Entity</u>	<u>A role which carries the responsibility of receiving and processing demand resource dispatch instructions or market information and (optionally) providing response information.</u>
<u>End Device</u>	<u>A physical end-use device that consumes or supplies electricity.</u>
<u>Environmental Authority</u>	<u>A regulatory authority responsible for the development, reporting and enforcement of environmental activities.</u>
<u>Facility</u>	<u>The location at which connection to the transmission or distribution system is made.</u>
<u>Federal Regulator</u>	<u>A Federal regulatory authority.</u>
<u>Load Serving Entity</u>	<u>A role which carries the responsibility of serving end-users and selling electric energy to end-users.</u>
<u>Local Authority</u>	<u>A regulatory authority responsible for the oversight and administration of utility service-related functions within its jurisdiction.</u>
<u>Market Enrollment</u>	<u>The collection of enrollment or tariff data for a Demand Resource Object to provide a specific market product or service.</u>
<u>Market Participant</u>	<u>An organization registered with the System Operator that may take on roles such as SP, LSE, TDSP, DDE, SE, and/or MA in accordance with the System Operator's market rules.</u>



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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Term	Definition
<u>Measurement</u>	<u>The role associated with the device or algorithm that measures the consumption or supply of an End Device.</u>
<u>Metering Authority</u>	<u>A role which carries the responsibility of providing data necessary to determine the performance of a Resource.</u>
<u>P-Node</u>	<u>The price location of the Facility in the transmission and/or distribution network.</u>
<u>Participant</u>	<u>The entity that represents resources to a market or distribution operator.</u>
<u>Regulator</u>	<u>A rule-making and enforcement entity.</u>
<u>Reliability Authority</u>	<u>A regulatory authority responsible for the development, reporting and enforcement of electric reliability-related activities.</u>
<u>Response Method</u>	<u>A measurable action taken in response to an instruction to change consumption.</u>
<u>Response Method Aggregation</u>	<u>A logical entity that has a reportable interval level consumption, e.g. a site may also be a physical entity that may have its own meter, a neighborhood of homes that has a net meter, or an estimate of consumption of an aggregation of retail customers.</u>
<u>Resource</u>	<u>A market-dependent group of Response Method Aggregations that represents a dispatchable entity.</u>
<u>Scheduling Entity</u>	<u>A role which carries the responsibility of submitting bids/offers and receives Schedules and Awards.</u>
<u>Service Provider</u>	<u>A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.</u>
<u>State Regulator</u>	<u>A regulatory authority responsible for the oversight and administration of electric utilities.</u>
<u>Supporting Objects</u>	<u>Objects that support the interaction of Business Entities and Demand Response Objects.</u>



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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Term	Definition
<u>System Operator</u>	<u>An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.</u>
<u>Transmission/Distribution Service Provider</u>	<u>A role which carries the responsibility of operating a local electricity transmission and/or distribution system.</u>
<u>Utility Customer</u>	<u>An end-use customer of the Utility Distribution Operator that takes on roles such as Facility or Resource.</u>
<u>Utility Distribution Operator</u>	<u>An entity which carries the responsibility of operating an electricity distribution system.</u>
<u>Zone</u>	<u>A physical or electrical region.</u>



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

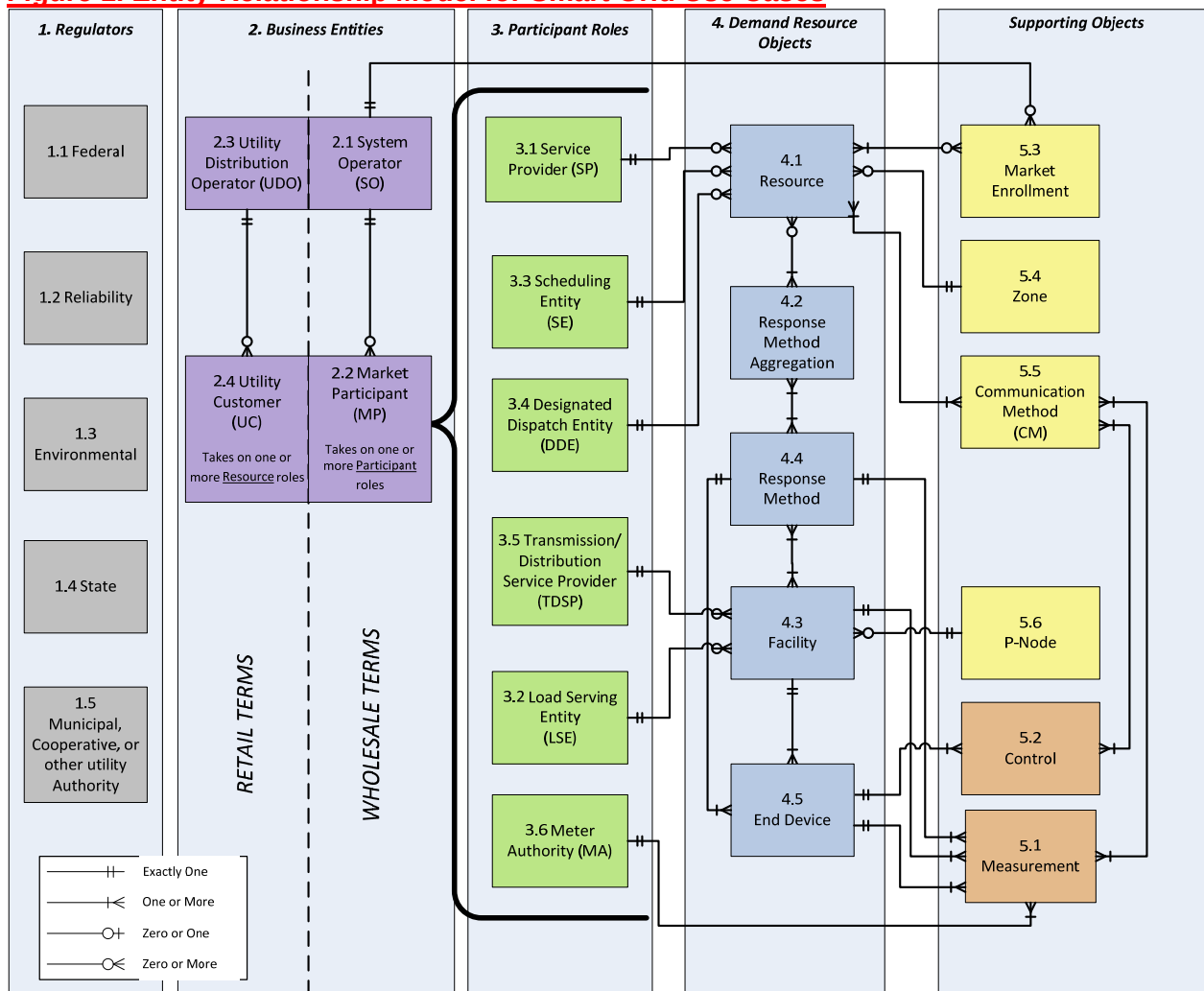
For Quadrant: Wholesale Electric Quadrant (WEQ) and Retail Electric Quadrant (REQ)

Requesters: NAESB Smart Grid Task Force (SGTF)

Request No.: 2010 WEQ Annual Plan Item 6(b) / 2010 Retail Annual Plan Item 9(b)

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Figure 1. Entity-Relationship Model for Smart Grid Use Cases





RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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4. SUPPORTING DOCUMENTATION

a. Description of Request:

On September 30, 2009, the National Institute of Standards and Technology officially assigned NAESB the responsibility to develop Requirements and Use Cases pertinent to Priority Action Plan items 3, 4 and 9. A complete description of each item is available on the NIST Web site located at <http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/WebHome> in the section titled Priority Action Plans (PAPs).

This recommendation specifically pertains to PAP 04², “A Common Scheduling Mechanism for Energy Transactions”.

b. Description of Recommendation:

The scope of this recommendation is to define the range of information required to establish the breadth of the communication requirement. There is no need for the cases to be exhaustive, merely illustrative of the full scope.

c. Business Purpose:

This recommendation has been developed in response to a request from NIST to provide use cases and requirements germane to the use of dates/times within a broad spectrum of energy transactions. The scope of this effort has been limited to Demand Response Programs in order to meet NIST’s deadline for this effort.

d. Commentary/Rationale of Subcommittee(s)/Task Force(s):

Assumptions - We assume as given that common semantics for communicating schedule, interval, and sequence will enhance interoperability between domains and between business entities.

Joint Smart Grid Standards Task Force and Fix Protocol Meeting Notes/Documents:

- September 17, 2009 Meeting Notes – To be posted
- October 1, 2009 Meeting Notes – To be posted
- October 15, 2009 Meeting Notes – To be posted

NAESB Smart Grid Standards Task Force Sub-Group Meeting Notes/Documents:

- October 13, 2009 Meeting Notes – To be posted
- October 20, 2009 Meeting Notes – To be posted
- October 27, 2009 Meeting Notes – To be posted
- November 3, 2009 Meeting Notes – To be posted
- November 4-6, 2009 Meeting Notes – To be posted

² <http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/PAP04Schedules>



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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- November 10, 2009 Meeting Notes – To be posted

NAESB Smart Grid Standards Task Force Meeting Notes/Documents:

- October 22, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd102209notes.doc
- October 29, 2009 Meeting Notes – To be posted
- November 5, 2009 Meeting Notes – To be posted
- November 13, 2009 Meeting Notes – To be posted
- December 3, 2009 Meeting Notes – To be posted
- December 10, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd121009notes.doc
- December 17, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd121709notes.doc
- January 7, 2010 Meeting Notes – To be posted
- January 14, 2010 Meeting Notes – To be posted
- January 21, 2010 Meeting Notes – To be posted
- January 28, 2010 Meeting Notes – To be posted



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

For Quadrant: Wholesale Electric Quadrant (WEQ)
Requesters: NAESB Smart Grid Task Force (SGTF)
Request No.: 2010 WEQ Annual Plan Item 6(c)
Request Title: Requirements Specifications for Wholesale Standard DR Signals - for NIST PAP09

1. RECOMMENDED ACTION:

☒ Accept as requested
☐ Accept as modified below
☐ Decline

EFFECT OF EC VOTE TO ACCEPT RECOMMENDED ACTION:

☒ Change to Existing Practice
☐ Status Quo

2. TYPE OF DEVELOPMENT/MAINTENANCE

Per Request:

☒ Initiation
☐ Modification
☐ Interpretation
☐ Withdrawal

☒ Principle
☒ Definition
☒ Business Practice Standard
☐ Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

Per Recommendation:

☒ Initiation
☐ Modification
☐ Interpretation
☐ Withdrawal

☒ Principle
☒ Definition
☒ Business Practice Standard
☐ Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

3. RECOMMENDATION

SUMMARY:

The business process flows and use cases presented in this document illustrate the standard interactions between a System Operator and various Market Participants for the administration and deployment of demand response resources in organized wholesale electric markets.

RECOMMENDED STANDARDS:

In response to NIST's Priority Action Plan 9, this document contains draft requirements specifications, in the form of business process flows and use cases, to support the standardization of the information exchanged during interactions between the System Operator and various Market Participants for the administration and deployment of demand response resources in organized wholesale electric markets. Common terminology from the NAESB Measurement and Verification Standards for Demand Response has been incorporated into the development of the business process flows and use cases. As a result of the development of this document, a standard set of actors and additional terminology will expand the existing NAESB documentation of associated terms and definitions for demand response.



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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Request Title: Requirements Specifications for Wholesale Standard DR Signals - for NIST PAP09

New WEQ-016 Abbreviations/Acronyms and Defined Terms to be added to WEQ-000 are included below for reference *(previously added in Recommendation 2010 WEQ Annual Plan Item 6(b) / 2010 Retail Annual Plan Item 9(b))*

000-1 ABBREVIATIONS AND ACRONYMS

Abbreviation / Acronym	Meaning
DDE	Designated Dispatch Entity
EA	Environmental Authority
ED	End Device
FR	Federal Regulator
LA	Local Authority
LSE	Load Serving Entity
MA	Metering Authority
MP	Market Participant
RA	Reliability Authority
RM	Response Method
RMA	Response Method Aggregation
SE	Scheduling Entity
SO	System Operator
SP	Service Provider
SR	State Regulator
TDSP	Transmission/Distribution Service Provider
UC	Utility Customer
UDO	Utility Distribution Operator



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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000-2 DEFINITION OF TERMS

Term	Definition
Business Entity	The wholesale or retail entity that interacts with other entities in its market.
Communication Method	The method by which an object communicates with another object to instruct, measure or control.
Control	The role associated with the control of an End Device.
Demand Response Objects	Physical and logical types of demand response resource objects.
Designated Dispatch Entity	A role which carries the responsibility of receiving and processing demand resource dispatch instructions or market information and (optionally) providing response information.
End Device	A physical end-use device that consumes or supplies electricity.
Environmental Authority	A regulatory authority responsible for the development, reporting and enforcement of environmental activities.
Facility	The location at which connection to the transmission or distribution system is made.
Federal Regulator	A Federal regulatory authority.
Load Serving Entity	A role which carries the responsibility of serving end-users and selling electric energy to end-users.
Local Authority	A regulatory authority responsible for the oversight and administration of utility service-related functions within its jurisdiction.
Market Enrollment	The collection of enrollment or tariff data for a Demand Resource Object to provide a specific market product or service.
Market Participant	An organization registered with the System Operator that may take on roles such as SP, LSE, TDSP, DDE, SE, and/or MA in accordance with the System Operator's market rules.



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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Term	Definition
Measurement	The role associated with the device or algorithm that measures the consumption or supply of an End Device.
Metering Authority	A role which carries the responsibility of providing data necessary to determine the performance of a Resource.
P-Node	The price location of the Facility in the transmission and/or distribution network.
Participant	The entity that represents resources to a market or distribution operator.
Regulator	A rule-making and enforcement entity.
Reliability Authority	A regulatory authority responsible for the development, reporting and enforcement of electric reliability-related activities.
Response Method	A measurable action taken in response to an instruction to change consumption.
Response Method Aggregation	A logical entity that has a reportable interval level consumption, e.g. a site may also be a physical entity that may have its own meter, a neighborhood of homes that has a net meter, or an estimate of consumption of an aggregation of retail customers.
Resource	A market-dependent group of Response Method Aggregations that represents a dispatchable entity.
Scheduling Entity	A role which carries the responsibility of submitting bids/offers and receives Schedules and Awards.
Service Provider	A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.
State Regulator	A regulatory authority responsible for the oversight and administration of electric utilities.
Supporting Objects	Objects that support the interaction of Business Entities and Demand Response Objects.



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Term	Definition
System Operator	An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.
Transmission/Distribution Service Provider	A role which carries the responsibility of operating a local electricity transmission and/or distribution system.
Utility Customer	An end-use customer of the Utility Distribution Operator that takes on roles such as Facility or Resource.
Utility Distribution Operator	An entity which carries the responsibility of operating an electricity distribution system.
Zone	A physical or electrical region.

New Business Practice Standards WEQ-016 – Smart Grid Activities

RECOMMENDED STANDARDS:

Executive Summary

Specifications for Wholesale Standard Demand Response Signals

The following addresses the business objectives and context for standardizing control and pricing signals for Demand Response (DR) and Distributed Energy Resources (DER)¹ as part of the Smart Grid implementation, which is called for by National Institute of Standards and Technology (NIST) Priority Action Plans (PAP) 09. The North America Energy Standards Board (NAESB) Smart Grid Task Force (SGTF) in cooperation with UCA International Users Group (UCAIug) Open Smart Grid (OpenSG) Task Force, the Independent System Operator/Regional Transmission Organization Council (ISO/RTO Council), and other organizations, have developed DR use cases that provide requirements for developing consistent DR control and pricing signal standards.

The business process flows and use cases contained in this Recommendation address the requirements for standardizing the information exchanged during interactions between the System Operator and various Market Participants for the administration and deployment of demand response resources in organized wholesale electric markets. Additional documents under

¹ DERs are small, modular, energy generation and storage technologies that provide electric capacity or energy where it is needed. DERs may be either connected to the local electric power grid (e.g., for voltage support) or isolated from the grid in stand-alone applications, such as part of a MicroGrid. Definition of DER provided by the Department of Energy, <http://www1.eere.energy.gov/femp/pdfs/31570.pdf>



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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Request Title:	Requirements Specifications for Wholesale Standard DR Signals - for NIST PAP09

development through the NAESB Smart Grid Task Force will focus on other aspects of the PAP 09 objectives. To maintain consistency throughout materials developed by the NAESB Smart Grid Task Force, a common set of actors, terms and definitions have been adopted.

The following describes the end-to-end business process flows relating to the wholesale market communications between the System Operator (SO) and the Service Provider (SP) common to all ISOs/RTOs that offer opportunities for demand resources to participate in organized wholesale electric markets.

Introduction

Specifications for Wholesale Standard Demand Response Signals

Purpose: To accelerate the development of standards for Smart Grid Interoperability, NIST is working with all stakeholders of Smart Grid and has developed a set of PAPs². A number of PAPs (03, 04, and 09) are related to the use of Smart Grid technologies to enable DR and the integration of DER for DR purposes.

Specifically for PAP 09, NAESB, with support from UCAIug OpenSG task forces and the ISO/RTO Council, have responsibility to collect, analyze, and consolidate use cases and develop Unified Modeling Language (UML) based use case models for DR. Such responsibility now falls under the NAESB Smart Grid Task Force.

NIST Smart Grid Interoperability³ Roadmap leverages the GridWise Architecture Council (GWAC) interoperability framework. This framework calls for the establishment of business objectives, procedures and context before technical interoperability standards can be established. To apply this framework to the development of interoperability standards for DR Signals, it is clear that the industry needs an overarching business framework to guide the development of technical standards, given the complexity and range of DR programs.

The purpose of the following is to provide standards developers with a context for understanding the range of scenarios to which DR programs and DERs may be applied and implemented across the various electricity systems and jurisdictions in the United States of America with some overlaps

² <http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGridInterimRoadmap/PriorityActionPlans>

³ Interoperability is the capability of two or more networks, systems, devices, applications, or components to share and readily use information securely and effectively with little or no inconvenience to the user. The characteristics of interoperability as set forth in the GridWise[®] Interoperability Context- Setting Framework are (1) exchange of meaningful, actionable information between two or more systems across organizational boundaries, (2) a shared understanding of the exchanged information, (3) an agreed expectation for the response to the information exchange, and (4) a requisite quality of service: reliability, fidelity, and security. The result of interoperability is that interfaces, systems, and devices are capable of being integrated, scalable, adaptable, and upgradable and utilize open standards to promote competitive technology and to avoid stranded investments. Interoperability can only be achieved if there is a seamless, end-to-end coordination and exchange of data between many organizations, interfaces, systems, and devices resulting in behavior changing information given to the consumer.



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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Request Title: Requirements Specifications for Wholesale Standard DR Signals - for NIST PAP09

to Canada. A major objective in producing this document is to emphasize the importance of interoperability at all levels of the GWAC Interoperability Framework.

Scope: There are certain principles and boundaries that have been established. These include:

1. Demand Response practices must be consistent with NERC and applicable regional reliability authority requirements.
2. All involved entities are registered through the applicable ISO/RTO market participant registration process, which may include credit checks. However, the specifics related to the business processes associated with registration are not documented in these requirements.
3. Settlement input parameters are defined as an output to the Measurement & Performance business process. However, specific business processes associated with settlements are not documented in these requirements.
4. Intra-system operator information exchanges and specific system operators market rules, calculations, algorithms, and Performance Evaluation models are excluded.
5. Planning functions are not documented in these requirements. This includes, but is not limited to, long-term load forecasting and transmission planning.
6. Capacity auctions, awards processes, and resource certification are not documented in these requirements.

Assumptions: The following has been developed with the consideration of the following key assumptions:

- The scope of DER applications will be limited to the context of grid-connected DR use cases and does not include the other possible applications of DER.
- The standards shall not prescribe a specific implementation technology.
- Information Technology security is explicit in the information model but is implicit in the business process models.
- Outputs from one process flows are considered inputs to subsequent following flows.
- A single entity may have multiple roles (e.g., a participant can function in the roles of DDE and MA).
- The process flows describe the standard path. Subsequent use cases will address exceptions other than standard data validation procedures.



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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Business Practice Standards

016-2 Specifications for Wholesale Standard Demand Response Signals

The following describes the wholesale market business process flow and provides the necessary business context and reference architecture for use cases that connect to the retail level. The descriptions provide a common linkage to the retail use cases presented in the companion specification for the Retail Electricity Quadrant.

Conventions:

- Glossary terms are shown in bold + italics.
- Implementation does not require every communication flow shown in the process flows.

016-2.1 ACTORS

The actors for the wholesale use cases are role-based, with the registered Market Participant business entity therefore taking on one or more roles. It is possible that a single Market Participant may take on all six Market Participant roles; six Market Participants take on one role each, or any combination in-between. Rules for how Market Participants qualify for various roles are specific to market rules and regional reliability requirements. The System Operator role is unique and must be taken by the System Operator business entity.



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Table 1 - Actor Roles

<u>Term</u>	<u>Acronym</u>	<u>Definition</u>
<u>Service Provider</u>	<u>SP</u>	<u>A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.</u>
<u>Designated Dispatch Entity</u>	<u>DDE</u>	<u>A role which carries the responsibility of receiving and processing demand resource dispatch instructions or market information and (optionally) providing response information.</u>
<u>Load Serving Entity</u>	<u>LSE</u>	<u>A role which carries the responsibility of serving end-users and selling electric energy to end-users.</u>
<u>Metering Authority</u>	<u>MA</u>	<u>A role which carries the responsibility of providing data necessary to determine the performance of a Resource.</u>
<u>Scheduling Entity</u>	<u>SE</u>	<u>A role which carries the responsibility of submitting bids/offers and receives Schedules and Awards.</u>
<u>System Operator</u>	<u>SO</u>	<u>An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.</u>
<u>Transmission/Distribution Service Provider</u>	<u>TDSP</u>	<u>A role which carries the responsibility of operating a local electricity transmission and/or distribution system.</u>

016-2.2 WHOLESALE ENTITY RELATIONSHIP MODEL

The Entity Relationship Diagram in Appendix A, **Error! Reference source not found.** shows the Business Entities and other objects used in the demand response use cases. The definitions of objects not used in use cases are included in this document's glossary. The lines among the elements illustrate the cardinality amount the entities and objects (see inset for cardinality key).



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016-2.3

USE CASE OVERVIEW

The use cases presented in this document represent a combination of three dimensions of demand response participation in wholesale markets: product, deployment, and performance evaluation method. As shown in the table below, product and deployment dimensions are identified by a single alphabetic character and performance evaluation methods are indicated by a numeric identifier; each character is separated by a dash (-). For example, use case E-R-1 refers to the use case for the Energy (Economic) product with a Resource-specific deployment and performance evaluated using a Baseline.

Table 2 - Use Case Dimensions

<u>Product</u>	<u>-</u>
<u>Energy (Economic)</u>	<u>E</u>
<u>Energy (Reliability)</u>	<u>R</u>
<u>Capacity</u>	<u>C</u>
<u>Reserve</u>	<u>V</u>
<u>Regulation</u>	<u>G</u>
<u>Deployment</u>	<u>-</u>
<u>Bulk</u>	<u>B</u>
<u>Resource</u>	<u>R</u>
<u>Self</u>	<u>S</u>
<u>Performance Evaluation</u>	<u>-</u>
<u>Baseline</u>	<u>1</u>
<u>MB/MA</u>	<u>2</u>
<u>MBL</u>	<u>3</u>
<u>MGO</u>	<u>4</u>



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A sample of the use case list is shown in the table below. Appendix B contains the complete list of use case combinations.

Table 3 - Sample Use Case List

Use Case	Product	Deployment	Performance Evaluation
E-R-1	Energy (Economic)	Resource	Baseline
E-R-2	Energy (Economic)	Resource	MB/MA
E-R-3	Energy (Economic)	Resource	MBL
E-R-4	Energy (Economic)	Resource	MGO
E-S-1	Energy (Economic)	Self	Baseline
E-S-2	Energy (Economic)	Self	MB/MA
E-S-3	Energy (Economic)	Self	MBL
E-S-4	Energy (Economic)	Self	MGO

The following illustrates the process flows for use cases combinations that are considered to be representative of the types of demand response in wholesale electricity markets today. Each process flow description includes a table of the use cases to which the process flow applies.

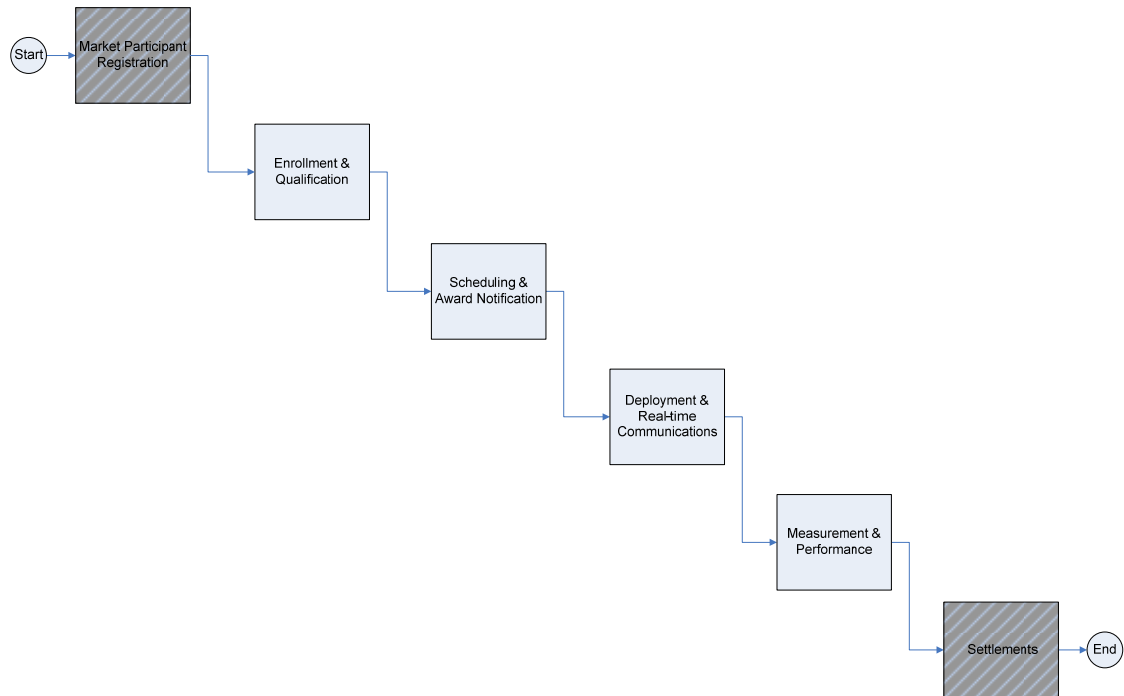
The wholesale Demand Response end-to-end business process flow for the communications between the System Operator (SO) and the Service Provider (SP) is comprised of four major functions: Enrollment & Qualification, Scheduling & Award Notification, Deployment & Real-Time Communications, and Measurement & Performance. Two additional processes, Market Participant Registration and Settlements, are shown in the high-level business process flow, but are considered outside the scope of what is required for the communications flow for demand response.



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Figure 1 - Demand Response





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016-2.4 SPECIFIC USE CASES

016-2.4.1 Enrollment and Qualification

Overview: The Enrollment and Qualification process documents the steps required to enroll a **Resource** in a wholesale demand response program.

Use Cases: All valid Use Cases defined in this document

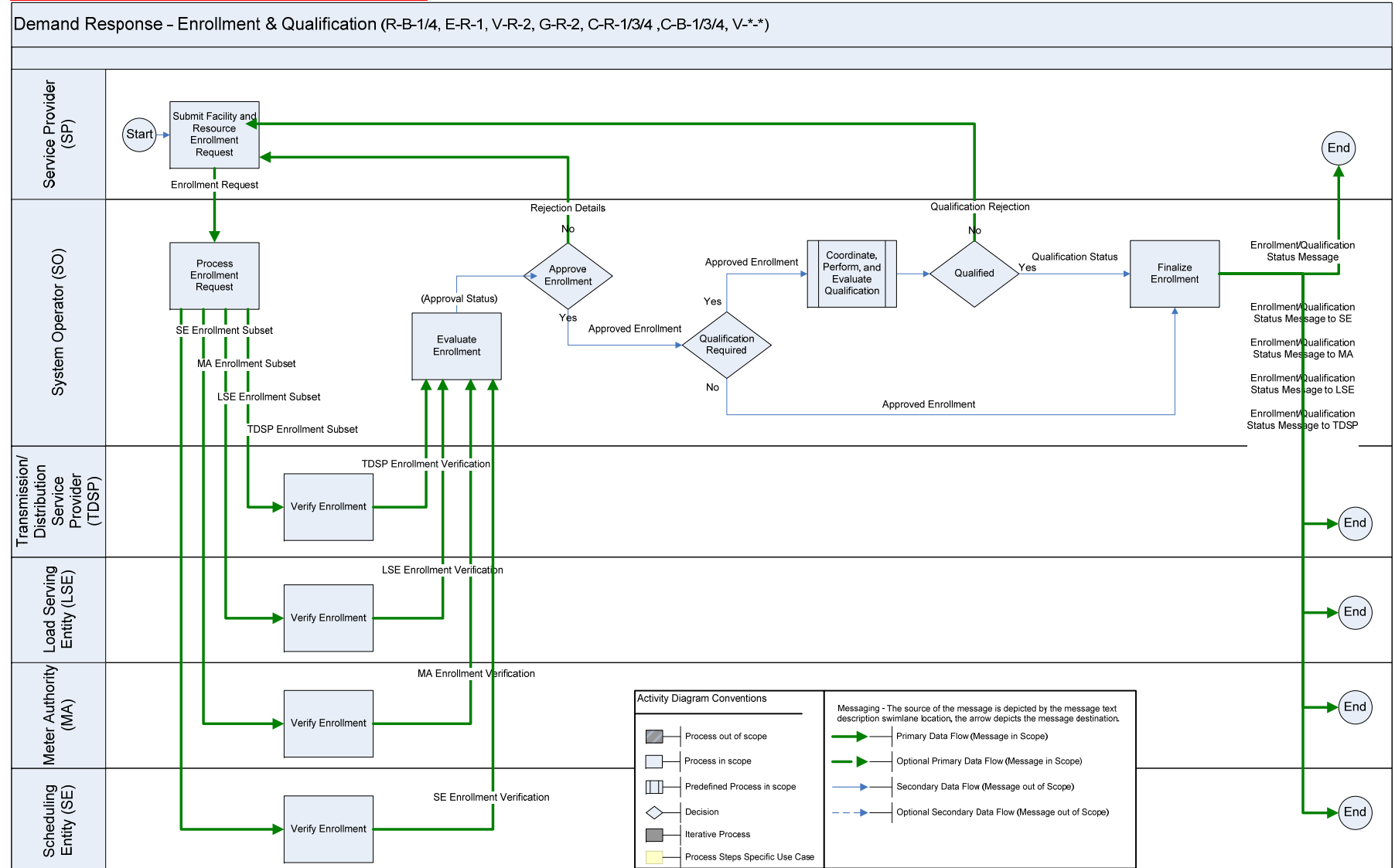
- The process begins when the **SP** submits an enrollment request to the **SO**.
- The **SO** processes the enrollment request, which may include interactions with the **TDSP, LSE, MA** and/or **SE**.
- The **SO** evaluates the enrollment request, which may include verification information from the **TDSP, LSE, MA** and/or **SE**.
- The result of the evaluation is the approval or rejection of the enrollment request.
 - o If the enrollment request has been rejected, the **SO** sends information to the **SP**, indicating the rejection details.
 - o If the enrollment request has been approved, a determination is made by the **SO** as to whether qualification of the **resource**'s capability is required prior to final approval.
 - If no qualification is required, the **SO** sends information to the **SP**, indicating the approval of the enrollment.
 - If qualification is required, the **SO** coordinates the qualification procedure with the **SP**.
 - If the **resource** has failed to qualify, the **SO** sends information to the **SP**, indicating the qualification rejection details.
 - If the **resource** achieves qualification, the **SO** sends information to the **SP** and enrollment is finalized.
- At the end of the Enrollment and Qualification process, the **SO** finalizes enrollment, notifies the **SP** and may also notify the **TDSP, LSE, MA** and/or **SE**.



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Activity Diagram and Data Flow:

Figure 2 - Enrollment and Qualification





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016-2.4.2 Scheduling and Award Notification – Economic

Overview: The Scheduling and Award Notification process describes the process from offer submission to award notification. This process also includes the supplemental commitment and reassessment of reliability to determine whether demand resources that are enrolled in reliability-based (emergency) demand response programs should be advised of a possible reliability deployment.

Table 4 - Use Cases

Use Case	Product	Deployment	Performance Evaluation
C-R-1	Capacity	Resource	Baseline
C-R-2	Capacity	Resource	MB/MA
C-R-3	Capacity	Resource	MBL
C-R-4	Capacity	Resource	MGO
E-R-1	Energy (Economic)	Resource	Baseline
E-R-2	Energy (Economic)	Resource	MB/MA
E-R-3	Energy (Economic)	Resource	MBL
E-R-4	Energy (Economic)	Resource	MGO
G-R-1	Regulation	Resource	Baseline
G-R-2	Regulation	Resource	MB/MA
G-R-3	Regulation	Resource	MBL
G-R-4	Regulation	Resource	MGO
V-R-1	Reserve	Resource	Baseline
V-R-2	Reserve	Resource	MB/MA
V-R-3	Reserve	Resource	MBL
V-R-4	Reserve	Resource	MGO

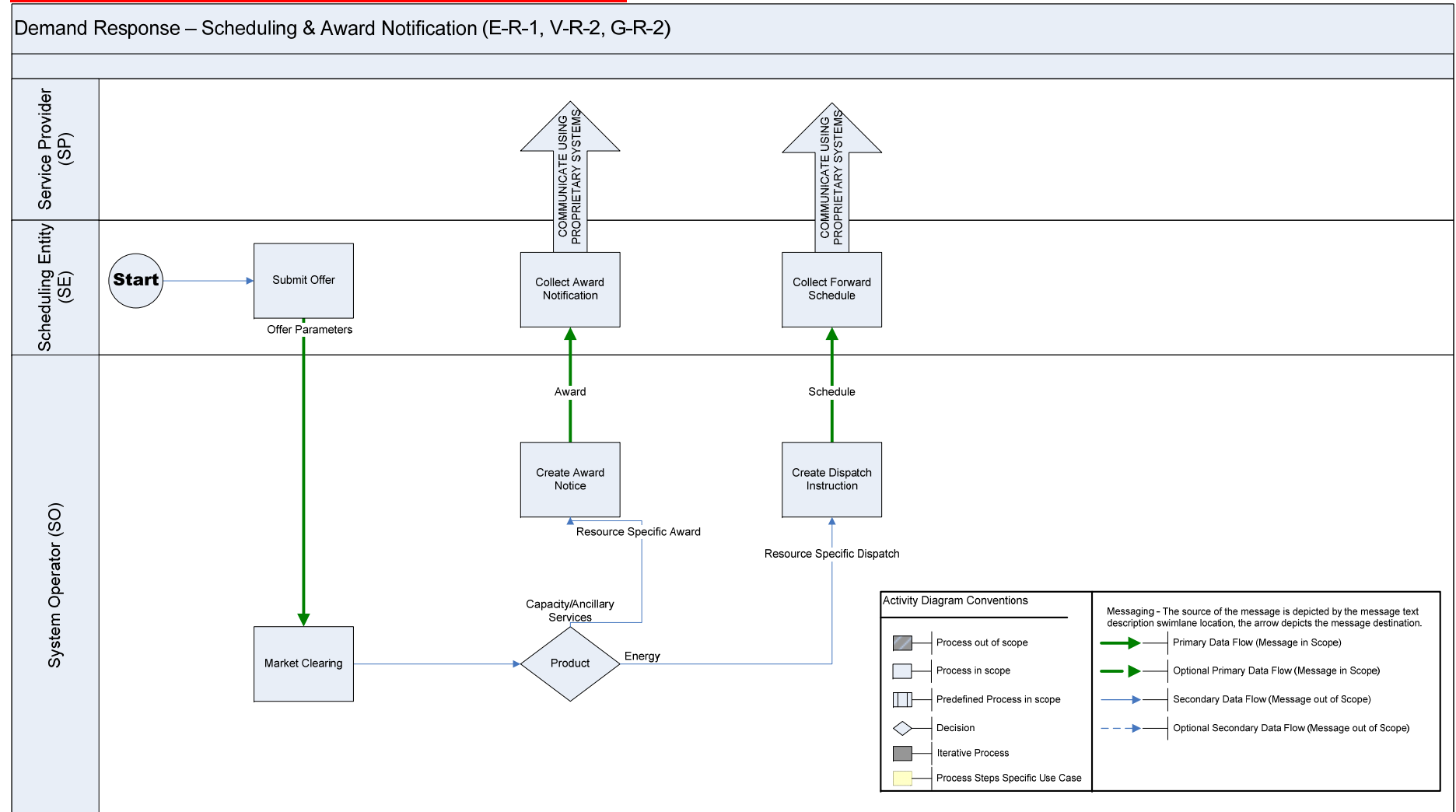
- The process begins when the **SE** submits a supply offer to the **SO**.
- The **SO** evaluates the offer through its market clearing process.
- The resulting resource-specific dispatch information is transformed into dispatch instructions by the **SO**.
- The **SO** makes the schedule available.
- The **SE** collects the forward schedule.



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Activity Diagram and Data Flow:

Figure 3 - Scheduling and Award Notification - Economic





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016-2.4.3 Scheduling and Award Notification – Reliability

Overview: The Scheduling and Award Notification process describes the process from offer submission to award notification. This process also includes the supplemental commitment and reassessment of reliability to determine whether demand resources that are enrolled in reliability-based (emergency) demand response programs should be advised of a possible reliability deployment.

Table 5 - Use Cases

Use Case	Product	Deployment	Performance Evaluation
R-B-1	Energy (Reliability)	Bulk	Baseline
R-B-3	Energy (Reliability)	Bulk	MBL
R-B-2	Energy (Reliability)	Bulk	MB/MA
R-B-4	Energy (Reliability)	Bulk	MGO
C-B-1	Capacity	Bulk	Baseline
C-B-3	Capacity	Bulk	MBL
C-B-2	Capacity	Bulk	MB/MA
C-B-4	Capacity	Bulk	MGO
V-B-1	Reserve	Bulk	Baseline
V-B-3	Reserve	Bulk	MBL
V-B-2	Reserve	Bulk	MB/MA
V-B-4	Reserve	Bulk	MGO
V-R-1	Reserve	Resource	Baseline
V-R-3	Reserve	Resource	MBL
V-R-2	Reserve	Resource	MB/MA
V-R-4	Reserve	Resource	MGO

- The process begins when the **SE** submits availability to the **SO**.
- The **SO** performs the Load Forecast and Supplemental Commitment process after the market has been settled. Reliability is reassessed by the **SO** to determine whether the system is secure (sufficient supply to meet forecasted load conditions).
 - o If **SO** determines that the system is secure, no demand response advance notification is required and reliability is assessed by the **SO** at the next interval.
 - o If **SO** anticipates that a reliability issue is expected, the **SO** decides whether demand response is needed for reliability.
 - If demand response will not be needed, the process ends.



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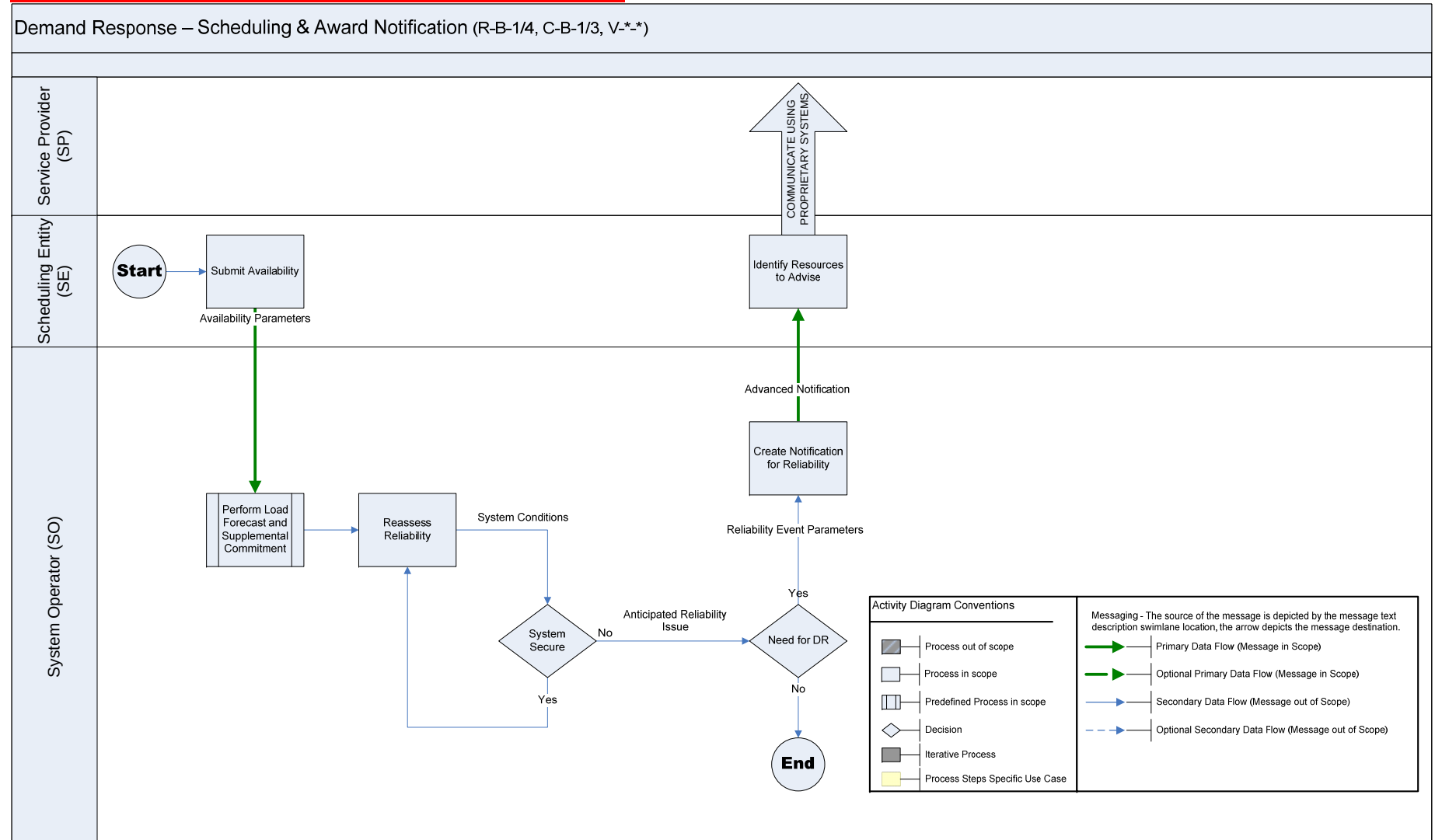
- If the **SO** determines that demand response will be provided with an advance notification, the reliability event parameters are prepared by the **SO** to create a reliability event notification.
 - The advance notification message is sent to the **SE**.
 - The **SE** identifies the demand resources to notify and relays the message to **SPs** through the proprietary communication system of the **SE**.



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Activity Diagram and Data Flow:

Figure 4 - Scheduling and Award Notification - Reliability





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016-2.4.4 Deployment and Real-Time Communications - Economic

Overview: The Deployment and Real-Time Communication process describes the process for real-time communications to demand resources providing market-based services on a real-time basis and dispatch for reliability-based (emergency) demand response programs. The process flows and descriptions below reflect a sequential nature to the real-time process solely for the purposes of describing the process of the real-time data flow; the real-time communication process simultaneously scans and updates in the same step.

Table 6 - Use Cases

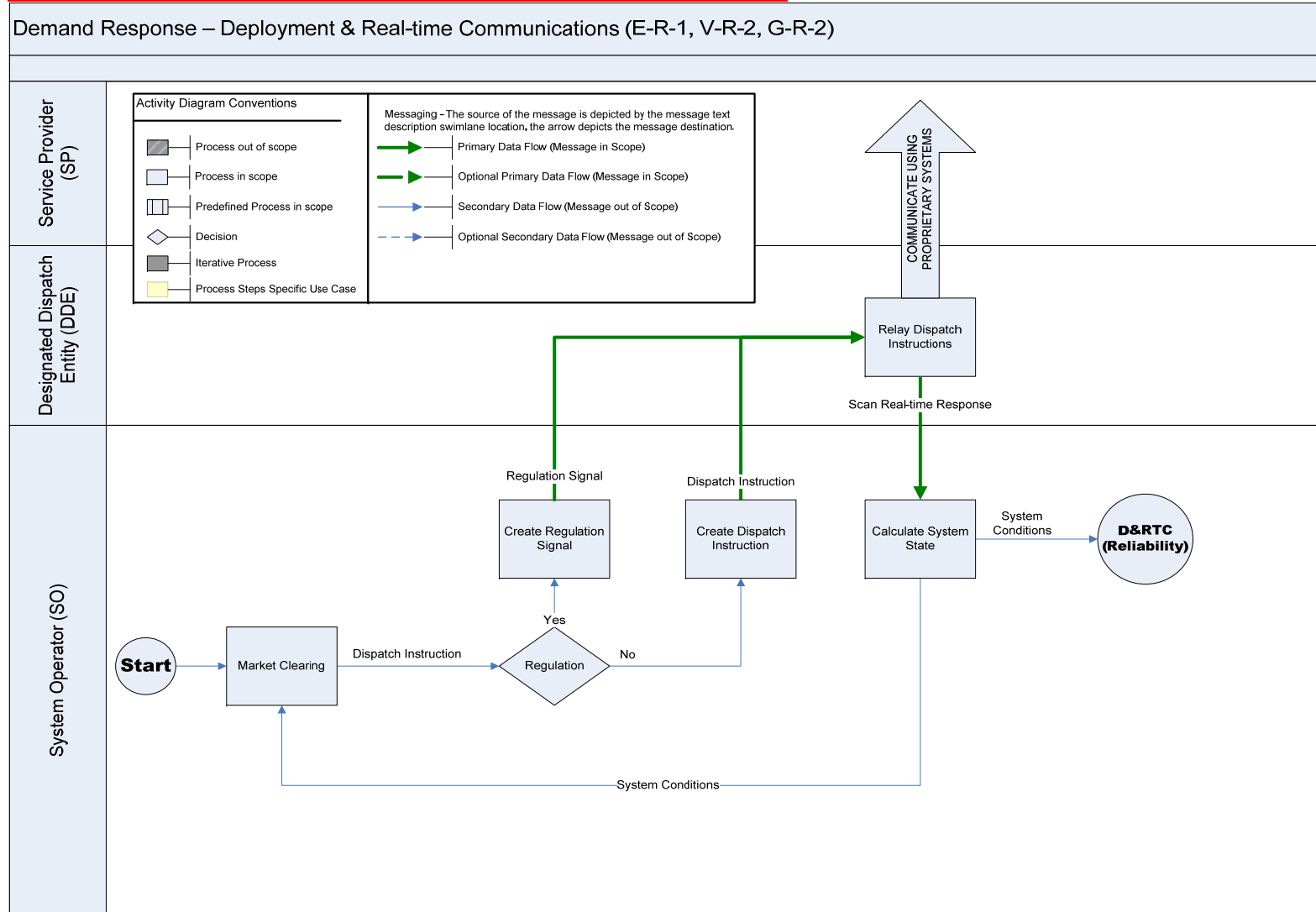
Use Case	Product	Deployment	Performance Evaluation
E-R-1	Energy (Economic)	Resource	Baseline
R-B-1	Energy (Reliability)	Bulk	Baseline
R-B-4	Energy (Reliability)	Bulk	MGO
V-R-2	Reserve	Resource	MB/MA
G-R-2	Regulation	Resource	MB/MA

- The process begins when the **SO** evaluates real-time system conditions through its market clearing process.
- The resulting resource-specific real-time dispatch information is transformed into dispatch instructions by the **SO**.
 - o If the dispatch instruction is for Regulation, the **SO** sends the Regulation signal to the **DDE**.
 - o If the dispatch is not for Regulation, the **SO** sends the dispatch instruction to the **DDE**.
- The **DDE** communicates with the **SP** through the proprietary communication system of the **DDE**.
- The **SO** collects real-time response from the **DDE** for evaluating the next interval and uses the information to calculate the system state.
- System conditions are made available to the market clearing process for the next interval and to **Deployment and Real-Time Communications – Reliability**.

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Activity Diagram and Data Flow:

Figure 5 - Deployment and Real-Time Communications - Economic





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016-2.4.5 Deployment and Real-Time Communications – Reliability

Overview: The Deployment and Real-Time Communication process describes the process for real-time communications to demand resources providing market-based services on a real-time basis and dispatch for reliability-based (emergency) demand response programs. The process flows and descriptions below reflect a sequential nature to the real-time process solely for the purposes of describing the process of the real-time data flow; the real-time communication process simultaneously scans and updates in the same step.

Table 7 - Use Cases

Use Case	Product	Deployment	Performance Evaluation
C-B-1	Capacity	Bulk	Baseline
C-B-3	Capacity	Bulk	MBL
E-B-1	Energy (Economic)	Bulk	Baseline
E-B-4	Energy (Economic)	Bulk	MGO
E-R-1	Energy (Economic)	Resource	Baseline
V-B-1	Reserve	Bulk	Baseline
V-B-2	Reserve	Bulk	MB/MA
V-B-3	Reserve	Bulk	MBL
V-B-4	Reserve	Bulk	MGO
V-R-1	Reserve	Resource	Baseline
V-R-2	Reserve	Resource	MB/MA
V-R-3	Reserve	Resource	MBL
V-R-4	Reserve	Resource	MGO
V-S-1	Reserve	Self	Baseline
V-S-2	Reserve	Self	MB/MA
V-S-3	Reserve	Self	MBL
V-S-4	Reserve	Self	MGO

- The SO performs the Load Forecast and Supplemental Commitment process after the interval has been dispatched. Reliability is reassessed by the SO to determine whether the system is secure (sufficient supply to meet forecasted load conditions).
 - o If SO determines that the system is secure, no demand response deployment is required and reliability is assessed by the SO at the next interval.
 - o If SO anticipates that a reliability issue is expected, the SO decides whether demand response is needed for reliability.



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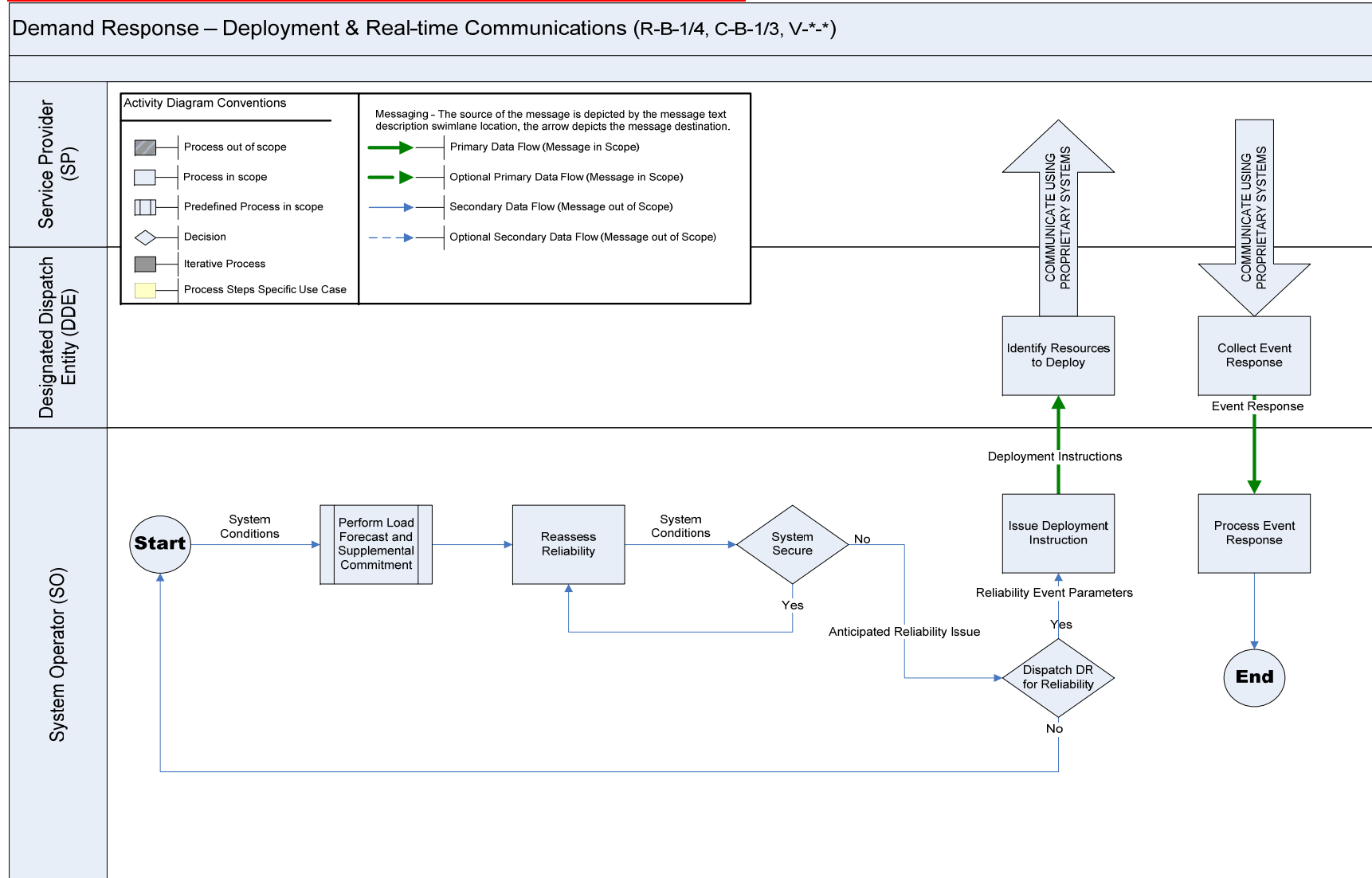
For Quadrant: Wholesale Electric Quadrant (WEQ)
Requesters: NAESB Smart Grid Task Force (SGTF)
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- If demand response will not be needed, the process ends.
- If the **SO** determines that demand response will be deployed, the reliability event parameters are prepared by the **SO** to create a reliability event notification.
 - The deployment instruction is sent to the **DDE**.
 - The **DDE** identifies the demand resources to notify and relays the message to **SPs** through the proprietary communication system of the **DDE**.
- Real-time or near real-time response data is collected by **DDE** using the proprietary communication system of the **DDE**.
- The **DDE** sends the event response information to the **SO**.

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Activity Diagram and Data Flow:

Figure 6 - Deployment and Real-Time Communications - Reliability





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016-2.4.6 Measurement and Performance – Baseline

Overview: The Measurement and Performance process documents the steps to collect demand resource meter data and prepare the determinants for settlement.

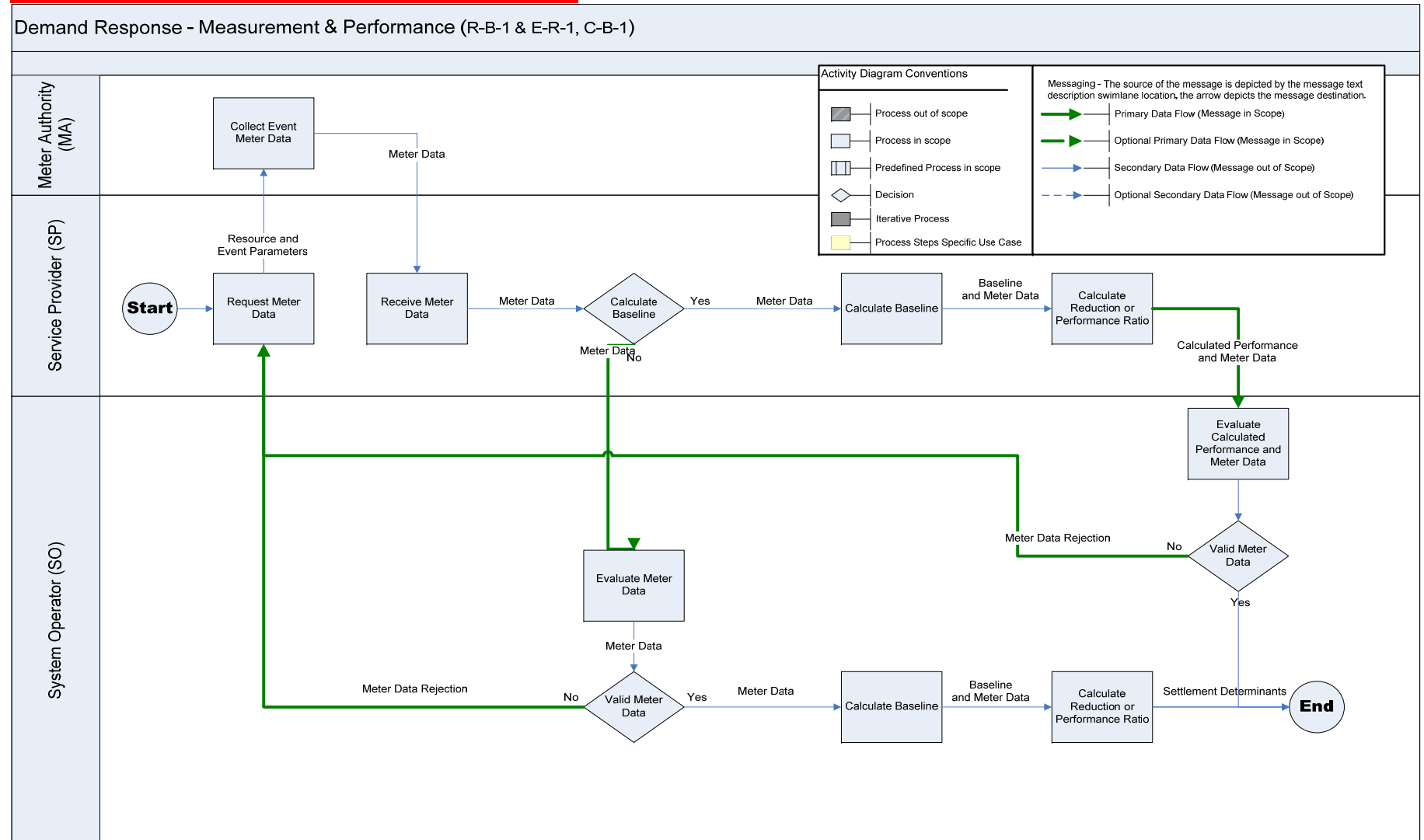
Use Cases: All use cases where **Baseline** applies.

- The process begins when the **SP** requests event meter data from the **MA**.
- The **MA** sends the event meter data to the **SP**.
- If the **SP** is required to calculate the baseline, the **SP** uses the event meter data to calculate the baseline.
 - o The **SP** uses the baseline and event meter data to calculate the event reduction amount or event performance ratio.
 - o The **SP** sends the calculated event performance and meter data to the **SO**.
 - o The **SO** evaluates the calculated event performance and meter data.
 - If the calculated event performance data are complete, the **SO** uses the settlement determinants in the Settlements process.
 - If the calculated event performance data are incomplete, the **SO** sends an event data rejection to the **SP**.
- If the **SO** calculates the baseline, the **SP** sends the event meter data to the **SO**.
 - o If the event meter data are complete, the **SO** uses the event meter data to calculate the baseline.
 - The **SO** uses the baseline and event meter data to calculate the event reduction amount or event performance ratio.
 - The **SO** uses the settlement determinants in the Settlements process.
 - o If the event meter data are incomplete, the **SO** sends an event data rejection to the **SP**.

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Activity Diagram and Data Flow:

Figure 7 - Measurement and Performance – Baseline





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016-2.4.7 Measurement and Performance - All Others

Overview: The Measurement and Performance process documents the steps to collect demand resource meter data and prepare the determinants for settlement.

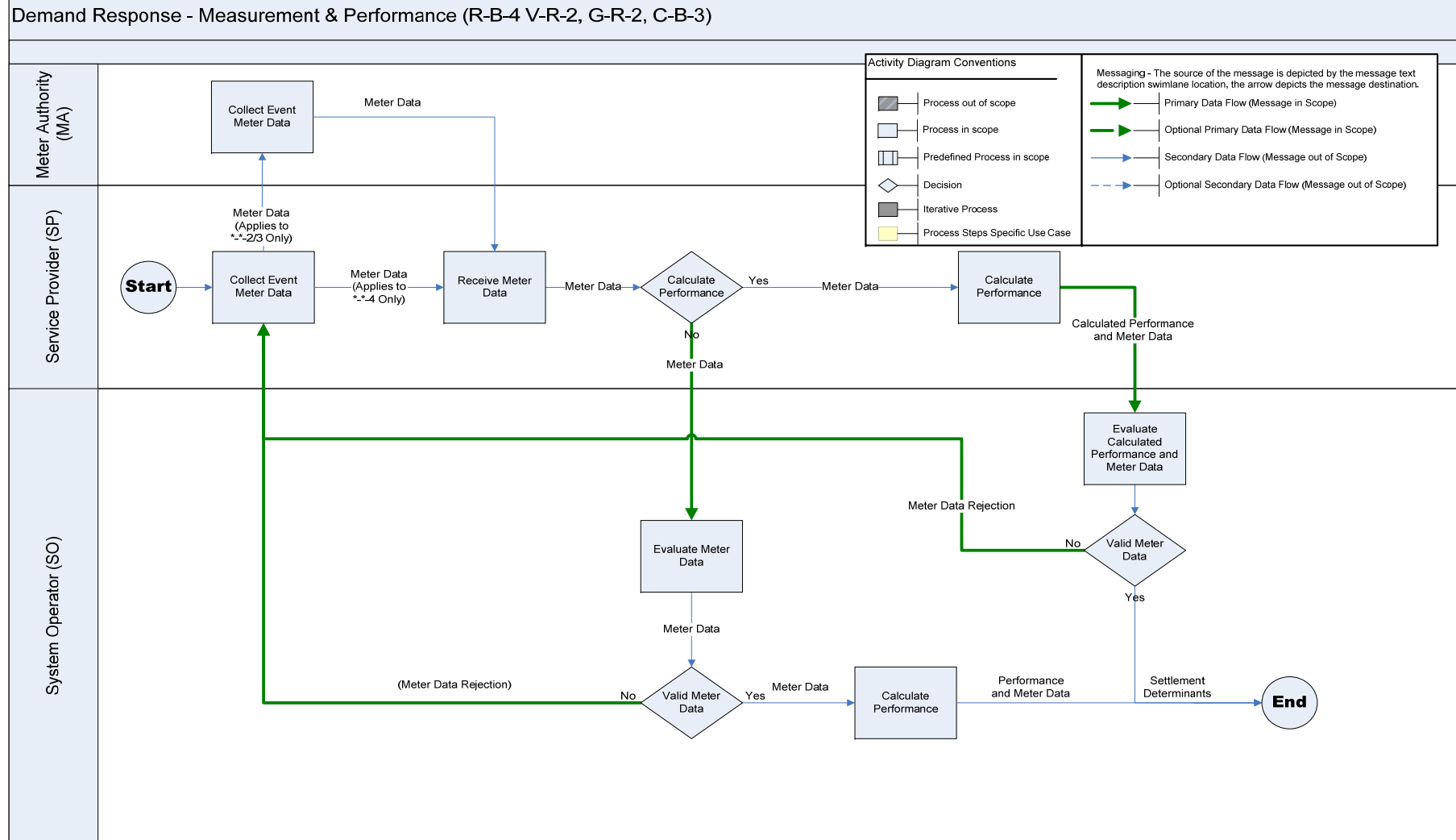
Use Cases: All use cases where ***Meter Before/Meter After, Maximum Base Load, or Meter Generator Output*** applies.

- The process begins when the **SP** collects event meter data from the **MA** for the specified performance evaluation method.
 - o If the performance evaluation method is **Meter Before/Meter After** or **Maximum Base Load**, the **MA** sends the event meter data to the **SP**.
 - o If the performance evaluation method is **Meter Generator Output**, the **SP** uses the data from the meter on the generator.
- If the **SP** is required to calculate performance, the **SP** uses the event meter data to calculate performance.
 - o The **SP** uses the meter data to calculate the event reduction amount or event performance ratio.
 - o The **SP** sends the calculated event performance and meter data to the **SO**.
 - o The **SO** evaluates the calculated event performance and meter data.
 - If the calculated event performance data are complete, the **SO** uses the settlement determinants in the Settlements process.
 - If the calculated event performance data are incomplete, the **SO** sends an event data rejection to the **SP**.
- If the **SO** calculates performance, the **SP** sends the meter data to the **SO**.
 - o If the event meter data are complete, the **SO** uses the event meter data to calculate performance.
 - The **SO** uses the event meter data to calculate the event reduction amount or event performance ratio.
 - The **SO** uses the settlement determinants in the Settlements process.
 - o If the event meter data are incomplete, the **SO** sends an event data rejection to the **SP**.

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Activity Diagram and Data Flow:

Figure 8 - Measurement and Performance – All Others





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016-A Appendix A – Entity-Relationship Model

The following terms and definitions correspond to a set of actor/object classes and sub-classes as illustrated in the entity-relationship model in Figure 1 of Appendix A. Abbreviations/Acronyms correspond to the IDs shown in the figure.

ABBREVIATIONS AND ACRONYMS

<u>Abbreviation / Acronym</u>	<u>Meaning</u>
<u>EA</u>	<u>Environmental Authority</u>
<u>ED</u>	<u>End Device</u>
<u>FR</u>	<u>Federal Regulator</u>
<u>LA</u>	<u>Local Authority</u>
<u>LSE</u>	<u>Load Serving Entity</u>
<u>MA</u>	<u>Metering Authority</u>
<u>MP</u>	<u>Market Participant</u>
<u>RA</u>	<u>Reliability Authority</u>
<u>RM</u>	<u>Response Method</u>
<u>RMA</u>	<u>Response Method Aggregation</u>
<u>SE</u>	<u>Scheduling Entity</u>
<u>SO</u>	<u>System Operator</u>
<u>SP</u>	<u>Service Provider</u>
<u>SR</u>	<u>State Regulator</u>
<u>IDSP</u>	<u>Transmission/Distribution Service Provider</u>
<u>UC</u>	<u>Utility Customer</u>
<u>UDO</u>	<u>Utility Distribution Operator</u>



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DEFINITION OF TERMS

<u>Term</u>	<u>Definition</u>
<u>Business Entity</u>	<u>The wholesale or retail entity that interacts with other entities in its market.</u>
<u>Communication Method</u>	<u>The method by which an object communicates with another object to instruct, measure or control.</u>
<u>Control</u>	<u>The role associated with the control of an End Device.</u>
<u>Demand Response Objects</u>	<u>Physical and logical types of demand response resource objects.</u>
<u>Designated Dispatch Entity</u>	<u>A role which carries the responsibility of receiving and processing demand resource dispatch instructions or market information and (optionally) providing response information.</u>
<u>End Device</u>	<u>A physical end-use device that consumes or supplies electricity.</u>
<u>Environmental Authority</u>	<u>A regulatory authority responsible for the development, reporting and enforcement of environmental activities.</u>
<u>Facility</u>	<u>The location at which connection to the transmission or distribution system is made.</u>
<u>Federal Regulator</u>	<u>A Federal regulatory authority.</u>
<u>Load Serving Entity</u>	<u>A role which carries the responsibility of serving end-users and selling electric energy to end-users.</u>
<u>Local Authority</u>	<u>A regulatory authority responsible for the oversight and administration of utility service-related functions within its jurisdiction.</u>
<u>Market Enrollment</u>	<u>The collection of enrollment or tariff data for a Demand Resource Object to provide a specific market product or service.</u>
<u>Market Participant</u>	<u>An organization registered with the System Operator that may take on roles such as SP, LSE, TDSP, DDE, SE, and/or MA in accordance with the System Operator's market rules.</u>



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<u>Term</u>	<u>Definition</u>
<u>Measurement</u>	<u>The role associated with the device or algorithm that measures the consumption or supply of an End Device.</u>
<u>Metering Authority</u>	<u>A role which carries the responsibility of providing data necessary to determine the performance of a Resource.</u>
<u>P-Node</u>	<u>The price location of the Facility in the transmission and/or distribution network.</u>
<u>Participant</u>	<u>The entity that represents resources to a market or distribution operator.</u>
<u>Regulator</u>	<u>A rule-making and enforcement entity.</u>
<u>Reliability Authority</u>	<u>A regulatory authority responsible for the development, reporting and enforcement of electric reliability-related activities.</u>
<u>Response Method</u>	<u>A measurable action taken in response to an instruction to change consumption.</u>
<u>Response Method Aggregation</u>	<u>A logical entity that has a reportable interval level consumption, e.g. a site may also be a physical entity that may have its own meter, a neighborhood of homes that has a net meter, or an estimate of consumption of an aggregation of retail customers.</u>
<u>Resource</u>	<u>A market-dependent group of Response Method Aggregations that represents a dispatchable entity.</u>
<u>Scheduling Entity</u>	<u>A role which carries the responsibility of submitting bids/offers and receives Schedules and Awards.</u>
<u>Service Provider</u>	<u>A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.</u>
<u>State Regulator</u>	<u>A regulatory authority responsible for the oversight and administration of electric utilities.</u>
<u>Supporting Objects</u>	<u>Objects that support the interaction of Business Entities and Demand Response Objects.</u>
<u>System Operator</u>	<u>An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.</u>



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

For Quadrant: Wholesale Electric Quadrant (WEQ)
Requesters: NAESB Smart Grid Task Force (SGTF)
Request No.: 2010 WEQ Annual Plan Item 6(a)
Request Title: Requirements Specifications for Wholesale Standard DR Signals - for NIST PAP09

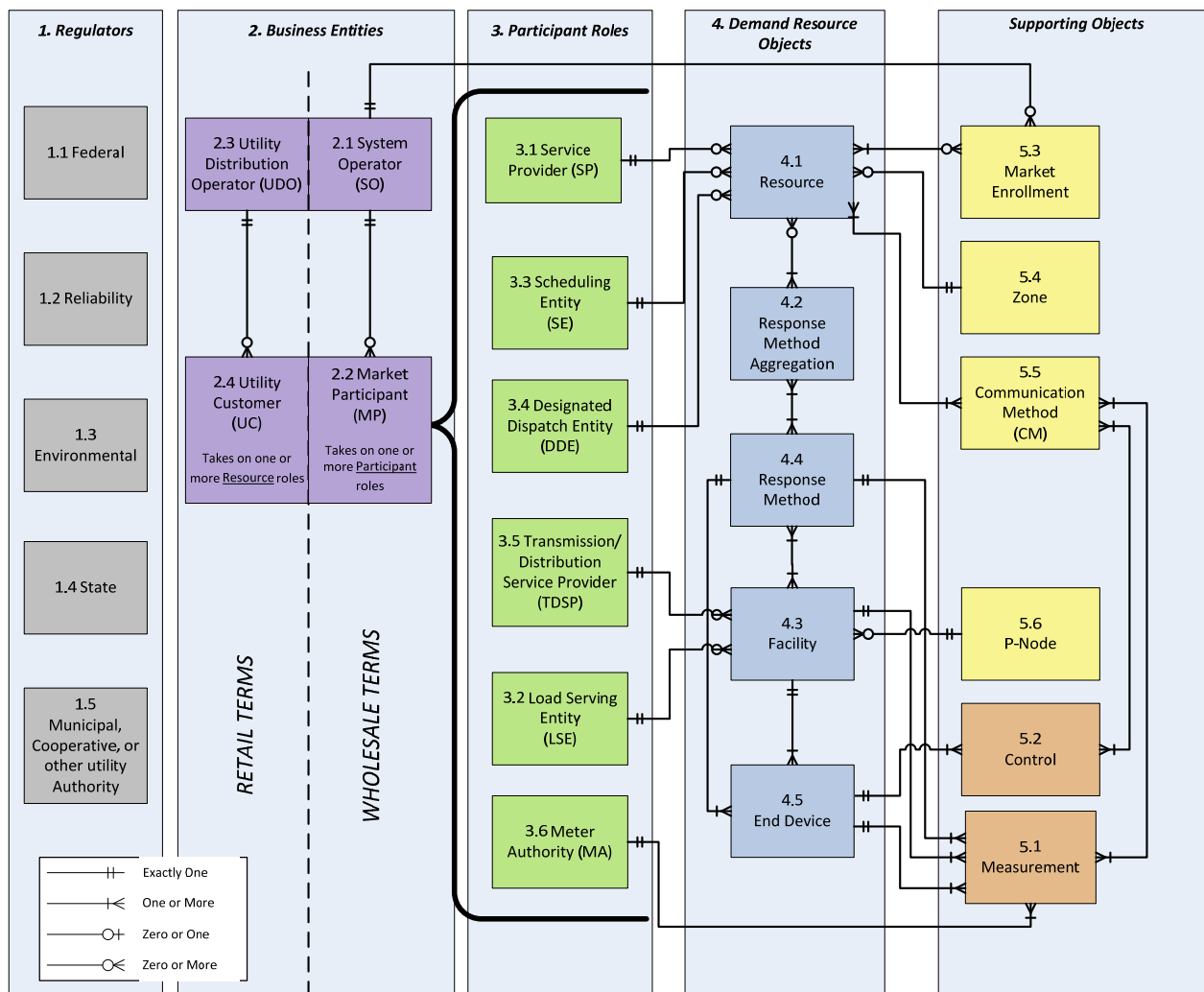
<u>Term</u>	<u>Definition</u>
<u>Transmission/Distribution Service Provider</u>	<u>A role which carries the responsibility of operating a local electricity transmission and/or distribution system.</u>
<u>Utility Customer</u>	<u>An end-use customer of the Utility Distribution Operator that takes on roles such as Facility or Resource.</u>
<u>Utility Distribution Operator</u>	<u>An entity which carries the responsibility of operating an electricity distribution system.</u>
<u>Zone</u>	<u>A physical or electrical region.</u>



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Figure 1. Entity-Relationship Model for Smart Grid Use Cases





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016-B

Appendix B – Use Case Combinations

Use Case	Product	Deployment	Performance Evaluation
E-B-1	Energy (Economic)	Bulk	Baseline
E-B-2	Energy (Economic)	Bulk	MB/MA
E-B-3	Energy (Economic)	Bulk	MBL
E-B-4	Energy (Economic)	Bulk	MGO
E-R-1	Energy (Economic)	Resource	Baseline
E-R-2	Energy (Economic)	Resource	MB/MA
E-R-3	Energy (Economic)	Resource	MBL
E-R-4	Energy (Economic)	Resource	MGO
E-S-1	Energy (Economic)	Self	Baseline
E-S-2	Energy (Economic)	Self	MB/MA
E-S-3	Energy (Economic)	Self	MBL
E-S-4	Energy (Economic)	Self	MGO
R-B-1	Energy (Reliability)	Bulk	Baseline
R-B-2	Energy (Reliability)	Bulk	MB/MA
R-B-3	Energy (Reliability)	Bulk	MBL
R-B-4	Energy (Reliability)	Bulk	MGO
R-R-1	Energy (Reliability)	Resource	Baseline
R-R-2	Energy (Reliability)	Resource	MB/MA
R-R-3	Energy (Reliability)	Resource	MBL
R-R-4	Energy (Reliability)	Resource	MGO
R-S-1	Energy (Reliability)	Self	Baseline
R-S-2	Energy (Reliability)	Self	MB/MA
R-S-3	Energy (Reliability)	Self	MBL
R-S-4	Energy (Reliability)	Self	MGO



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Use Case	Product	Deployment	Performance Evaluation
C-B-1	Capacity	Bulk	Baseline
C-B-2	Capacity	Bulk	MB/MA
C-B-3	Capacity	Bulk	MBL
C-B-4	Capacity	Bulk	MGO
C-R-1	Capacity	Resource	Baseline
C-R-2	Capacity	Resource	MB/MA
C-R-3	Capacity	Resource	MBL
C-R-4	Capacity	Resource	MGO
C-S-1	Capacity	Self	Baseline
C-S-2	Capacity	Self	MB/MA
C-S-3	Capacity	Self	MBL
C-S-4	Capacity	Self	MGO
G-B-1	Regulation	Bulk	Baseline
G-B-2	Regulation	Bulk	MB/MA
G-B-3	Regulation	Bulk	MBL
G-B-4	Regulation	Bulk	MGO
G-R-1	Regulation	Resource	Baseline
G-R-2	Regulation	Resource	MB/MA
G-R-3	Regulation	Resource	MBL
G-R-4	Regulation	Resource	MGO
G-S-1	Regulation	Self	Baseline
G-S-2	Regulation	Self	MB/MA
G-S-3	Regulation	Self	MBL
G-S-4	Regulation	Self	MGO
V-B-1	Reserve	Bulk	Baseline
V-B-2	Reserve	Bulk	MB/MA
V-B-3	Reserve	Bulk	MBL
V-B-4	Reserve	Bulk	MGO
V-R-1	Reserve	Resource	Baseline
V-R-2	Reserve	Resource	MB/MA
V-R-3	Reserve	Resource	MBL
V-R-4	Reserve	Resource	MGO
V-S-1	Reserve	Self	Baseline
V-S-2	Reserve	Self	MB/MA
V-S-3	Reserve	Self	MBL
V-S-4	Reserve	Self	MGO



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4. Supporting Documentation

a. Description of Request:

On September 30, 2009, the National Institute of Standards and Technology officially assigned NAESB the responsibility to develop Requirements and Use Cases pertinent to Priority Action Plan items 3, 4 and 9. A complete description of each item is available on the NIST Web site located at <http://collaborate.nist.gov/wiki-sggrid/bin/view/SmartGrid/WebHome> in the section titled Priority Action Plans (PAPs).

This recommendation specifically pertains to PAP 09⁴, "Standard DR Signals".

b. Description of Recommendation:

See Section 3 Summary

c. Business Purpose:

This recommendation has been developed in response to a request from NIST to provide use cases and requirements germane to the use of dates/times within a broad spectrum of energy transactions. The scope of this effort has been limited to Demand Response Programs in order to meet NIST's deadline for this effort.

d. Commentary/Rationale of Subcommittee(s)/Task Force(s):

Joint Smart Grid Standards Task Force and Fix Protocol Meeting Notes/Documents:

- September 17, 2009 Meeting Notes – To be posted
- October 1, 2009 Meeting Notes – To be posted
- October 15, 2009 Meeting Notes – To be posted

NAESB Smart Grid Standards Task Force Sub-Group Meeting Notes/Documents:

- October 13, 2009 Meeting Notes – To be posted
- October 20, 2009 Meeting Notes – To be posted
- October 27, 2009 Meeting Notes – To be posted
- November 3, 2009 Meeting Notes – To be posted
- November 4-6, 2009 Meeting Notes – To be posted
- November 10, 2009 Meeting Notes – To be posted

NAESB Smart Grid Standards Task Force Meeting Notes/Documents:

- October 22, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd102209notes.doc
- October 29, 2009 Meeting Notes – To be posted
- November 5, 2009 Meeting Notes – To be posted
- November 13, 2009 Meeting Notes – To be posted

⁴ <http://collaborate.nist.gov/wiki-sggrid/bin/view/SmartGrid/PAP09Schedules>



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Standard DR Signals - for NIST PAP09

- December 3, 2009 Meeting Notes – To be posted
- December 10, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd121009notes.doc
- December 17, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd121709notes.doc
- January 7, 2010 Meeting Notes – To be posted
- January 14, 2010 Meeting Notes – To be posted
- January 21, 2010 Meeting Notes – To be posted
- January 28, 2010 Meeting Notes – To be posted
- February 5, 2010 Meeting Notes – To be posted



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

For Quadrant: Retail Electric Quadrant (REQ)
Requesters: NAESB Smart Grid Task Force (SGTF)
Request No.: 2010 Retail Annual Plan Item 9(c)
Request Title: Requirements Specifications for Retail Standard DR Signals - for NIST PAP09

1. RECOMMENDED ACTION:

☒ Accept as requested
☐ Accept as modified below
☐ Decline

EFFECT OF EC VOTE TO ACCEPT RECOMMENDED ACTION:

☒ Change to Existing Practice
☐ Status Quo

2. TYPE OF DEVELOPMENT/MAINTENANCE

Per Request:

☒ Initiation
☐ Modification
☐ Interpretation
☐ Withdrawal

☒ Principle
☒ Definition
☒ Business Practice Standard
☐ Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

Per Recommendation:

☒ Initiation
☐ Modification
☐ Interpretation
☐ Withdrawal

☒ Principle
☒ Definition
☒ Business Practice Standard
☐ Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

3. RECOMMENDATION

SUMMARY:

The business process flows, use cases and data requirements presented in this document illustrate the standard interactions between Utility Distribution Operator, Service Provider (Demand Response) and Utility Customer for the administration and deployment of demand response resources retail markets.

RECOMMENDED STANDARDS:

In response to NIST's Priority Action Plan 9, this document provides requirements specification, in the form of business process flows, use cases and data requirements in certain areas, to support the standardization of the information exchange between Utility Distribution Operator, Service Provider (Demand Response) and Utility Customer. This document shares a standard set of actors and terminologies with the companion Requirements Specification for Wholesale Standard DR Signals.



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Request Title: Requirements Specifications for Retail
Standard DR Signals - for NIST PAP09

New Model Business Practices REQ.14 – Smart Grid Activities

RECOMMENDED STANDARDS:

Executive Summary

Specifications for Retail Standard Demand Response Signals

The North America Energy Standards Board (NAESB) Smart Grid Task Force (SGTF) took the responsibility of consolidating and developing DR use cases that provide requirements for developing DR control and pricing signal standards, which is called for by National Institute of Standards and Technology (NIST) Priority Action Plans (PAP) 03 and 09. This document addresses the business and data requirements for standardizing control and pricing signals for Retail level Demand Response (DR) and Distributed Energy Resources (DER) as part of the Smart Grid implementation. Wholesale market DR and DER information exchanges are outside the scope of this document and are addressed in the Requirements Specification for Wholesale DR signals. The first step of use case development is the development of the Framework for Integrated DR and DER Models document, which provides an overall business context for DR and DER Models.

According to the Framework Document findings:

1. DR signals standardization must support all four market types; i.e. regions with a) no open wholesale and no retail competition, b) open wholesale market only, c) open retail competition only, d) open wholesale and open retail competition. It must also consider key differences that exist and will continue to exist in all four market types.
2. Wholesale market DR and pricing signals have different characteristics than retail market DR and pricing signals, although commonality in format is feasible.
3. Most Customers (with a few exception of Commercial and Industrial (C&I) Customers) will not interact directly with wholesale market when it comes to DR and pricing signals.
4. Retail pricing models are complex, due to the numerous tariff rate structures that exist in both regulated and un-regulated markets. Attempts to standardize DR control and pricing signals must not hinder regulatory changes or market innovations when it comes to future tariff or pricing models.
5. New business entities (Energy Service Providers (ESP), Demand Response Providers (DRP), Service Providers, and Energy Information Service Providers (ESIP)) will play an increasing role in DR implementation.
6. DER may play an increasingly important role in DR, yet the development of tariff and/or pricing models that support DER's role in DR is still in its infancy.
7. The Customer's perspective and ability to react to DR control and pricing signals must be a key driver during the development of DR standards.



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The following deals exclusively with the retail level demand response signals requirements. The requirements are captured in the form of UML models, where business requirements are captured in Use Case narrative format, data requirements are captured in tabular format, and information exchange flows are captured in sequence diagram format. The top level use cases for retail DR are:

1. Administrate DR Program
2. Administrate Customer for DR
3. Administrate DR Resource
4. Execute DR Event
5. Post DR Event Management

Introduction

Specifications for Retail Standard Demand Response Signals

Purpose: The purpose of the following is to capture business and data requirements for Retail Level DR signals between entities that controls and manages the DR programs and entities that provide demand response with DR resources and assets. This is to fulfill the NAESB SGTF responsibility under the NIST Smart Grid Interoperability Standards development PAP09. This requirements document will then be used by other standards development organizations identified by NIST PAP09 for further development of DR signals technical specifications for both C&I customer and residential customer markets.

Scope: The scope of the following is to provide business and data requirements for standardizing Demand Response signals at the retail (distribution) level.

Assumptions: The following and its content have been developed with the consideration of the following key assumptions:

- The market focus of this framework is the power industry in United States of America with some overlaps to Canada, although much of the business models and practices may apply to other countries and markets.
- The scope of DER applications will be limited to the context of grid-connected DR use cases and does not include the other possible applications of DER.
- The focus of the document is business level and abstracted models of DR and DER, not specific technologies that enable DR/DER implementation.
- The wholesale (bulk power) level DR signals requirements will be captured by the companion document, yet the basic principles and definitions will be common between these two documents.

Commentary on Distributed Energy Resources: In the context of this report, Distributed Energy Resources (DER) are dispatchable energy generation and storage technologies, typically up to ten MWs in size, that are interconnected to the distribution grid to provide electric capacity and/or energy to a customer or a group of customers and potentially export the excess to the grid for economical purposes. DER systems can generate electric power, as opposed to curtailable or interruptible loads that can just reduce electric loading on the grid.



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DER may be subdivided into distributed generation (DG), distributed storage, and plug-in electric vehicles (PEVs):

Distributed generation (DG) technologies can be divided into a) **Renewable Generation**, e.g., small wind power systems, solar photovoltaic (PV), Fuel Cells, Bio-fuel generators and Digesters, and other generation resources using renewable fuel, and b) **Non-Renewable Generation**, e.g., micro-turbines, small combustion turbines, diesel, natural gas and dual-fueled engines, etc.

Storage resources could be divided into a) **Electric Storage**, e.g., battery systems and uninterruptible power supplies (UPS), flywheel, superconducting magnetic energy storage (SMES), etc. and b) **Thermal Storage** – These convert electric power to thermal (cooling/heating) energy for later use, e.g., Ice-based air cooling system, and high-capacity brick-based air heating system.

Plug-in electric and hybrid vehicles (PEV/PHEV) may also be considered as DER. The electric vehicles may be used to supply stored electric energy back to the grid, a.k.a. Vehicle-to-grid (V2G).

Behind-the-meter DER may be bundled with regular load and managed alongside the demand response resources – such as a residential roof-top PV solar panel. But often, DER is treated separately in part due to its control capabilities. In addition to a regular retail tariff, behind-the-meter DER may be subject to net-metering or feed-in tariff, where excess generation can be exported to the grid at an established or a dynamic price.

Similar to DR resources, DER assets need to be registered and enrolled into a DR program. Furthermore, DER assets are typically required to meet additional technical requirements and certification for grid interconnection. Depending on the size of a DER and its export capabilities, sub-metering and telemetry capabilities may be required to monitor the impact of the DER operation on the distribution grid reliability and power quality. Also, renewable resources may receive Renewable Energy Credits (RECs) and may also qualify as a must-run resource, e.g., wind power in some regions. These need to be incorporated into pricing and control signals associated with DER operation.



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Standard DR Signals - for NIST PAP09

New REQ.14.2.B Technical Abbreviations/Acronyms and Defined Terms to be added to REQ.14 are included below for reference (previously added in Recommendation 2010 WEQ Annual Plan Item 6(b) / 2010 Retail Annual Plan Item 9(b))

REQ.14.2.B Technical Definitions

Abbreviations and Acronyms

Abbreviation / Acronym	Meaning
DDE	Designated Dispatch Entity
EA	Environmental Authority
ED	End Device'
FR	Federal Regulator
LA	Local Authority
LSE	Load Serving Entity
MA	Metering Authority
MP	Market Participant
RA	Reliability Authority
RM	Response Method
RMA	Response Method Aggregation
SE	Scheduling Entity
SO	System Operator
SP	Service Provider
SR	State Regulator
TDSP	Transmission/Distribution Service Provider
UC	Utility Customer
UDO	Utility Distribution Operator



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- REQ.14.2.1t Business Entity:** The wholesale or retail entity that interacts with other entities in its market.
- REQ.14.2.2t Communication Method:** The method by which an object communicates with another object to instruct, measure or control.
- REQ.14.2.3t Control:** The role associated with the control of an End Device.
- REQ.14.2.4t Demand Response Objects:** Physical and logical types of demand response resource objects.
- REQ.14.2.5t Designated Dispatch Entity:** A role which carries the responsibility of receiving and processing demand resource dispatch instructions or market information and (optionally) providing response information.
- REQ.14.2.6t End Device:** A physical end-use device that consumes or supplies electricity.
- REQ.14.2.7t Environmental Authority:** A regulatory authority responsible for the development, reporting and enforcement of environmental activities.
- REQ.14.2.8t Facility:** The location at which connection to the transmission or distribution system is made.
- REQ.14.2.9t Federal Regulator:** A Federal regulatory authority.
- REQ.14.2.10t Load Serving Entity:** A role which carries the responsibility of serving end-users and selling electric energy to end-users.
- REQ.14.2.11t Local Authority:** A regulatory authority responsible for the oversight and administration of utility service-related functions within its jurisdiction.
- REQ.14.2.12t Market Enrollment:** The collection of enrollment or tariff data for a Demand Resource Object to provide a specific market product or service.
- REQ.14.2.13t Market Participant:** An organization registered with the System Operator that may take on roles such as SP, LSE, TDSP, DDE, SE, and/or MA in accordance with the System Operator's market rules.
- REQ.14.2.14t Measurement:** The role associated with the device or algorithm that measures the consumption or supply of an End Device.
- REQ.14.2.15t Metering Authority:** A role which carries the responsibility of providing data necessary to determine the performance of a Resource.
- REQ.14.2.16t P-Node:** The price location of the Facility in the transmission and/or distribution network.
- REQ.14.2.17t Participant:** The entity that represents resources to a market or distribution operator.
- REQ.14.2.18t Regulator:** A rule-making and enforcement entity.
- REQ.14.2.19t Reliability Authority:** A regulatory authority responsible for the development, reporting and enforcement of electric reliability-related activities.



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- REQ.14.2.20t** **Response Method:** A measurable action taken in response to an instruction to change consumption.
- REQ.14.2.21t** **Response Method Aggregation:** A logical entity that has a reportable interval level consumption, e.g. a site may also be a physical entity that may have its own meter, a neighborhood of homes that has a net meter, or an estimate of consumption of an aggregation of retail customers.
- REQ.14.2.22t** **Resource:** A market-dependent group of Response Method Aggregations that represents a dispatchable entity.
- REQ.14.2.23t** **Scheduling Entity:** A role which carries the responsibility of submitting bids/offers and receives Schedules and Awards.
- REQ.14.2.24t** **Service Provider:** A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.
- REQ.14.2.25t** **State Regulator:** A regulatory authority responsible for the oversight and administration of electric utilities.
- REQ.14.2.26t** **Support Operator:** Objects that support the interaction of Business Entities and Demand Response Objects.
- REQ.14.2.27t** **System Operator:** An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.
- REQ.14.2.28t** **Transmission/Distribution Service Provider:** A role which carries the responsibility of operating a local electricity transmission and/or distribution system.
- REQ.14.2.29t** **Utility Customer:** An end-use customer of the Utility Distribution Operator that takes on roles such as Facility or Resource.
- REQ.14.2.30t** **Utility Distribution Operator:** An entity which carries the responsibility of operating an electricity distribution system.
- REQ.14.2.31t** **Zone:** A physical or electrical region.



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Model Business Practices

REQ.14.3.2 Specifications for Retail Standard Demand Response Signals

The following describes general business processes for implementing demand response capacities at the retail market level. The following principles apply to the development and application of these business process requirements.

#	Name	Description	Rationale	Implication
1	<u>Scalability</u>	<u>The architecture should allow for the management of millions of Customer premises devices</u>	<u>Scale-out, adding more low-cost machines, has proven to be superior to scale-up, using larger single machines, as a way to handle large loads. For example, high traffic web sites use farms of low-cost machines to serve pages to millions of simultaneous web users.</u>	<u>Architecture should allow the solution to scale-out as more devices are added.</u>
2	<u>Actionable, testable, and transferable work products</u>	<u>Any work (artifacts) that are created can be used by the audience for this work, e.g., utilities, vendors, regulators, etc. There needs to be clear, explicit guidance for how to use the artifacts. There is an expectation that the work products are useful at lower levels of design.</u>	<u>Such work products will promote market adoption and minimize the cost and risk of adoption, leverage open and best practices, and establish repeatable processes, patterns, and templates for all work products.</u>	<u>The use of common tools and methods will be fostered. Organizations that do not follow the use of the common tools and methods may have more difficulty implementing the artifacts.</u>



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#	Name	Description	Rationale	Implication
3	<u>Platform Independence, Vendor Neutral</u>	<u>Requirements and design artifacts shall be platform independent. Implementation technology shall be chosen due to its level of acceptance at the marketplace as open standards.</u>	<u>There is an expectation of differentiation and innovation in the marketplace. With greater dependence on a specific platform, there may be less architectural flexibility.</u>	<u>To achieve both technical and semantic interoperability, certain lower level technologies will need to be chosen. For example, Web Services technology is widely used for integration, and UML is widely used for modeling.</u>
4	<u>Cyber Secure</u>	<u>Architecture must incorporate latest secure computing techniques.</u>	<u>The integrity of the electric grid and market depend on preventing unauthorized actors from manipulating the DR and DER system.</u>	<u>Architecture must comply with the latest security guidance from the NIST SGIP Architecture Committee and CyberSecurity Task Group, when it comes to Web Services security related implementation.</u>
5	<u>Interoperability</u>	<u>DR signaling standards should utilize open, interoperable industry standard control and communication technologies to integrate with both common energy management and control systems that can conduct DR activities</u>	<u>Interoperability across different domains of Smart Grid is key to the success of DR signaling standards as it ensures level playing field for innovative solutions for all participants of the Smart Grid.</u>	<u>DR signaling standards must be developed in harmonization with others relevant standards as identified by the NIST SGIP.</u>
6	<u>Automatic Demand Response</u>	<u>The DR program (analysis, notification, event, action, monitoring, verification, settlement) should be automatic. DR signaling standards should provide secure, reliable communications with consumers for DR</u>	<u>Automation is the only way to ensure large scale and repeatable demand response implementation.</u>	<u>Security, reliability and testability must be ensured for DR automation.</u>



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#	Name	Description	Rationale	Implication
7	<u>Cover All Market Types</u>	<u>operations</u> <u>DR signaling standards should be supported and implementable in all four market types listed in this document</u>	<u>Standards development shall not get in the way of regulatory policy decisions.</u>	<u>DR signals design need to support a wide range of programs and tariff/pricing structures.</u>

REQ.14.3.2.1 ACTORS

The following actor roles and actors are defined and used across NAESB documents related to NIST PAP03, 04 and 09 (Wholesale and Retail).

Actor Roles

<u>Term</u>	<u>Acronym</u>	<u>Definition</u>
<u>Service Provider</u>	<u>SP</u>	<u>A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.</u>
<u>Designated Dispatch Entity</u>	<u>DDE</u>	<u>A role which carries the responsibility of receiving and processing demand resource dispatch instructions or market information and (optionally) providing response information.</u>
<u>Load Serving Entity</u>	<u>LSE</u>	<u>A role which carries the responsibility of serving end-users and selling electric energy to end-users.</u>
<u>Metering Authority</u>	<u>MA</u>	<u>A role which carries the responsibility of providing data necessary to determine the performance of a Resource.</u>
<u>Scheduling Entity</u>	<u>SE</u>	<u>A role which carries the responsibility of submitting bids/offers and receives Schedules and Awards.</u>
<u>System Operator</u>	<u>SO</u>	<u>An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.</u>
<u>Transmission/Distribution Service Provider</u>	<u>TDSP</u>	<u>A role which carries the responsibility of operating a local electricity transmission and/or distribution system.</u>



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Actors List

<u>Regulator</u>	<u>A rule-making and enforcement entity.</u>
<u>Federal Regulator (FR)</u>	<u>A Federal regulatory authority.</u>
<u>Reliability Authority (RA)</u>	<u>A regulatory authority responsible for the development, reporting and enforcement of electric reliability-related</u>
<u>Environmental Authority (EA)</u>	<u>A regulatory authority responsible for the development, reporting and enforcement of environmental activities.</u>
<u>State Regulator (SR)</u>	<u>A regulatory authority responsible for the oversight and administration of electric utilities.</u>
<u>Local Authority (LA)</u>	<u>A regulatory authority responsible for the administration of utility service-related functions within its jurisdiction.</u>

<u>Business Entity</u>	<u>The wholesale or retail entity that interacts with other entities in its market.</u>
<u>System Operator (SO)</u>	<u>An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.</u>
<u>Market Participant (MP)</u>	<u>An organization registered with the System Operator that may take on roles such as SP, LSE, TDSP, DDE, SE, and/or MA in accordance with the System</u>
<u>Utility Distribution Operator (UDO)</u>	<u>An entity which carries the responsibility of operating an electricity distribution system.</u>
<u>Utility Customer (UC)</u>	<u>An end-use customer of the Utility Distribution Operator that takes on roles such as Facility or Resource.</u>



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<u>Participant Role</u>	<u>The entity that represents resources to a market or distribution operator.</u>
<u>Service Provider (SP)</u>	<u>A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.</u>
<u>Load Serving Entity (LSE)</u>	<u>A role which carries the responsibility of serving end-users and selling electric energy to end-users.</u>
<u>Scheduling Entity (SE)</u>	<u>A role which carries the responsibility of submitting bids/offers and receives Schedules and Awards.</u>
<u>Designated Dispatch Entity (DDE)</u>	<u>A role which carries the responsibility of receiving and processing demand resource dispatch instructions or market information and (optionally) providing response information</u>
<u>Transmission/Distribution Service Provider (TDSP)</u>	<u>A role which carries the responsibility of operating a local electricity transmission and/or distribution system.</u>
<u>Metering Authority (MA)</u>	<u>A role which carries the responsibility of providing electric usage data necessary to determine the performance of a Resource.</u>
<u>Resource Objects</u>	<u>Physical and logical types of resource-related objects.</u>
<u>Resource</u>	<u>A group of Response Method Aggregations that represents a dispatchable entity. Also referred to as DR Resource in this document.</u>
<u>Response Method Aggregation (RMA)</u>	<u>A logical entity that has a reportable interval level consumption, e.g. a site may also be a physical entity that may have its own meter, a neighborhood of homes that has a net meter, or an estimate of consumption of an aggregation of retail customers. Also referred to as DR Asset in this document.</u>
<u>Facility</u>	<u>The location at which connection to the transmission or distribution system is made.</u>



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<u>Resource Objects</u>	<u>Physical and logical types of resource-related objects.</u>
<u>Response Method (RM)</u>	<u>A measurable action taken in response to an instruction to change consumption.</u>
<u>End Device (ED)</u>	<u>A physical end-use device that consumes or supplies electricity.</u>
<u>Supporting Objects</u>	<u>Objects that support the interaction of Business Entities and Resource Objects</u>
<u>Measurement</u>	<u>The role associated with the device or algorithm that measures the consumption or supply of an End Device.</u>
<u>Control</u>	<u>The role associated with the control of an End Device.</u>
<u>Market Enrollment</u>	<u>The collection of enrollment or tariff data for a Demand Resource Object to provide a specific market product or service.</u>
<u>Zone</u>	<u>A physical or electrical region.</u>
<u>Communication Method</u>	<u>The method by which an object communicates with another object to instruct, measure or control.</u>
<u>P-Node</u>	<u>The price location of the Facility in the transmission and/or distribution network.</u>



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REQ.14.3.2.2 Conventions

The use case modeling technique is used for capturing business and data requirements relative to Retail Demand Response. There are two basic diagrams used in this document. The first one is the use case diagram, which shows the scope of business use cases for a given business scenario. The relationships used in the Use Case diagrams are as follows:

- Include: this indicates additional scenarios
- Extend: this indicates alternatives scenarios
- Generalization (line with triangle head): this indicates variations (sub-types) of the main use case.
- Precedes: this indicates a time sequence
- Invokes: this indicates a pre-condition or dependency

The second is the sequence diagram, which shows the information exchange flows between actors for a given use case. The message flows are shown in one way with the convention of verb and noun, verb indicating the action being taken, noun indicating the name of the information being exchanged. The return message flow is the acknowledgement of the main message flow.



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REQ.14.3.2.3 Use Case Overview

Similar to the Wholesale Demand Response use cases, Retail Demand Response use cases generally follow five main steps, see the Figure 1.

1. Administrate DR Program
2. Administrate Customer for DR
3. Administrate DR Resource
4. Execute DR Event
5. Post DR Event Management

There are many programs that exist in today's retail markets with or without open competition. New programs will be defined and deployed in the future. The goal of this use case analysis is to find commonalities among these programs so that the derived DR signal messaging specification can be implemented to support a large number of DR programs.

The focus of the Standardized DR Signals is the step 4, Execute DR Event, where the DR signals will be communicated between the DR Providers and the DR resources. All other use cases are supporting materials to ensure that DR use case requirements are documented and understood in a complete picture.

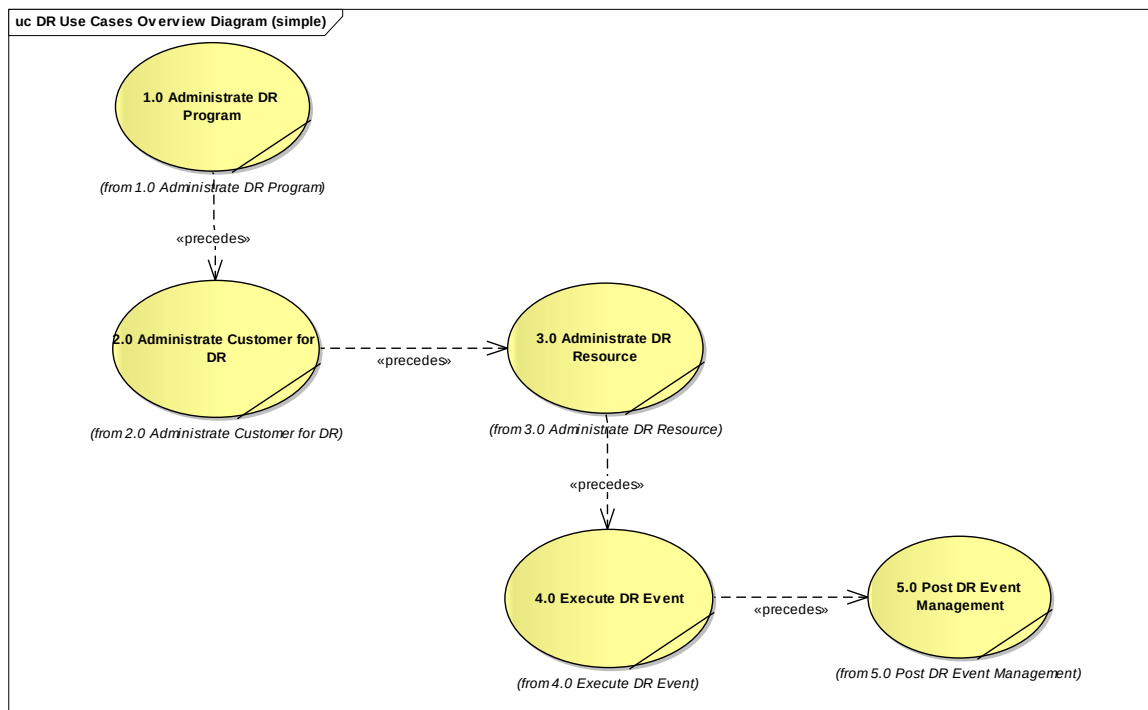


Figure 1. Retail Market DR Use Case Overview



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REQ.14.3.2.4 Specific Use Cases

REQ.14.3.2.4.1 Administrative DR Program

Typically DR programs are created for specific business needs of demand side management. However, it is not required to affect demand behavior. It is also likely that DR programs will evolve over time. Figure 2 shows the actors and use cases involved in administrating DR programs. Following are the three main use cases concerning the creation, update and removal of DR programs. It is unlikely that this step of the DR management will be automated.

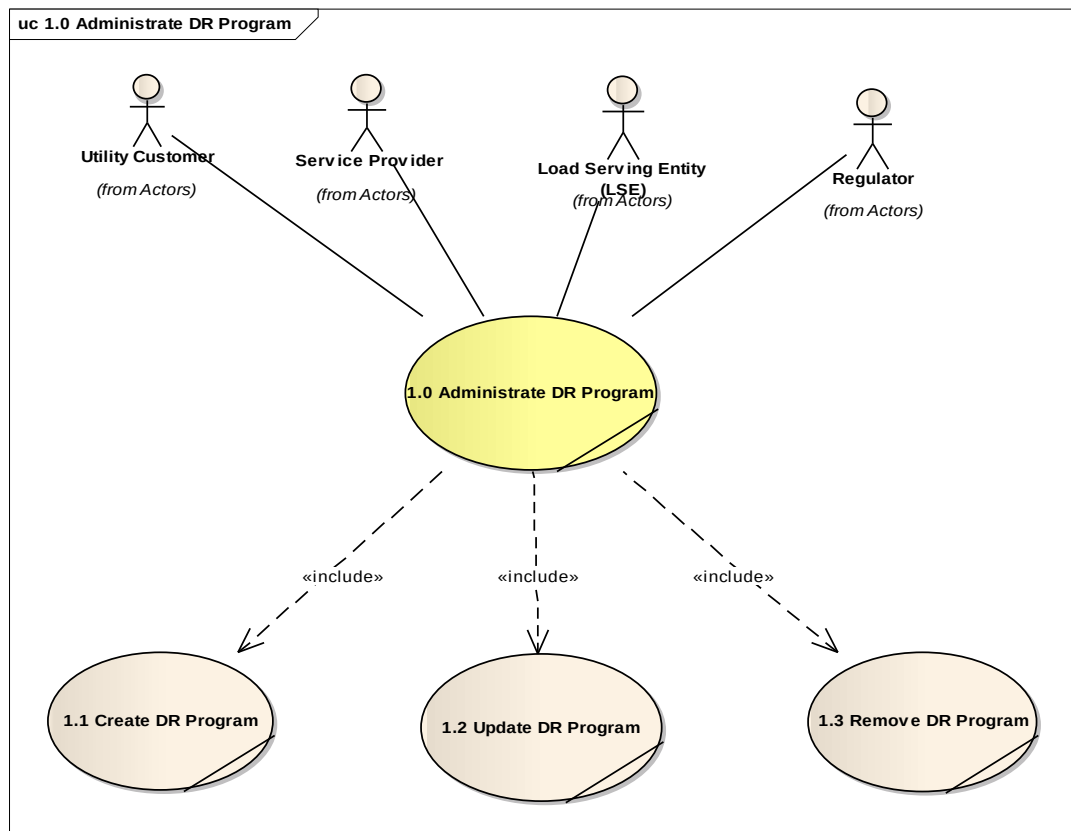


Figure 2. Administrative DR Program

REQ.14.3.2.4.1.2 Create DR Program

Description

A DR program is created to meet one of two, or both, situations. A DR program is created to meet a reliability need, i.e., a projected insufficient energy supply, and/or for economic purposes, i.e., when market prices are peaking.

A properly designed DR program will have a clearly stated goal or objective, Program Administrator, activation and operational



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protocols, and responsibilities and obligations. The items that should be considered include, but are not limited to:

- The type and size of the target Customer;
- The type of program to be implemented, e.g., Direct Load Control, Firm Service Level, Guaranteed Load Drop, etc.;
- The type and level of granularity of metering and telemetry to be used/required;
- Any regulatory requirements;
- Method of communication;
- Activation protocol;
- Marketing and Sales activities;
- Customer Education activities;
- Duration;
- Delivery Period;
- LSE/UDO Compensation;
- Data Exchange Protocols;
- Customer Authorization;
- Third Party Participation;
- Registration / Enrollment Process;
- Approval Process;
- Baseline Calculations;
- Settlement Process;
- Payment Process;
- DR Resource enablement, including incentives;
- DR Resource deployment process;
- M&V Methodology;
- Contractual Agreements;
- Dispute Resolution Process;
- Phase-in or Roll-out Plan;
- Product type offering to the ISO/RTO; energy only, ancillary service (regulation up/down, spinning/non-spinning, etc.);
- If offering to ISO/RTO, specific metering/telemetry or other requirements needed to actively participate ;
- Address multiple participation in other DR programs (retail and wholesale);
- Include/Exclude full/partial co-generation system, back-up generation, DER, etc...;
- UDO verifying DR resource physical electric grid location.



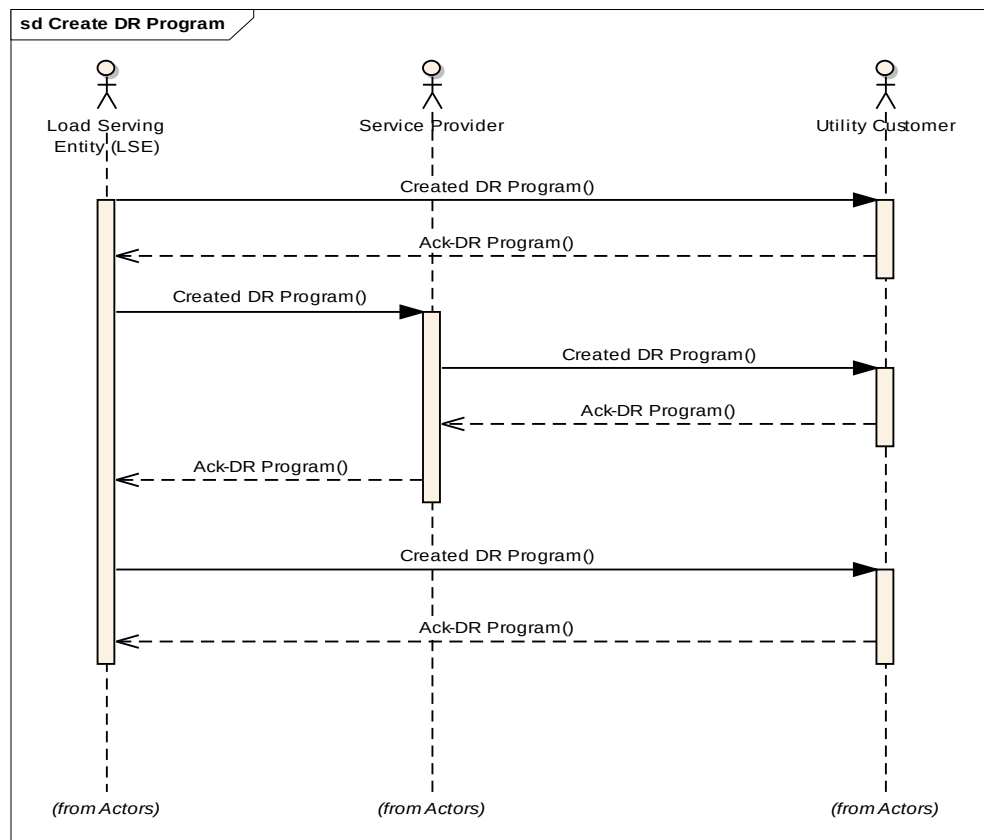
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Once the DR program is developed, it should be certified prior its implementation. Such testing may be accomplished through a pilot program. The results of the test/pilot should then be compared against the goal/objective of the program and any needed modifications made. Upon satisfactory results, the DR program should be filed with and approved by the Applicable Regulatory Authority, if any. Depending on which Entity is creating the DR program, it must also be submitted to and approved by the System Operator. Finally, the DR program must be implemented. Upon activation of a DR program, an observable demand reduction should occur.

Sequence Diagram

The following DR Program interaction assumes the initial steps of regulatory process are completed for the approval of a DR program. This shows the potential automation of the creation of DR programs from systems perspective.





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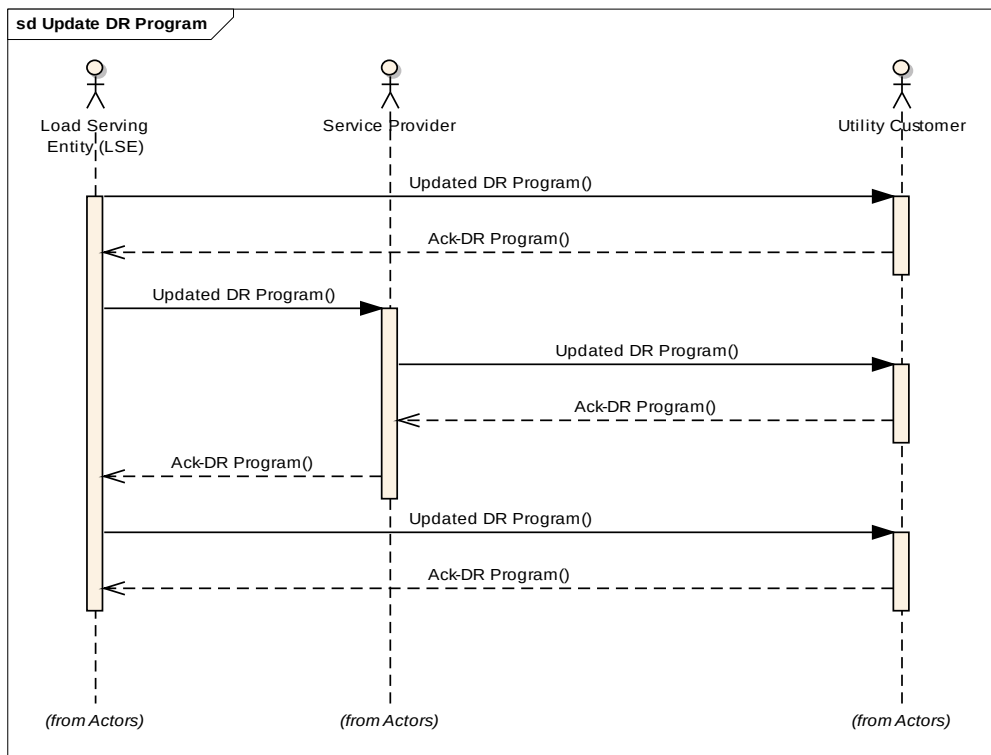
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REQ.14.3.2.4.1.3 Update DR Program

Once a DR program is initiated, changes in various elements of the program may be required or desired. After identifying the specific modification required, each of the considerations identified in the "Create" step should be investigated to insure that no unintended impacts occur as a result of the modification. If such unintended impacts occur, further investigation of the modification is required prior to implementation.

A regulated Entity must then present the modifications to the Applicable Regulatory Authority for approval and, then to the System Operator for approval. Once approved, the modifications must be communicated to Customers.

Sequence Diagram





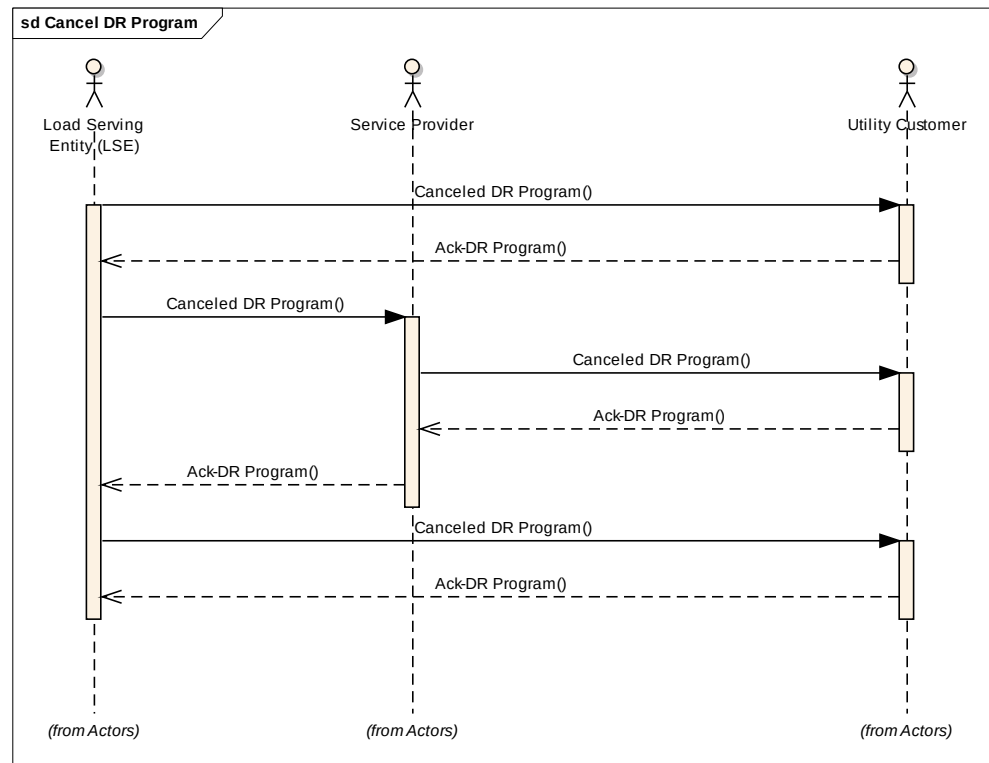
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REQ.14.3.2.4.1.4 Remove DR Program

Termination of a DR program must take into account any DR resource long term commitments in System Operator programs and contractual obligations with Service Provider (Service Providers, Energy Service Provider) or Load Serving Entities. In addition, State and or Federal regulatory agency filings and approvals must be considered prior to terminating a DR program. Termination of a DR program may involve the removal of DR infrastructure, such as Direct Load Control Devices and advanced metering and pulse devices used in the Measurement and Verification of the program. All outstanding payments to the DR resources should be completed prior to the termination of the DR program.

Sequence Diagram





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REQ.14.3.2.4.2 Administrate Customer for DR

Once the DR programs are established, there will be campaigns from Service Provider to get customers enrolled into the programs. Figure 3 shows the actors and use cases involved in administrating customers into DR programs. Following are the three main use cases concerning the creation, update and removal of customers for a DR program. Enrollment may affect how a customer is compensated for demand responses. It is unlikely that this step of the DR management will be automated.

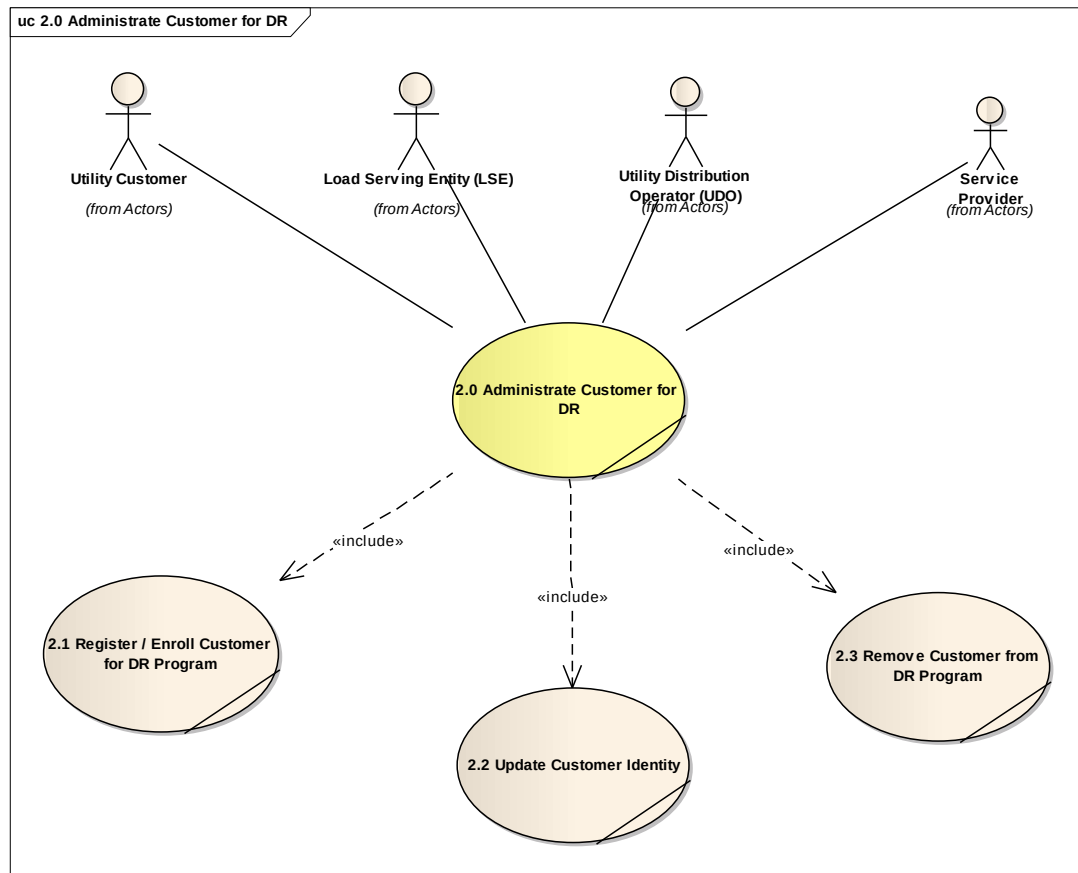


Figure 3. Administrate Customer for DR



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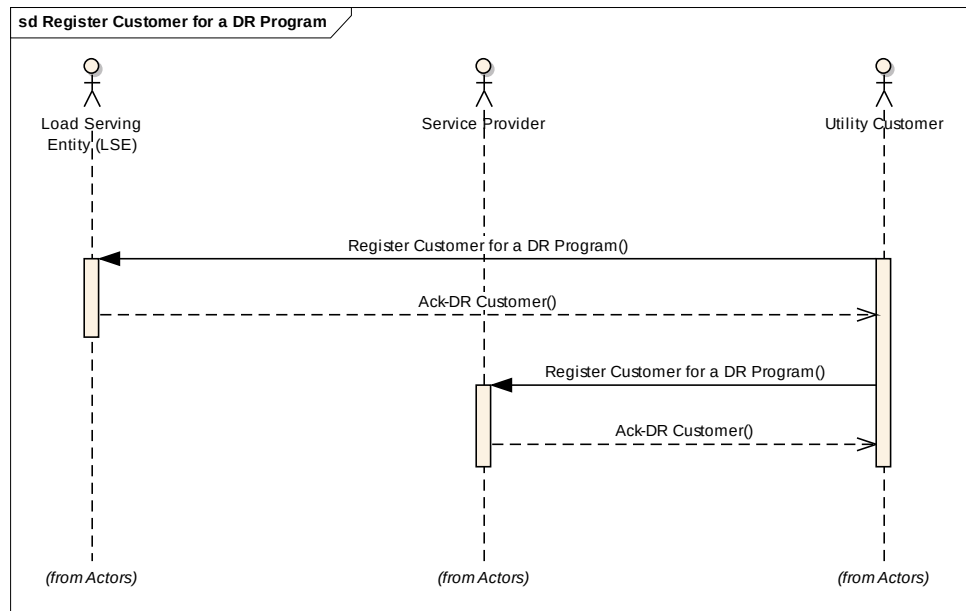
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REQ.14.3.2.4.2.1 Register / Enroll Customer for DR Program

Description

The registration/enrollment process must capture the key identifiers in order to enable accurate accounting and classification of DR resources, as well as to ensure customer understanding of the type and specific requirements of demand response service they are providing. A registration process to track registrations of System Operators or facilitating agencies and the movement of DR resources from one Service Provider to another as may occur from time to time is necessary. Internet-based applications for the registration/enrollment process are ideal for this type of program administration. There may be different applications for various service types and customer types.

Sequence Diagram





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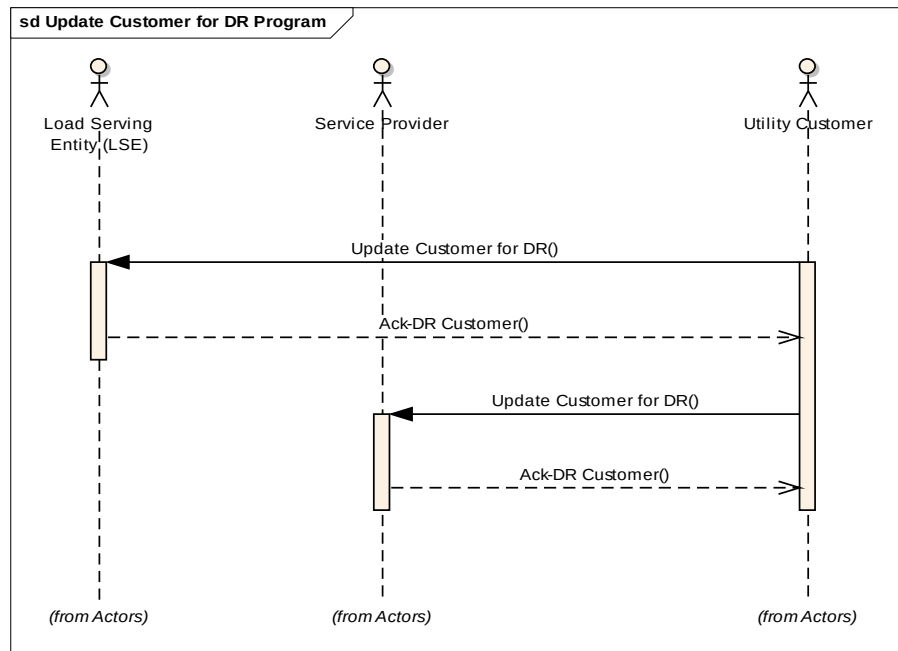
REQ.14.3.2.4.2.2 Update Customer Identity

Description

Once a DR registration is completed, changes in various elements of the registration may be required or desired. After identifying the specific modification required, each of the considerations identified in the register/enroll step should be investigated to ensure that it is accurate and complete.

All parties (Utility, Aggregators, Energy Consultants, DR resources, Regulatory Agencies) affected by the update should be given reasonable time to review, dispute, and approve/disapprove the update(s).

Sequence Diagram





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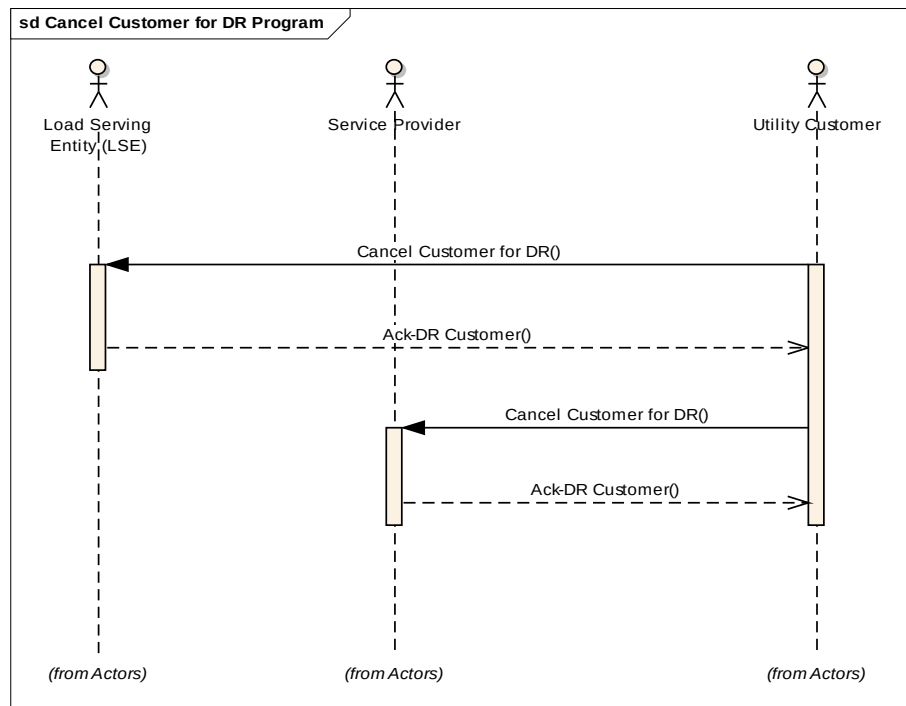
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REQ.14.3.2.4.2.3 Remove Customer from DR Program

Description

Removing a Customer Entity from a DR Program enrollment must take into account any DR resource long term commitments in System Operator programs, and contractual obligations with Service Provider or Load Serving Entities. In addition, State and/or Federal regulatory agency filings and approvals must be considered prior to removing a customer enrollment from a DR program.

Sequence Diagram





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REQ.14.3.2.4.3 Administrate DR Resource

DR Resource is an equivalent of Resource and DR Asset is an equivalent of Response Method Aggregation (RMA), defined in the actor list table.

As part of enrolling customers to a DR program, specific DR resources and assets that are associated with customers' accounts and premises will also need to be registered. Figure 4 shows the actors and use cases involved in administrating DR resources and/or assets into DR programs. The following use cases deal with the registration, update, and removal of DR resources and assets associated with a customer. When updating DR resources, there will also be potential use cases of DR bidding process, either for supplying or for buying power. There are also cases where Distributed Energy Resources will act as DR assets.

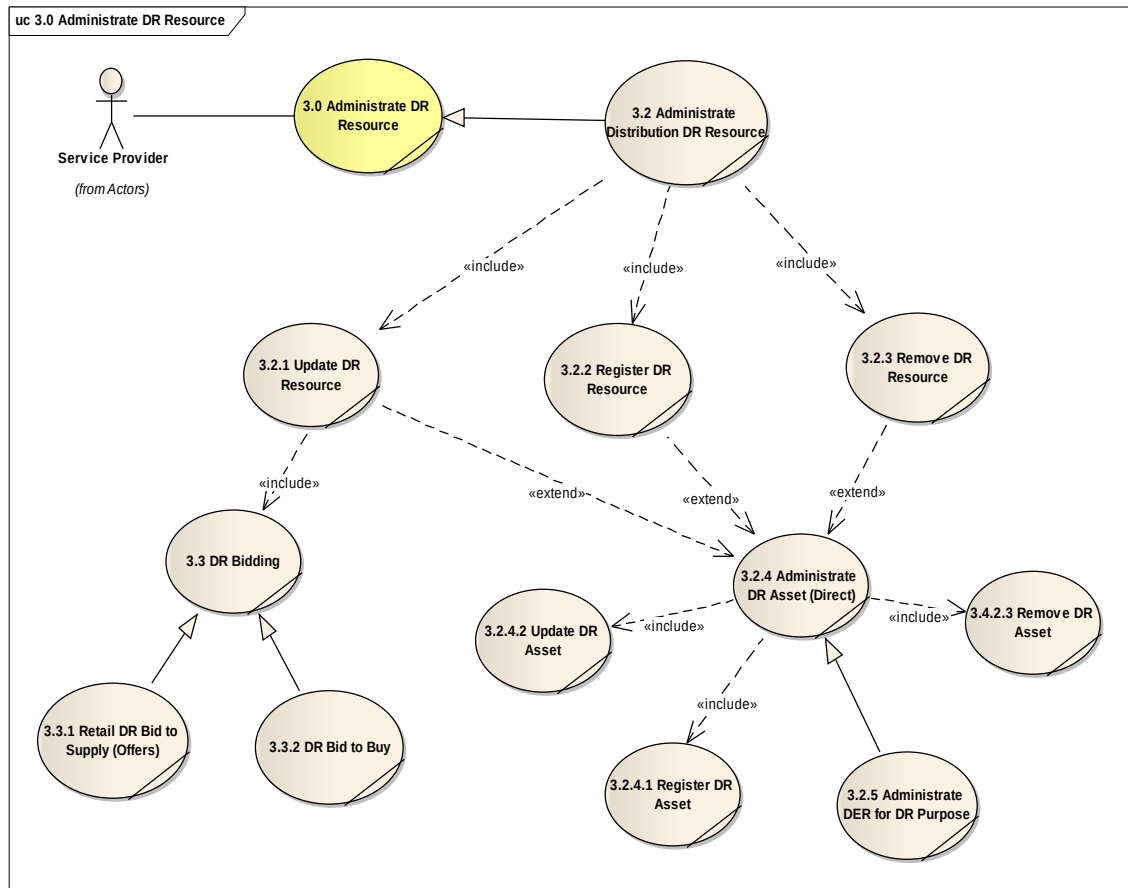


Figure 4. Administrate DR Resources and/or Assets into DR Programs



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REQ.14.3.2.4.3.1 Administrate Distribution DR Resource

These activities are used to administer all of the DR Resources and Assets, including a variety of activities surrounding the registration of DR Resources and the management of information surrounding the DR Resources that a Service Provider may call upon during a DR event. Before a DR Resource may be called upon, it must be registered with the Service Provider. The administration of a DR Resource covers the following requirements:

- The need of the Service Provider to identify a DR Resource for communications purposes;
- The need of the Service Provider to establish DR Resource accounts for accounting purposes;
- The need of the Service Provider to collect information from DR Resources prior to DR events for the purposes of determining which DR Resources to call upon during a DR Event; and
- The need of the Service Provider to collect information from DR Resources prior to DR events for the purposes of determining the nature of the DR signals to send to the DR Resources.

REQ.14.3.2.4.3.2 Update DR Resource

Description

When the base capacity of a DR Resource changes from when it was last registered with the DR provider, customer needs to provide updated information to the DR provider so that such information can be factored into the consideration for DR event planning.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>Asset-ID</u>	<u>This uniquely identifies a DR Asset</u>
<u>DR Resource Operational Constraints</u>	<u>These are constraints that define the amount load that can be made available during a DR event, including the following:</u> <u>• Minimum load</u> <u>• Maximum load.</u>
<u>DR Resource Bid</u>	<u>This is a bid from the DR Resource. See the DR Bidding use case for a description of the information requirements.</u>



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<u>Attribute Name</u>	<u>Description</u>
<u>DR Resource Schedule Constraints</u>	These are a set of constraints that specify when the DR Resource will be available. It may contain such information as: • <u>Time of day schedule constraints</u> • <u>Black out dates</u> • <u>Maximum consecutive days of participation</u> • <u>Maximum duration of DR event participation</u> • <u>Minimum duration of DR event participation</u> • <u>Max number of times per day the DR Resource may be called</u> • <u>Minimum advanced notification necessary.</u> Provide details if DR asset or DR resource is in any other DR programs (wholesale and retail)
<u>DR Resource Identifier</u>	<u>This identifies the DR Resource.</u>
<u>DR Resource Qualification</u>	<u>This shows the qualification of a DR resource for certain type(s) of DR programs</u>
<u>Effective-Start-Date</u>	<u>The date and time when the declared capabilities will be in effect.</u>
<u>Hourly-Capacity-Availability</u>	<u>The amount of capacity available for interruption by hour for the period defined by the effective start/end date, expressed in kW or MW with appropriate precision.</u>
<u>Message-Exchange-Pattern</u>	<u>The means by which price information is communicated to any party that is interested in this information. The following are valid options:</u> • <u>In-Only</u> • <u>Robust In-Only</u> • <u>In-Out.</u> <u>Refer to http://www.w3.org/TR/wsdI20-adjuncts/#patterns for complete descriptions.</u>
<u>Monthly-Capacity-Availability</u>	<u>The average capacity available for interruption by month for the period defined by the effective start/end date, expressed in Megawatts with appropriate precision.</u>

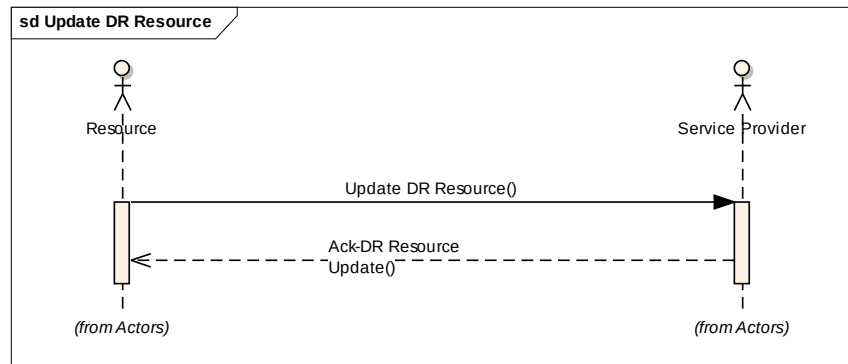


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Attribute Name	Description
<u>Source-Authentication</u>	<u>The recipient must have some assurance that the message was produced by a reliable, authoritative party. This requires some ability to validate the authenticity of the source and integrity of the data (e.g., digital signature applied to a price message).</u>
<u>Temporary Opt-Out</u>	<u>This is used to temporarily opt out of DR Events and to override the normal operational constraints. The opt-out can be specified using the following criteria:</u> <u>All events in a program indefinitely</u> <u>Specific DR Event</u> <u>All events in a specific time period.</u> <u>Other triggered programs for which an asset or DR resource is already called upon (reduce double counting of available capacity)</u>

Sequence Diagram



REQ.14.3.2.4.3.3 Register DR Resource

Description

A party with ownership, controlling interest, or administrative responsibilities for a DR Asset or DR Resource that communicates status-related operational information about the DR Asset or DR Resource to a Service Provider. For example, the owner of a DR Resource or Asset may wish to declare their inability to shed load (an outage) due to summer shutdown or may wish to reduce the available capacity of a resource/asset due to equipment maintenance or other causes.



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Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>Asset-ID</u>	<u>This uniquely identifies a DR Asset.</u>
<u>Available-Capacity</u>	<u>The total amount of power (megawatts) available from the asset/resource, expressed in integer format representing the amount of kilowatts available.</u>
<u>Customer Identifier</u>	<u>This is a customer identifier (e.g., account number) that signifies the owner of the DR Resource to the Utility.</u>
<u>DR Program Identifier</u>	<u>This identifies the DR program in which a DR Resource is participating.</u>
<u>DR Resource Identifier</u>	<u>This identifies the DR Resource that is being registered.</u>
<u>DR Resource Qualification</u>	<u>This shows the qualification of a DR resource for certain type(s) of DR programs</u>
<u>DR Resource Operational Constraints</u>	<u>These are constraints that define the amount load that can be made available during a DR event and includes the following:</u> <u>Minimum load</u> <u>Maximum load.</u>
<u>DR Resource Schedule Constraints</u>	<u>These are a set of constraints that specify when the DR Resource will be available. It may contain such information as:</u> <u>Time of day schedule constraints</u> <u>Black out dates</u> <u>Maximum consecutive days of participation</u> <u>Maximum duration of DR event participation</u> <u>Minimum duration of DR event participation</u> <u>Max number of times per day the DR Resource may be called</u> <u>Minimum advanced notification necessary.</u> <u>Provide details if DR asset or DR resource is in any other DR programs (wholesale and retail)</u>
<u>Effective-Start-Date-Time</u>	<u>The start date and time which an asset/resource is available.</u>



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<u>Attribute Name</u>	<u>Description</u>
<u>Location</u>	<u>An identifier to indicate the location of the asset/resource.</u>
<u>Location-type</u>	<u>A value used to interpret the value contained in the Location element.</u> <u>Examples of Location-type include:</u> <u>Zone</u> <u>Node</u> <u>Zip-code.</u>
<u>Maximum-Duration</u>	<u>The maximum amount of time the asset/resource is capable of delivering power (megawatts). this may be expressed in hours using decimal notation. For example, a value of 0.5 indicates a maximum duration of 30 minutes which the asset/resource can reduce power consumption by the level indicated in Available Capacity.</u>
<u>Message-Exchange-Pattern</u>	<u>The means by which price information is communicated to any party that is interested in receiving this information. The following are valid options:</u> <u>In-Only</u> <u>Robust In-Only</u> <u>In-Out.</u> <u>Refer to http://www.w3.org/TR/wsd120-adjuncts/#patterns for complete descriptions.</u>
<u>Minimum-Duration</u>	<u>The minimum amount of time that an Asset/Resource Owner is willing to allow the resource/asset to be utilized during a DR event. It may be expressed in decimal format representing hours. For example, a value of 1.5 indicates that an asset/resource must be utilized for no less than one hour and 30 minutes during any DR event.</u>
<u>Parent-Resource ID</u>	<u>This is used by an Asset to indicate that it "belongs to" a particular Resource. Assets may be aggregated into a Resource, but are not required to be so aggregated. Resources are autonomous and may not be aggregated.</u>

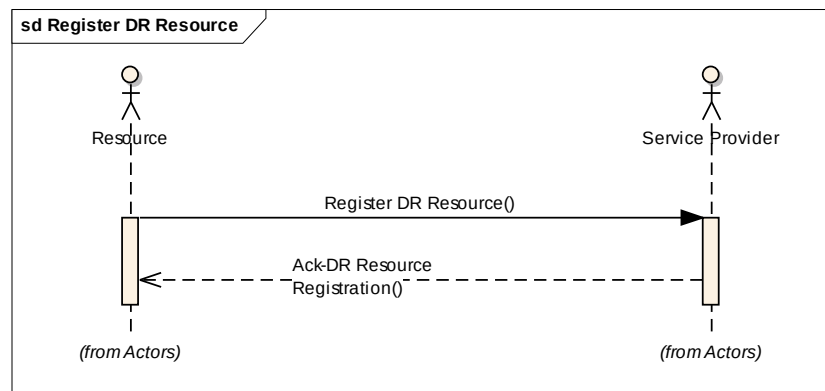


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Attribute Name	Description
<u>Report-type</u>	This indicates the type of report being issued by the Asset or Resource Owner. This is an enumerated value containing one of the following: <u>REGISTRATION</u> (to register a new asset/resource) <u>CHANGE</u> (refers to permanent changes) <u>RETIREMENT</u>.
<u>Response-time</u>	The amount of time before an asset/resource is capable of meeting its full performance, in response to a request by a Service Provider to shed load, expressed as minutes in decimal format.
<u>Source-Authentication</u>	The recipient must have some assurance that the message was produced by a reliable, authoritative party. This will require some ability to validate the authenticity of the source and integrity of the data (e.g., digital signature applied to a price message).

Sequence Diagram





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REQ.14.3.2.4.3.4 Remove DR Resource

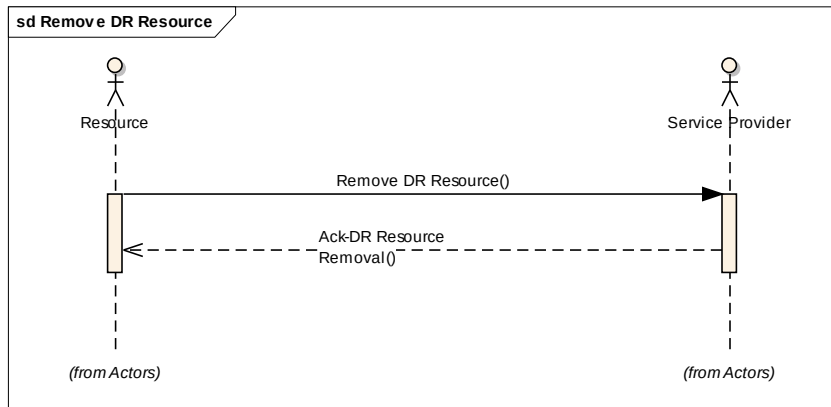
Description

When a DR resource is no longer available permanently for DR purpose, it needs to be removed from the DR program for that customer so that it will be accounted for DR event planning.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>DR Resource Identifier</u>	<u>This identifies the DR Resource that is being removed.</u>
<u>Removal Effective Date/time</u>	<u>Date/time when the DR resource is no longer available.</u>

Sequence Diagram



REQ.14.3.2.4.4 Adminstrate DR Asset (Direct)

REQ.14.3.2.4.4.1 Register DR Asset

Description

The DR Asset registration process must capture key identifiers to enable accurate tracking of DR assets and their capabilities. A requirement for a System and Market Operator, Load Serving Entity, Service Provider, or other entity facilitating the registration process (hereinafter referred to as DR Asset Administrator) is to track assets. This is done through DR asset registration and association of physical DR assets to DR Resources to recognize the asset and its potential contribution as part of a DR Resource. The DR Asset Administrator ultimately administers the DR Asset registration process to recognize DR Assets that can serve as part of a DR Resource, although the Customer may be party to the registration process.

Data Requirements



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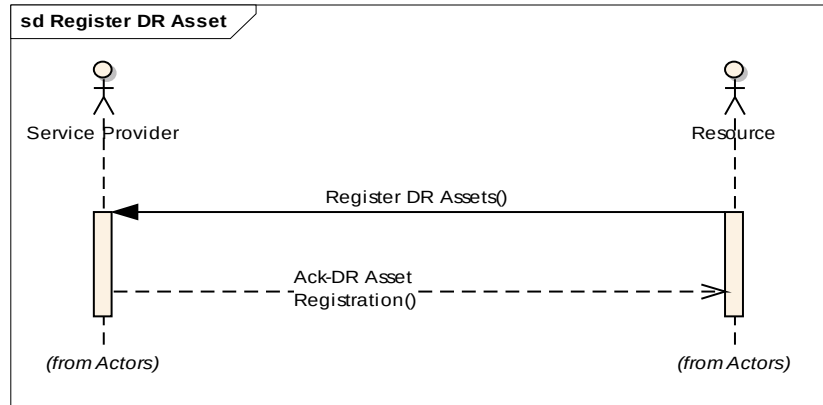
<u>Attribute Name</u>	<u>Description</u>
<u>Asset Operator</u>	<u>The business entity that operates the DR assets</u>
<u>Asset Owner</u>	<u>The business entity that owns the DR assets</u>
<u>Asset Physical Location</u>	<u>The location of where the DR assets reside</u>
<u>Authorized Asset Servicers</u>	<u>The authorized service providers of the operation and maintenance of DR assets</u>
<u>Date of Registration and Last Update</u>	<u>Date of which the DR Assets registered for DR purpose.</u>
<u>DR Asset Administrator</u>	<u>System and Operator</u> <u>Distribution Utility</u> <u>Load Serving Entity</u> <u>Service Providers</u>
<u>DR Asset Availability and Status</u>	<u>Run Status, Set point, Override status, etc.</u>
<u>DR Asset Identifier</u>	<u>The unique identifier and name of the DR Assets.</u>
<u>DR Asset Physical Capabilities</u>	<u>Ramp Up/Down Rate, Maximum Capacity</u>
<u>DR Asset Product</u>	<u>Manufacturer, Model, Version, Date of Manufacturer</u>
<u>DR Asset Type</u>	<u>(DG, renewable, storage, curtailable or interruptible load)</u>
<u>DR Resources</u>	<u>The identifier of DR resources that the DR Assets belong to</u>
<u>State of Registration Process</u>	<u>The state/status of the registration process of the DR assets.</u>



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Sequence Diagram



REQ.14.3.2.4.4.2 Update DR Asset

Description

Once a DR asset registration is completed, changes to elements of the registration may be required or desired. After identifying the specific required modification and verifying the authorization to perform the update, each of the considerations identified in the DR Asset registration step should be evaluated and utilized, where necessary, during the update of the DR Asset information. The ability to update DR Asset information helps to ensure the asset information on record is current and complete.

Parties that are privy to and rely on the update should be notified of updates as soon as practicable after they are made. Additionally, these parties should have access to review and, in some cases, to approve/disapprove the update(s).

Data Requirements

Attribute Name	Description
<u>Asset Operator</u>	<u>The business entity that operates the DR assets</u>
<u>Asset Owner</u>	<u>The business entity that owns the DR assets</u>
<u>Asset Physical Location</u>	<u>The location of where the DR assets reside</u>
<u>Authorized Asset Servicers</u>	<u>The authorized service providers of the operation and maintenance of DR assets</u>
<u>Date of Registration and Last Update</u>	<u>Date of which the DR Assets registered for DR purpose.</u>

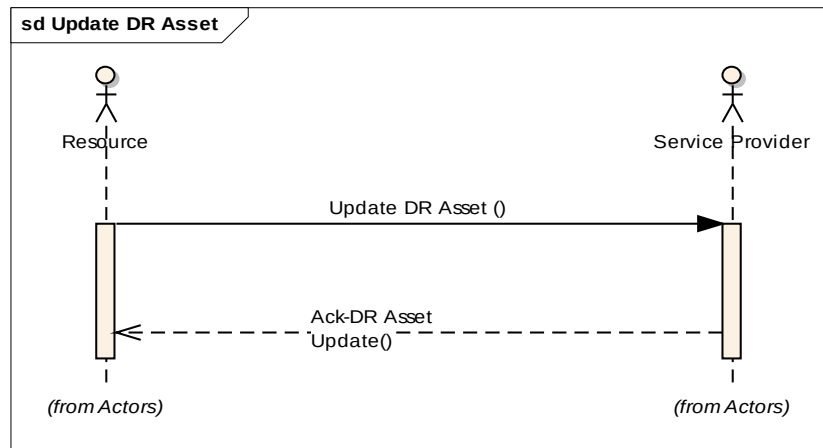


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Attribute Name	Description
<u>DR Asset Administrator</u>	<u>System and Operator</u> <u>Distribution Utility</u> <u>Load Serving Entity</u> <u>Service Providers</u>
<u>DR Asset Availability and Status</u>	<u>Run Status, Set point, Override status, etc.</u>
<u>DR Asset Identifier</u>	<u>The unique identifier and name of the DR Assets.</u>
<u>DR Asset Physical Capabilities</u>	<u>Ramp Up/Down Rate, Maximum Capacity</u>
<u>DR Asset Product</u>	<u>Manufacturer, Model, Version, Date of Manufacturer</u>
<u>DR Asset Type</u>	<u>(DG, renewable, storage, curtailable or interruptible load)</u>
<u>DR Resources</u>	<u>The identifier of DR resources that the DR Assets belong to</u>
<u>State of Registration Process</u>	<u>The state/status of the registration process of the DR assets.</u>

Sequence Diagram





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REQ.14.3.2.4.4.3 Remove DR Asset

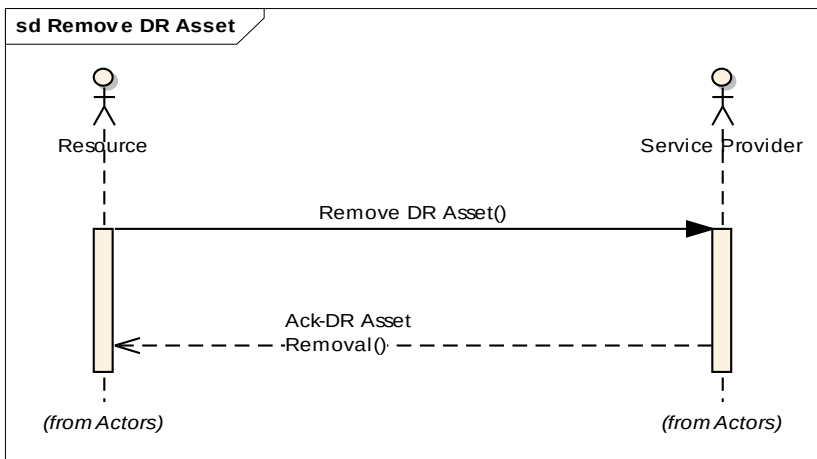
Description

Removing a DR Asset must take into account any DR Resource long term commitments in System Operator programs and contractual obligations with Service Providers or Load Serving Entities. In addition, State and or Federal regulatory agency filings and approvals must be considered prior to removing a DR Asset from a DR program.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>Contractual Agreements</u>	<u>Contractual agreement under which the DR assets could be removed.</u>
<u>DR Asset Administrator</u>	• <u>System and Operator</u> • <u>Distribution Utility</u> • <u>Load Serving Entity</u> • <u>Service Providers</u>
<u>DR Resources</u>	<u>The identifier of DR resources that the DR Assets belong to</u>
<u>Third Party Participation</u>	<u>The identification of third parties involved in the removal of DR assets.</u>

Sequence Diagram





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REQ.14.3.2.4.5 DR Bidding

Description

Demand Response Bidding occurs after the DR Assets and Resources that are to comprise the desired bid have been registered and a bid is to be formed. The DR Bidding use case has two sub-use cases, depending on the type of bid to be developed for submission: a bid to supply (i.e., an offer), or a bid to buy. The entity operating the DR bidding program (the Bid Receiver) receives bids from participants (the Bidders). The Bidder may be a Customer bidding with either an energy retailer (e.g., LSE, ESP), a Service Provider (e.g., CSP, DRP), or a power marketer (i.e., wholesale market participant). The Bidder may also be a Service Provider bidding up to a LSE or power marketer.

Before the start of the bidding process, it is assumed that DR Resources available for selection are already registered to provide the physical resource participating in the DR Bidding program. It is also assumed that the bidder has already registered to bid with the bid receiver and has been informed on the appropriate timing and parameters for bid participation. The DR bidding process starts with the decision of the Bidder to develop a bid for submission. The Bidder submits its bid to the Bid Receiver within the appropriate time window and following set guidelines for bidding. The Bidder receives information on the outcome of the submitted bid from the Bid Receiver, who notifies of the bid outcome (e.g., a resource award or other DR commitment).

Examples of retail DR Bidding programs include:

- Demand Bidding
- Capacity Bidding

Examples of types of ISO/RTO products that may be (or become) eligible for DR bidding include:

- Installed Capacity;
- Day-ahead Energy;
- Real-time Imbalance Energy;
- Ancillary Service Operating Reserve;
- Regulation

The above are wholesale products that retail DR capabilities may be (or become) aggregated to bid into. Required advances to establish linkages between purely retail DR bidding and ISO/RTO DR bidding programs are works in progress, and beyond the scope of this document.



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REQ.14.3.2.4.5.1 DR Bid to Supply (Retail Offers)

Description

The Bid Receiver opens the forum/venue for receiving a bid. (This may include initiating the bidding process by sending initial information to Bidders indicating parameters of acceptability for bids to be made). The Bidder communicates an offer to supply a specified product/service and the pricing or other incentive structure the bidder is willing to accept for DR. (This may be as simple as the customer sending a response back to the Bid Receiver that accepts or rejects the initial bid sought, or may involve more complex bid structuring).

Each bid will have a clearly specified product or service that is being bid and the pricing/incentive structure being offered. The bidder also nominates the amount of and nature of supply being offered, the DR Resource to physically provide the service, and other physical parameters affecting resource availability and capability, in addition to the identity (or ID) of the bidder and resource(s) that comprise the bid.

The Bid Receiver reviews bids received and clears them, notifying the bidders of the outcome.

The Bidder receives the notification of awards or resource commitments and uses the information internally in preparation for DR Resource Dispatch.

Data Requirements (Generalized)

<u>Attribute Name</u>	<u>Description</u>
<u>Bidder Identity</u>	<u>Identification of entity submitting a bid</u>
<u>Identity of Resource(s)</u>	<u>Identification of resources that physically support a bid</u>
<u>Bid structure</u>	<u>Prices and/or quantities in an offer to supply a service, or a supply schedule</u>
<u>Product/Service type</u>	<u>The Product/Service type offered to supply.</u>
<u>Quantity of offer</u>	<u>Instantaneous amount of demand response available for dispatch</u>
<u>Resource Capacity (Rated)</u>	<u>Rated or maximum capacity of a resource to supply a service</u>
<u>Resource Capability</u>	<u>Ramp up/down rate and other resource-specific operating characteristics and constraints</u>
<u>Resource Type</u>	<u>Type of distributed resource</u>
<u>Resource Type</u>	<u>Timing associated with a bid</u>



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

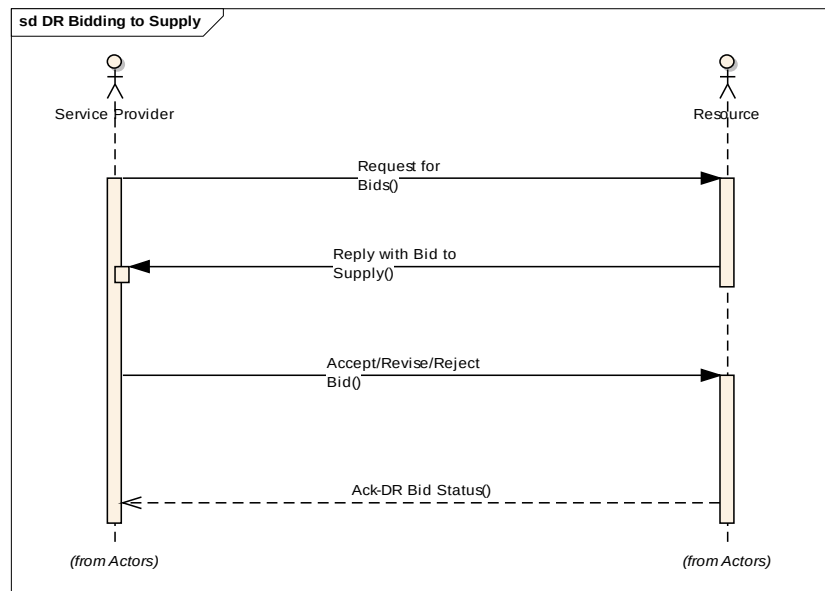
For Quadrant: Retail Electric Quadrant (REQ)
Requesters: NAESB Smart Grid Task Force (SGTF)
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Attribute Name	Description
Timestamp of Bid	The effective date(s) of an offer.

Data Requirements (Simplified Example of Retail DR Bidding)

Attribute Name	Description
DR Resource Identifier	This identifies the DR Resource for which the bid is being submitted.
Load Amount	This is the amount of load that the DR Resource can make available during the scheduled period.
Load Profile Schedule	This is the schedule during which the DR Resource's load profile will be available.
Offer Price	This is the price at which the DR Resource is offering to shed their resource.

Sequence Diagram





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REQ.14.3.2.4.5.2 DR Bid to Buy

Description

The Bid Receiver opens the forum/venue for receiving a bid. (This may include initiating the bidding process by sending initial information to Bidders indicating parameters of acceptability for bids to be made). The Bidder communicates a bid to buy a specified product/service and the pricing or other incentive structure the bidder is willing to pay to avoid DR. (This may be as simple as the customer sending a response back to the Bid Receiver that accepts or rejects the initial bid sought, or may involve more complex bid structuring).

Each bid will have a clearly specified product or service that is being bid for purchase and the corresponding pricing structure that is acceptable to the Bidder. The Bidder also includes the quantity of product/service in the bid to buy, and specifies any DR Resource(s) that can physically substitute for the product/service in the event the bid to buy is not cleared (i.e., the bidder is unwilling to pay more than the going/market outcome price for the product/service). Other information submitted include physical parameters affecting resource availability and capability, in addition to the identity (or ID) of the bidder and resource(s) that comprise the bid.

The Bid Receiver reviews bids received and clears all bids, notifying the bidders of the outcome. The Bidder receives the notification of resource commitments and uses the information internally in preparation for DR Resource Dispatch.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>Bidder Identity</u>	<u>Identification of entity submitting a bid</u>
<u>Identity of Resource(s)</u>	<u>Identification of resources that physically support a bid</u>
<u>Bid structure</u>	<u>Prices and/or quantities in a bid to buy a service, or a demand schedule</u>
<u>Product/Service type</u>	<u>The Product/Service type being bid for purchase</u>
<u>Resource Availability</u>	<u>Instantaneous amount of demand response available for dispatch</u>
<u>Resource Capacity (Rated)</u>	<u>Rated or maximum demand of a resource</u>

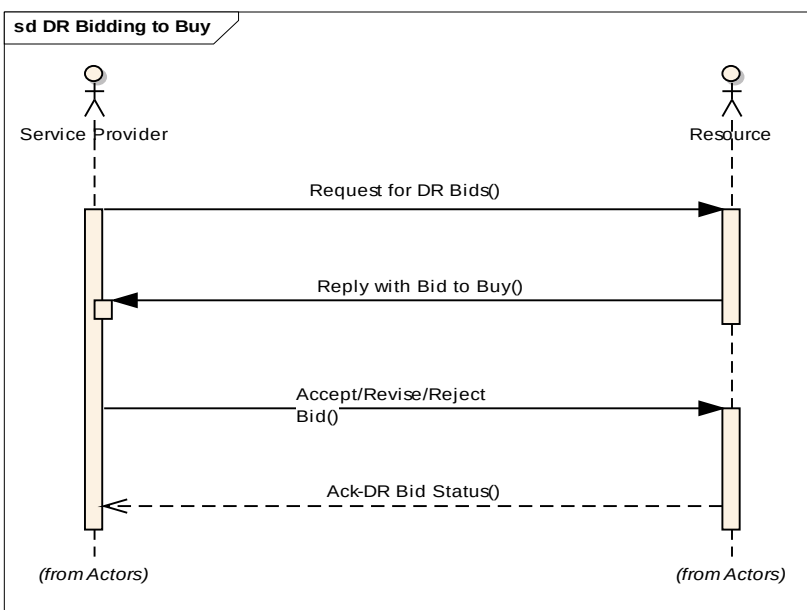


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<u>Attribute Name</u>	<u>Description</u>
<u>Resource Physical Operating Capability</u>	<u>Ramp up/down rate and other resource-specific operating characteristics and constraints</u>
<u>Resource Type</u>	<u>Type of distributed resource</u>
<u>Timestamp of Bid</u>	<u>Timing associated with a bid</u>
<u>Trade Date or Period</u>	<u>The effective date(s) of a bid.</u>

Sequence Diagram





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REQ.14.3.2.4.6 Execute DR Event

The execution of a DR event takes different forms depending on operational situation and the type of DR programs being executed. Typically, they fall into one of the following four use cases, see Figure 5:

1. Advanced DR Notification
2. Broadcast DR Message (price plus information)
3. DR dispatch instruction
4. DR direct load control.

Operational considerations for DR event execution are also associated with DR programs where direct load control or dispatching instructions are carried out.

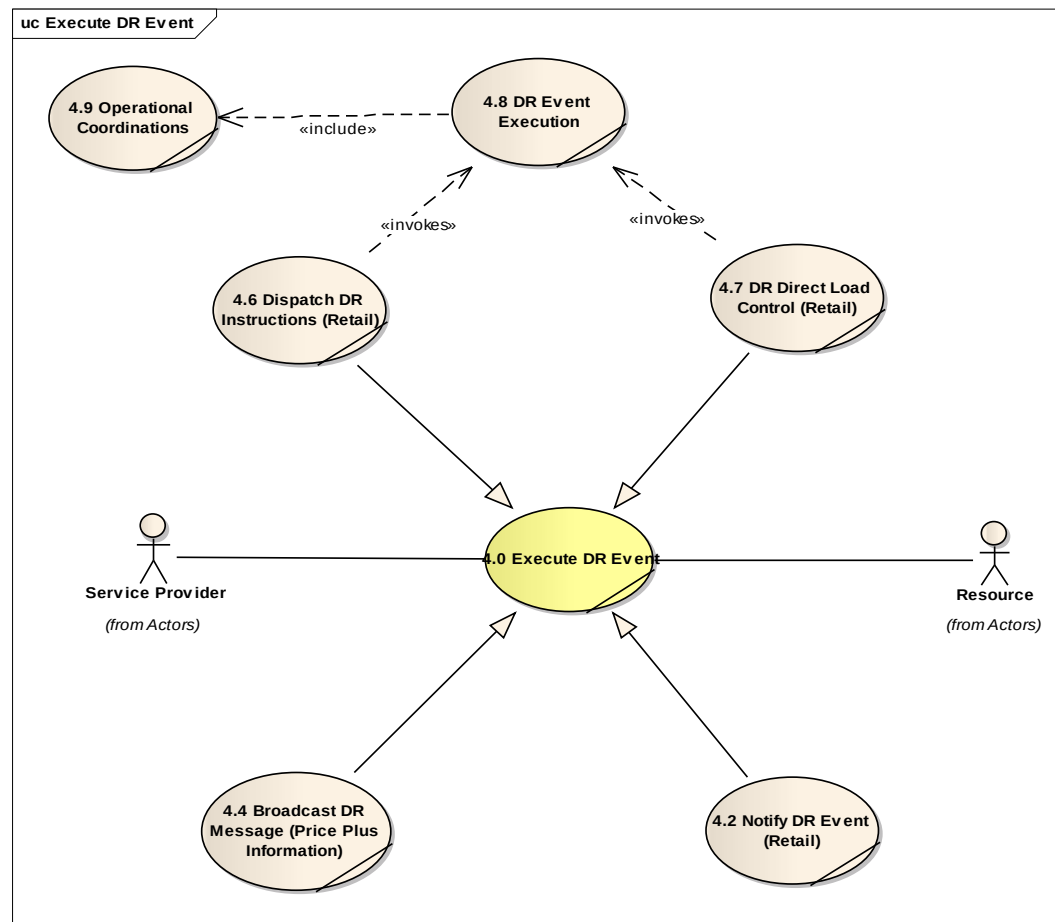


Figure 5. Execute DR Events



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REQ.14.3.2.4.7 Notify DR Event (Retail)

REQ.14.3.2.4.7.1 Advanced Notification for DR (Retail)

Description

This is used by the Service Provider to send the DR Event notification (i.e., DR signal) to the DR Resource.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>Service Provider ID</u>	<u>An identifier for the Service Provider issuing the DR event.</u>
<u>DR Program ID</u>	<u>An identifier of the program for which a DR event was issued.</u>
<u>DR Resource Group ID</u>	<u>A group to which a DR Resource belongs. This can be used for multi-cast notifications.</u>
<u>DR Resource ID</u>	<u>An identifier of the DR Resource for which an Event is intended.</u>
<u>DR Resource Operation Mode (Schedule)</u>	<u>Operation modes are representations of how the DR Resource should respond to the Event Data that is part of an event. Operation modes allow DR logic to be implemented within the DR Service Provider and allow the DR Resource to respond to a much simpler representation of the DR Event data. Operation modes are simple enumerations of the values that may be scheduled during the DR Event active period. The possible values are the following:</u> <u>NORMAL - This value is used to signify that no response to the DR Event is necessary by the DR Resource.</u> <u>MODERATE - This value is typically used to signify a moderate level of response by the DR Resource.</u> <u>HIGH- This value is typically used to signify a high level of response by the DR Resource.</u> <u>SPECIAL- This value is typically used to signify a circumstance special to the DR Resource.</u>



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<u>Attribute Name</u>	<u>Description</u>
<u>DR Resource Specifications</u>	This specifies which DR Assets within a DR Resource should be used, and can be specified in the following fashion: • <u>Geographic location</u> • <u>Grid location</u> • <u>DR Asset group ID.</u>
<u>DR Resource Type ID</u>	A program specific field that can be used to identify a type of DR Resource within a DR program.
<u>Event Data</u>	A collection of information that is associated with a DR event. An instance of such information represents a specific type of information that was defined to exist for DR events when the program was first developed and implemented. For example, a DR program may have been developed and implemented to use real-time pricing as the values that are sent when DR events are issued. In that case, the information would be prices. Furthermore, each type of information may have a schedule of values that are valid across the entire period for which the DR event is active. Therefore, a single type of information may have multiple values, each of which are valid during a different time period during the event. Each type of information has the following attributes when it is defined: • <u>name</u> • <u>data type.</u> The following data types should be supported: • <u>PRICE_ABSOLUTE - Price number</u> • <u>PRICE_RELATIVE - Change in price</u> • <u>PRICE_MULTIPLE - Multiple of current price</u> • <u>LOAD_LEVEL - Amount of load based on an enumeration, i.e. moderate, high, etc</u> • <u>LOAD_AMOUNT - Fixed amount of load to shed in kW</u> • <u>LOAD_PERCENTAGE - Percentage of load to shed, i.e. 10%</u>

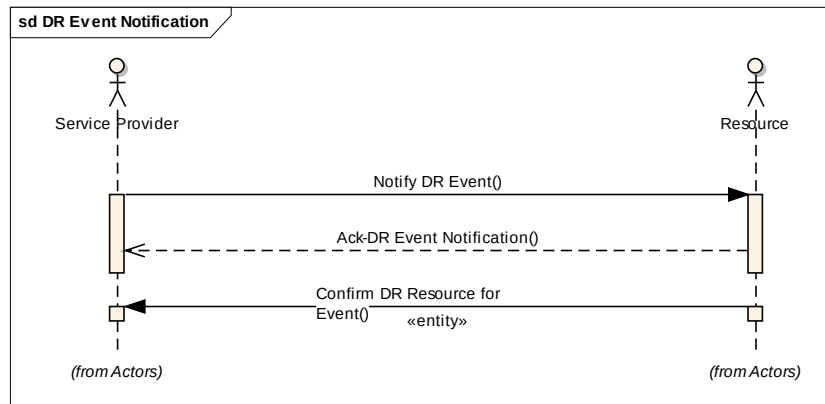


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Attribute Name	Description
	<u>GRID RELIABILITY - Number signifying the reliability of the grid.</u>
<u>Event ID</u>	<u>An identifier for the DR Event that was created when the DR event was first issued. This should be a globally unique identifier for each Service Provider.</u>
<u>Event Schedule</u>	<u>A Schedule for the DR Event periods that includes the following:</u> <u>Notification date/time</u> <u>Event start date/time</u> <u>Ramp time (potentially randomized)</u> <u>Event end date/time (possibly specified as the duration).</u>
<u>Test Event Flag</u>	<u>This attribute signifies whether this is a test event or not. Test events may be issued by the Utility/ISO like other DR audit events.</u>

Sequence Diagram





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Request Title: Requirements Specifications for Retail Standard DR Signals - for NIST PAP09

REQ.14.3.2.4.7.2 Update a DR Event (Retail)

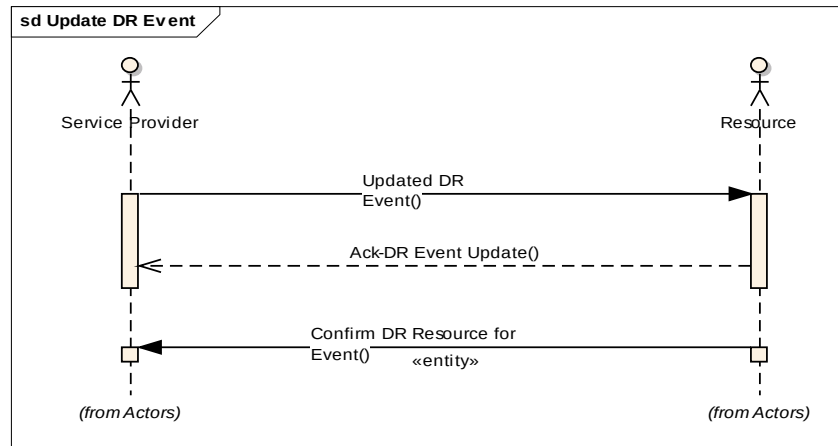
Description

This is used to update a DR event that has been previously notified. The requirements for this use case are the same as those for the "Advanced Notification for DR" use case.

Data Requirements

Attribute Name	Description
<u>Event</u>	See the "Advanced Notification for DR" use case.
<u>Event Modification Number</u>	This is Modification number of the DR event. It is used to indicate that the DR Event has been modified by the Utility. Each time a DR Event is modified, this number is incremented.
<u>Modification reason code</u>	The reason the event was modified.

Sequence Diagram





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REQ.14.3.2.4.7.3 Cancel a DR Event (Retail)

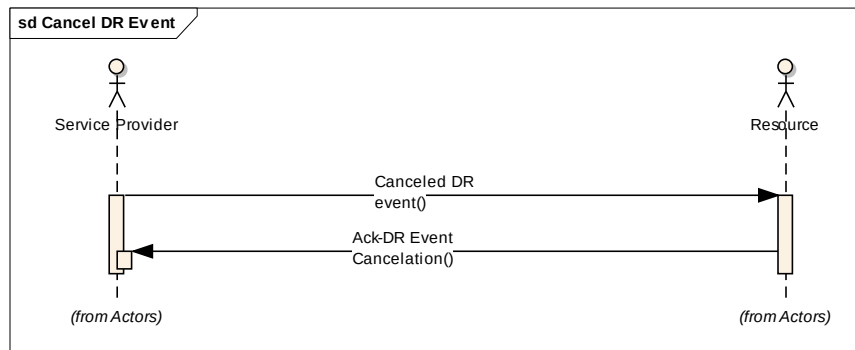
Description

This is used by the Service Provider to notify the DR Resource that a DR Event is being cancelled. It should only be executed if a DR Resource has previously received notification of a DR Event and that event has subsequently been cancelled.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>Cancellation reason code</u>	<u>The reason the event is being cancelled.</u>
<u>DR Event Identifier</u>	<u>An identifier for the event that is being cancelled.</u>
<u>Effective date/time</u>	<u>The date and time a cancellation takes effect.</u>

Sequence Diagram





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REQ.14.3.2.4.7.4 DR Resource Confirmation (Retail)

Description

This is a confirmation message that is sent by a DR Resource to the Service Provider as a result of receiving a DR Signal from the Service Provider. It may be used as an acknowledgement of the receipt of the DR signal, but it may also contain various information used to signify how the DR Resource will respond to the DR Signal.

Data Requirements

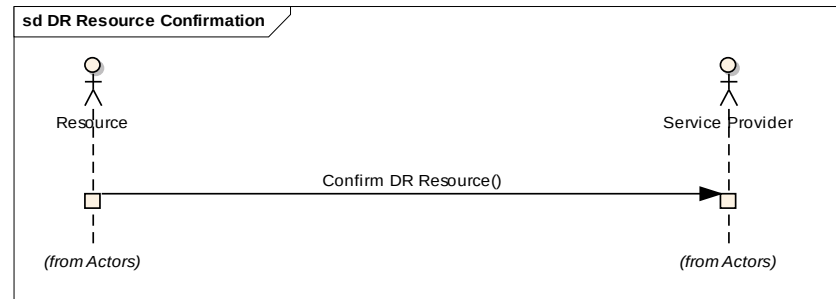
<u>Attribute Name</u>	<u>Description</u>
<u>DR Assets Characteristics</u>	The expected response characteristics of each DR Asset that is part of the DR Resource. These may be needed for aggregated DR Assets and may be as simple as whether a DR Asset is participating or its actual load profile. For each DR Asset, the following should be given: • <u>Location of Asset, either geographic or grid location</u> • <u>Asset schedule of participating</u> • <u>Asset load profile (schedule).</u>
<u>DR Resource ID</u>	<u>The identifier of the DR Resource.</u>
<u>DR Resource Load Profile Response</u>	<u>The load profile response characterization of the DR Resource in response to getting the DR signal.</u>
<u>Notification Received Acknowledgement</u>	<u>This is an acknowledgement of the receipt of a DR notification or dispatch. It should include any necessary provisions for non-repudiation.</u>
<u>Opt in/out</u>	<u>This is used to temporarily opt in/out of DR Events and to override the normal operational constraints. The opt-in/out can be specified using the following criteria:</u> • <u>All events in a program indefinitely</u> • <u>Specific DR Event</u> • <u>All events in a specific time period.</u> <u>In addition, there may be a schedule associated with the opt in/out state.</u>



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Sequence Diagram



REQ.14.3.2.4.8 Broadcast DR Message (Price Plus Information)

Description

Demand Response programs are designed to address different power system concerns caused by the imbalance between generation, transmission and consumption, or environmental concerns. Some DR programs are conducted on a voluntary basis, where the customer can opt to maintain the level or load. Some DR programs are mandatory, where either the customer loads will be curtailed under certain conditions or the customer will incur financial penalties for noncompliance.

In retail market, certain "DR Messages" can be broadcasted to DR resources either directly or through Service Providers. DR Message is defined as information about the DR signals that may affect the demand behaviors of the energy consumers. Obviously, the main component of the DR Message is the pricing information. However, there are other attributes of energy being delivered that may be of interest to energy consumers and could be included in the DR Message.

Based on the OpenADR discussion, the broadcasting function is mainly used for volunteer or non-mission critical DR messages. Therefore, message acknowledgement or confirmation is optional.

DR Source of Power/Generation

"DR Message" also can be source of power or generation. ANSI C12.19-2008 defined the following source of power/generation in Standard Table 12.

Precondition:

The DR Service Provider sends the DR message to service providers. In the case of DR pricing, the DR Service Provider calculates the wholesale price per location and communicates the appropriate price associated with the DR product to service providers.



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Post Condition:

DR Resources received the DR pricing information, and may or may not act based on the DR agreement or contract.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>Currency</u>	<u>Identifier used to interpret the price element. MUST follow ISO 4217 standard.</u>
<u>Duration</u>	<u>The amount of time for which this price is valid, commencing at the Effective-Date-Time specified. A value of zero means price is valid until next price broadcast override.</u> <u>Specified in decimal notation where integers represent minutes and decimals represent fractions of minutes. For example:</u> <u>5 indicates that prices will be published every 5 minutes</u> <u>.5 indicates that prices will be published every 30 seconds</u>
<u>Effective-Date-Time</u>	<u>The date and time which the price is in effect. In ISO 8601 standard format.</u>
<u>Location</u>	<u>An identifier used to indicate an area which this price is in effect. A value of "null" indicates that the price is in effect for all areas.</u>
<u>Location-type</u>	<u>A value used to interpret the value contained in the Location element. Examples of Location-type include:</u> <u>Zone</u> <u>Node</u> <u>Zip-code</u> <u>USNG</u>
<u>Message-Exchange-Pattern</u>	<u>The means by which price information is communicated to any party that is interested in receiving this information. The following are valid options:</u> <u>In-Only</u> <u>Robust In-Only</u> <u>In-Out</u> <u>Refer to http://www.w3.org/TR/wsd120-adjuncts/#patterns for complete descriptions.</u>



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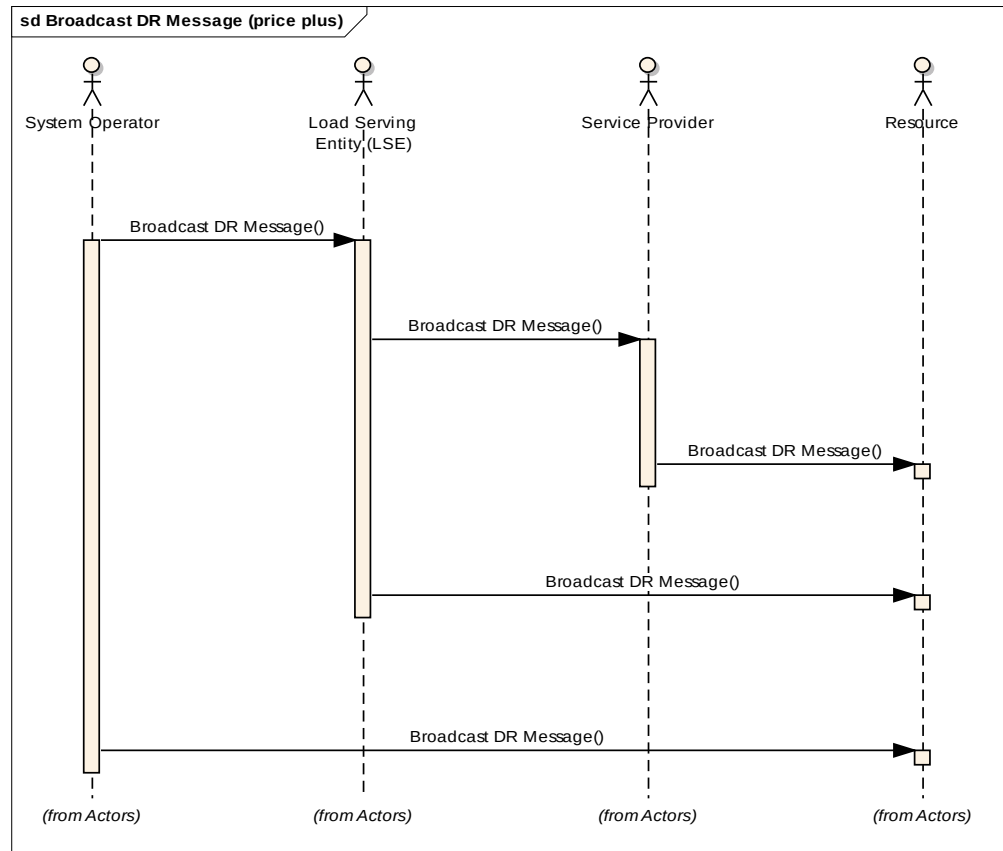
<u>Attribute Name</u>	<u>Description</u>
<u>Price</u>	<u>Expressed in decimal notation with a precision up to 6 decimal places. Prices MAY be either positive or negative</u>
<u>Product-Identifier</u>	<u>Identifies the type of product (e.g. energy, regulation, etc.) which this price pertains. Contains an enumeration of various products that may be offered. Extensibility MUST be supported in order to accommodate multiple jurisdictions and markets.</u>
<u>Publishing-Interval</u>	<u>Indicates the frequency with which price information is expected to be published. Specified in decimal notation where integers represent minutes and decimals represent fractions of minutes. For example:</u> <u>5 indicates that prices will be published every 5 minutes</u> <u>.5 indicates that prices will be published every 30 seconds</u>
<u>Source-Authentication</u>	<u>The recipient of a "Price Message" must have some assurance that the message was produced by a reliable, authoritative party. This will require some ability to validate the authenticity of the source and integrity of the data (e.g. digital signature applied to a price message).</u>
<u>TimeStamp</u>	<u>Indicates the Date and Time when this information was published. MUST follow ISO 8601 standard representation.</u>
<u>Unique-Identifier</u>	<u>An identifier used to identify the message. Should be expressed as a URI in accordance with http://www.w3.org/TR/uri-clarification/#uri-schemes</u>
<u>Unit-of-Measure</u>	<u>Indicates the unit of measure for which the price pertains. MUST be compliant with the International System of Units as defined by NIST SP 330, ref: http://physics.nist.gov/Pubs/SP330/sp330.pdf</u> <u>Examples of NIST compliant units of measure include:</u> <u>kWh</u> <u>MWh</u>



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Sequence Diagram



REQ.14.3.2.4.9 Dispatch DR Instructions (Retail)

Description

This interaction is used to dispatch DR Resources. This type of interaction is used when the Service Provider needs to achieve specific objectives from the DR Resources during DR events. This means that specific instructions will be given to the DR Resource with objectives (e.g. shed 100 kW) for the load profile of the DR Resource.

Note that for the retail use cases, a Dispatch is considered a special type of DR Notification, and thus, it is very similar in nature to the requirements given for that interaction.



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Data Requirements

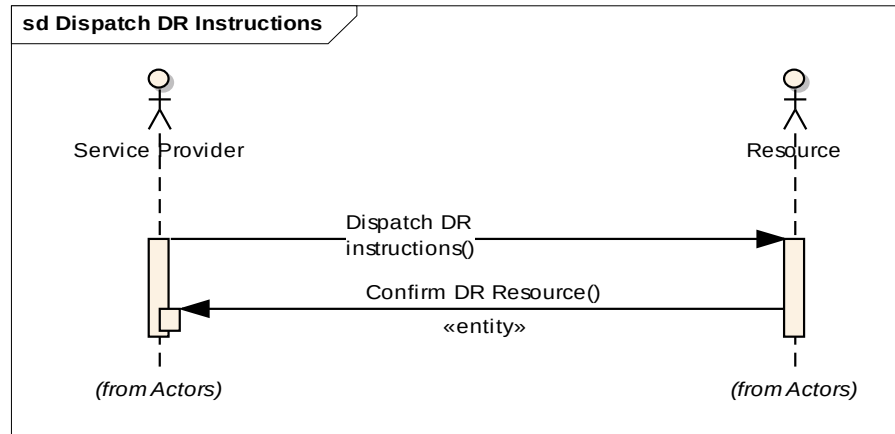
<u>Attribute Name</u>	<u>Description</u>
<u>Dispatch Instructions</u>	A collection of dispatch instructions that is associated with a DR event. An instance of such instructions represents a specific type of instruction that was defined specifically for the DR program. Each type of instruction may have a schedule of values that are valid across the entire period for which the DR event is active. Therefore, a single type of instruction may have multiple values, each of which are valid during a different time period during the event. Each type of instruction has the following attributes when it is defined: • <u>name</u> • <u>Instruction type.</u> The following instruction types should be supported: • <u>LOAD LEVEL</u> - Amount of load based on an enumeration, i.e., moderate, high, etc • <u>LOAD AMOUNT</u> - Fixed amount of load to shed in kW • <u>LOAD PERCENTAGE</u> - Percentage of load to shed, i.e., 10%.
<u>DR Program Name</u>	An identifier of the program for which a DR event was issued.
<u>DR Resource ID</u>	An identifier of the DR Resource for which a dispatch is intended.
<u>Event ID</u>	An identifier for the DR event that was created when the DR event was first issued.
<u>Event Modification Number</u>	A modification number for the DR event. This is used to indicate if the DR Event has been modified by the Utility. Each time it is modified, this number is incremented.
<u>Event Schedule</u>	Schedule for the DR Event periods, which includes the following: • <u>Notification date/time</u> • <u>Event start date/time</u> • <u>Event end date/time.</u>
<u>Test Event Flag</u>	This attribute signifies whether this is a test event or not. Test events may be issued by the Utility/ISO like other DR Events.



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Sequence Diagram



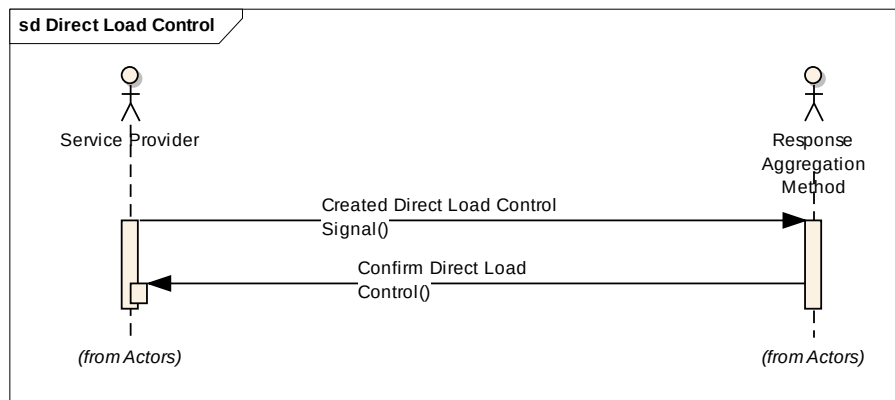
REQ.14.3.2.4.10 DR Direct Load Control (Retail)

Description

This use case covers direct interactions between the DR Service Provider and a specific DR Asset for the purposes of putting that asset into a specific load control state (e.g., to turn it on or off). In this case, the DR Asset is a DR Resource with only one DR Asset, and thus, the interaction is directly with the DR Asset.

See REQ.14.3.2.4.11.3, DR Execution - Direct Load Control (DLC) for more details.

Sequence Diagram





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REQ.14.3.2.4.10.1 Monitor DR Event (DR Resource)

Description

This interaction is used to monitor a DR Resource's behavior. It may be executed as a result of the DR Resource receiving a DR signal or it may be conducted continuously.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>Operational Constraints</u>	<u>This is used to supply information about when and how a DR Resource may participate in a DR Event. The following items may be supplied:</u> <u>Limits on load profile performance</u> <u>Schedule of participation.</u> <u>Note that this information may also be supplied as part of the administration of the DR Resource, and thus, it may not be necessary that it be part of this interaction.</u>
<u>Opt in/out state</u>	<u>This is used to temporarily opt in/out of DR Events and to override the normal operational constraints. The opt-in/out can be specified using the following criteria:</u> <u>All events in a program indefinitely</u> <u>Specific DR Event</u> <u>All events in a specific time period.</u> <u>In addition, there may be a schedule associated the opt in/out state.</u>
<u>Usage Information</u>	<u>Information about the near real time electricity usage of the DR Resource.</u>
<u>Latency</u>	<u>Allowable time between dispatch launch and load de-energize. Examples: 4 Seconds Response for Regulation Dispatch, 1 Minute Response for Reserve Dispatch, Sub-second Response to Frequency Deviation, 10 Minute Response to Energy Market</u>
<u>Dispatch Trigger</u>	<u>Examples: Market Bid (Energy Price > Offer Price), Reliability Event Based Dispatch from System Operator, Frequency Deviation, Peak Period Time</u>

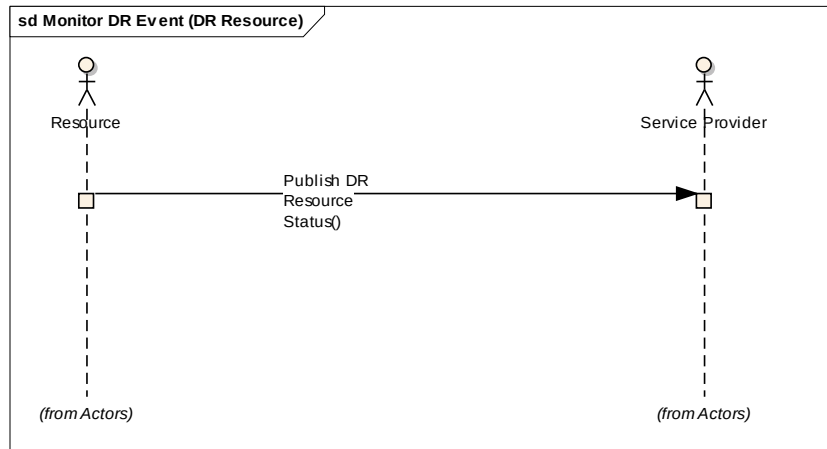


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Attribute Name	Description
<u>Response Duration – Time Out or Held Until Released</u>	<u>Examples: Variable with Signal Up or Down (Regulation), 20 Minutes with Dispatched Release (Responsive Reserve), 1 or 2 Hour Time Out (Emergency Interruption), Multiple Hours (Peak Shifting)</u>

Sequence Diagram



REQ.14.3.2.4.10.2 Monitor DR Event (DR Asset)

Description

This interaction is used to monitor the state of a DR Asset. It may be executed as a result of the DR Asset receiving a DR signal or it may be conducted continuously.

Data Requirements

Attribute Name	Description
<u>Exception Conditions</u>	<u>This is used to report that the load controller may not behave as commanded because of a variety of conditions including:</u> <u>Faults in device</u> <u>Customer override.</u>
<u>Load Control State</u>	<u>The state of the load, which includes both commanded states and user settings. This may include a schedule of future states if a particular control algorithm for the load controller is being executed.</u>

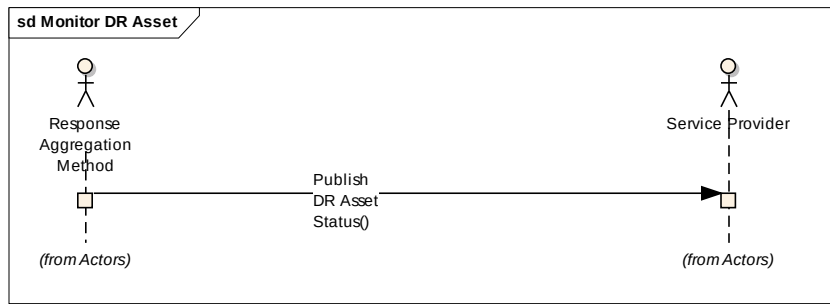


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Attribute Name	Description
<u>Operational Constraints</u>	<u>Constraints on how the load may be controlled. This may include limits on the state of the load controller as well as schedules upon those constraints.</u>

Sequence Diagram



REQ.14.3.2.4.11 DR Event Execution

Demand Response is deployed for economic or a reliability purposes. At high penetration levels, demand response has to be integrated with the power supply scheduling process, and it may impact the distribution grid operation and reliability, and perhaps the transmission grid operation and reliability. Thus it is important that include the required considerations for the grid and system level operations when developing DR Use Cases and DR signal standards. Such impacts may not be significant at low penetration levels; however, proper considerations must be given to support scalability and expandability for future deployments.

Power system operates based on a real-time balancing of supply and demand. To economically schedule the supply, an accurate load forecast is needed. Traditionally, load forecast was generated using the historical consumption patterns, weather forecast and other similar parameters. With the potential of high-penetration of DR, it will be necessary to incorporate the planned or forecasted DR levels into the load forecast. Also, DR capabilities can be used to support the power system capacity or emergency supply (ancillary service) needs. Such services require proper scheduling and monitoring capabilities.

A demand response event may be initiated by a power system operator in response to a reliability event, e.g., loss of a generating station causing a lack of supply to meet demand, or an uncontrolled set of PEVs overloading of a distribution transformer. A demand response event may also be initiated by utility operational systems based on economic considerations, e.g., reducing or shifting peak load at the system level or at specific feeder or facility. Demand response may also be initiated by a customer in response to a market pricing signal



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Considering that the distribution grid in the US is typically a three-phase imbalance circuit, i.e., many customers are on a single-phase or two-phase of the three-phase system. Thus significant changes in customer load patters could result in undesirable imbalanced conditions on a feeder. Also, load pickup following the termination of a major DR event could possibly cause overloads and other operational problems, if the load pickup is not properly scattered/managed.

The following provides three representative use cases to highlight some the key interactions. These include:

- Dynamic Price-based DR
- Notification-based DR
- Direct Load Control

REQ.14.3.2.4.11.1 DR Execution – Retail Time Pricing (RTP)

Description

Traditionally, retail tariff has based on a fixed or tiered rate structure with possible considerations of static rates for pre-established time of use (TOU) conditions. Real time or dynamic pricing (RTP) represent retail electricity rate that could vary as a function of time and is intended to modify demand. It requires interval metering for accurate billing based on time-varying prices. A number of states have implemented RTP or other dynamic pricing tariffs for large customers. With a broader deployment of advanced meters, RTP rates may become more common nation-wide.

The scenario presented here is represents a case where a location-dependent real-time retail pricing for energy is established based on the wholesale Locational Marginal Price (LMP) for that location. LMP values are typically established by an ISO (for regions covered by an ISO/RTO) on a day-ahead (hourly resolution) and real-time basis, typically on a five minute resolution. For the RTP, it will be appropriate to use the real-time LMP as the basis for computing the retail dynamic tariff. However, decisions should be made on the time and the spatial resolution of the RTP. For example, an hourly RTP averaging the five minute pricing values, or a Critical Peak Pricing model to reflect the extreme conditions only, may be adopted. In addition to the wholesale energy price, the retail RTP rate may also include the appropriate uplift charges to cover for distribution wire/services charges and for the power loss compensations. Note that the uplift charges are typically subject to a regulatory review and approval.



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Special care must be given to the RTP rate design to ensure customer acceptance and adaptation. Also grid operational issues may have to be addressed. For example, during low LMP (RTP) periods (e.g., at night), certain distribution circuits may get over loaded (congested), with customers shifting consumption, e.g., charging PEVs, to that period. This improves the overall system economy, but may cause circuit congestion. To combat this, some have proposed use of demand charges or an additional incentive payment for load reduction, a locational incentive to relief congestion.

Data Requirements

The real-time DR price (RTP) signal requirements are similar to those specified in the DR signal specified in REQ.14.3.2.4.8.

RTP Price Data

<u>Attribute Name</u>	<u>Description</u>
<u>Effective-Date-Time Interval</u>	<u>The date and time interval which the price is in effect.</u>
<u>Price</u>	<u>Single or multiple valued price (e.g., for energy, demand, etc.) Expressed in decimal notation with a precision up to 6 decimal places. Prices MAY be either positive or negative</u>
<u>Currency</u>	<u>Identifier used to interpret the price element.</u>
<u>Unit-of-Measure</u>	<u>Indicates the unit of measure for which the price pertains (e.g., kW).</u>
<u>Product-Identifier</u>	<u>Identifies the type of product (e.g. energy, spinning reserve, etc.) which this price pertains.</u>
<u>Location</u>	<u>Location Identifier for the applicable price.</u>
<u>Location-type</u>	<u>A value used to interpret the value contained in the Location element. Examples of Location-type include:</u> <u>• Zone (Load Aggregation Point)</u> <u>• Zip-code</u> <u>• USNG</u>
<u>Time Stamp</u>	<u>Indicates the Date and Time when this information was published.</u>
<u>Duration</u>	<u>The amount of time for which this price is valid, commencing at the Effective-Date-Time specified.</u>



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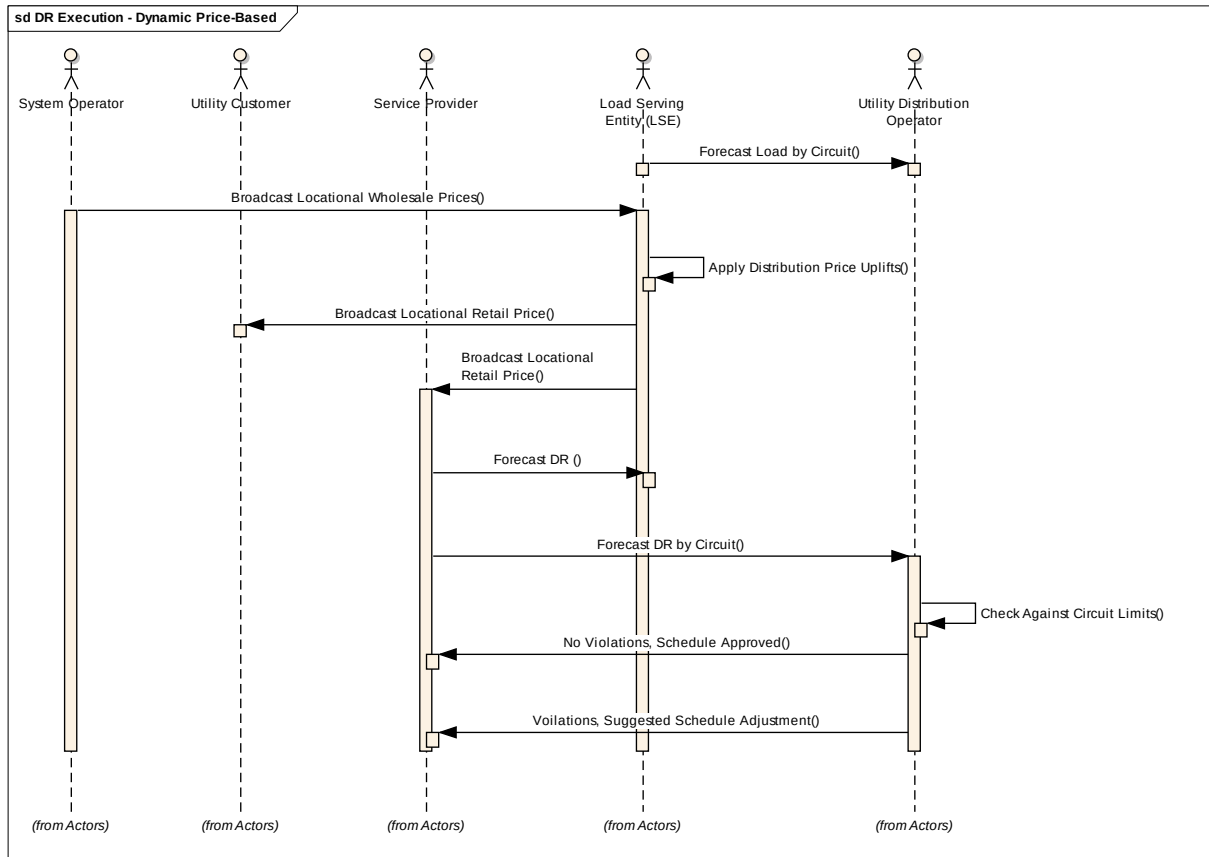
<u>Attribute Name</u>	<u>Description</u>
<u>Source-Authentication</u>	The recipient of a "Price Message" must have some assurance that the message was produced by a reliable, authoritative party.
<u>Message-Exchange-Pattern</u>	The means by which price information is communicated to any party that is interested in receiving this information. The following are valid options: <u>In-Only</u> <u>Robust In-Only</u> <u>In-Out</u> Refer to http://www.w3.org/TR/wsdl20-adjuncts/#patterns for complete descriptions.
<u>Unique-Identifier</u>	An identifier used to identify the message. Should be expressed as a URI in accordance with http://www.w3.org/TR/uri-clarification/#uri-schemes



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Sequence Diagram



REQ.14.3.2.4.11.2 DR Execution – Notification Based

Description

Notification-based DR is mostly used for economic purposes based on a day-ahead or hours or hour-ahead basis. Notification-based DR may also be used for reliability events when the system operator expects a contingency or operating condition (e.g., congestion or planned outage) on the distribution or the transmission grid that requires a reduction (or an increase) on the load at a given location.

Considering that the business processes for demand response have not yet been standardized across the nations, the following is a representative scenario that captures some of the interactions between the key stakeholders (actors).

At high penetration levels, the DR operation, especially on a day-ahead or hour ahead basis, need to be coordinated with the overall operations and supply scheduling process. As is shown in the Sequence Diagram below, this may require a



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timely update of the “locational” load forecast and an up-to-date nomination of the DR capabilities. This information may be supplied to the “system” and/or market operator to be incorporated in the overall supply and demand scheduling process. The DR capabilities are specified by the DR Provider to the System Operator based on a DR Program, a price curve, or other nomination protocol. The DR Provider may also inform the Load Serving Entity (LSE) of the locational available DR capabilities.

The notification-based DR dispatch process is typically initiated by the System or Market Operator; the process may also be initiated by an LSE or UDO. It is also possible that the DR Provider be the initiator of the DR process based on a market opportunity (economic operation) or based on a pre-established program.

At high DR penetration levels, it is expected that the DR provider will need to clear the DR schedule with the Distribution Grid Operator, the UDO. This is to insure that the high penetration DR has no adverse impact on the distribution grid reliability and power quality, e.g., cause of excessive imbalances, voltage violation, or an overload during load pickup period. The UDO, in a timely fashion, will inform the DR Provider, if the schedule is cleared or requires an adjustment. Please note that if the DR deployed by a utility company that includes both LSE and UDO functions, such coordination is performed within the company’s operational systems (e.g., DRMS, DMS, etc.), or it can be an integral part of the DR scheduling application.

Following the clearing the DR schedule, notifications are sent to customers for DR operation. Under this scenario, the Market Operator and the LSE are also informed of the final DR schedule.

Data Requirements

The notification data elements are described in more detail in REQ.14.3.2.4.9.

<u>Attribute Name</u>	<u>Description</u>
<u>Dispatch Instructions</u>	<u>A collection of dispatch instructions that is associated with a DR event. This will include the amount of load to be reduced (or increased – in the cases of very low load levels and excess generation, e.g., wind)</u>



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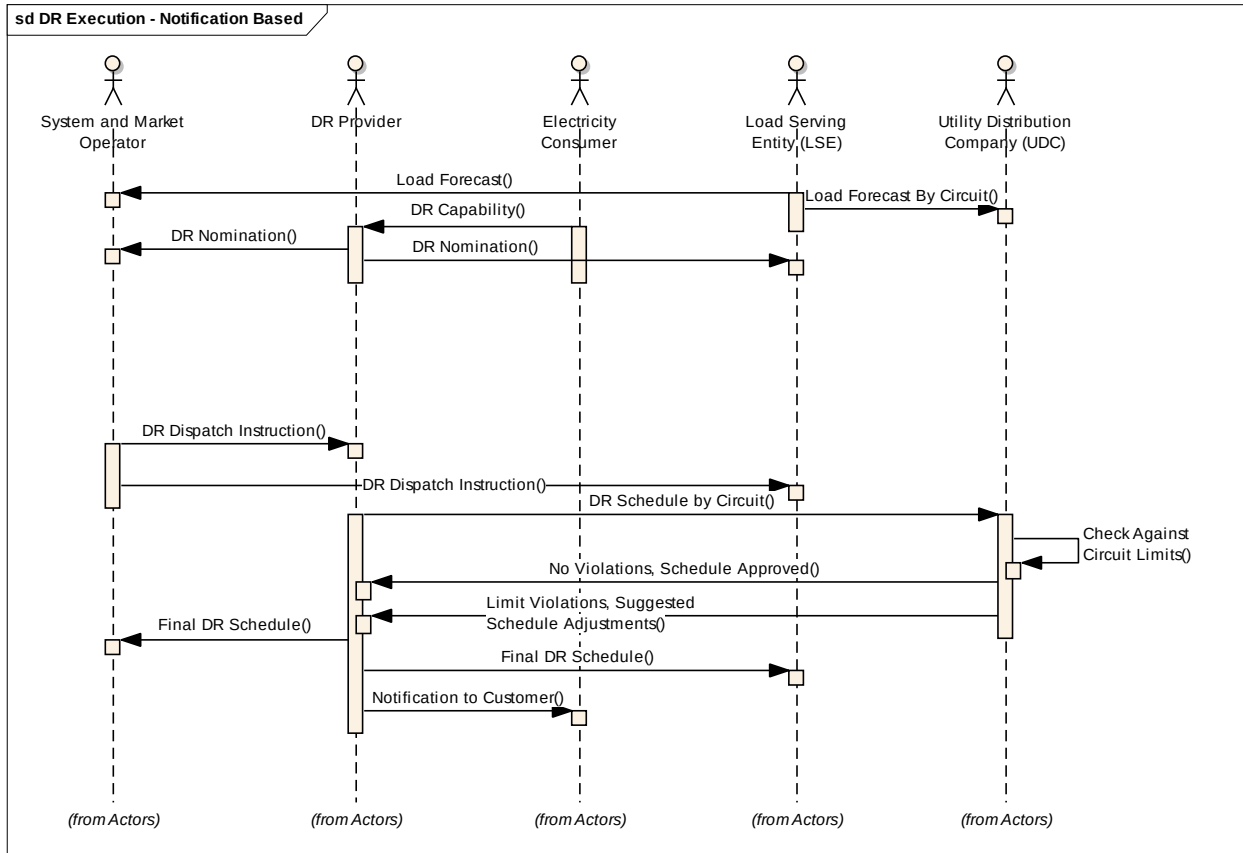
<u>Attribute Name</u>	<u>Description</u>
<u>DR Program Name</u>	<u>An identifier of the program for which a DR event was issued.</u>
<u>DR Resource ID</u>	<u>An identifier of the DR Resource for which a dispatch is intended.</u>
<u>Event ID</u>	<u>An identifier for the DR event that was created when the DR event was first issued.</u>
<u>Event Modification Number</u>	<u>A modification number for the DR event.</u>
<u>Event Schedule</u>	<u>Schedule for the DR Event periods, which includes the following:</u> <u>Notification date/time</u> <u>Event start date/time</u> <u>Event end date/time.</u>
<u>Test Event Flag</u>	<u>This attribute signifies whether this is a test event or not.</u>
<u>Source-Authentication</u>	<u>This is for authentication of the notification signal.</u>



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Sequence Diagram



REQ.14.3.2.4.11.3 DR Execution – Direct Load Control (DLC)

Description

Direct-Load Control is typically used for reliability-based events such as contingency and emergency support, supply of balancing energy or other ancillary service. Many of these programs require quick response time, e.g., five minutes or faster, that is practically only possible through a DLC capability. Direct-Load Control may also be used for economic operations, e.g., water heater programs to reduce or shift peak load.

Considering that the business processes for demand response have not yet been standardized across the nations, the following is a representative DLC scenario that captures the interactions between the key stakeholders (actors).

Direct Load Control is typically called for by a system operator, a transmission or distribution operator. It could be also issued by a Market Operator based on an ancillary service DR award,



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or by an LSE or DRP for an economic purpose. At high penetration levels, DLC operation needs to be coordinated with the distribution grid operator, the UDO.

As is shown in the sequence diagram below, the customer DR capabilities are aggregated by location and specified/nominated to the Distribution Grid Operator, Load Serving Entity, and/or to the System/Market Operator. In addition to location, the capabilities may also be aggregated by the DR response time, e.g., four seconds, five minutes, 30 minutes, etc.

The DLC Dispatch process is typically initiated by the Transmission or Distribution Operator. The process may also be initiated by the Market Operator or the LSE. The actual control of the DR resources may be done by the DR provider based on the dispatch signal received.

At high DR penetration levels, it is expected that the DLC activation schedule to be coordinated with the Distribution Grid Operator, the UDO. This is to insure that there are no adverse impact on the distribution grid reliability and power quality, e.g., voltage violation, excessive phase imbalances, or an overload during load pickup period. If the DLC deployed by a utility company such coordination can be accomplished within the company's DR and distribution management systems, or performed as an integral part of the DR control functions.

For a "fast" DR, e.g., provision of ancillary services, a telemetry capability is required to enable the real-time monitoring of the resource condition and its response to the DR control signal.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>DR Resource ID</u>	<u>An identifier of the DR Resource for which the control is intended.</u>
<u>Status Check</u>	<u>A signal to inquire the DR resource status to be sent back</u>
<u>Pending DLC Notification</u>	<u>A signal indicating a pending DLC operation – A multi-value signal indicating the start time, duration, and the magnitude (kW, or resource specific options) of the control.</u>

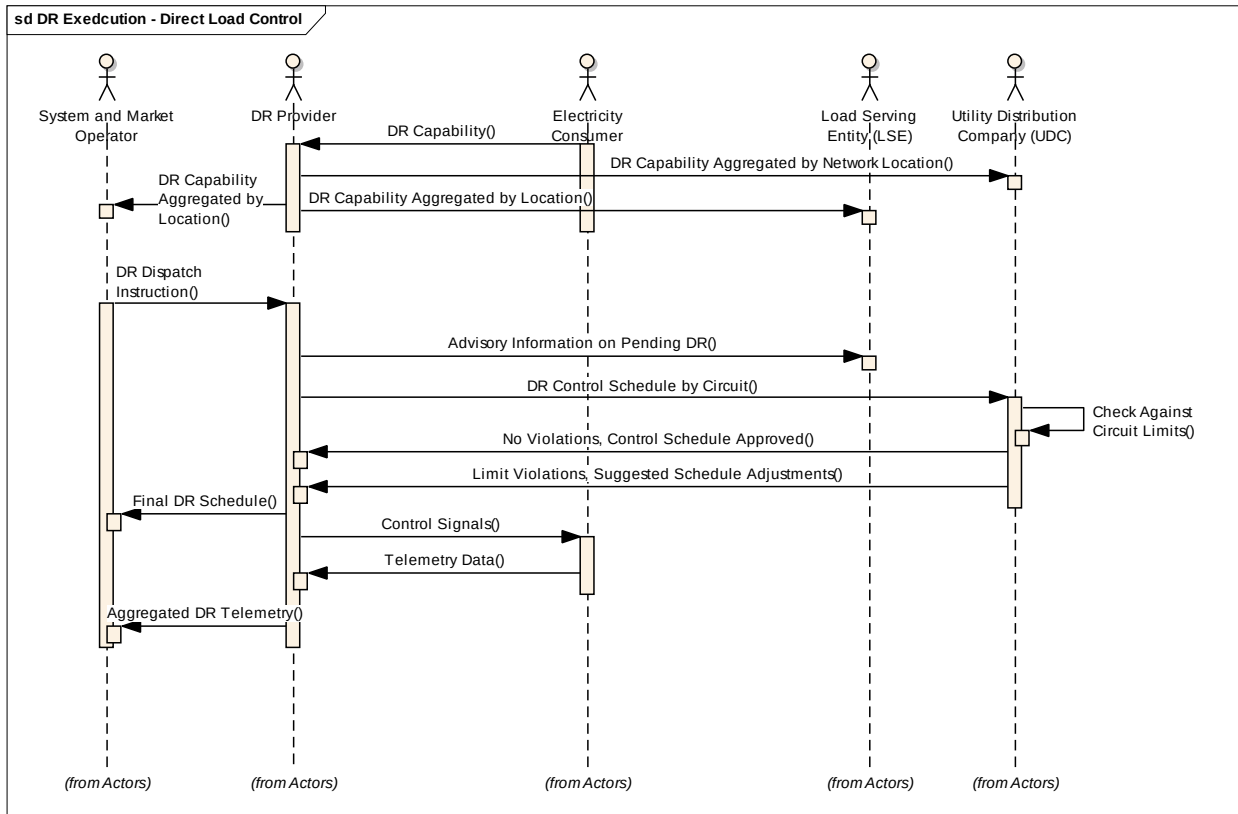


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Attribute Name	Description
<u>DR Control Command</u>	<u>This may include multiple parameters Schedule for the DR initiation, or termination, and type/level of control. Please note that the control signal may be sent to a building EMS or a smart device with a multi-function control capability.</u>
<u>Source-Authentication</u>	<u>This is for authentication of the control signal.</u>
<u>Unique-Identifier</u>	<u>An identifier used to identify the message.</u>

Sequence Diagram



REQ.14.3.2.4.12 Operational Coordination

Due to the existing differences in the regional retail energy market regulations, wholesale market structure and protocols, and supply and demand conditions, currently there are regional differences in business practices and processes governing demand response. As a result, operational coordination requirements for demand response somewhat vary from region to region, depending on the available retail tariff, retail market structure, available wholesale market for DR and the market mechanics.



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

For Quadrant: Retail Electric Quadrant (REQ)
Requesters: NAESB Smart Grid Task Force (SGTF)
Request No.: 2010 Retail Annual Plan Item 9(c)
Request Title: Requirements Specifications for Retail Standard DR Signals - for NIST PAP09

The following table summarizes the major roles and responsibilities of the key stakeholders with respect to demand response operation. As can be seen in this table, a significant level of stakeholder coordination is required for an end-to-end DR operation spanning from the wholesale markets to the end-use customers.

<u>Stake Holder</u>	<u>Key Responsibilities</u>
<u>Wholesale Market Operator</u>	• <u>Establish, administer, and operate wholesale demand response programs and markets;</u> • <u>Determine and publish locational prices for wholesale demand response products;</u> • <u>Improve energy market efficiencies (economics) by integrating demand response products and capabilities;</u> • <u>Monitor compliance to wholesale DR instructions and financially settle with the participating stakeholders.</u>
<u>Transmission Grid / System Operator - Balancing Authority</u>	• <u>Monitor and maintain transmission grid reliability, and call upon wholesale demand-side (demand response) capabilities to address contingency/emergency conditions;</u> • <u>Dispatch demand-side capabilities to balance supply and demand, e.g., mitigating impact of variable generation (e.g., wind).</u> • <u>In regions with no organized wholesale energy market, economically dispatch available generation and demand resources including demand response to optimize supply economics.</u>



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<u>Stake Holder</u>	<u>Key Responsibilities</u>
<u>Distribution Grid Operator – Utility Distribution Company</u>	• <u>Monitor and maintain the distribution grid reliability and the quality of power supply (e.g., voltage levels). Call upon DR to mitigate the distribution contingencies and reliability concerns.</u> • <u>Review and approve the integration of distributed energy resources with the distribution grid.</u> • <u>Assess the operational impact of distributed resources and demand response (DR/DER) on power quality and reliability of the distribution grid, approve high-penetration DR schedules (especially cold-load pickup operation).</u> • <u>Coordinate with the respective Load Serving Entity and Energy Service Providers for the assessment of distribution service and loss compensation charges to retail customers.</u>
<u>Load Serving Entity</u>	• <u>Forecast load and economically schedule supply to meet demand at all times. Incorporate demand response capabilities to improve load factor, reducing/shifting peak load.</u> • <u>Establish and obtain regulatory approval for a fair and unbiased retail tariff for all customer classes. For real-time dynamic pricing (RTP) tariff, apply distribution service, loss compensation and other uplifts to the wholesale locational prices.</u> • <u>Establish and administer demand response and distributed resource management programs including DR tariff.</u> • <u>Meet regional requirements for Renewable Portfolio Standards compliance for power delivery.</u> • <u>Aggregate and schedule DR capabilities in wholesale markets, manage DR programs.</u> • <u>Manage customer metering and billing process.</u>



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<u>Stake Holder</u>	<u>Key Responsibilities</u>
<u>Power Marketer</u>	• <u>Forecast load and economically schedule supply to meet demand at all times. Incorporate demand response capabilities to improve load factor, reducing/shifting peak load.</u> • <u>Establish and obtain regulatory approval for a fair and unbiased retail tariff for all customer classes. For real-time dynamic pricing (RTP) tariff, apply distribution service, loss compensation and other uplifts to the wholesale locational prices.</u> • <u>Operate a wholesale and/or retail demand response programs with wholesale and/or retail customers.</u>
<u>Energy Service Provider</u>	• <u>Operate only in regions with competitive retail market</u> • <u>Be an alternative supplier of electric power to end-use customers by offering competitive products, services and prices.</u> • <u>Forecast aggregated load of the enrolled customers by location as required.</u> • <u>Coordinate the power supply with the respective LSE and UDO.</u> • <u>Support demand response programs (DR/DER) for enrolled customers.</u> • <u>Aggregate demand and demand-side capabilities; schedule the aggregated load and DR capabilities in wholesale markets.</u> • <u>Provide for DR telemetry and other monitoring requirements, on a resource or aggregated basis.</u> • <u>Apply the necessary uplifts (e.g., distribution service and loss compensation charges) to the wholesale locational prices.</u> • <u>Meet regional requirements for Renewable Portfolio Standards compliance for power delivery.</u> • <u>Bill and settle with customers for energy supply and DR operation.</u>



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<u>Stake Holder</u>	<u>Key Responsibilities</u>
<u>Demand Response Provider</u>	• <u>Offer competitive demand response services to the end-use customers.</u> • <u>Design and manage DR programs, establish pricing structure and signals for DR operation</u> • <u>Aggregate demand and demand-side capabilities; and offer/schedule these capabilities with the respective LSE or the wholesale market.</u> • <u>Provide for DR telemetry and other monitoring requirements, on a resource or aggregated basis.</u> • <u>Bill and settle with customers for energy supply and DR operation.</u>
<u>Electricity Customer</u>	• <u>Subscribe to a DR program, and update DR availability and capability information as appropriate</u> • <u>Maintain DR resources, data communications, telemetry, metering and control devices as required.</u> • <u>Respond to pricing signals, DR notifications, or control signals as appropriate.</u>

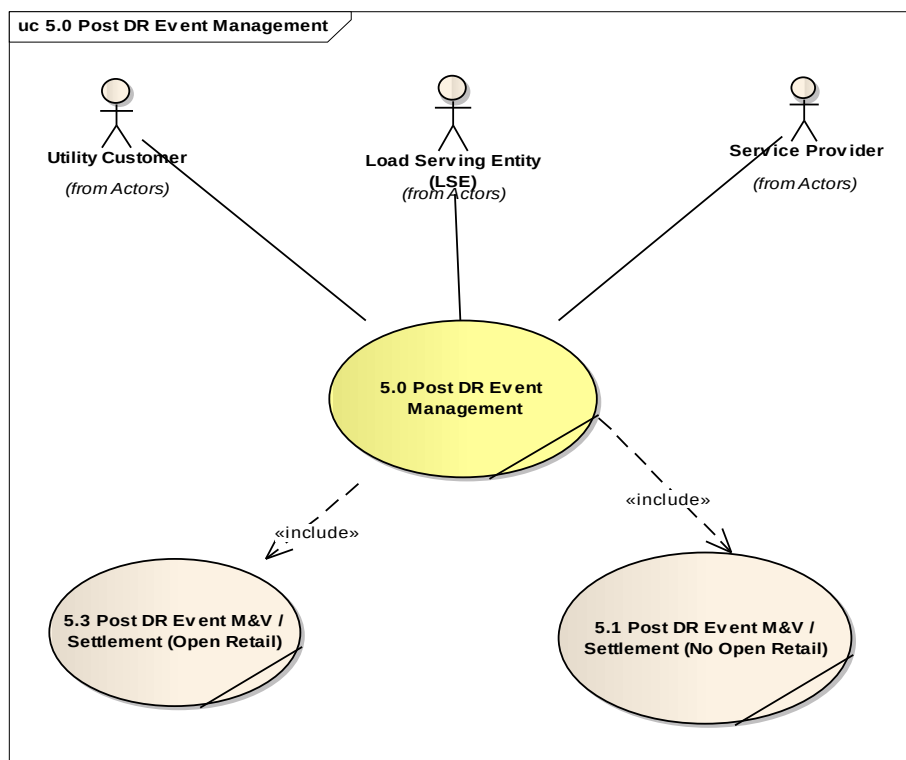


RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

For Quadrant: Retail Electric Quadrant (REQ)
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Request No.: 2010 Retail Annual Plan Item 9(c)
Request Title: Requirements Specifications for Retail
Standard DR Signals - for NIST PAP09

REQ.14.3.2.4.13 Post DR Event Management

Post DR event management mainly concerns with the reconciliation of the actual consumption of energy within the duration of a DR event with the expected behavior so that proper financial reward or penalties could be carried out. The NAESB M&V standard for DR defines the requirements for most of the post event management. The following use cases describe post DR event management for three different market types.





RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

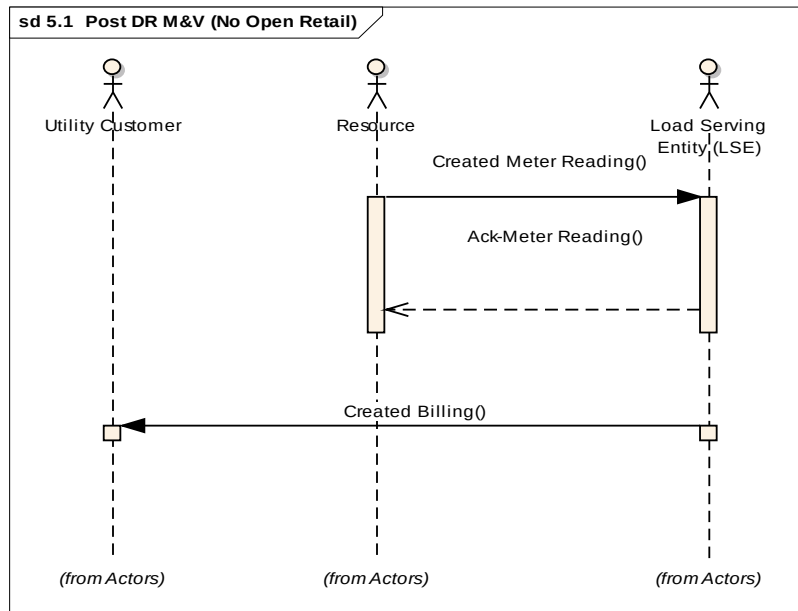
For Quadrant: Retail Electric Quadrant (REQ)
Requesters: NAESB Smart Grid Task Force (SGTF)
Request No.: 2010 Retail Annual Plan Item 9(c)
Request Title: Requirements Specifications for Retail
Standard DR Signals - for NIST PAP09

REQ.14.3.2.4.13.1 Post DR Event M&V / Settlement (No Open Retail)

Description

After DR Event has been completed, then Measurement and Verification (M&V) can confirm whether action has been taken or to measure the impact of the response. After the M&V, then the Financial Settlement is calculated and sent to the Electricity Customer¹. This Use Case covers the scenarios with no Open Retail Markets.

Sequence Diagram



¹ In wholesale markets, the settlement for a DR Event is between the System Operator and Market Participant and possibly between the Market Participant and the Electricity Customer.



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

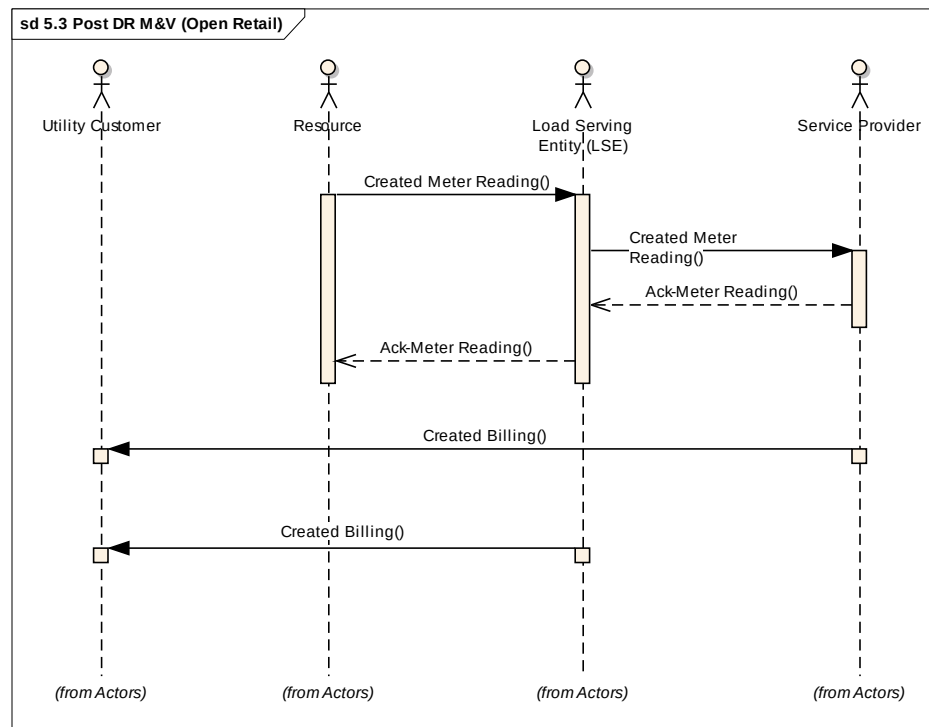
For Quadrant: Retail Electric Quadrant (REQ)
Requesters: NAESB Smart Grid Task Force (SGTF)
Request No.: 2010 Retail Annual Plan Item 9(c)
Request Title: Requirements Specifications for Retail
Standard DR Signals - for NIST PAP09

REQ.14.3.2.4.13.2 Post DR Event M&V / Settlement (Open Retail)

Description

After DR Event has been completed, Measurement and Verification (M&V) can confirm action has been taken or to measure the impact of the response. After the M&V, the Financial Settlement is calculated and sent to the Electricity Customer. This Use Case covers the scenarios with Open Retail Markets.

Sequence Diagram





RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

For Quadrant: Retail Electric Quadrant (REQ)
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Standard DR Signals - for NIST PAP09

REQ.14-A Appendix A – Entity-Relationship Model

The following terms and definitions correspond to a set of actor/object classes and sub-classes as illustrated in the entity-relationship model in Figure 1 of Appendix A. Abbreviations/Acronyms correspond to the IDs shown in the figure.

ABBREVIATIONS AND ACRONYMS

Abbreviation / Acronym	Meaning
<u>DDE</u>	<u>Designated Dispatch Entity</u>
<u>EA</u>	<u>Environmental Authority</u>
<u>ED</u>	<u>End Device</u>
<u>FR</u>	<u>Federal Regulator</u>
<u>LA</u>	<u>Local Authority</u>
<u>LSE</u>	<u>Load Serving Entity</u>
<u>MA</u>	<u>Metering Authority</u>
<u>MP</u>	<u>Market Participant</u>
<u>RA</u>	<u>Reliability Authority</u>
<u>RM</u>	<u>Response Method</u>
<u>RMA</u>	<u>Response Method Aggregation</u>
<u>SE</u>	<u>Scheduling Entity</u>
<u>SO</u>	<u>System Operator</u>
<u>SP</u>	<u>Service Provider</u>
<u>SR</u>	<u>State Regulator</u>
<u>TDSP</u>	<u>Transmission/Distribution Service Provider</u>
<u>UC</u>	<u>Utility Customer</u>
<u>UDO</u>	<u>Utility Distribution Operator</u>



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DEFINITION OF TERMS

Term	Definition
<u>Business Entity</u>	<u>The wholesale or retail entity that interacts with other entities in its market.</u>
<u>Communication Method</u>	<u>The method by which an object communicates with another object to instruct, measure or control.</u>
<u>Control</u>	<u>The role associated with the control of an End Device.</u>
<u>Demand Response Objects</u>	<u>Physical and logical types of demand response resource objects.</u>
<u>Designated Dispatch Entity</u>	<u>A role which carries the responsibility of receiving and processing demand resource dispatch instructions or market information and (optionally) providing response information.</u>
<u>End Device</u>	<u>A physical end-use device that consumes or supplies electricity.</u>
<u>Environmental Authority</u>	<u>A regulatory authority responsible for the development, reporting and enforcement of environmental activities.</u>
<u>Facility</u>	<u>The location at which connection to the transmission or distribution system is made.</u>
<u>Federal Regulator</u>	<u>A Federal regulatory authority.</u>
<u>Load Serving Entity</u>	<u>A role which carries the responsibility of serving end-users and selling electric energy to end-users.</u>
<u>Local Authority</u>	<u>A regulatory authority responsible for the oversight and administration of utility service-related functions within its jurisdiction.</u>
<u>Market Enrollment</u>	<u>The collection of enrollment or tariff data for a Demand Resource Object to provide a specific market product or service.</u>
<u>Market Participant</u>	<u>An organization registered with the System Operator that may take on roles such as SP, LSE, TDSP, DDE, SE, and/or MA in accordance with the System Operator's market rules.</u>



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Term	Definition
<u>Measurement</u>	<u>The role associated with the device or algorithm that measures the consumption or supply of an End Device.</u>
<u>Metering Authority</u>	<u>A role which carries the responsibility of providing data necessary to determine the performance of a Resource.</u>
<u>P-Node</u>	<u>The price location of the Facility in the transmission and/or distribution network.</u>
<u>Participant</u>	<u>The entity that represents resources to a market or distribution operator.</u>
<u>Regulator</u>	<u>A rule-making and enforcement entity.</u>
<u>Reliability Authority</u>	<u>A regulatory authority responsible for the development, reporting and enforcement of electric reliability-related activities.</u>
<u>Response Method</u>	<u>A measurable action taken in response to an instruction to change consumption.</u>
<u>Response Method Aggregation</u>	<u>A logical entity that has a reportable interval level consumption, e.g. a site may also be a physical entity that may have its own meter, a neighborhood of homes that has a net meter, or an estimate of consumption of an aggregation of retail customers.</u>
<u>Resource</u>	<u>A market-dependent group of Response Method Aggregations that represents a dispatchable entity.</u>
<u>Scheduling Entity</u>	<u>A role which carries the responsibility of submitting bids/offers and receives Schedules and Awards.</u>
<u>Service Provider</u>	<u>A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.</u>
<u>State Regulator</u>	<u>A regulatory authority responsible for the oversight and administration of electric utilities.</u>
<u>Supporting Objects</u>	<u>Objects that support the interaction of Business Entities and Demand Response Objects.</u>
<u>System Operator</u>	<u>An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.</u>



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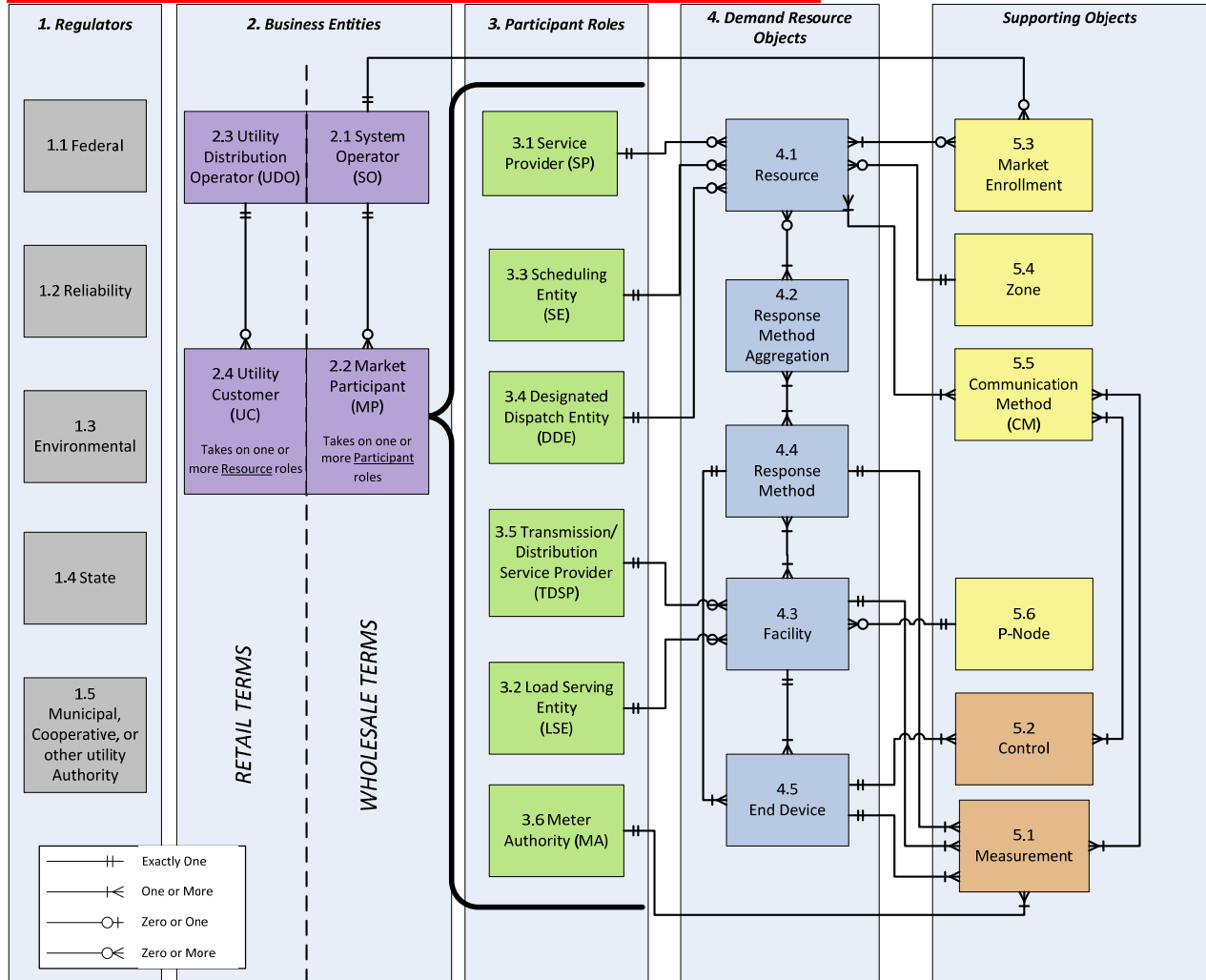
Term	Definition
<u>Transmission/Distribution Service Provider</u>	<u>A role which carries the responsibility of operating a local electricity transmission and/or distribution system.</u>
<u>Utility Customer</u>	<u>An end-use customer of the Utility Distribution Operator that takes on roles such as Facility or Resource.</u>
<u>Utility Distribution Operator</u>	<u>An entity which carries the responsibility of operating an electricity distribution system.</u>
<u>Zone</u>	<u>A physical or electrical region.</u>



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Figure 1. Entity-Relationship Model for Smart Grid Use Cases





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4. Supporting Documentation

a. Description of Request:

On September 30, 2009 the National Institute of Standards and Technology officially assigned NAESB the responsibility to develop Requirements and Use Cases pertinent to Priority Action Plan items 3, 4 and 9. A complete description of each item is available on the NIST Web site located at <http://collaborate.nist.gov/wiki-sggrid/bin/view/SmartGrid/PAP09DRDER>

This recommendation specifically pertains to PAP 09², "Standard DR and DER Signals".

b. Description of Recommendation:

See Section 3 Summary

c. Business Purpose:

This recommendation has been developed in response to a request from NIST to provide use cases and requirements germane to the development of standard DR and DER signals.

d. Commentary/Rationale of Subcommittee(s)/Task Force(s):

Joint Smart Grid Standards Task Force and Fix Protocol Meeting Notes/Documents:

- September 17, 2009 Meeting Notes – To be posted
- October 1, 2009 Meeting Notes – To be posted
- October 15, 2009 Meeting Notes – To be posted

NAESB Smart Grid Standards Task Force Sub-Group Meeting Notes/Documents:

- October 13, 2009 Meeting Notes – To be posted
- October 20, 2009 Meeting Notes – To be posted
- October 27, 2009 Meeting Notes – To be posted
- November 3, 2009 Meeting Notes – To be posted
- November 4-6, 2009 Meeting Notes – To be posted
- November 10, 2009 Meeting Notes – To be posted

NAESB Smart Grid Standards Task Force Meeting Notes/Documents:

- October 22, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd102209notes.doc
- October 29, 2009 Meeting Notes – To be posted
- November 5, 2009 Meeting Notes – To be posted
- November 13, 2009 Meeting Notes – To be posted
- December 3, 2009 Meeting Notes – To be posted

² <http://collaborate.nist.gov/wiki-sggrid/bin/view/SmartGrid/PAP09DRDER>



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- December 10, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd121009notes.doc
- December 17, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd121709notes.doc
- January 7, 2010 Meeting Notes – To be posted
- January 14, 2010 Meeting Notes – To be posted
- January 21, 2010 Meeting Notes – To be posted
- January 28, 2010 Meeting Notes – To be posted
- February 5, 2010 Meeting Notes – To be posted
- February 15, 2010 Meeting Notes – To be posted
- February 25, 2010 Meeting Notes – To be posted

FORMAL COMMENTS

Quadrant: Wholesale Electric Quadrant

Recommendation: WEQ 2010 AP Item 6 (a) / REQ Annual Plan Item 9(a); Requirements Specification for Common Electricity Product and Pricing Definition – for NIST PAP03

Submitted By: Standards Review Subcommittee

Date: April 2, 2010

Under the Standards Review Subcommittee (SRS) Scope of Work, which was approved by the SRS on March 6, 2008, the SRS agreed to review recommendations and if subcommittee deemed appropriate, they would submit advisory comments to the Executive Committee (EC) for consideration. As stated in the Scope of Work these comments are “not intended to change the scope of the Business Practices or recommendation, but to provide consistency and uniformity across all WEQ Business Practices.”

It is the SRS understanding that the recommendation will be included as standards in the WEQ Business Practice Standards and will be filed with the Federal Energy Regulatory Commission (FERC). Therefore the SRS would like to point out inconsistencies between this recommendation and existing standards as well as a number of concerns specific to the recommendation itself.

It is also the SRS understanding that these comments may be reviewed by the Smart Grid Task Force. The task force may review these comments, suggest modifications to the recommendation, and submit late comments for Executive Committee consideration.

Recommendation Summary

The SRS understands that for this document OASIS is referencing the “Organization for the Advancement of Structured Information Standards.” In the current WEQ Business Practices Standards when OASIS is mentioned it refers to the “Open Access Same-Time Information System.” The task force may want to add some clarifying language so that others reading the recommendation understand that OASIS in this context refers to the organization not the system.

WEQ-000

The terms and definitions do not seem to take into account existing definitions of terms and FERC Order 676-C which requested that NAESB resolve differences within its standards and differences between NERC and NAESB Standards. Below are examples that illustrate inconsistencies with the definitions for the same term.

Facility - *NERC Definition* - A set of electrical equipment that operates as a single Bulk Electric System Element (e.g., a line, a generator, a shunt compensator, transformer, etc.)

Recommendation Definition – The location at which connection to the transmission or distribution system is made.

Load Serving Entity - *Glossary Definition* The responsible entity that secures energy and Transmission Service (and related Interconnection Operations Services) to serve the electrical demand and energy requirements of its end-use customer.

Recommendation Definition – A role which carries the responsibility of serving end-users and selling electric energy to end-users.

System Operator - *Demand Response Final Action* – A System Operator is a Balancing Authority, Transmission Operator, or Reliability Coordinator, whose responsibility is to monitor and control an electric system in real time (based on NERC definition). The System Operator is responsible for initiating Advance Notifications, Deployment and Release/Recall Instructions.

Recommendation Definition – An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.

Within Definitions of terms there are capitalized terms which are not defined. These include:

- Federal
- Awards
- Schedules

WEQ-016

- **General**

- o There are terms which are capitalized which are not defined such as “Use Case”, “Time of Use Pricing”, “Smart Appliance”, “Display”, Utility Distribution Company and “Wind Power”.
- o There are acronyms which are not defined such as “UML”, “PUC”, and “HAN.”
- o There are acronyms which are used/defined in the WEQ-016 that are not included In WEQ-000 such as the Tariff Rate Types (CPP, MCPPE, PTR, etc.) C&I, EMS, and BAS.

- **Executive Summary** – This recommendation along with the recommendations for PAP04 Requirements Specifications for Common Scheduling Mechanism or Energy Transactions and PAP09 Requirements Specifications for Wholesale Standard DR Signals each contain an Executive Summary listed under the “Recommended Standards” section of the recommendation. Based on the standards numbering it appears that all three recommendations will be included in a new set of standards, WEQ-016.

- o First, we question whether WEQ-016 should have an Executive Summary. The only Business Practice Standards that have an executive summary is WEQ-014 (WEQ/WGQ eTariff Related Standards). The WEQ-014 standards were approved prior to the SRS review of recommendations. (If the SRS had been

- o Second, the Executive Summaries in the three recommendations though similar are not identical. With the differences in the Executive Summaries and all three recommendations being included in WEQ-016 it is unclear how a single set of business practices can have three Executive Summaries.

If the EC decides to move forward with including an Executive Summary, the SRS recommends that all capitalized terms and acronyms be included in WEQ-000. Also, the bulleted list of “main use cases that are affected by pricing” should be consistently formatted in the Executive Summary, WEQ-016-3.4 and WEQ-016-3.5.

An option the Smart Grid Task Force may want to consider is to create a separate Business Practice Standard for each PAP recommendation rather than combining them into a single recommendation.

- **Introduction** – The SRS questions whether it is appropriate to include an “Assumptions” section in the WEQ Business Practice Standards.

Assumptions:

- Wholesale market price signals may have different characteristics than retail market signals.
- Attempts to standardize pricing signals must not hinder regulatory changes or market innovations.

The task force may want to consider re-naming this section to “Considerations” and place in an Appendix to the Business Practice Standards or move to Section 4.d of the recommendation form, “Commentary/Rationale of Subcommittee(s)/Task Force(s).”

- **Section WEQ-016-3.1** – “Price signals should be flexible enough to accommodate regulatory changes or market innovations” appears to be an assumption/consideration rather than a standard.
- **Section WEQ-016-3.2** – Duplicates the definitions and acronyms which are also being proposed to be included in WEQ-000. The WEQ recently completed an effort to create a common glossary and stop the process of having definitions for terms in multiple WEQ Business Practices. This section seems to reverse the WEQ current direction of having a common glossary with definitions only listed in one place. If the WEQ EC wants to proceed with this section the SRS suggests the EC consider striking the word “Proposed” from the column heading labeled “Proposed Definition.”
- **Section WEQ-016-3.3** – The “Includes” and “Extends” relationships though listed in this section are not referenced in the rest of the document. If these relationships are not used, the SRS is unsure why they are listed.
- **Section WEQ-016-3.4** – The SRS would recommend that the Tariff Rate Types and corresponding definitions be moved to WEQ-000.
- **Section WEQ-016-3.6** – The SRS questions if the following language is appropriate for WEQ Business Practice Standards that will eventually be filed with the Commission.

“The following initial attributes were presented early in the PAP-03 meetings and will serve as the initial starting point for further refinement.”

The task force may want to consider moving this section and subsections to Section 4 "Supporting Documentation" of the recommendation so that it is included in the final action but not included in the WEQ Business Practices Standards that will be filed with the Commission since this section is still under development.

- **Section WEQ-016-3.6.1 –**

- o The are inconsistencies with the formatting of Attribute names. (See Product Identifier and Identifier source.) One has both words in proper case (first letter upper case) and the other only the first word.
- o Under Product Identifier, Stock is capitalized but is not a defined term or attribute.
- o Under Product Type, there is a reference to 5.1. There is no 5.1 section in the document so it is unclear what is the correct reference.
- o Under Product Sub-Type, Reserve is capitalized but is not a defined term or attribute.

- **Section WEQ-016-3.6.2 –**

- o Under Considerations for the Price Component attribute it has "The sum of all Price Components must equal the Total Price." This may be more appropriate for consideration under "Total Price."
- o Under Considerations for the Price Type attribute it references "Real Time" which is not listed as an attribute nor is a defined term.
- o Under Considerations for the Override Unit of Measure for the Product attribute, it references "Alternative Unit of Measure" which is not listed as an attribute nor is a defined term.
- o Under Considerations for the Currency attribute it references "Energy Units of Measure" which is not listed as an attribute nor is a defined term.
- o Under Description for Currency, the description should not use the Attribute to describe itself. The description for Currency states "The Currency of the Total Price and Price Components."
- o Under Considerations for the Source Location Identifier Type attribute it references "GPS" which is not included in the list of acronyms.

- **Section WEQ-016-3.7 through Section WEQ-006-3.7.1 –** If this information is supplemental material only the SRS is questioning if it provides value. If it does then there are a number of capitalized terms that need to be defined including Operating Authority, Maneuverability, Contingency Reserve-Spinning, and Contingency Reserve-Supplemental. These terms should also be moved to WEQ-000.

The task force needs to consider whether the intent of these sections of the recommendation is to have them included in the WEQ Business Practice Standards which will be filed with the Commission or whether the sections are intended to provide background information. If it is the latter, the task force may want to consider moving these section to Section 4 "Supporting Documentation."

**Bonneville Power Administration
On
PAPs 03, 04 & 09**

Please consider the following recommended changes:

PAP03

1. Move section 000-1 Abbreviation and Acronyms from 2 and add under new section 16-A Appendix A – Entity-Relationship Model on page 21. This should be consistent with PAP04 and PAP09. In addition:
 - a. Add “DR for Demand Response” to the Abbreviation and Acronyms.
 - b. Add “DER for Distributed Energy Resources” to the Abbreviation and Acronyms.
2. Move section 000-2, (Definition of Terms) from 3-5 and add under new section 16-A Appendix A – Entity-Relationship Model after Abbreviation and Acronyms. This should be consistent with PAP04 and PAP09.
3. Could the first five paragraphs be moved from Introduction to Executive Summary?
4. Add Values to the heading 016-3.7, “Supplemental Material Values”.
5. Spell out HAN and C&I, or include in Acronyms or Glossary.
6. Page 7 Reset the numerical system from 016-3 to 016-1 under the heading Business Practice Standards starting on page 7. This should be consistent with PAP04.
7. Page 7 (Actors) The format for the list of Actors, on page 7, appears different from the list in PAP09. Should we expect the heading and format for the actors list to be consistent between PAPs
8. Page 7 (Utility Customer) under proposed definition, should read:
“An end-use customer of the Utility Distribution Operator that may be enabled to take on roles such as Facility or Resource.”
9. Page 7 (Communication Method) under the Proposed Definition please include the word “report” in the list.
10. Page 7 (End Device) Does definition include back-up generators? What about batteries? Batteries will not always be located at the end of the line off the secondary system. Many now are used at the substation level.
11. Page 7 (Facility) Will the definition work for aggregated DR? In the case of aggregated residential DR do we therefore have thousands of facilities, or a single aggregated facility? What then is the location? Nodal? If nodal does that mean that program offerings are broken out by nodal and therefore dispatchable by node? What granularity node?
12. Page 8 (System Operator) The definition used seems to encompass both system operator and program administrator. The committee needs to keep in mind that the system operator is not the one who will dispatch the resource. He/she will

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make the order to dispatch the resource but control to dispatch the resource is another person or persons who may be different again from the program administrator who would again be a separate person with a very different job.

13. Page 10 (Tariff Rate Type) Regarding Hourly Rates. Currently the CAISO allows DR resources to operate in the Hour Ahead Scheduling Process (HASP) which is an hourly scheduled market.
14. Page 10 (Tariff Rate Type) Mostly customers are price responsive or other such as emergency or environmental. It may be a mistake to try to address all the possibilities. However most DR resources in California are not market price responsive they are programmatically price responsive. Which is one stage removed from market prices. Whereby the wholesale market may create the environment where the resource may be triggered but the customer is responding to a programmatic trigger set by contract or their participation in a program offer not the market price. Such customers receive set capacity and energy prices for their participation in the program.
15. Page 13 (Demand Load Shifting: Sample Scenarios) This should read: 'Illustrate how different End Devices will respond to a forward energy price signal including, but not limited to:'
16. Page 14 (Demand Reduction; Description) While not all resources will respond to a price signal, they will respond to "signals". Use of the word price is restrictive and therefore requires additional work to define how the different signals function. BPA suggests that the term "signals" is used, regarding what customers respond to.
17. Page 15 "Wind Power always commands a premium over coal power because of higher cost of production." This statement may not always be true, and may not be true in the future, so it appears biased. Suggest rephrasing.
18. Typo on p 17, in 016-3.6.1 (Product Identification) under Identifier source, under Considerations, 2nd sentence: The Identifier source reference the product.... Probably should read: The Identifier source references the product....
19. Page 20, 016-3.7.1, (Product Types and Sub Type Enumerations) under Contingency Reserve, in the description, NERC groups are currently called Regional Reliability Organizations vs. Councils. Please confirm with NERC.
20. Page 20 (Product Types and Sub Type Enumerations) Voltage support resources. While Reactive Posr is a type of voltage support there are other ways to provide voltage support which can be dispatchable to support voltage stability, whether they are batteries or line or substation regulators. Again, all of which are dispatchable. Lower the voltage by 1% and you get a 0.8 percent energy savings. This is a form of DR not apparently contemplated in the NAESB PAPs thus far.

PAP04

1. Delete section 000-1 (Abbreviation and Acronyms) from page 2. It is duplicated in section 16-A Appendix A – Entity-Relationship Model on page 12. As stated for PAP03, please:

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- a. Add “DR for Demand Response” to the Abbreviation and Acronyms.
 - b. Add “DER for Distributed Energy Resources” to the Abbreviation and Acronyms.
2. Delete section 000-2 (Definition of Terms) from pages 3-5. It is duplicated in section 16-A Appendix A – Entity-Relationship Model on page 13. In addition:
 - Should there be a list of Actor in this document similar to PAP03 and PAP09?
 - Should there be a section on Conventions in the document similar to PAP03?
3. Page 6, fourth paragraph, line 2: What does distribution mean in this context? This sentence is unclear. Next sentence: please remove “concerning those transactions.’ This is either a redundant statement or a misplaced object.
4. Page 9, first paragraph, second sentence, BPA suggests the following change. Replace existing text with underlined text below:
“Although some instances may be known by other names...”
5. Page 9: (Baseline Window) suggest augmenting language with capitalized text -
"The window of time preceding and optionally following, a Demand Response Event over which electricity consumption and OUTSIDE AIR TEMPERATURE DATA are collected for the purpose of establishing a Baseline."
6. Page 9 (Adjustment Window) A baseline will not be calculated in an adjustment window but will be adjusted or modified in an adjustment window. See practice of the morning of adjustment. See also ambient air temp as a factor contributing to morning of adjustment.
7. Page 9 (Demand Response Event) Program Administrator is not always the dispatcher. A DR event is different than a DR program and it controlling contractual parameters.
8. Page 9 (Deployment) Deployment connotes a build-out traditionally associated with the creation of a DR resource through the roll-out of a programmatic offer. suggest use of the term “dispatch” instead.
9. Page 10 (Deployment Period) The term “Deployment” may be confusing to some in the industry. Here we are talking about resource operation and delivery. This could be fixed in the definition, by explaining what is being deployed.
10. Page 10 (Meter Data Reporting Deadline) This definition is necessary but we also need to define how, in some instances, real-time consumption data is used to verify, in real-time, resource compliance with dispatch instruction.
11. Page 10 (Performance Window) Please clarify which Program Administrator this term applies to: market or utility?
12. Page 10 (Recovery Period) “Required” is too heavy a word. You are simply releasing the resource from its DR obligations. You are not requiring any other types of subsequent action. You don’t have the power or the right.

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13. Page 10 (Reduction Deadline) DR will not always be a reduction. Ramp up period will also be a type of demand response. DR does not equal demand reduction.
14. Page 11 (Telemetry Interval) "Program Administrator, BPA suggests using a different term or clarify the term and add it to the Glossary.
15. Page 16, Figure 1 is inadequate alone; BPA suggests adding some supporting text including what the figure is intended to convey.

PAP09

1. Delete section 000-1 (Abbreviation and Acronyms) from page 2. It is duplicated in section 16-A Appendix A – Entity-Relationship Model on page 29. In addition:
 - a. Add "DR for Demand Response" to the Abbreviation and Acronyms.
 - b. Add "DER for Distributed Energy Resources" to the Abbreviation and Acronyms.
2. Delete section 000-2 (Definition of Terms) from page 3-5. It is duplicated in section 16-A Appendix A – Entity-Relationship Model on page 30.
3. Could the first three paragraphs be moved from Introduction to Executive Summary?
4. Reset the numerical system from 016-2 to 016-1 under the Business Practice Standards starting on page 8. This should be consistent with PAP04.
5. The format for the list of Actors, on page 9, appears different from the list in PAP03. Should we expect the heading and format for the actors list to be consistent between PAPs?
6. Should there be a section on Conventions in the document similar to PAP03?
7. In Page 9, 016-2.2 (Wholesale Entity Relationship Model) the text "Error! Reference source not found", should be removed. This could simply be a text conversion issue.
8. In Page 9 (System Operator) Here again there is more than one entity in this process. BPA recommends checking with NERC on the definition of this entity.
9. In Page 36, 4.c. (Business Purpose) looks like a cut and paste from PAP04. Not sure a cut and paste was the intent.
10. Page 14 (Wholesale) Figure 2 needs context and supporting text, and the legend needs to match the info in the figure/map.

Comments on NAESB Smart Grid Standards Covering Priority Action Plans 03, 04, and 09

Filed by Tennessee Valley Authority

Pap 03 – Common Electricity Product and Pricing Definition

Terms and definitions found within this standard should match NERC/NAESB glossaries approved by the FERC. Definitions such as Load Serving Entity, System Operator, and others need to match for industry-wide consistency.

Section WEQ-016.3.7 – 3.7.1 – Sections contain terms that are not defined and need to have definitions; such terms include: Operating Authority, Maneuverability, Contingency Reserve-Spinning, and Contingency Reserve-Supplemental.

TVA would like to know if the definition of Facility will work for aggregated Demand Response.

Actors should be consistent with those found in PAP-09.

Pap 04 – Specifications for Common Scheduling Mechanism for Energy Transactions

Terms and definitions found within this standard should match NERC/NAESB glossaries approved by the FERC. Definitions such as Load Serving Entity and Facility need to match for industry-wide consistency.

Section WEQ-016 – Sections contain terms that are defined and need to have definitions; such terms include: Demand Response Programs, Program Administrator, Market Closing, Absolute Interval, Absolute Duration, and Minimum Run Time. In addition, there are several acronyms that have not been defined (SML, IETF, and DER).

Please note that the Program Administrator may not always be the dispatcher.

Do standard definitions for Response Method Aggregation, Resource, Scheduling Entity, and Service Provider exist in other approved standards? If so, we believe these should be changed to reflect those.

What is meant by a Demand Response Event? TVA's definition of a DR event is related to something that is controlled by either the utility or the customer (a planned event). The other two levels TVA deals with are a "steady state" and an automatic demand response state. TVA suggests that sub-definitions for the term Demand Response Event may be appropriate in order to more succinctly define them as either load or market events.

Comments Submitted by K. York, TVA

Pap 09 – Specifications for Wholesale Standard DR Signals

Terms and definitions found within this standard should match NERC/NAESB glossaries approved by the FERC. Definitions such as Load Serving Entity and Facility need to match for industry-wide consistency.

Also, many sections have terms that have not been defined, such as Demand Resource Object, Federal, Awards, System Operator, and Schedules which need to have definitions.

The term Distributed Energy Resources and Inoperability should be defined in the Glossary.

Actors should be consistent with those found in PAP-03.

Does Scheduling Entity represent an Aggregator?

General Comments:

In general, TVA believes that the Smart Grid effort should use as many existing approved communication protocols and industry standards as possible as a launching pad for the development of future standards. An example would be starting with FERC, NERC, and the nine Regional Reliability Organizations-approved naming conventions as well as existing “common” communication protocols (examples: Distributed Network Protocols and IEC 61850) that can appropriately integrated.

In addition, TVA would like to know if any thought has been given to how traditional transmission products would hamper or help the Smart Grid effort. What kind of transmission constraints would the Smart Grid effort encounter once operational?

Overall, TVA commends NAESB for these recommendations and believes the standards provide a workable framework for producing the granularity needed to integrate Smart Grid efforts into the business model.

Honeywell Automation and Control Solutions
1985 Douglas Drive
Golden Valley, MN 55422

April 9, 2010

Mr. Jonathan Booe
Smart Grid Task Force
North American Energy Standards Board
801 Travis Street, Suite 1675
Houston, Texas 77002

Dear Mr. Booe,

This letter is offered in response to your March 9, 2010 request for formal comments to the NAESB Smart Grid requirements relating to NIST PAPs 3, 4 and 9.

Honeywell energy management technologies are found in more than 150 million homes, five million buildings, 24 of the top 25 refineries, and nearly 5,000 industrial sites around the world. By applying our expertise in sensing and controls, we are creating energy efficient, more comfortable, safer, more secure, and productive environments for our customers. We stand ready to work together with utilities and customers to build and implement the Smart Grid.

Honeywell sees great value in the NAESB SGTF effort to describe and publish requirements for electricity product definition, pricing, scheduling and demand response signals. This important work is a key driver in the process of developing and deploying the national standards required to implement the Smart Grid.

Honeywell has reviewed your documents and offers minor comments/edits for all the documents that fall into four categories.

- 1) Representation of all 3 customer domains (Residential, Commercial, and Industrial) should be included and explicitly stated when not applicable to all three.
- 2) Listings of specific standards setting organizations should not preclude others from participating.
- 3) The use cases and examples should include, when appropriate, in-premises energy management systems in residential, commercial and industrial customer domains.
- 4) Grammatical corrections.

We have attached all 3 documents with tracked changes to indicate recommended specific edits.

We look forward to utilizing these use cases/requirements to continue our dialog with NAESB and other standards setting organizations.

Sincerely,



Steve Gabel
Principal Development Engineer
Honeywell ACS Laboratories
steve.gabel@honeywell.com
763-954-6512



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

For Quadrant: Wholesale Electric Quadrant (WEQ) and Retail Electric Quadrant (REQ)
Requesters: NAESB Smart Grid Task Force (SGTF)
Request No.: 2010 WEQ Annual Plan Item 6(a) / 2010 REQ Annual Plan Item 9(a)
Request Title: Requirements Specifications for Common Electricity Product and Pricing Definition – for NIST PAP03

1. RECOMMENDED ACTION:

☒ Accept as requested
☐ Accept as modified below
☐ Decline

EFFECT OF EC VOTE TO ACCEPT RECOMMENDED ACTION:

☒ Change to Existing Practice
☐ Status Quo

2. TYPE OF DEVELOPMENT/MAINTENANCE

Per Request:

☒ Initiation
☐ Modification
☐ Interpretation
☐ Withdrawal

☒ Principle
☒ Definition
☒ Business Practice Standard
☐ Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

Per Recommendation:

☒ Initiation
☐ Modification
☐ Interpretation
☐ Withdrawal

☒ Principle
☒ Definition
☒ Business Practice Standard
☐ Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

3. RECOMMENDATION

SUMMARY:

The NAESB Smart Grid Task Force (SGTF) submits this Recommendation that provides requirements for common pricing attributes that can be used as a basis for messaging protocols throughout the electrical energy system from producer through to a variety of energy consumers and the future intelligent devices employed by these consumers. These attributes are not meant to be a message protocol in and of themselves and further analysis and design work will be completed as part of several initiatives, such as ZigBee smart energy, OpenHAN, and OASIS eMIX. These requirements should also be used as an input to the CIM maintained by UCAIug.



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New WEQ-016 Abbreviations/Acronyms and Defined Terms to be added to WEQ-000 are included below for reference (*previously added in Recommendation 2010 WEQ Annual Plan Item 6(b) / 2010 Retail Annual Plan Item 9(b)*)
 (NOTE: NAESB Retail numbering convention will replace WEQ numbering convention in NAESB Retail publication)

000-1 ABBREVIATIONS AND ACRONYMS

Abbreviation / Acronym	Meaning
DDE	Designated Dispatch Entity
EA	Environmental Authority
ED	End Device
EMS	Energy Management System
FR	Federal Regulator
LA	Local Authority
LSE	Load Serving Entity
MA	Metering Authority
MP	Market Participant
RA	Reliability Authority
RM	Response Method
RMA	Response Method Aggregation
SE	Scheduling Entity
SO	System Operator
SP	Service Provider
SR	State Regulator
TDSP	Transmission/Distribution Service Provider
UC	Utility Customer
UDO	Utility Distribution Operator



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000-2 DEFINITION OF TERMS

Term	Definition
Business Entity	The wholesale or retail entity that interacts with other entities in its market.
Communication Method	The method by which an object communicates with another object to instruct, measure or control.
Control	The role associated with the control of an End Device.
Demand Response Objects	Physical and logical types of demand response resource objects.
Designated Dispatch Entity	A role which carries the responsibility of receiving and processing demand resource dispatch instructions or market information and (optionally) providing response information.
End Device	A physical end-use device that consumes or supplies electricity.
Environmental Authority	A regulatory authority responsible for the development, reporting and enforcement of environmental activities.
Facility	The location at which connection to the transmission or distribution system is made.
Federal Regulator	A Federal regulatory authority.
Load Serving Entity	A role which carries the responsibility of serving end-users and selling electric energy to end-users.
Local Authority	A regulatory authority responsible for the oversight and administration of utility service-related functions within its jurisdiction.
Market Enrollment	The collection of enrollment or tariff data for a Demand Resource Object to provide a specific market product or service.
Market Participant	An organization registered with the System Operator that may take on roles such as SP, LSE, TDSP, DDE, SE, and/or MA in accordance with the System Operator's market rules.



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Term	Definition
Measurement	The role associated with the device or algorithm that measures the consumption or supply of an End Device.
Metering Authority	A role which carries the responsibility of providing data necessary to determine the performance of a Resource.
P-Node	The price location of the Facility in the transmission and/or distribution network.
Participant	The entity that represents resources to a market or distribution operator.
Regulator	A rule-making and enforcement entity.
Reliability Authority	A regulatory authority responsible for the development, reporting and enforcement of electric reliability-related activities.
Response Method	A measurable action taken in response to an instruction to change consumption.
Response Method Aggregation	A logical entity that has a reportable interval level consumption, e.g. a site may also be a physical entity that may have its own meter, a neighborhood of homes that has a net meter, or an estimate of consumption of an aggregation of retail customers.
Resource	A market-dependent group of Response Method Aggregations that represents a dispatchable entity.
Scheduling Entity	A role which carries the responsibility of submitting bids/offers and receives Schedules and Awards.
Service Provider	A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.
State Regulator	A regulatory authority responsible for the oversight and administration of electric utilities.
Supporting Objects	Objects that support the interaction of Business Entities and Demand Response Objects.



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Term	Definition
System Operator	An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.
Transmission/Distribution Service Provider	A role which carries the responsibility of operating a local electricity transmission and/or distribution system.
Utility Customer	An end-use customer of the Utility Distribution Operator that takes on roles such as Facility or Resource.
Utility Distribution Operator	An entity which carries the responsibility of operating an electricity distribution system.
Zone	A physical or electrical region.

New Business Practice Standards WEQ-016 – Smart Grid Activities
(NOTE: NAESB Retail numbering convention will replace WEQ numbering convention in NAESB Retail publication)

RECOMMENDED STANDARDS:

Executive Summary

Specifications for Common Electricity Product and Pricing Definition

The following addresses the business objectives and context for capturing the attributes associated with electricity price and product signals as part of the Smart Grid implementation, which is called for by National Institute of Standards and Technology (NIST) Priority Action Plans (PAP) 03. The North America Energy Standards Board (NAESB) Smart Grid Task Force (SGTF) in cooperation with UCA International Users Group (UCAIug) Open Smart Grid (OpenSG) Task Force, the Independent System Operator/Regional Transmission Organization Council (ISO/RTO Council), and other organizations, has developed the use cases that provide requirements for electricity price and product signal standards.

Because the NAESB Smart Grid Task Force is involved in activities related to several of NIST's Priority Action Plans, the SGTF has developed a standard list of actors and related objects for all Priority Action Plan work coming out of the group. This document also contains an overview of the most common retail rate structures and price-related use cases. Finally, a representative list of price and product attributes is provided.



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The following deals exclusively with the pricing related requirements at both the wholesale and retail levels. The requirements are captured in the form of UML models, where business requirements are captured in Use Case narrative format and data requirements are captured in tabular format. The main use cases that are affected by pricing are:

- Demand Shifting
- Demand Reduction
- Non-Price (Environmental) Response
- Load-follower
- Price-takers

Reliability based responses, both wholesale and retail, is addressed by PAP-09 on DR Signaling.

Introduction

Specifications for Common Electricity Product and Pricing Definon

Purpose: The purpose of the following is to capture business and data requirements related to the definition of a common model for capturing the attributes of an electricity product offered at wholesale and/or retail level. Such attributes will mainly include but are not limited to the pricing information of the product being offered to the end consumers of electricity.

Scope: The scope of the following is to provide business and data requirements, not implementation, of a common pricing model for electricity product.

The electricity rate design process is not included in the scope of these use cases.

Assumptions:

- Wholesale market price signals may have different characteristics than retail market signals.
- Attempts to standardize pricing signals must not hinder regulatory changes or market innovations.



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Business Practice Standards

016-3 Specifications for Common Electricity Product and Pricing Definition

016-3.1 Price signals should be flexible enough to accommodate regulatory changes or market innovations.

016-3.2 ACTORS

The actors used in the use cases are role-based, with the Market Participant and Utility Customer business entities taking on one or more roles. This table contains only actors referenced by use cases in this document.

<u>Actor Name</u>	<u>Proposed Definition</u>	<u>Acronym</u>	<u>Actor ID¹</u>	<u>Examples</u>
<u>Utility Customer</u>	<u>An end-use customer of the Utility Distribution Operator that takes on roles such as Facility or Resource.</u>	<u>UC</u>	<u>2.4</u>	<u>Residential, Industrial</u>
<u>Communication Method</u>	<u>The method by which an object communicates with another object to instruct, measure or control.</u>		<u>5.5</u>	
<u>Control</u>	<u>The role associated with the control of an End Device.</u>		<u>5.2</u>	<u>Facility EMS, Energy Services Interface (ESI) or Gateway</u>
<u>End Device</u>	<u>A physical end-use device that consumes or supplies electricity.</u>	<u>ED</u>	<u>4.5</u>	<u>HAN, Electric Vehicle, or Smart Appliance, Display</u>
<u>Facility</u>	<u>The location at which connection to the transmission or distribution system is</u>		<u>4.3</u>	<u>Electricity Consumer</u>

¹ Actor IDs refer to the identifiers associated with NAESB's Smart Grid Task Force Actors List.

http://www.naesb.org/pdf4/smart_grid_ssd012810a1.xls



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<u>Actor Name</u>	<u>Proposed Definition</u>	<u>Acronym</u>	<u>Actor ID¹</u>	<u>Examples</u>
	<u>made.</u>			
<u>Load Serving Entity</u>	<u>A role which carries the responsibility of serving end-users and selling electric energy to end-users.</u>	<u>LSE</u>	<u>3.2</u>	
<u>Measurement</u>	<u>The role associated with the device or algorithm that measures the consumption or supply of an End Device.</u>		<u>5.1</u>	<u>Meter</u>
<u>Resource</u>	<u>A market-dependent group of Response Method Aggregations that represents a dispatchable entity.</u>		<u>4.1</u>	<u>Supplier, Distributed Energy Resource (DER)</u>
<u>Service Provider</u>	<u>A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.</u>	<u>SP</u>	<u>3.1</u>	<u>Retail Service Provider, Demand Response Provider, Dynamic Price Service Provider</u>
<u>System Operator</u>	<u>An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.</u>	<u>SO</u>	<u>2.1</u>	<u>Market and System Operators</u>



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<u>Actor Name</u>	<u>Proposed Definition</u>	<u>Acronym</u>	<u>Actor ID¹</u>	<u>Examples</u>
<u>Transmission/ Distribution Service Provider</u>	<u>A role which carries the responsibility of operating a local electricity transmission and/or distribution system.</u>	<u>TDSP</u>	<u>3.5</u>	<u>Utility Distribution Company</u>
<u>Utility Distribution Operator</u>	<u>An entity which carries the responsibility of operating an electricity distribution system.</u>	<u>UDO</u>	<u>2.3</u>	<u>Distribution Operator</u>

016-3.3

CONVENTIONS

The use case modeling technique is used for capturing business and data requirements relative to electric product and price information. The relationships used in the Use Case diagrams are as follows:

- Includes: this indicates additional scenarios
- Extends: this indicates alternatives scenarios
- Generalization (line with triangle head): this indicates variations (sub-types) of the main use case.
- Precedes: this indicates a time sequence
- Invokes: this indicates a pre-condition or dependency



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016-3.4 USE CASE OVERVIEW

A tariff establishes the prices paid for the services received, and is based on a variety of factors including wholesale prices, quality and type of service and costs associated with transmission and distribution grid infrastructure and operation. The use cases in this document illustrate the high-level activities associated with publishing prices and how the information is used to evoke a change in consumption.

The table below provides information on common types of energy supply rate structures.

<u>Tariff Rate Type</u>	<u>Target Customers</u>	<u>Description</u>
<u>Block Rate</u>	<u>C&I, Residential</u>	<u>An energy supply rate structure in which the per unit energy price increases or decreases for each successive block of energy consumed.</u>
<u>Critical Peak Price (CPP)</u>	<u>C&I, Residential</u>	<u>An energy supply rate structure whereby "Time of Use Pricing" is in effect with the exception of certain "peak days" at which time electric prices may reflect the costs of electricity at the wholesale level.</u>
<u>Demand Rate</u>	<u>Mainly for C&I Customers, Pilot for Residential Customers</u>	<u>A component of an energy supply rate structure based on the highest demand for electricity measured in a billing period.</u>
<u>Day Ahead Market Rate (DAMR)</u>	<u>C&I, Residential</u>	<u>An energy supply rate structure, typically hourly, based on the day-ahead wholesale market price.</u>
<u>Market Clearing Price for Energy (MCPE)</u>	<u>C&I</u>	<u>An energy rate structure that allows for price changes every 15 minutes based on real-time wholesale market prices.</u>
<u>Peak Time Rebate (PTR)</u>	<u>C&I, Residential</u>	<u>An incentive rate in which the utility pays Customers to reduce demand during peak periods on critical days.</u>
<u>Real Time Price Rate (RTP)</u>	<u>C&I</u>	<u>An energy supply rate structure in which prices can vary, typically on an hourly basis, based on forecast (day-ahead) or actual (real-time) market conditions.</u>
<u>Time of Use</u>	<u>C&I, Residential</u>	<u>An energy supply rate structure where the</u>



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<u>Tariff Rate Type</u>	<u>Target Customers</u>	<u>Description</u>
<u>Rate (TOU)</u>		<u>per unit charge (kWh or kW) varies according to the time of day. Time-of-Use rates may have daily and seasonal variations.</u>
<u>Variable Peak Pricing (VPP)</u>	<u>C&I, Residential</u>	<u>An energy supply rate structure that combines features of TOU and RTP structures to include the flexibility of market price variation and the fixed time periods of a time of use rate.</u>

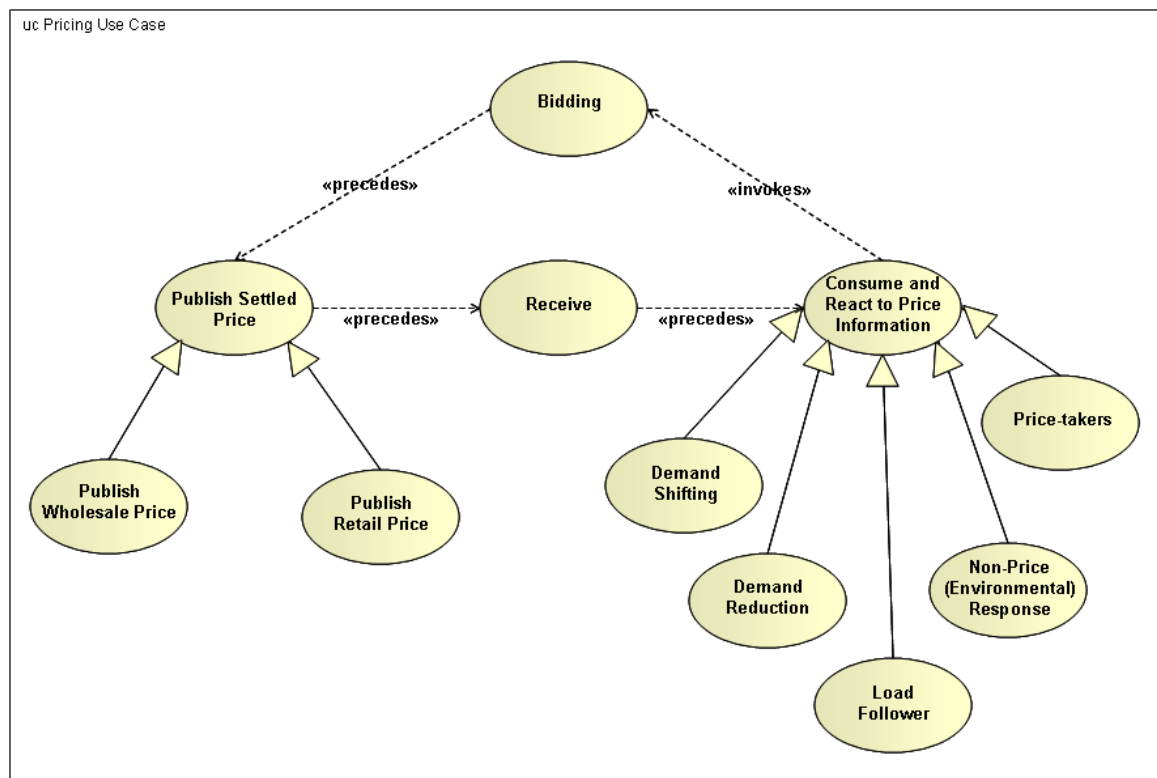


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The Pricing Use Case below provides an overview of the specific use cases described in this document. The results of Bidding produce the Settled Price which is published and then received. The recipient reacts to the price, which affects the next bidding cycle. The following use cases where electricity pricing and product information can be used are described in this document:

- Demand Shifting
- Demand Reduction
- Non-Price (Environmental) Response
- Load-Follower
- Price-takers





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016-3.5 SPECIFIC USE CASES

Specific use cases for what end use consumers of electricity might do when pricing signals are received are listed as follows:

<u>Use Case</u>	<u>Actors</u>	<u>Description</u>	<u>SAMPLE Scenarios</u>
<u>Demand Shifting</u>	<u>Service Provider</u> <u>End Device</u> <u>Facility</u>	<u>Pricing signals are used as a tool to influence when consumers use electricity.</u>	<u>The System Operator published day-ahead prices which are statistically higher than average between 2:30 and 5:30 in the afternoon. Illustrate how different End Devices will respond to a forward energy price signal including:</u> <u>An Energy Management System (EMS) requests Building Automation System (BAS) to “pre-cool” until 2:30 PM.</u> <u>Home-based intelligent device is programmed to operate at a time when electricity is cheaper.</u> <u>An electric plug-in vehicle is programmed to charge when electricity is cheaper.</u>



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<u>Use Case</u>	<u>Actors</u>	<u>Description</u>	<u>SAMPLE Scenarios</u>
<u>Demand Reduction</u>	<u>Control Facility</u>	<u>Pricing signals are used as a tool to influence the quantity of electricity that consumers use.</u>	<u>A Utility Distribution Company's fixed time-of-day tariffs indicates higher price during day, and lower price after 11:00 PM. Demonstrate how different End Devices will response to price differentials:</u> <u>Time-insensitive building systems schedule their run-time programs after 11:00 PM.</u> <u>Homeowner starts appliance at 5:10. The appliance notifies that by waiting 20 minutes to run, the consumer will get lower cost electricity. Homeowner acknowledges.</u>
<u>Environmental Response</u>	<u>Resource End Device Facility</u>	<u>Product characteristics (other than price) are used to influence either the quantity or the time at which the customer uses electricity.</u>	<u>Customer set a price threshold at which "green" power is desirable. Above the "green price" the customer will take any power, below the "green price" the customer will choose suppliers with renewable portfolios.</u> <u>Test the scenario where, at 5:00 PM wind power picks up such that the price of power from renewable sources falls below the "green price" set by the customer.</u> <u>Utility delivers blend of 20% wind, 80% coal during this time of day at .10/kWh. 25% of customers indicate preference to buy pure wind, an over-subscription. Prices for pure wind are bid up to .15/kWh as the wind-sensitive market decreases. 20% of consumers pay the 50% premium to get only wind-only power.</u> <u>1) Local PUC requires that</u>



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<u>Use Case</u>	<u>Actors</u>	<u>Description</u>	<u>SAMPLE Scenarios</u>
			<u>segmentation be revenue-neutral, so bidding for Wind Power reduces undifferentiated power to .0875 kWh.</u> 2) <u>No bidding was required for undifferentiated power, so provider is incentivized to find additional sources of Wind Power.</u> 3) <u>Consumers unable to buy desired Wind Power reduce their aggregate demand.</u> <u>Consumers have programmed non-time-sensitive systems and appliances to not run when Wind Power is not available, time-shifting some demand until Wind Power is available at the desired price.</u> <u>Wind Power always commands a premium over coal power because of higher cost of production. Local regulatory policy requires pass-through of actual market costs for differentiated power. Consumers who buy coal power must buy carbon credits as well. If the [low] cost of coal is combined with the cost of the credit, renewable energy sources become more competitive.</u>
<u>Load Follower</u>	<u>Distributed Energy Resource (DER) and Utility Customer (UC)</u>		<u>A Utility Customer (UC) is also a Distributed Energy Resource (DER). The UC would purchase power up to the price at which they can economically produce power. The use case must prove that such a resource can receive enough information from the pricing signals to change its output according to the resource owner's price curve.</u>



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<u>Use Case</u>	<u>Actors</u>	<u>Description</u>	<u>SAMPLE Scenarios</u>
<u>Price Taker</u>	<u>Distributed Energy Resource (DER)</u>		<u>A DER with no storage capability and zero fuel cost, such as a wind farm or solar array, will produce power at whatever the “market rate” for generation is at the time of production. The use case must prove that such a resource can identify its cost curve (zero in this case), supply energy to the grid, and get paid at the appropriate rate.</u>



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016-3.6 PRICING AND PRODUCT ATTRIBUTES

The following initial attributes were presented early in the PAP-03 meetings and will serve as the initial starting point for further refinement.

016-3.6.1 Product Identification

<u>Attribute</u>	<u>Description</u>	<u>Considerations</u>
<u>Product Identifier</u>	<u>Energy, although largely a non-storable and transitory commodity, is nonetheless still a tradable and sellable entity. Any commodity benefits from having a unique identifier (external) that can unambiguously be used by consumers to identify what it is that they are purchasing.</u>	<u>Examples of product identification scheme used in the financial world is the ISIN (International Security Identifier Number), and Stock ticker symbols used by exchanges.</u> <u>This not a transaction identifier – this would be an industry agreed upon identifier for a particular energy product offering.</u>
<u>Identifier source</u>	<u>Identification of the source of the product identifier.</u>	<u>In most systems there are competing or alternative product identification schemes. The Identifier source reference the product identification scheme for the Product Identifier.</u>
<u>Product Type</u>	<u>A product type.</u>	<u>Attempt to fit the product type within already in place ontologies or product classifications used within industry for trading energy. See 5.1 for suggestions.</u>
<u>Product Sub-Type</u>	<u>The sub-type of product</u>	<u>Products may be further divided into subtypes, for example Reserve products may be 10-minute or 30-minute response.</u>
<u>Unit of Measure for Product</u>	<u>Unit of measure the product.</u>	<u>The unit of measure such as MWh or kWh.</u>



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016-3.6.2 Pricing Attributes

<u>Attribute</u>	<u>Description</u>	<u>Considerations</u>
<u>Total Price</u>	<u>Total Price of the product at point of delivery</u>	<u>Price is expressed as currency per Unit of Measure, i.e. quantity is not required, e.g. \$/MWh</u> <u>Total Price = Sum (Price Components)</u>
<u>Set of 1..n Price Components</u>		
<u>Price Component</u>	<u>A component of the price.</u>	<u>Price may have one or more components. The sum of all Price Components must equal the Total Price</u>
<u>Price Component Type</u>	<u>The type of Price Component</u>	<u>A standard set of price component types shall be enumerated, such as:</u> <u>Wholesale electricity cost</u> <u>Transmission costs</u> <u>Distribution costs</u>
<u>Price Type</u>	<u>Type of price</u>	<u>A standard set of price types will need to be defined Real Time, 5 minute, day ahead, as examples for price types</u>
<u>Override Unit of Measure for the Product</u>	<u>Unit of measure which is used to determine the price</u>	<u>Alternative Unit of Measure used in calculating the price.</u>
<u>Currency</u>	<u>The Currency of the Total Price and Price Components</u>	<u>Currency is required to determine the units of measure of the Total Price and Price Components. The Energy Units of Measure are defined by the Product Type.</u>



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<u>Attribute</u>	<u>Description</u>	<u>Considerations</u>
<u>Time and Interval</u>	<u>Interval of energy delivery</u>	<u>Timezone conventions and use need to be unambiguously defined and agreed upon.</u> <u>Daily blocks, hourly markets, 5 minute markets.</u> <u>A decision in how basic product information will reference and interact with the WS-Calendar initiative being completed as part of PAP-04.</u>
<u>Source Location Identifier</u>	<u>Location of the source of the electric energy</u>	<u>Electrical energy cost and value are greatly impacted by the distance between generation and consumption. Indicating the source of the generation is important in terms of pricing decisions on part of consumers and intermediaries.</u> <u>The use of source location would mainly be used for bilateral transactions.</u>
<u>Source Location Identifier Type</u>	<u>Type of location.</u>	<u>The mechanism used to identify location can be defined in multiple sources based upon specific usage from control areas to GPS coordinates it is anticipated that there may need to be more than one method to identify a geographical location.</u> <u>Where possible existing industry standards should be adopted to identify geographic locations.</u>



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016-3.7 SUPPLEMENTAL MATERIAL

016-3.7.1 Product Types and Sub Type Enumerations

The following values are suggested for use in classification of electrical energy.² NERC document (see section 1.2). These would be in addition to ENERGY and CAPACITY.

<u>Value</u>	<u>Description</u>
<u>REGULATION</u>	<u>The provision of generation and load response capability, including capacity, energy, and MANEUVERABILITY, that responds to automatic controls issued by the OPERATING AUTHORITY.</u>
<u>LOAD FOLLOWING</u>	<u>The provision of generation and load response capability, including capacity, energy, and MANEUVERABILITY, that is dispatched within a scheduling period by the OPERATING AUTHORITY.</u>
<u>CONTINGENCY RESERVE</u>	<u>The provision of capacity deployed by the OPERATING AUTHORITY to reduce AREA CONTROL ERROR to meet the Disturbance Control Standard (DCS) and other NERC and Regional Reliability Council contingency requirements. CONTINGENCY RESERVES are composed of CONTINGENCY RESERVE-SPINNING and CONTINGENCY RESERVE-SUPPLEMENTAL.</u>
<u>REACTIVE POWER SUPPLY FROM GENERATION SOURCES</u>	<u>The provision of reactive capacity, reactive energy, and responsiveness from IOS RESOURCES, available to control voltages and support operation of the BULK ELECTRIC SYSTEM.</u>

² NERC Reference Document Interconnected Operations Services, 1.2 Definition of Terms.



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<u>Value</u>	<u>Description</u>
<u>FREQUENCY RESPONSE</u>	<u>The provision of capacity from IOS RESOURCES that deploys automatically to stabilize frequency following a significant and sustained frequency deviation on the INTERCONNECTION.</u>
<u>SYSTEM BLACK START CAPABILITY</u>	<u>The provision of generating equipment that, following a system blackout, is able to: 1) start without an outside electrical supply; and 2) energize a defined portion of the transmission system. SYSTEM BLACK START CAPABILITY serves to provide an initial startup supply source for other system capacity as one part of a broader restoration process to re-energize the transmission system.</u>

4. Supporting Documentation

a. Description of Request:

On September 30, 2009 the National Institute of Standards and Technology officially assigned NAESB the responsibility to develop Requirements and Use Cases pertinent to Priority Action Plan items 3, 4 and 9. A complete description of each item is available on the NIST Web site located at <http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/WebHome>

This recommendation specifically pertains to PAP 03³, “Develop Common Specification for Price and Product Definition”.

b. Description of Recommendation:

See Section 3 Summary

c. Business Purpose:

This recommendation has been developed in response to a request from NIST to provide use cases and requirements germane to the development of common specification for electric price and production definition.

³ <http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/PAP03PriceProduct>



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d. Commentary/Rationale of Subcommittee(s)/Task Force(s):

Joint Smart Grid Standards Task Force and Fix Protocol Meeting Notes/Documents:

- September 17, 2009 Meeting Notes – To be posted
- October 1, 2009 Meeting Notes – To be posted
- October 15, 2009 Meeting Notes – To be posted

NAESB Smart Grid Standards Task Force Sub-Group Meeting Notes/Documents:

- October 13, 2009 Meeting Notes – To be posted
- October 20, 2009 Meeting Notes – To be posted
- October 27, 2009 Meeting Notes – To be posted
- November 3, 2009 Meeting Notes – To be posted
- November 4-6, 2009 Meeting Notes – To be posted
- November 10, 2009 Meeting Notes – To be posted

NAESB Smart Grid Standards Task Force Meeting Notes/Documents:

- October 22, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd102209notes.doc
- October 29, 2009 Meeting Notes – To be posted
- November 5, 2009 Meeting Notes – To be posted
- November 13, 2009 Meeting Notes – To be posted
- December 3, 2009 Meeting Notes – To be posted
- December 10, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd121009notes.doc
- December 17, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd121709notes.doc
- January 7, 2010 Meeting Notes – To be posted
- January 14, 2010 Meeting Notes – To be posted
- January 21, 2010 Meeting Notes – To be posted
- January 28, 2010 Meeting Notes – To be posted
- February 5, 2010 Meeting Notes – To be posted
- February 18, 2010 Meeting Notes – To be posted

NAESB PAP-03 / PAP-04 / PAP-09

General Comments

- A. The documents being considered do not contain traditional NAESB Business Practice Standards content. Additional work will be necessary to convert these recommendation documents into Business Practice Standards, as it was a working assumption of the Smart Grid Task Force to deliver requirements only.
- B. References in these Recommendations to ‘Dispatch’, ‘Markets’, ‘Reliability’ are made relative to DR and apply to DR resources only, and not Generation resources. NERC’s compliance standards for Generation Resources are typically quite detailed, while compliance standards for DR resources are appropriately determined by the respective system operator specific to the DR product or service and the reliability need being addressed.
- C. While the recommendations for PAP-03, PAP-04 and PAP-09 posted by NAESB are not business practice standards, they should not be misconstrued as a recommendation to change existing market designs or business rules across ISOs/RTOs; each ISO RTO has its own stakeholder process as the appropriate forum for making rule changes.
- D. Although not explicitly stated in the PAP documents, compliance with orders from regulatory agencies, as they apply to DR in ISO/RTOs, is presumed.
- E. It is our understanding that the contents of the documents are being presented as recommendations and are intended to be used neither as implementation templates nor for testing of interoperability. Rather, another step will be taken by the Organization for the Advancement of Structured Information Standards (OASIS) to deliver an information model, preferably reconciled with IEC 61970, which then could be implemented and tested.
- F. The treatment of the glossary of terms – actors and definitions – is inconsistent across the recommendation documents – within the WEQ as well as the corresponding versions listed under REQ. In one case, the glossary of terms is in the recommendation without the diagram, in another it appears as an appendix, and in a third it appears in both the recommendation section *and* in an appendix. The highlighted wording regarding how the glossary will be incorporated into the WEQ-000 is unclear. The IRC requests that NAESB staff provide a clearer description to explain how the glossary of terms will be integrated into WEQ-000.
- G. It is unclear how the data requirements work beginning in Phase 2 will be integrated with these recommendations if they are being passed through the standards approval process separately. This is of particular concern since PAP-03 and PAP09-Retail have partial lists of data requirements in the current recommendations. For consistency, the IRC recommends that all data requirements be removed from the Recommendations for PAPs 03/04/and 09 until the SGTF has completed Phase 2, where the data requirements will be identified for all three PAPs.

PAP-SPECIFIC RECOMMENDATIONS

PAP-03

- 1. "The term “wholesalers” in PAP03 should be modified to clarify whether it refers to energy marketers, energy service providers or ISOs and RTOs. Without this clarification, it is unclear to whom the proposed PAP03 standards apply

NAESB PAP-03 / PAP-04 / PAP-09

2. The use cases are very short. More elaboration needs to be given to the definitions and the samples should be elevated to fully described, testable use cases.

PAP-04

3. The IRC has identified that the following requirement from PAP04 as the only requirement applicable to wholesale markets and recommends that it be incorporated into the PAP09 wholesale document:

“Demand Response Programs employ a combination of absolute dates/times, absolute periods (range) of dates/times, relative dates/times, recurring dates/times, absolute intervals and absolute durations in order to communicate temporal information pertaining to demand response transactions. Demand Response Programs must also accommodate time zone variations, leap years, leap seconds, and the use of daylight savings time. Any calendaring/scheduling standard that is applicable to Demand Response programs must be capable of supporting this range of requirements.”

4. References to the term “wholesalers” in PAP04 do not apply to ISOs and RTOs, therefore, it is the understanding of the IRC that PAP04 would not apply to ISOs and RTOs.
5. The IRC recommends that PAP-04 be moved wholly into the REQ, where it can be applied to end-device and/or human communications without impact to or potential conflict with wholesale market operations.

PAP-09 Retail

6. As previously recommended in the IRC’s informal comments in November 2009, the administration of DR products and services should be excluded from the scope of the retail use cases. Currently, language states that these processes will not be automated. If this is the case, they should not be included in a document that ultimately will lead to a machine-to-machine communication specification. Additionally, the processes for automating customer registration (as opposed to device enrollment) are likely to be handled in the future by a NAESB working group with a more global (i.e., not DR-centric) perspective. The IRC recommends removing the following sections:
 - a. REQ.14.3.2.4.1 Administrate DR Program
 - b. REQ.14.3.2.4.1.2 Create DR Program
 - c. REQ.14.3.2.4.1.3 Update DR Program
 - d. REQ.14.3.2.4.1.4 Remove DR Program
 - e. REQ.14.3.2.4.2 Administrate Customer for DR
7. Our members believe that additional descriptions of the business processes are needed. The existing illustrations consist of Use Case Diagrams, which identify the Actors involved and the hierarchy of processes, and Sequence Diagrams, which identify the ordered messages that may

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be exchanged among the actors during the execution of the business processes. Activity Diagrams would better show the conditional flows and iterations that are common to these business processes and make the testing of use cases easier. Furthermore, alignment with the four governing business processes outlined in Figure 1 of the Wholesale document (page 12) would be extremely helpful. In fact, we would very much like to see integration with the wholesale business process Activity Diagrams, which have wholesale-retail integration points identified for further development by interested parties. IRC members will be made available to support such integration definition efforts should members of the REQ be interested in pursuing this activity in Phase 2.

8. The document defines DR-specific data elements (such as "Minimum Duration"), whereas the Wholesale document reuses generation/supply data elements (such as "Minimum Run Time"). These philosophies should be reconciled. See pp. 33-35, 39, and 40 for examples. As stated in cross-PAP recommendation E, this can be resolved by following the IRC recommendation that all data elements be removed from the current recommendations and submitted at a later date, when the Phase 2 data requirements work is complete.

PAP-SPECIFIC RECOMMENDATIONS (DETAILED EDITS)

Common Introduction Language

- Replace "United States of America with some overlaps to Canada" with "North America"
- 000-1: Replace "Reliability Authority (RA)" with "Regional Reliability Authority (RRA)"
- 000-2: For Response Method Aggregation, edit as follows: "...interval level consumption, e.g. a site ~~an RMA~~ may also be a physical entity ~~that may have~~ with its own meter..."

PAP-03

- Pg. 6 & Pg. 12: Replace "Demand Reduction" with "Demand Modification"
- Pg. 9: need to reconcile difference among TDSP / UDC / UDO
- Pg. 10: Definition of CPP is incorrect. Recommend the following change: "...at which time electric prices ~~may reflect the costs of electricity at the wholesale level~~ **are administratively adjusted to incentivize customers to actively modify their electricity usage.**"
- Pg. 10: Definition of PTR. Recommend the following change: "An incentive rate in which the utility pays **a rebate to** Customers ~~to~~ **who** reduced demand during peak periods on critical days."

PAP-04

- Pg 9: Replace "reducing" with "modifying"

PAP-09 Retail

ISO/RTO Council Comments

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- Pg 15: REQ.14.3.2.3: Use Case Overview - End-to-end business process flow should be consistent with Wholesale DR Signals document
- Pgs 17, 37, 45, 53, 58: Eliminate specific references to wholesale markets
- Pg 17: change “interruption” to “modification” (2x places)
- Pg. 30: Definition for Maximum Duration. Change “The maximum amount of time the asset/resource is capable of delivering power (megawatts) **modifying its electricity usage**”.
- Pg 30: the Parent-Resource ID concept needs to be reconciled with the terminology and hierarchical structure of resources used in the wholesale document.
- Pg 31: the Source-Authentication concept needs to be reconciled with the approach to security used in the wholesale document
- Ph 37: revise text as follows “The Bidder may be a Customer bidding with either an energy retailer (e.g., LSE, ESP), a Service Provider (e.g., CSP, DRP), or a power marketer (i.e., wholesale market participant). The Bidder may also be a Service Provider bidding up to a LSE or power marketer.”
- Pg 38: recommend proper use of bids and offers, i.e. bids are to buy and offers are to sell
- Pg 44 & 53: replace “shed” with “modify” (2x place)
- Pg 45: the concept of a “number signifying the reliability of the grid” has no basis in any reliability standards with which the IRC members are acquainted
- Pg 55: replace “de-energize” with “modification”
- Pg 58 – DR Execution – Retail Time Pricing (RTP): Replace this section with the following text: “Provide real-time or dynamic pricing (RTP) to retail customers so that customers can vary their demand based on pricing signals. RTP represents retail electricity rates that vary as a function of time.”

PAP-09 Wholesale

- Pg. 9 – unresolved reference should be fixed

FORMAL COMMENTS

Quadrant: Wholesale Electric Quadrant

Recommendations: WEQ 2010 AP Item 6 (a) / REQ Annual Plan Item 9(a); Requirements Specification for Common Electricity Product and Pricing Definition – for NIST PAP03,
WEQ 2010 AP Item 6 (b) / REQ Annual Plan Item 9(b); Requirements Specification for Common Scheduling Mechanism for Energy Transactions – for NIST PAP04, and
WEQ 2010 AP Item 6 (c); Requirements Specifications for Wholesale Standard DR Signals – for NIST PAP09

Submitted By: Midwest ISO

Date: April 14, 2010

General Comments:

- Midwest ISO is concerned with the next steps for the PAPs once they are approved by the Executive Committee and ratified by the membership. The documents in many cases are intended only to provide examples and as such were not intended to be an all inclusive set of standards. In many cases the examples are not consistent with how some entities operate their markets. We will provide more detail as to where there are differences between the Midwest ISO market and the examples. At a minimum the documents should have some statement explaining that the examples included are not to be considered the full set of examples and that some markets may have implementations that are inconsistent with the examples and sample scenarios provided since the examples were not intended to provide an exhaustive set of standards. Without having this type of clarifying language on the examples, samples, etc., these standards may inadvertently dictate how the markets can operate in the future and as well as impact existing market designs.

PAP 3

- Page 10 – Definition for Market Clearing Price for Energy should be inclusive of 5 minutes...it says 15.
- Page 10 – Midwest ISO is concerned that the examples of common tariff rate types may lock entities into having to support all the tariff rate types listed and/or prevent them from creating any new tariff rate types without having the NAESB business practice standards changed.
- Page 14 – The recommendation makes the assumption that wind is dispatchable which is not the case.
- Page 15 – The sample scenario makes an invalid assumption that wind always commands a premium over coal because with rebates it may not be in the Midwest ISO market.
- Page 15 – The sample scenario makes an invalid assumption that Consumers must buy carbon credits, which is not the case in the Midwest ISO market.
- Page 18 – Pricing Attributes...does it include ancillary service prices?
- Page 19 – GMT is used within the Midwest ISO, with an offset.
- Pages 18-19 – Midwest ISO is concerned that the pricing attributes included in the list do not have any explanation as to whether the attributes are required or optional. Additionally, we would expect that this section be driven out during Phase 2. Midwest ISO would recommend this section be removed from the recommendation and be a part of the Phase 2 Recommendation.

Comments Submitted by E. Skiba, Midwest ISO

- Pages 20-21 – Midwest ISO is concerned that it does not offer a number of the provision listed in the Product Types and Sub-types. For example, following types/sub-types are not included in the Midwest ISO market: Load Following and Reactive Power Supply From Generation Sources.

PAP 4

- Page 3 – Issue with definition of Facility: reads like elemental node for calculating price instead of a aggregated commercial pricing node
- Page 8 – The intent is table unclear since it is “an incomplete, but representative set of instances.”
- Page 16 – Entity Relationship Model – Midwest ISO has concern with the following not being connected: Resource and Facility, Zone and Facility, and Resource and P-node.

PAP 9

- Page 10 – Use Case description – Midwest ISO does not distinguish Energy between Economic and Reliability.
- Page 19 – (Visio diagram) Midwest ISO is concerned whether this is a commitment process or a dispatch process. The Reliability Assessment commitment process will notify demand response of the commitment at the commercial pricing node level. The notification goes to the demand response participant and local balancing authority.
- Page 16 – (Visio diagram)...Can we follow both paths out of the Product decision? It appears that they are exclusive, which is not the case within the Midwest ISO market.
- Page 21 – (Visio diagram)...On this diagram it appears that the processes support sending multiple data streams and does not support the capability for providing a single combined setpoint. Midwest ISO market utilizes a combined setpoint approach. Midwest ISO combines into a single setpoint: energy, spin, etc. into one message, since we run a co-optimized market. Since regulation is added to base (set point) we can have something like 3 products using one message/signal. Would Midwest ISO have to use separate notifications rather than a combined setpoint?
- Page 24 – Since we are the Designated Dispatch Entity and System Operator we have concerns with the feasibility of the Entity Diagram and Business Process. The “green arrows” are defined in or out of the System Operator (SO) swim lane. This could be an issue since Midwest ISO needs to balance its footprint in 4 seconds for ACE, which currently imposes the use of ICCP. There is a general concern with the implementation if we were required to use XML and not able to use Inter-Control Center Communications Protocol (ICCP).

FORMAL COMMENTS

Quadrant: Wholesale Electric Quadrant

Recommendation: WEQ 2010 AP Item 6 (b) / REQ Annual Plan Item 9(b); Requirements Specification for Common Scheduling Mechanism for Energy Transactions – for NIST PAP04

Submitted By: Standards Review Subcommittee

Date: April 2, 2010

Under the Standards Review Subcommittee (SRS) Scope of Work, which was approved by the SRS on March 6, 2008, the SRS agreed to review recommendations and if subcommittee deemed appropriate, they would submit advisory comments to the Executive Committee (EC) for consideration. As stated in the Scope of Work these comments are “not intended to change the scope of the Business Practices or recommendation, but to provide consistency and uniformity across all WEQ Business Practices.”

It is the SRS understanding that the recommendation will be included as standards in the WEQ Business Practice Standards and will be filed with the Federal Energy Regulatory Commission (FERC). Therefore the SRS would like to point out inconsistencies between this recommendation and existing standards as well as a number of concerns specific to the recommendation itself.

It is also the SRS understanding that these comments may be reviewed by the Smart Grid Task Force. The task force may review these comments, suggest modifications to the recommendation, and submit late comments for Executive Committee consideration.

WEQ-000

The terms and definitions do not seem to take into account existing definitions of terms and FERC Order 676-C which requested that NAESB resolve differences within its standards and differences between NERC and NAESB Standards. Below are examples that illustrate inconsistencies with the definitions for the same term.

Facility - *NERC Definition* - A set of electrical equipment that operates as a single Bulk Electric System Element (e.g., a line, a generator, a shunt compensator, transformer, etc.)

Recommendation Definition – The location at which connection to the transmission or distribution system is made.

Load Serving Entity - *Glossary Definition* The responsible entity that secures energy and Transmission Service (and related Interconnection Operations Services) to serve the electrical demand and energy requirements of its end-use customer.

Recommendation Definition – A role which carries the responsibility of serving end-users and selling electric energy to end-users.

System Operator - *Demand Response Final Action* – A System Operator is a Balancing Authority, Transmission Operator, or Reliability Coordinator, whose responsibility is to monitor and control an electric system in real time (based on NERC definition). The System Operator is responsible for initiating Advance Notifications, Deployment and Release/Recall Instructions.

Recommendation Definition – An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.

Within Definitions of terms there are capitalized terms which are not defined. These include:

- Federal
- Awards
- Schedules

WEQ-016

- **General**

- o There are terms which are capitalized which are not defined in the WEQ Business Practice Standards such as “Demand Response Programs”, “Program Administrator”, “Market Closing”, “Absolute Interval”, Absolute Duration and “Minimum Run Time”.

- o There are acronyms which are not defined such as “XML”, “IETF”, and “DER.”

- **Executive Summary** – This recommendation along with the recommendations for PAP03 Requirements Specifications for Common Electricity Product and Pricing Definition and PAP09 Requirements Specifications for Wholesale Standard DR Signals each contain an Executive Summary listed under the “Recommended Standards” section of the recommendation. Based on the standards numbering it appears that all three recommendations will be included in a new set of standards, WEQ-016.

- o First, we question whether WEQ-016 should have an Executive Summary. The only Business Practice Standards that have an executive summary is WEQ-014 (WEQ/WGQ eTariff Related Standards). The WEQ-014 standards were approved prior to the SRS review of recommendations. (If the SRS had been reviewing standards at that time, we may have questioned having an Executive Summary in WEQ-014.)

- o Second, the Executive Summaries in the three recommendations though similar are not identical. With the differences in the Executive Summaries and all three recommendations being included in WEQ-016 it is unclear how a single set of business practices can have three Executive Summaries.

If the EC decides to move forward with including an Executive Summary, the SRS recommends that all capitalized terms and acronyms be included in WEQ-000.

An option the Smart Grid Task Force may want to consider is to create a separate Business Practice Standard for each PAP recommendation rather than combining them into a single recommendation.

The SRS understands that for this document OASIS is referencing the “Organization for the Advancement of Structured Information Standards.” In the current WEQ Business Practices Standards when OASIS is mentioned it refers to the “Open Access Same-Time Information System.” The task force may want to add some clarifying language so that others reading the recommendation understand that OASIS in this context refers to the organization not the system.

- **Introduction** – The SRS questions whether it is appropriate to include an “Assumptions” section in the WEQ Business Practice Standards.

Assumptions:

- We assume as given that common semantics for communicating schedule, interval, and sequence will enhance interoperation between domains and between business entities.

The task force may want to consider re-naming this section to “Considerations” and place in an Appendix to the Business Practice Standards or move to Section 4.d of the recommendation form, “Commentary/Rationale of Subcommittee(s)/Task Force(s).”

- **Section WEQ-016-1.1 through WEQ-016-1.1.1** – The standards do not have any text associated with WEQ-016-1 or WEQ-016.1.1. Other than section WEQ-016-1.1.1, there are no additional subsections that contain text. Unless the task force plans to add additional subsections under and WEQ-016.1.1, they may want to consider moving WEQ-016-1.1.1 to WEQ-016.1.1.

Note: the Standards Review Subcommittee is also suggesting that Sections WEQ-016-1.2 through WEQ-016-1.2.1 be deleted. (See Below.) If this happens then WEQ-016-1.1.1 could potentially be moved to WEQ-016-1.

- **Section WEQ-16.1.1.1** – The term Demand Response Programs is not consistent with how it is formatted sometimes it is “Demand Response Programs” and in one instance it is “Demand Response program”. The term needs to be consistently formatted and also defined.

The SRS suggests that the incomplete but representative set of instances found in this section be moved to an Appendix. For the WEQ Business Practice Standards, examples are included in appendices rather than in the main body of the WEQ Business Practice Standards. Also, there are a number of capitalized terms which do not have definitions. The SRS suggest to either lower case or provide definitions.

- **Section WEQ-016-1.2 through WEQ-016-1.2.1** – The Standards Review Subcommittee recommends these sections be deleted. All of the terms listed here were defined in the Business Practices for Measurement and Verification Wholesale Electricity Demand Response Business Practice Standards Final Action. The WEQ Executive Committee made a decision to move to a common glossary so that terms are defined in one place WEQ-000.

Additionally the SRS has noticed inconsistencies between the descriptions listed here and the definitions included in the Business Practices for Measurement and Verification Wholesale Electricity Demand Response Business Practice Standards Final Action. If the task force is intending to change the definitions for terms they should show the redlines to the approved definitions. Below are terms that do not match what is approved in the WEQ Business Practices, which have been filed with the Federal Energy Regulatory Commission:

- o Baseline Window (missing sentence)
- o Demand Repsonse Event (changed System Operator to Program Administrator and Program Administrator is an undefined term)
- o Meter Data Reporting Deadline (definition has been modified slightly)
- o Normal Operations (changed System Operator to Program Administrator)
- o Performance Window (changed System Operator to Program Administrator)
- o Release/Recall (changed System Operator to Program Administrator)
- o Telemetry Interval (changed System Operator to Program Administrator)
- **Appendix A** – The Standards Review Subcommittee suggests the Abbreviations and Acronyms be deleted from the appendix and only listed in WEQ-000. See comments under “Section WEQ-016-1.2 through WEQ-016-1.2.1” for additional rationale on the SRS suggestion.

The Figure 1 in the appendix has no explanation as to what it is and why it is included in the recommendation. The Standards Review Subcommittee suggest that additional language be included so that users of the NAESB WEQ Business Practice Standards understand what is an Entity Relationship Model and what is important to know with this specific Entity Relationship Model.

**Bonneville Power Administration
On
PAPs 03, 04 & 09**

Please consider the following recommended changes:

PAP03

1. Move section 000-1 Abbreviation and Acronyms from 2 and add under new section 16-A Appendix A – Entity-Relationship Model on page 21. This should be consistent with PAP04 and PAP09. In addition:
 - a. Add “DR for Demand Response” to the Abbreviation and Acronyms.
 - b. Add “DER for Distributed Energy Resources” to the Abbreviation and Acronyms.
2. Move section 000-2, (Definition of Terms) from 3-5 and add under new section 16-A Appendix A – Entity-Relationship Model after Abbreviation and Acronyms. This should be consistent with PAP04 and PAP09.
3. Could the first five paragraphs be moved from Introduction to Executive Summary?
4. Add Values to the heading 016-3.7, “Supplemental Material Values”.
5. Spell out HAN and C&I, or include in Acronyms or Glossary.
6. Page 7 Reset the numerical system from 016-3 to 016-1 under the heading Business Practice Standards starting on page 7. This should be consistent with PAP04.
7. Page 7 (Actors) The format for the list of Actors, on page 7, appears different from the list in PAP09. Should we expect the heading and format for the actors list to be consistent between PAPs
8. Page 7 (Utility Customer) under proposed definition, should read:
“An end-use customer of the Utility Distribution Operator that may be enabled to take on roles such as Facility or Resource.”
9. Page 7 (Communication Method) under the Proposed Definition please include the word “report” in the list.
10. Page 7 (End Device) Does definition include back-up generators? What about batteries? Batteries will not always be located at the end of the line off the secondary system. Many now are used at the substation level.
11. Page 7 (Facility) Will the definition work for aggregated DR? In the case of aggregated residential DR do we therefore have thousands of facilities, or a single aggregated facility? What then is the location? Nodal? If nodal does that mean that program offerings are broken out by nodal and therefore dispatchable by node? What granularity node?
12. Page 8 (System Operator) The definition used seems to encompass both system operator and program administrator. The committee needs to keep in mind that the system operator is not the one who will dispatch the resource. He/she will

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make the order to dispatch the resource but control to dispatch the resource is another person or persons who may be different again from the program administrator who would again be a separate person with a very different job.

13. Page 10 (Tariff Rate Type) Regarding Hourly Rates. Currently the CAISO allows DR resources to operate in the Hour Ahead Scheduling Process (HASP) which is an hourly scheduled market.
14. Page 10 (Tariff Rate Type) Mostly customers are price responsive or other such as emergency or environmental. It may be a mistake to try to address all the possibilities. However most DR resources in California are not market price responsive they are programmatically price responsive. Which is one stage removed from market prices. Whereby the wholesale market may create the environment where the resource may be triggered but the customer is responding to a programmatic trigger set by contract or their participation in a program offer not the market price. Such customers receive set capacity and energy prices for their participation in the program.
15. Page 13 (Demand Load Shifting: Sample Scenarios) This should read: 'Illustrate how different End Devices will respond to a forward energy price signal including, but not limited to:'
16. Page 14 (Demand Reduction; Description) While not all resources will respond to a price signal, they will respond to "signals". Use of the word price is restrictive and therefore requires additional work to define how the different signals function. BPA suggests that the term "signals" is used, regarding what customers respond to.
17. Page 15 "Wind Power always commands a premium over coal power because of higher cost of production." This statement may not always be true, and may not be true in the future, so it appears biased. Suggest rephrasing.
18. Typo on p 17, in 016-3.6.1 (Product Identification) under Identifier source, under Considerations, 2nd sentence: The Identifier source reference the product.... Probably should read: The Identifier source references the product....
19. Page 20, 016-3.7.1, (Product Types and Sub Type Enumerations) under Contingency Reserve, in the description, NERC groups are currently called Regional Reliability Organizations vs. Councils. Please confirm with NERC.
20. Page 20 (Product Types and Sub Type Enumerations) Voltage support resources. While Reactive Posr is a type of voltage support there are other ways to provide voltage support which can be dispatchable to support voltage stability, whether they are batteries or line or substation regulators. Again, all of which are dispatchable. Lower the voltage by 1% and you get a 0.8 percent energy savings. This is a form of DR not apparently contemplated in the NAESB PAPs thus far.

PAP04

1. Delete section 000-1 (Abbreviation and Acronyms) from page 2. It is duplicated in section 16-A Appendix A – Entity-Relationship Model on page 12. As stated for PAP03, please:

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- a. Add “DR for Demand Response” to the Abbreviation and Acronyms.
 - b. Add “DER for Distributed Energy Resources” to the Abbreviation and Acronyms.
2. Delete section 000-2 (Definition of Terms) from pages 3-5. It is duplicated in section 16-A Appendix A – Entity-Relationship Model on page 13. In addition:
 - Should there be a list of Actor in this document similar to PAP03 and PAP09?
 - Should there be a section on Conventions in the document similar to PAP03?
3. Page 6, fourth paragraph, line 2: What does distribution mean in this context? This sentence is unclear. Next sentence: please remove “concerning those transactions.’ This is either a redundant statement or a misplaced object.
4. Page 9, first paragraph, second sentence, BPA suggests the following change. Replace existing text with underlined text below:
“Although some instances may be known by other names...”
5. Page 9: (Baseline Window) suggest augmenting language with capitalized text -
"The window of time preceding and optionally following, a Demand Response Event over which electricity consumption and OUTSIDE AIR TEMPERATURE DATA are collected for the purpose of establishing a Baseline."
6. Page 9 (Adjustment Window) A baseline will not be calculated in an adjustment window but will be adjusted or modified in an adjustment window. See practice of the morning of adjustment. See also ambient air temp as a factor contributing to morning of adjustment.
7. Page 9 (Demand Response Event) Program Administrator is not always the dispatcher. A DR event is different than a DR program and it controlling contractual parameters.
8. Page 9 (Deployment) Deployment connotes a build-out traditionally associated with the creation of a DR resource through the roll-out of a programmatic offer. suggest use of the term “dispatch” instead.
9. Page 10 (Deployment Period) The term “Deployment” may be confusing to some in the industry. Here we are talking about resource operation and delivery. This could be fixed in the definition, by explaining what is being deployed.
10. Page 10 (Meter Data Reporting Deadline) This definition is necessary but we also need to define how, in some instances, real-time consumption data is used to verify, in real-time, resource compliance with dispatch instruction.
11. Page 10 (Performance Window) Please clarify which Program Administrator this term applies to: market or utility?
12. Page 10 (Recovery Period) “Required” is too heavy a word. You are simply releasing the resource from its DR obligations. You are not requiring any other types of subsequent action. You don’t have the power or the right.

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13. Page 10 (Reduction Deadline) DR will not always be a reduction. Ramp up period will also be a type of demand response. DR does not equal demand reduction.
14. Page 11 (Telemetry Interval) "Program Administrator, BPA suggests using a different term or clarify the term and add it to the Glossary.
15. Page 16, Figure 1 is inadequate alone; BPA suggests adding some supporting text including what the figure is intended to convey.

PAP09

1. Delete section 000-1 (Abbreviation and Acronyms) from page 2. It is duplicated in section 16-A Appendix A – Entity-Relationship Model on page 29. In addition:
 - a. Add "DR for Demand Response" to the Abbreviation and Acronyms.
 - b. Add "DER for Distributed Energy Resources" to the Abbreviation and Acronyms.
2. Delete section 000-2 (Definition of Terms) from page 3-5. It is duplicated in section 16-A Appendix A – Entity-Relationship Model on page 30.
3. Could the first three paragraphs be moved from Introduction to Executive Summary?
4. Reset the numerical system from 016-2 to 016-1 under the Business Practice Standards starting on page 8. This should be consistent with PAP04.
5. The format for the list of Actors, on page 9, appears different from the list in PAP03. Should we expect the heading and format for the actors list to be consistent between PAPs?
6. Should there be a section on Conventions in the document similar to PAP03?
7. In Page 9, 016-2.2 (Wholesale Entity Relationship Model) the text "Error! Reference source not found", should be removed. This could simply be a text conversion issue.
8. In Page 9 (System Operator) Here again there is more than one entity in this process. BPA recommends checking with NERC on the definition of this entity.
9. In Page 36, 4.c. (Business Purpose) looks like a cut and paste from PAP04. Not sure a cut and paste was the intent.
10. Page 14 (Wholesale) Figure 2 needs context and supporting text, and the legend needs to match the info in the figure/map.

Comments on NAESB Smart Grid Standards Covering Priority Action Plans 03, 04, and 09

Filed by Tennessee Valley Authority

Pap 03 – Common Electricity Product and Pricing Definition

Terms and definitions found within this standard should match NERC/NAESB glossaries approved by the FERC. Definitions such as Load Serving Entity, System Operator, and others need to match for industry-wide consistency.

Section WEQ-016.3.7 – 3.7.1 – Sections contain terms that are not defined and need to have definitions; such terms include: Operating Authority, Maneuverability, Contingency Reserve-Spinning, and Contingency Reserve-Supplemental.

TVA would like to know if the definition of Facility will work for aggregated Demand Response.

Actors should be consistent with those found in PAP-09.

Pap 04 – Specifications for Common Scheduling Mechanism for Energy Transactions

Terms and definitions found within this standard should match NERC/NAESB glossaries approved by the FERC. Definitions such as Load Serving Entity and Facility need to match for industry-wide consistency.

Section WEQ-016 – Sections contain terms that are defined and need to have definitions; such terms include: Demand Response Programs, Program Administrator, Market Closing, Absolute Interval, Absolute Duration, and Minimum Run Time. In addition, there are several acronyms that have not been defined (SML, IETF, and DER).

Please note that the Program Administrator may not always be the dispatcher.

Do standard definitions for Response Method Aggregation, Resource, Scheduling Entity, and Service Provider exist in other approved standards? If so, we believe these should be changed to reflect those.

What is meant by a Demand Response Event? TVA's definition of a DR event is related to something that is controlled by either the utility or the customer (a planned event). The other two levels TVA deals with are a "steady state" and an automatic demand response state. TVA suggests that sub-definitions for the term Demand Response Event may be appropriate in order to more succinctly define them as either load or market events.

Comments Submitted by K. York, TVA

Pap 09 – Specifications for Wholesale Standard DR Signals

Terms and definitions found within this standard should match NERC/NAESB glossaries approved by the FERC. Definitions such as Load Serving Entity and Facility need to match for industry-wide consistency.

Also, many sections have terms that have not been defined, such as Demand Resource Object, Federal, Awards, System Operator, and Schedules which need to have definitions.

The term Distributed Energy Resources and Inoperability should be defined in the Glossary.

Actors should be consistent with those found in PAP-03.

Does Scheduling Entity represent an Aggregator?

General Comments:

In general, TVA believes that the Smart Grid effort should use as many existing approved communication protocols and industry standards as possible as a launching pad for the development of future standards. An example would be starting with FERC, NERC, and the nine Regional Reliability Organizations-approved naming conventions as well as existing “common” communication protocols (examples: Distributed Network Protocols and IEC 61850) that can appropriately integrated.

In addition, TVA would like to know if any thought has been given to how traditional transmission products would hamper or help the Smart Grid effort. What kind of transmission constraints would the Smart Grid effort encounter once operational?

Overall, TVA commends NAESB for these recommendations and believes the standards provide a workable framework for producing the granularity needed to integrate Smart Grid efforts into the business model.

Honeywell Automation and Control Solutions
1985 Douglas Drive
Golden Valley, MN 55422

April 9, 2010

Mr. Jonathan Booe
Smart Grid Task Force
North American Energy Standards Board
801 Travis Street, Suite 1675
Houston, Texas 77002

Dear Mr. Booe,

This letter is offered in response to your March 9, 2010 request for formal comments to the NAESB Smart Grid requirements relating to NIST PAPs 3, 4 and 9.

Honeywell energy management technologies are found in more than 150 million homes, five million buildings, 24 of the top 25 refineries, and nearly 5,000 industrial sites around the world. By applying our expertise in sensing and controls, we are creating energy efficient, more comfortable, safer, more secure, and productive environments for our customers. We stand ready to work together with utilities and customers to build and implement the Smart Grid.

Honeywell sees great value in the NAESB SGTF effort to describe and publish requirements for electricity product definition, pricing, scheduling and demand response signals. This important work is a key driver in the process of developing and deploying the national standards required to implement the Smart Grid.

Honeywell has reviewed your documents and offers minor comments/edits for all the documents that fall into four categories.

- 1) Representation of all 3 customer domains (Residential, Commercial, and Industrial) should be included and explicitly stated when not applicable to all three.
- 2) Listings of specific standards setting organizations should not preclude others from participating.
- 3) The use cases and examples should include, when appropriate, in-premises energy management systems in residential, commercial and industrial customer domains.
- 4) Grammatical corrections.

We have attached all 3 documents with tracked changes to indicate recommended specific edits.

We look forward to utilizing these use cases/requirements to continue our dialog with NAESB and other standards setting organizations.

Sincerely,



Steve Gabel
Principal Development Engineer
Honeywell ACS Laboratories
steve.gabel@honeywell.com
763-954-6512



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

For Quadrant: Wholesale Electric Quadrant (WEQ) and Retail Electric Quadrant (REQ)
Requesters: NAESB Smart Grid Task Force (SGTF)
Request No.: 2010 WEQ Annual Plan Item 6(b) / 2010 Retail Annual Plan Item 9(b)
Request Title: Requirements Specifications for Common Scheduling Mechanism for Energy Transactions – for NIST PAP04

1. RECOMMENDED ACTION:

☒ Accept as requested
☐ Accept as modified below
☐ Decline

EFFECT OF EC VOTE TO ACCEPT RECOMMENDED ACTION:

☒ Change to Existing Practice
☐ Status Quo

2. TYPE OF DEVELOPMENT/MAINTENANCE

Per Request:

☒ Initiation
☐ Modification
☐ Interpretation
☐ Withdrawal

☒ Principle
☒ Definition
☒ Business Practice Standard Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

Per Recommendation:

☒ Initiation
☐ Modification
☐ Interpretation
☐ Withdrawal

☒ Principle
☒ Definition
☒ Business Practice Standard Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

3. RECOMMENDATION

SUMMARY:

The NAESB Smart Grid Task Force (SGTF) submits this Recommendation to define the range of information required to establish the breadth of the communication requirement. There is no need for the cases to be exhaustive, merely illustrative of the full scope.



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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Request Title: Requirements Specifications for Common Scheduling Mechanism for Energy Transactions – for NIST PAP04

New WEQ-016 Abbreviations/Acronyms and Defined Terms to be added to WEQ-000

(NOTE: NAESB Retail numbering convention will replace WEQ numbering convention in NAESB Retail publication)

000-1 ABBREVIATIONS AND ACRONYMS

Abbreviation / Acronym	Meaning
<u>DDE</u>	<u>Designated Dispatch Entity</u>
<u>EA</u>	<u>Environmental Authority</u>
<u>ED</u>	<u>End Device</u>
EMS	Energy Management System
<u>FR</u>	<u>Federal Regulator</u>
<u>LA</u>	<u>Local Authority</u>
<u>LSE</u>	<u>Load Serving Entity</u>
<u>MA</u>	<u>Metering Authority</u>
<u>MP</u>	<u>Market Participant</u>
<u>RA</u>	<u>Reliability Authority</u>
<u>RM</u>	<u>Response Method</u>
<u>RMA</u>	<u>Response Method Aggregation</u>
<u>SE</u>	<u>Scheduling Entity</u>
<u>SO</u>	<u>System Operator</u>
<u>SP</u>	<u>Service Provider</u>
<u>SR</u>	<u>State Regulator</u>
<u>TDSP</u>	<u>Transmission/Distribution Service Provider</u>
<u>UC</u>	<u>Utility Customer</u>
<u>UDO</u>	<u>Utility Distribution Operator</u>



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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000-2 DEFINITION OF TERMS

Term	Definition
<u>Business Entity</u>	<u>The wholesale or retail entity that interacts with other entities in its market.</u>
<u>Communication Method</u>	<u>The method by which an object communicates with another object to instruct, measure or control.</u>
<u>Control</u>	<u>The role associated with the control of an End Device.</u>
<u>Demand Response Objects</u>	<u>Physical and logical types of demand response resource objects.</u>
<u>Designated Dispatch Entity</u>	<u>A role which carries the responsibility of receiving and processing demand resource dispatch instructions or market information and (optionally) providing response information.</u>
<u>End Device</u>	<u>A physical end-use device that consumes or supplies electricity.</u>
<u>Environmental Authority</u>	<u>A regulatory authority responsible for the development, reporting and enforcement of environmental activities.</u>
<u>Facility</u>	<u>The location at which connection to the transmission or distribution system is made.</u>
<u>Federal Regulator</u>	<u>A Federal regulatory authority.</u>
<u>Load Serving Entity</u>	<u>A role which carries the responsibility of serving end-users and selling electric energy to end-users.</u>
<u>Local Authority</u>	<u>A regulatory authority responsible for the oversight and administration of utility service-related functions within its jurisdiction.</u>
<u>Market Enrollment</u>	<u>The collection of enrollment or tariff data for a Demand Resource Object to provide a specific market product or service.</u>
<u>Market Participant</u>	<u>An organization registered with the System Operator that may take on roles such as SP, LSE, TDSP, DDE, SE, and/or MA in accordance with the System Operator's market rules.</u>



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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Requesters: NAESB Smart Grid Task Force (SGTF)
Request No.: 2010 WEQ Annual Plan Item 6(b) / 2010 Retail Annual Plan Item 9(b)
Request Title: Requirements Specifications for Common Scheduling Mechanism for Energy Transactions – for NIST PAP04

Term	Definition
<u>Measurement</u>	<u>The role associated with the device or algorithm that measures the consumption or supply of an End Device.</u>
<u>Metering Authority</u>	<u>A role which carries the responsibility of providing data necessary to determine the performance of a Resource.</u>
<u>P-Node</u>	<u>The price location of the Facility in the transmission and/or distribution network.</u>
<u>Participant</u>	<u>The entity that represents resources to a market or distribution operator.</u>
<u>Regulator</u>	<u>A rule-making and enforcement entity.</u>
<u>Reliability Authority</u>	<u>A regulatory authority responsible for the development, reporting and enforcement of electric reliability-related activities.</u>
<u>Response Method</u>	<u>A measurable action taken in response to an instruction to change consumption.</u>
<u>Response Method Aggregation</u>	<u>A logical entity that has a reportable interval level consumption, e.g. a site may also be a physical entity that may have its own meter, a neighborhood of homes that has a net meter, or an estimate of consumption of an aggregation of retail customers.</u>
<u>Resource</u>	<u>A market-dependent group of Response Method Aggregations that represents a dispatchable entity.</u>
<u>Scheduling Entity</u>	<u>A role which carries the responsibility of submitting bids/offers and receives Schedules and Awards.</u>
<u>Service Provider</u>	<u>A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.</u>
<u>State Regulator</u>	<u>A regulatory authority responsible for the oversight and administration of electric utilities.</u>
<u>Supporting Objects</u>	<u>Objects that support the interaction of Business Entities and Demand Response Objects.</u>



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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Request No.: 2010 WEQ Annual Plan Item 6(b) / 2010 Retail Annual Plan Item 9(b)
Request Title: Requirements Specifications for Common Scheduling Mechanism for Energy Transactions – for NIST PAP04

Term	Definition
<u>System Operator</u>	<u>An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.</u>
<u>Transmission/Distribution Service Provider</u>	<u>A role which carries the responsibility of operating a local electricity transmission and/or distribution system.</u>
<u>Utility Customer</u>	<u>An end-use customer of the Utility Distribution Operator that takes on roles such as Facility or Resource.</u>
<u>Utility Distribution Operator</u>	<u>An entity which carries the responsibility of operating an electricity distribution system.</u>
<u>Zone</u>	<u>A physical or electrical region.</u>

New Business Practice Standards WEQ-016 – Smart Grid Activities

(NOTE: NAESB Retail numbering convention will replace WEQ numbering convention in NAESB Retail publication)

RECOMMENDED STANDARDS:

Executive Summary

Requirements Specification for Common Scheduling Mechanism for Energy Transactions

The following contains a set of requirements relating to the use of date and time based data elements that are used in transactions for Demand Response Programs. This information is being provided to NIST in order to aid in the development of a standard representation for date/time based data elements derived from an XML representation of iCalendar¹.

Although there are many other areas where date/time based data elements are used in energy industry transactions this recommendation is limited in scope to only those date/time based data elements that are utilized in Demand Response Programs.

Introduction

¹ <http://tools.ietf.org/html/rfc5545>



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Requirements Specification for Common Scheduling Mechanism for Energy Transactions

Smart grid interfaces must communicate between domains, that is between different business and consumer entities with different values and approaches (ontologies). Such interfaces must be simplified to bare essentials, and be understandable by parties with different backgrounds and expectations.

To achieve cross-domain understandability, and thereby enhance interoperation, smart grid transactions must use semantic models from different areas developed by different standards groups. Each of these vocabularies is most fully defined in one area. We have agreed, within the NIST process, to use the vocabularies from the appropriate domain experts to compose the message that flow between domains on the smart grid.

In the following, we defined transactions as grid events that occur between domains, or whose effects and outcomes must be communicated between domains. This activity makes no assertions about any other events.

Smart grid transactions communicate three classes of information. They describe events used within the power management and distribution of the grid. They invoke financial or business transactions concerning those transactions. They communicate schedules and interval information for the flows of energy. Per agreement, all semantics relating to Power Management will use the Common Information Model (CIM) from IEC TC57. All financial and market semantics will be based upon the definitions found in ISO 20022 (Financial Documents) and in their most common expression, FIX. All elements relating to schedule and interval will be expressed in the notation of the IETF iCalendar (RFC 5545) standard, as defined in the XML representation of iCalendar developed by CalConnect. The purpose of this approach is to increase interoperation and understanding between domains.

The group primarily associated with the development of interoperable enterprise date, time, and interval standards for the IETF is the Calendaring and Scheduling Consortium (CalConnect). CalConnect and OASIS will work together to define the common communication of date time and interval to meet the needs of smart grid transaction communications as well as for building systems integration, enterprise interaction, and financial transactions. This commonality is anticipated to reduce barriers to interoperation and thereby to expand participation in DR and DER.

The purpose of this action is to define the requirements for standard communication of date, time, schedule, and interval by smart grid actors, with particular attention to demand response (DR). These requirements will be submitted to the OASIS and CalConnect technical committee to define the applicable communication standards to support them.

Scope: The scope of the following is to define the range of information required to establish the breadth of the communication requirement. There is no need for the cases to be exhaustive, merely illustrative of the full scope.



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Assumptions: We assume as given that common semantics for communicating schedule, interval, and sequence will enhance interoperation between domains and between business entities.

Business Practice Standards

016-1 REQUIREMENTS SPECIFICATION FOR COMMON SCHEDULING MECHANISM FOR ENERGY TRANSACTIONS

016-1.1 USE CASE OVERVIEW

016-1.1.1 Requirements for Date and Time Usage

Demand Response Programs employ a combination of absolute dates/times, absolute periods (range) of dates/times, relative dates/times, recurring dates/times, absolute intervals and absolute durations in order to communicate temporal information pertaining to demand response transactions. Demand Response Programs must also accommodate time zone variations, leap years, leap seconds, and the use of daylight savings time. Any calendaring/scheduling standard that is applicable to Demand Response programs must be capable of supporting this range of requirements.

An incomplete, but representative, set of instances is provided below. The sample data included are non-normative representations; they are included to clarify the expectation of information that will be in the standard.

<u>Type of Representation</u>	<u>Representative Instance</u>	<u>Sample Data</u>
<u>Absolute date/time</u>	<u>Effective start date</u>	<u>2009-11-01</u>
	<u>Effective start date and time</u>	<u>2009-11-01T01:00:00-Z</u>
<u>Absolute Periods (range)</u>	<u>Deployment Period</u>	<u>2009-11-01T01:00:00-Z/ 2009-11-02T24:00:00-Z</u>
<u>Relative date/time (time-point)</u>	<u>Reduction Deadline</u>	<u>30 minutes from a specified point in time</u>
<u>Recurring date/time</u>	<u>Market Closing</u>	<u>Every day at 12:00 noon</u>



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<u>Type of Representation</u>	<u>Representative Instance</u>	<u>Sample Data</u>
<u>Absolute Interval</u>	<u>Meter Data Recording Interval</u>	<u>Every 5 minutes</u>
	<u>System Frequency</u>	<u>60 cycles per second</u>
<u>Absolute Duration</u>	<u>Outage Duration</u>	<u>2 days</u>
	<u>Minimum Run Time</u>	<u>4 hours</u>

It is an additional requirement that all schedule and interval communications be able to express the precision required in the response. For example, an actor may be required to perform within five minutes, or within five milliseconds of the agreed upon time.



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016-1.2 SPECIFIC USE CASES

016-1.2.1 Date and Time Based Data Elements Utilized in Demand Response Programs

The representative instances named in the table below are representative of those used in smart grid transactions. Although some instances may have been seen under other names in different markets, standardizing those names is beyond the scope of this activity, which is limited to standardizing communication of date, time, schedule, and interval. These instances are sufficiently diverse to define the range of communications that the standard must support.

<u>Representative Instances</u>	<u>Description</u>
<u>Adjustment Window</u>	<u>The period prior to a Demand Response Event used for calculating a Baseline Adjustment.</u>
<u>Advance Notification</u>	<u>One or more communications to Demand Resources of an impending Demand Response Event transmitted in advance of the actual event.</u>
<u>Baseline Window</u>	<u>The window of time preceding and optionally following, a Demand Response Event over which electricity consumption data is collected for the purpose of establishing a Baseline.</u>
<u>Demand Response Event</u>	<u>The periods, deadlines, and transitions during which Demand Resources perform. The Program Administrator should specify the duration and applicability of a Demand Response Event. Not all deadlines, periods, and transitions may be applicable to all Demand Response products or services.</u>
<u>Deployment</u>	<u>The time at which a Demand Resource begins reducing Demand on the system in response to an instruction.</u>



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<u>Representative Instances</u>	<u>Description</u>
<u>Deployment Period</u>	<u>The time in a Demand Response Event beginning with the Deployment and ending with the Release/Recall</u>
<u>Meter Data Recording Interval</u>	<u>The time between electricity meter consumption recordings</u>
<u>Meter Data Reporting Deadline</u>	<u>The maximum allowed time from the end of a Demand Response Event (Normal Operations) to the time when meter data submission is required for performance evaluation and settlement. The Meter Data Reporting Deadline may be either relative (a number of hours/days after Normal Operations) or fixed (a fixed calendar time, such as end-of-month).</u>
<u>Normal Operations</u>	<u>The time following Release/Recall at which a Program Administrator may require a Demand Resource to have returned its Load consumption to normal levels, and to be available again for Deployment</u>
<u>Performance Window</u>	<u>The period in a Demand Response Event analyzed by the Program Administrator to measure and verify the Demand Reduction Value for a Demand Resource.</u>
<u>Ramp Period</u>	<u>The time between Deployment and Reduction Deadline, representing the period of time over which a Demand Resource is expected to achieve its change in Demand</u>
<u>Recovery Period</u>	<u>The time between Release/Recall and Normal Operations, representing the window over which Demand Resources are required to return to their normal Load.</u>
<u>Reduction Deadline</u>	<u>The time at the end of the Ramp Period when a Demand Resource is required to have met its Demand Reduction Value obligation</u>
<u>Release/Recall</u>	<u>The time when a Program Administrator notifies a Demand Resource that the Deployment Period has ended or will end</u>



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<u>Representative Instances</u>	<u>Description</u>
<u>Sustained Response Period</u>	<u>The time between Reduction Deadline and Release/Recall, representing the window over which a Demand Resource is required to maintain its reduced net consumption of electricity</u>
<u>Telemetry Interval</u>	<u>The time unit between communications between a Demand Resource or Demand Response Provider and a Program Administrator</u>



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016-A

Appendix A – Entity-Relationship Model

The following terms and definitions correspond to a set of actor/object classes and sub-classes as illustrated in the entity-relationship model in Figure 1 of Appendix A. Abbreviations/Acronyms correspond to the IDs shown in the figure.

ABBREVIATIONS AND ACRONYMS

Abbreviation / Acronym	Meaning
<u>DDE</u>	<u>Designated Dispatch Entity</u>
<u>EA</u>	<u>Environmental Authority</u>
<u>ED</u>	<u>End Device</u>
EMS	Energy Management System
<u>FR</u>	<u>Federal Regulator</u>
<u>LA</u>	<u>Local Authority</u>
<u>LSE</u>	<u>Load Serving Entity</u>
<u>MA</u>	<u>Metering Authority</u>
<u>MP</u>	<u>Market Participant</u>
<u>RA</u>	<u>Reliability Authority</u>
<u>RM</u>	<u>Response Method</u>
<u>RMA</u>	<u>Response Method Aggregation</u>
<u>SE</u>	<u>Scheduling Entity</u>
<u>SO</u>	<u>System Operator</u>
<u>SP</u>	<u>Service Provider</u>
<u>SR</u>	<u>State Regulator</u>
<u>TDSP</u>	<u>Transmission/Distribution Service Provider</u>
<u>UC</u>	<u>Utility Customer</u>
<u>UDO</u>	<u>Utility Distribution Operator</u>



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DEFINITION OF TERMS

Term	Definition
<u>Business Entity</u>	<u>The wholesale or retail entity that interacts with other entities in its market.</u>
<u>Communication Method</u>	<u>The method by which an object communicates with another object to instruct, measure or control.</u>
<u>Control</u>	<u>The role associated with the control of an End Device.</u>
<u>Demand Response Objects</u>	<u>Physical and logical types of demand response resource objects.</u>
<u>Designated Dispatch Entity</u>	<u>A role which carries the responsibility of receiving and processing demand resource dispatch instructions or market information and (optionally) providing response information.</u>
<u>End Device</u>	<u>A physical end-use device that consumes or supplies electricity.</u>
<u>Environmental Authority</u>	<u>A regulatory authority responsible for the development, reporting and enforcement of environmental activities.</u>
<u>Facility</u>	<u>The location at which connection to the transmission or distribution system is made.</u>
<u>Federal Regulator</u>	<u>A Federal regulatory authority.</u>
<u>Load Serving Entity</u>	<u>A role which carries the responsibility of serving end-users and selling electric energy to end-users.</u>
<u>Local Authority</u>	<u>A regulatory authority responsible for the oversight and administration of utility service-related functions within its jurisdiction.</u>
<u>Market Enrollment</u>	<u>The collection of enrollment or tariff data for a Demand Resource Object to provide a specific market product or service.</u>
<u>Market Participant</u>	<u>An organization registered with the System Operator that may take on roles such as SP, LSE, TDSP, DDE, SE, and/or MA in accordance with the System Operator's market rules.</u>



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Term	Definition
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<u>Metering Authority</u>	<u>A role which carries the responsibility of providing data necessary to determine the performance of a Resource.</u>
<u>P-Node</u>	<u>The price location of the Facility in the transmission and/or distribution network.</u>
<u>Participant</u>	<u>The entity that represents resources to a market or distribution operator.</u>
<u>Regulator</u>	<u>A rule-making and enforcement entity.</u>
<u>Reliability Authority</u>	<u>A regulatory authority responsible for the development, reporting and enforcement of electric reliability-related activities.</u>
<u>Response Method</u>	<u>A measurable action taken in response to an instruction to change consumption.</u>
<u>Response Method Aggregation</u>	<u>A logical entity that has a reportable interval level consumption, e.g. a site may also be a physical entity that may have its own meter, a neighborhood of homes that has a net meter, or an estimate of consumption of an aggregation of retail customers.</u>
<u>Resource</u>	<u>A market-dependent group of Response Method Aggregations that represents a dispatchable entity.</u>
<u>Scheduling Entity</u>	<u>A role which carries the responsibility of submitting bids/offers and receives Schedules and Awards.</u>
<u>Service Provider</u>	<u>A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.</u>
<u>State Regulator</u>	<u>A regulatory authority responsible for the oversight and administration of electric utilities.</u>
<u>Supporting Objects</u>	<u>Objects that support the interaction of Business Entities and Demand Response Objects.</u>



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Term	Definition
<u>System Operator</u>	<u>An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.</u>
<u>Transmission/Distribution Service Provider</u>	<u>A role which carries the responsibility of operating a local electricity transmission and/or distribution system.</u>
<u>Utility Customer</u>	<u>An end-use customer of the Utility Distribution Operator that takes on roles such as Facility or Resource.</u>
<u>Utility Distribution Operator</u>	<u>An entity which carries the responsibility of operating an electricity distribution system.</u>
<u>Zone</u>	<u>A physical or electrical region.</u>



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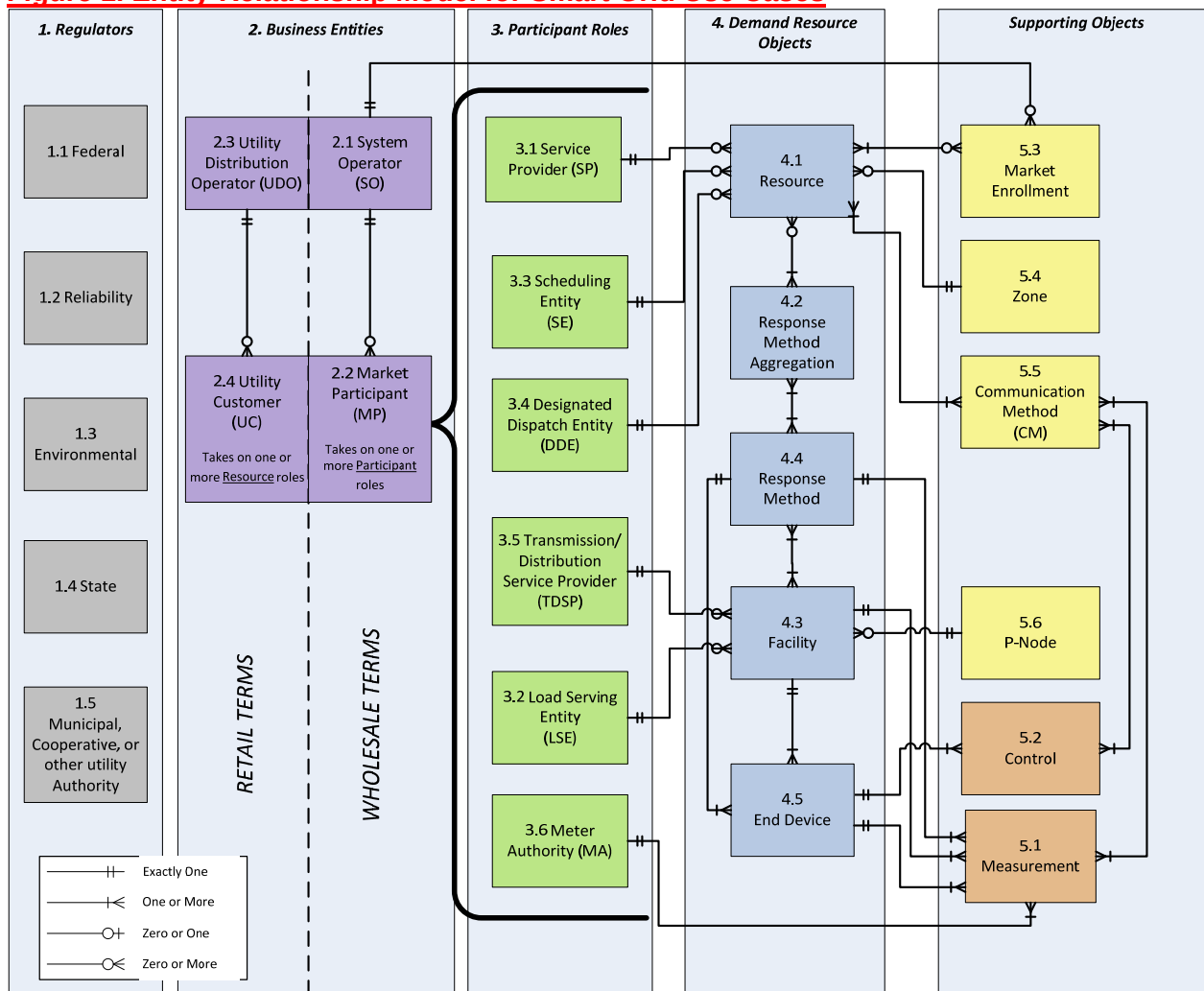
For Quadrant: Wholesale Electric Quadrant (WEQ) and Retail Electric Quadrant (REQ)

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Figure 1. Entity-Relationship Model for Smart Grid Use Cases





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4. SUPPORTING DOCUMENTATION

a. Description of Request:

On September 30, 2009, the National Institute of Standards and Technology officially assigned NAESB the responsibility to develop Requirements and Use Cases pertinent to Priority Action Plan items 3, 4 and 9. A complete description of each item is available on the NIST Web site located at <http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/WebHome> in the section titled Priority Action Plans (PAPs).

This recommendation specifically pertains to PAP 04², "A Common Scheduling Mechanism for Energy Transactions".

b. Description of Recommendation:

The scope of this recommendation is to define the range of information required to establish the breadth of the communication requirement. There is no need for the cases to be exhaustive, merely illustrative of the full scope.

c. Business Purpose:

This recommendation has been developed in response to a request from NIST to provide use cases and requirements germane to the use of dates/times within a broad spectrum of energy transactions. The scope of this effort has been limited to Demand Response Programs in order to meet NIST's deadline for this effort.

d. Commentary/Rationale of Subcommittee(s)/Task Force(s):

Assumptions - We assume as given that common semantics for communicating schedule, interval, and sequence will enhance interoperability between domains and between business entities.

Joint Smart Grid Standards Task Force and Fix Protocol Meeting Notes/Documents:

- September 17, 2009 Meeting Notes – To be posted
- October 1, 2009 Meeting Notes – To be posted
- October 15, 2009 Meeting Notes – To be posted

NAESB Smart Grid Standards Task Force Sub-Group Meeting Notes/Documents:

- October 13, 2009 Meeting Notes – To be posted
- October 20, 2009 Meeting Notes – To be posted
- October 27, 2009 Meeting Notes – To be posted
- November 3, 2009 Meeting Notes – To be posted
- November 4-6, 2009 Meeting Notes – To be posted

² <http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/PAP04Schedules>



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- November 10, 2009 Meeting Notes – To be posted

NAESB Smart Grid Standards Task Force Meeting Notes/Documents:

- October 22, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd102209notes.doc
- October 29, 2009 Meeting Notes – To be posted
- November 5, 2009 Meeting Notes – To be posted
- November 13, 2009 Meeting Notes – To be posted
- December 3, 2009 Meeting Notes – To be posted
- December 10, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd121009notes.doc
- December 17, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd121709notes.doc
- January 7, 2010 Meeting Notes – To be posted
- January 14, 2010 Meeting Notes – To be posted
- January 21, 2010 Meeting Notes – To be posted
- January 28, 2010 Meeting Notes – To be posted

NAESB PAP-03 / PAP-04 / PAP-09

General Comments

- A. The documents being considered do not contain traditional NAESB Business Practice Standards content. Additional work will be necessary to convert these recommendation documents into Business Practice Standards, as it was a working assumption of the Smart Grid Task Force to deliver requirements only.
- B. References in these Recommendations to ‘Dispatch’, ‘Markets’, ‘Reliability’ are made relative to DR and apply to DR resources only, and not Generation resources. NERC’s compliance standards for Generation Resources are typically quite detailed, while compliance standards for DR resources are appropriately determined by the respective system operator specific to the DR product or service and the reliability need being addressed.
- C. While the recommendations for PAP-03, PAP-04 and PAP-09 posted by NAESB are not business practice standards, they should not be misconstrued as a recommendation to change existing market designs or business rules across ISOs/RTOs; each ISO RTO has its own stakeholder process as the appropriate forum for making rule changes.
- D. Although not explicitly stated in the PAP documents, compliance with orders from regulatory agencies, as they apply to DR in ISO/RTOs, is presumed.
- E. It is our understanding that the contents of the documents are being presented as recommendations and are intended to be used neither as implementation templates nor for testing of interoperability. Rather, another step will be taken by the Organization for the Advancement of Structured Information Standards (OASIS) to deliver an information model, preferably reconciled with IEC 61970, which then could be implemented and tested.
- F. The treatment of the glossary of terms – actors and definitions – is inconsistent across the recommendation documents – within the WEQ as well as the corresponding versions listed under REQ. In one case, the glossary of terms is in the recommendation without the diagram, in another it appears as an appendix, and in a third it appears in both the recommendation section *and* in an appendix. The highlighted wording regarding how the glossary will be incorporated into the WEQ-000 is unclear. The IRC requests that NAESB staff provide a clearer description to explain how the glossary of terms will be integrated into WEQ-000.
- G. It is unclear how the data requirements work beginning in Phase 2 will be integrated with these recommendations if they are being passed through the standards approval process separately. This is of particular concern since PAP-03 and PAP09-Retail have partial lists of data requirements in the current recommendations. For consistency, the IRC recommends that all data requirements be removed from the Recommendations for PAPs 03/04/and 09 until the SGTF has completed Phase 2, where the data requirements will be identified for all three PAPs.

PAP-SPECIFIC RECOMMENDATIONS

PAP-03

- 1. "The term “wholesalers” in PAP03 should be modified to clarify whether it refers to energy marketers, energy service providers or ISOs and RTOs. Without this clarification, it is unclear to whom the proposed PAP03 standards apply

NAESB PAP-03 / PAP-04 / PAP-09

2. The use cases are very short. More elaboration needs to be given to the definitions and the samples should be elevated to fully described, testable use cases.

PAP-04

3. The IRC has identified that the following requirement from PAP04 as the only requirement applicable to wholesale markets and recommends that it be incorporated into the PAP09 wholesale document:

“Demand Response Programs employ a combination of absolute dates/times, absolute periods (range) of dates/times, relative dates/times, recurring dates/times, absolute intervals and absolute durations in order to communicate temporal information pertaining to demand response transactions. Demand Response Programs must also accommodate time zone variations, leap years, leap seconds, and the use of daylight savings time. Any calendaring/scheduling standard that is applicable to Demand Response programs must be capable of supporting this range of requirements.”

4. References to the term “wholesalers” in PAP04 do not apply to ISOs and RTOs, therefore, it is the understanding of the IRC that PAP04 would not apply to ISOs and RTOs.
5. The IRC recommends that PAP-04 be moved wholly into the REQ, where it can be applied to end-device and/or human communications without impact to or potential conflict with wholesale market operations.

PAP-09 Retail

6. As previously recommended in the IRC’s informal comments in November 2009, the administration of DR products and services should be excluded from the scope of the retail use cases. Currently, language states that these processes will not be automated. If this is the case, they should not be included in a document that ultimately will lead to a machine-to-machine communication specification. Additionally, the processes for automating customer registration (as opposed to device enrollment) are likely to be handled in the future by a NAESB working group with a more global (i.e., not DR-centric) perspective. The IRC recommends removing the following sections:
 - a. REQ.14.3.2.4.1 Administrate DR Program
 - b. REQ.14.3.2.4.1.2 Create DR Program
 - c. REQ.14.3.2.4.1.3 Update DR Program
 - d. REQ.14.3.2.4.1.4 Remove DR Program
 - e. REQ.14.3.2.4.2 Administrate Customer for DR
7. Our members believe that additional descriptions of the business processes are needed. The existing illustrations consist of Use Case Diagrams, which identify the Actors involved and the hierarchy of processes, and Sequence Diagrams, which identify the ordered messages that may

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be exchanged among the actors during the execution of the business processes. Activity Diagrams would better show the conditional flows and iterations that are common to these business processes and make the testing of use cases easier. Furthermore, alignment with the four governing business processes outlined in Figure 1 of the Wholesale document (page 12) would be extremely helpful. In fact, we would very much like to see integration with the wholesale business process Activity Diagrams, which have wholesale-retail integration points identified for further development by interested parties. IRC members will be made available to support such integration definition efforts should members of the REQ be interested in pursuing this activity in Phase 2.

8. The document defines DR-specific data elements (such as "Minimum Duration"), whereas the Wholesale document reuses generation/supply data elements (such as "Minimum Run Time"). These philosophies should be reconciled. See pp. 33-35, 39, and 40 for examples. As stated in cross-PAP recommendation E, this can be resolved by following the IRC recommendation that all data elements be removed from the current recommendations and submitted at a later date, when the Phase 2 data requirements work is complete.

PAP-SPECIFIC RECOMMENDATIONS (DETAILED EDITS)

Common Introduction Language

- Replace "United States of America with some overlaps to Canada" with "North America"
- 000-1: Replace "Reliability Authority (RA)" with "Regional Reliability Authority (RRA)"
- 000-2: For Response Method Aggregation, edit as follows: "...interval level consumption, e.g. a site ~~an RMA~~ may also be a physical entity ~~that may have~~ with its own meter..."

PAP-03

- Pg. 6 & Pg. 12: Replace "Demand Reduction" with "Demand Modification"
- Pg. 9: need to reconcile difference among TDSP / UDC / UDO
- Pg. 10: Definition of CPP is incorrect. Recommend the following change: "...at which time electric prices ~~may reflect the costs of electricity at the wholesale level~~ **are administratively adjusted to incentivize customers to actively modify their electricity usage.**"
- Pg. 10: Definition of PTR. Recommend the following change: "An incentive rate in which the utility pays **a rebate to** Customers ~~to~~ **who** reduced demand during peak periods on critical days."

PAP-04

- Pg 9: Replace "reducing" with "modifying"

PAP-09 Retail

ISO/RTO Council Comments

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- Pg 15: REQ.14.3.2.3: Use Case Overview - End-to-end business process flow should be consistent with Wholesale DR Signals document
- Pgs 17, 37, 45, 53, 58: Eliminate specific references to wholesale markets
- Pg 17: change “interruption” to “modification” (2x places)
- Pg. 30: Definition for Maximum Duration. Change “The maximum amount of time the asset/resource is capable of ~~delivering power (megawatts)~~ **modifying its electricity usage**”.
- Pg 30: the Parent-Resource ID concept needs to be reconciled with the terminology and hierarchical structure of resources used in the wholesale document.
- Pg 31: the Source-Authentication concept needs to be reconciled with the approach to security used in the wholesale document
- Ph 37: revise text as follows “The Bidder may be a Customer bidding with ~~either an energy retailer (e.g., LSE, ESP), a Service Provider (e.g., CSP, DRP), or a power marketer (i.e., wholesale market participant).~~ The Bidder may also be a Service Provider bidding up to a LSE or power marketer.”
- Pg 38: recommend proper use of bids and offers, i.e. bids are to buy and offers are to sell
- Pg 44 & 53: replace “shed” with “modify” (2x place)
- Pg 45: the concept of a “number signifying the reliability of the grid” has no basis in any reliability standards with which the IRC members are acquainted
- Pg 55: replace “de-energize” with “modification”
- Pg 58 – DR Execution – Retail Time Pricing (RTP): Replace this section with the following text: “Provide real-time or dynamic pricing (RTP) to retail customers so that customers can vary their demand based on pricing signals. RTP represents retail electricity rates that vary as a function of time.”

PAP-09 Wholesale

- Pg. 9 – unresolved reference should be fixed

FORMAL COMMENTS

Quadrant: Wholesale Electric Quadrant

Recommendations: WEQ 2010 AP Item 6 (a) / REQ Annual Plan Item 9(a); Requirements Specification for Common Electricity Product and Pricing Definition – for NIST PAP03,
WEQ 2010 AP Item 6 (b) / REQ Annual Plan Item 9(b); Requirements Specification for Common Scheduling Mechanism for Energy Transactions – for NIST PAP04, and
WEQ 2010 AP Item 6 (c); Requirements Specifications for Wholesale Standard DR Signals – for NIST PAP09

Submitted By: Midwest ISO

Date: April 14, 2010

General Comments:

- Midwest ISO is concerned with the next steps for the PAPs once they are approved by the Executive Committee and ratified by the membership. The documents in many cases are intended only to provide examples and as such were not intended to be an all inclusive set of standards. In many cases the examples are not consistent with how some entities operate their markets. We will provide more detail as to where there are differences between the Midwest ISO market and the examples. At a minimum the documents should have some statement explaining that the examples included are not to be considered the full set of examples and that some markets may have implementations that are inconsistent with the examples and sample scenarios provided since the examples were not intended to provide an exhaustive set of standards. Without having this type of clarifying language on the examples, samples, etc., these standards may inadvertently dictate how the markets can operate in the future and as well as impact existing market designs.

PAP 3

- Page 10 – Definition for Market Clearing Price for Energy should be inclusive of 5 minutes...it says 15.
- Page 10 – Midwest ISO is concerned that the examples of common tariff rate types may lock entities into having to support all the tariff rate types listed and/or prevent them from creating any new tariff rate types without having the NAESB business practice standards changed.
- Page 14 – The recommendation makes the assumption that wind is dispatchable which is not the case.
- Page 15 – The sample scenario makes an invalid assumption that wind always commands a premium over coal because with rebates it may not be in the Midwest ISO market.
- Page 15 – The sample scenario makes an invalid assumption that Consumers must buy carbon credits, which is not the case in the Midwest ISO market.
- Page 18 – Pricing Attributes...does it include ancillary service prices?
- Page 19 – GMT is used within the Midwest ISO, with an offset.
- Pages 18-19 – Midwest ISO is concerned that the pricing attributes included in the list do not have any explanation as to whether the attributes are required or optional. Additionally, we would expect that this section be driven out during Phase 2. Midwest ISO would recommend this section be removed from the recommendation and be a part of the Phase 2 Recommendation.

Comments Submitted by E. Skiba, Midwest ISO

- Pages 20-21 – Midwest ISO is concerned that it does not offer a number of the provision listed in the Product Types and Sub-types. For example, following types/sub-types are not included in the Midwest ISO market: Load Following and Reactive Power Supply From Generation Sources.

PAP 4

- Page 3 – Issue with definition of Facility: reads like elemental node for calculating price instead of a aggregated commercial pricing node
- Page 8 – The intent is table unclear since it is “an incomplete, but representative set of instances.”
- Page 16 – Entity Relationship Model – Midwest ISO has concern with the following not being connected: Resource and Facility, Zone and Facility, and Resource and P-node.

PAP 9

- Page 10 – Use Case description – Midwest ISO does not distinguish Energy between Economic and Reliability.
- Page 19 – (Visio diagram) Midwest ISO is concerned whether this is a commitment process or a dispatch process. The Reliability Assessment commitment process will notify demand response of the commitment at the commercial pricing node level. The notification goes to the demand response participant and local balancing authority.
- Page 16 – (Visio diagram)...Can we follow both paths out of the Product decision? It appears that they are exclusive, which is not the case within the Midwest ISO market.
- Page 21 – (Visio diagram)...On this diagram it appears that the processes support sending multiple data streams and does not support the capability for providing a single combined setpoint. Midwest ISO market utilizes a combined setpoint approach. Midwest ISO combines into a single setpoint: energy, spin, etc. into one message, since we run a co-optimized market. Since regulation is added to base (set point) we can have something like 3 products using one message/signal. Would Midwest ISO have to use separate notifications rather than a combined setpoint?
- Page 24 – Since we are the Designated Dispatch Entity and System Operator we have concerns with the feasibility of the Entity Diagram and Business Process. The “green arrows” are defined in or out of the System Operator (SO) swim lane. This could be an issue since Midwest ISO needs to balance its footprint in 4 seconds for ACE, which currently imposes the use of ICCP. There is a general concern with the implementation if we were required to use XML and not able to use Inter-Control Center Communications Protocol (ICCP).

FORMAL COMMENTS

Quadrant: Wholesale Electric Quadrant
Recommendation: WEQ 2010 AP Item 6 (c); Requirements Specifications for Wholesale Standard DR Signals – for NIST PAP09
Submitted By: Standards Review Subcommittee (SRS)
Date: April 9, 2010

Under the Standards Review Subcommittee (SRS) Scope of Work, which was approved by the SRS on March 6, 2008, the SRS agreed to review recommendations and if subcommittee deemed appropriate, they would submit advisory comments to the Executive Committee (EC) for consideration. As stated in the Scope of Work these comments are “not intended to change the scope of the Business Practices or recommendation, but to provide consistency and uniformity across all WEQ Business Practices.”

It is the SRS understanding that this recommendation will be included as standards in the WEQ Business Practice Standards and will be filed with the Federal Energy Regulatory Commission (FERC). Therefore, the SRS would like to point out inconsistencies between this recommendation and existing standards as well as a number of concerns specific to the recommendation itself.

It is also the SRS’ understanding that these comments may be reviewed by the Smart Grid Task Force. The task force may review these comments, suggest modifications to the recommendation, and submit late comments for Executive Committee consideration.

WEQ-000

The terms and definitions do not seem to take into account existing definitions of terms and FERC Order 676-C which requested that NAESB resolve differences within its standards and differences between NERC and NAESB Standards. Below are examples that illustrate inconsistencies with the definitions for the same term.

Facility - *NERC Definition* - A set of electrical equipment that operates as a single Bulk Electric System Element (e.g., a line, a generator, a shunt compensator, transformer, etc.)

Recommendation Definition – The location at which connection to the transmission or distribution system is made.

Load Serving Entity - *Glossary Definition* The responsible entity that secures energy and Transmission Service (and related Interconnection Operations Services) to serve the electrical demand and energy requirements of its end-use customer.

Recommendation Definition – A role which carries the responsibility of serving end-users and selling electric energy to end-users.

System Operator - *Demand Response Final Action* – A System Operator is a Balancing Authority, Transmission Operator, or Reliability Coordinator, whose responsibility is to monitor and control an electric system in real time (based on NERC definition). The System Operator is responsible for initiating Advance Notifications, Deployment and Release/Recall Instructions.

Recommendation Definition – An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.

Within Definitions of terms there are capitalized terms which are not defined. These include:

- Demand Resource Object
- Federal
- Awards
- System Operator
- Schedules

Under 000-2 (page 3), System Operator is used in the definition of Market Participant and is also not a defined term. Included in 000-1, Abbreviations and Acronyms, is SO (System Operator). For consistency, either define System Operator in 000-2 or use the acronym SO in the definition of Market Participant. The SRS recommends use of the acronym SO as it would be more consistent because the definition includes several other acronyms which are included in 000-1.

WEQ-016

- **General**

- o On page 1 under Recommendation, the acronym NIST is not defined as it used here for the first time in the recommendation. The acronym is defined on page 5, under the Executive Summary.
- There are terms which are capitalized which are not defined in the WEQ Business Practice Standards such as “Demand Response.”
- Distributed Energy Resources and Inoperability are defined through the use of footnotes. Recommend adding these terms to the Definition of Terms under 000-2.
- Review the recommendation to correctly include the acronym when the term/phrase is first used. Several examples include the first time System Operator and Market Participants which are first included in the Executive Summary.
- Numbering for the recommendation starts with 016-2. The SRS suggests renumbering to start with 016-1 if the decision is to move this Recommendation to a standalone WEQ Business Practice Standard.
- Table 1 includes additional acronyms and definitions. Recommend moving all of them to the beginning of the recommendation within 000-1 or 000-2 as appropriate with the other already identified acronyms and definitions.
- Under 016-2, there is a section identified as ‘Conventions.’ The SRS recommends renumbering this section to be 016-2.1 and then continue the changed numbering through the remaining recommendation.

- Under 16.2.2, while not capitalized the term cardinality key is used. It is recommended that this term be defined. In this section there is an “Error! Reference source not found” Microsoft Word tag reference that need to be corrected.
- Under 016.2-3 the term Baseline is used and has not been defined.
- In terms of flow and understanding, the recommendation uses the term ‘use cases’ without specifically identifying that the Figures included in the recommendation are demonstrating the specific use cases. The SRS recommends including language that allows for explicit understanding or adding a column to the specific tables that include the Figure number.
- The documented processes need to be verified against the process in the Figures. For example, in section 016-2.4.2 the textual description refers to submit a supply offer and the figure has Submit Offer. Also, the figure contains two processes Create Award Notice and Collect Award Notification which are not mentioned in the textual description.
- Included in Figures 2, 4 and 6, the descriptions include ‘V-*.’ This reference case requires further explicit description of this term.
- Recommend renaming Figure 1, included in Appendix A, Figure 1A.
- Recommended including on Appendix B, where appropriate, the Figure number if that particular case is included in the recommendation. There is no explanation for the table included in the Appendix B. The task force should consider including a description so that people can understand what is presented in the table.
- **Executive Summary** – This recommendation along with the recommendations for PAP03 Requirements Specifications for Common Electricity Product and Pricing Definition and PAP09 Requirements Specifications for Wholesale Standard DR Signals each contain an Executive Summary listed under the “Recommended Standards” section of the recommendation. Based on the standards numbering it appears that all three recommendations will be included in a new set of standards, WEQ-016.
 - o First, we question whether WEQ-016 should have an Executive Summary. The only Business Practice Standards that have an executive summary is WEQ-014 (WEQ/WGQ eTariff Related Standards). The WEQ-014 standards were approved prior to the SRS review of recommendations. (If the SRS had been reviewing standards at that time, we may have questioned having an Executive Summary in WEQ-014.)
 - o Second, the Executive Summaries in the three recommendations though similar are not identical. With the differences in the Executive Summaries and all three recommendations being included in WEQ-016 it is unclear how a single set of business practices can have three Executive Summaries.

If the EC decides to move forward with including an Executive Summary, the SRS recommends that all capitalized terms and acronyms be included in WEQ-000.

An option the Smart Grid Task Force may want to consider is to create a separate Business Practice Standard for each PAP recommendation rather than combining them into a single recommendation.

Comments Submitted by the WEQ Standards Review Subcommittee

- **Introduction** – The SRS questions whether it is appropriate to include an “Assumptions” section in the WEQ Business Practice Standards.

The task force may want to consider re-naming this section to “Considerations” and place in an Appendix to the Business Practice Standards.

There are a number of capitalized terms which do not have definitions. The SRS suggest to either lower case or provide definitions.

- **Appendix A** – The Standards Review Subcommittee suggests the Abbreviations and Acronyms be deleted from the appendix and only listed in WEQ-000. Several included in Appendix A are already included in WEQ-000 (LSE, LA, MA).

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PAPs 03, 04 & 09**

Please consider the following recommended changes:

PAP03

1. Move section 000-1 Abbreviation and Acronyms from 2 and add under new section 16-A Appendix A – Entity-Relationship Model on page 21. This should be consistent with PAP04 and PAP09. In addition:
 - a. Add “DR for Demand Response” to the Abbreviation and Acronyms.
 - b. Add “DER for Distributed Energy Resources” to the Abbreviation and Acronyms.
2. Move section 000-2, (Definition of Terms) from 3-5 and add under new section 16-A Appendix A – Entity-Relationship Model after Abbreviation and Acronyms. This should be consistent with PAP04 and PAP09.
3. Could the first five paragraphs be moved from Introduction to Executive Summary?
4. Add Values to the heading 016-3.7, “Supplemental Material Values”.
5. Spell out HAN and C&I, or include in Acronyms or Glossary.
6. Page 7 Reset the numerical system from 016-3 to 016-1 under the heading Business Practice Standards starting on page 7. This should be consistent with PAP04.
7. Page 7 (Actors) The format for the list of Actors, on page 7, appears different from the list in PAP09. Should we expect the heading and format for the actors list to be consistent between PAPs
8. Page 7 (Utility Customer) under proposed definition, should read:
“An end-use customer of the Utility Distribution Operator that may be enabled to take on roles such as Facility or Resource.”
9. Page 7 (Communication Method) under the Proposed Definition please include the word “report” in the list.
10. Page 7 (End Device) Does definition include back-up generators? What about batteries? Batteries will not always be located at the end of the line off the secondary system. Many now are used at the substation level.
11. Page 7 (Facility) Will the definition work for aggregated DR? In the case of aggregated residential DR do we therefore have thousands of facilities, or a single aggregated facility? What then is the location? Nodal? If nodal does that mean that program offerings are broken out by nodal and therefore dispatchable by node? What granularity node?
12. Page 8 (System Operator) The definition used seems to encompass both system operator and program administrator. The committee needs to keep in mind that the system operator is not the one who will dispatch the resource. He/she will

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make the order to dispatch the resource but control to dispatch the resource is another person or persons who may be different again from the program administrator who would again be a separate person with a very different job.

13. Page 10 (Tariff Rate Type) Regarding Hourly Rates. Currently the CAISO allows DR resources to operate in the Hour Ahead Scheduling Process (HASP) which is an hourly scheduled market.
14. Page 10 (Tariff Rate Type) Mostly customers are price responsive or other such as emergency or environmental. It may be a mistake to try to address all the possibilities. However most DR resources in California are not market price responsive they are programmatically price responsive. Which is one stage removed from market prices. Whereby the wholesale market may create the environment where the resource may be triggered but the customer is responding to a programmatic trigger set by contract or their participation in a program offer not the market price. Such customers receive set capacity and energy prices for their participation in the program.
15. Page 13 (Demand Load Shifting: Sample Scenarios) This should read: 'Illustrate how different End Devices will respond to a forward energy price signal including, but not limited to:'
16. Page 14 (Demand Reduction; Description) While not all resources will respond to a price signal, they will respond to "signals". Use of the word price is restrictive and therefore requires additional work to define how the different signals function. BPA suggests that the term "signals" is used, regarding what customers respond to.
17. Page 15 "Wind Power always commands a premium over coal power because of higher cost of production." This statement may not always be true, and may not be true in the future, so it appears biased. Suggest rephrasing.
18. Typo on p 17, in 016-3.6.1 (Product Identification) under Identifier source, under Considerations, 2nd sentence: The Identifier source reference the product.... Probably should read: The Identifier source references the product....
19. Page 20, 016-3.7.1, (Product Types and Sub Type Enumerations) under Contingency Reserve, in the description, NERC groups are currently called Regional Reliability Organizations vs. Councils. Please confirm with NERC.
20. Page 20 (Product Types and Sub Type Enumerations) Voltage support resources. While Reactive Posr is a type of voltage support there are other ways to provide voltage support which can be dispatchable to support voltage stability, whether they are batteries or line or substation regulators. Again, all of which are dispatchable. Lower the voltage by 1% and you get a 0.8 percent energy savings. This is a form of DR not apparently contemplated in the NAESB PAPs thus far.

PAP04

1. Delete section 000-1 (Abbreviation and Acronyms) from page 2. It is duplicated in section 16-A Appendix A – Entity-Relationship Model on page 12. As stated for PAP03, please:

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- a. Add “DR for Demand Response” to the Abbreviation and Acronyms.
 - b. Add “DER for Distributed Energy Resources” to the Abbreviation and Acronyms.
2. Delete section 000-2 (Definition of Terms) from pages 3-5. It is duplicated in section 16-A Appendix A – Entity-Relationship Model on page 13. In addition:
 - Should there be a list of Actor in this document similar to PAP03 and PAP09?
 - Should there be a section on Conventions in the document similar to PAP03?
3. Page 6, fourth paragraph, line 2: What does distribution mean in this context? This sentence is unclear. Next sentence: please remove “concerning those transactions.’ This is either a redundant statement or a misplaced object.
4. Page 9, first paragraph, second sentence, BPA suggests the following change. Replace existing text with underlined text below:
“Although some instances may be known by other names...”
5. Page 9: (Baseline Window) suggest augmenting language with capitalized text -
"The window of time preceding and optionally following, a Demand Response Event over which electricity consumption and OUTSIDE AIR TEMPERATURE DATA are collected for the purpose of establishing a Baseline."
6. Page 9 (Adjustment Window) A baseline will not be calculated in an adjustment window but will be adjusted or modified in an adjustment window. See practice of the morning of adjustment. See also ambient air temp as a factor contributing to morning of adjustment.
7. Page 9 (Demand Response Event) Program Administrator is not always the dispatcher. A DR event is different than a DR program and it controlling contractual parameters.
8. Page 9 (Deployment) Deployment connotes a build-out traditionally associated with the creation of a DR resource through the roll-out of a programmatic offer. suggest use of the term “dispatch” instead.
9. Page 10 (Deployment Period) The term “Deployment” may be confusing to some in the industry. Here we are talking about resource operation and delivery. This could be fixed in the definition, by explaining what is being deployed.
10. Page 10 (Meter Data Reporting Deadline) This definition is necessary but we also need to define how, in some instances, real-time consumption data is used to verify, in real-time, resource compliance with dispatch instruction.
11. Page 10 (Performance Window) Please clarify which Program Administrator this term applies to: market or utility?
12. Page 10 (Recovery Period) “Required” is too heavy a word. You are simply releasing the resource from its DR obligations. You are not requiring any other types of subsequent action. You don’t have the power or the right.

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13. Page 10 (Reduction Deadline) DR will not always be a reduction. Ramp up period will also be a type of demand response. DR does not equal demand reduction.
14. Page 11 (Telemetry Interval) "Program Administrator, BPA suggests using a different term or clarify the term and add it to the Glossary.
15. Page 16, Figure 1 is inadequate alone; BPA suggests adding some supporting text including what the figure is intended to convey.

PAP09

1. Delete section 000-1 (Abbreviation and Acronyms) from page 2. It is duplicated in section 16-A Appendix A – Entity-Relationship Model on page 29. In addition:
 - a. Add "DR for Demand Response" to the Abbreviation and Acronyms.
 - b. Add "DER for Distributed Energy Resources" to the Abbreviation and Acronyms.
2. Delete section 000-2 (Definition of Terms) from page 3-5. It is duplicated in section 16-A Appendix A – Entity-Relationship Model on page 30.
3. Could the first three paragraphs be moved from Introduction to Executive Summary?
4. Reset the numerical system from 016-2 to 016-1 under the Business Practice Standards starting on page 8. This should be consistent with PAP04.
5. The format for the list of Actors, on page 9, appears different from the list in PAP03. Should we expect the heading and format for the actors list to be consistent between PAPs?
6. Should there be a section on Conventions in the document similar to PAP03?
7. In Page 9, 016-2.2 (Wholesale Entity Relationship Model) the text "Error! Reference source not found", should be removed. This could simply be a text conversion issue.
8. In Page 9 (System Operator) Here again there is more than one entity in this process. BPA recommends checking with NERC on the definition of this entity.
9. In Page 36, 4.c. (Business Purpose) looks like a cut and paste from PAP04. Not sure a cut and paste was the intent.
10. Page 14 (Wholesale) Figure 2 needs context and supporting text, and the legend needs to match the info in the figure/map.

Comments on NAESB Smart Grid Standards Covering Priority Action Plans 03, 04, and 09

Filed by Tennessee Valley Authority

Pap 03 – Common Electricity Product and Pricing Definition

Terms and definitions found within this standard should match NERC/NAESB glossaries approved by the FERC. Definitions such as Load Serving Entity, System Operator, and others need to match for industry-wide consistency.

Section WEQ-016.3.7 – 3.7.1 – Sections contain terms that are not defined and need to have definitions; such terms include: Operating Authority, Maneuverability, Contingency Reserve-Spinning, and Contingency Reserve-Supplemental.

TVA would like to know if the definition of Facility will work for aggregated Demand Response.

Actors should be consistent with those found in PAP-09.

Pap 04 – Specifications for Common Scheduling Mechanism for Energy Transactions

Terms and definitions found within this standard should match NERC/NAESB glossaries approved by the FERC. Definitions such as Load Serving Entity and Facility need to match for industry-wide consistency.

Section WEQ-016 – Sections contain terms that are defined and need to have definitions; such terms include: Demand Response Programs, Program Administrator, Market Closing, Absolute Interval, Absolute Duration, and Minimum Run Time. In addition, there are several acronyms that have not been defined (SML, IETF, and DER).

Please note that the Program Administrator may not always be the dispatcher.

Do standard definitions for Response Method Aggregation, Resource, Scheduling Entity, and Service Provider exist in other approved standards? If so, we believe these should be changed to reflect those.

What is meant by a Demand Response Event? TVA's definition of a DR event is related to something that is controlled by either the utility or the customer (a planned event). The other two levels TVA deals with are a "steady state" and an automatic demand response state. TVA suggests that sub-definitions for the term Demand Response Event may be appropriate in order to more succinctly define them as either load or market events.

Comments Submitted by K. York, TVA

Pap 09 – Specifications for Wholesale Standard DR Signals

Terms and definitions found within this standard should match NERC/NAESB glossaries approved by the FERC. Definitions such as Load Serving Entity and Facility need to match for industry-wide consistency.

Also, many sections have terms that have not been defined, such as Demand Resource Object, Federal, Awards, System Operator, and Schedules which need to have definitions.

The term Distributed Energy Resources and Inoperability should be defined in the Glossary.

Actors should be consistent with those found in PAP-03.

Does Scheduling Entity represent an Aggregator?

General Comments:

In general, TVA believes that the Smart Grid effort should use as many existing approved communication protocols and industry standards as possible as a launching pad for the development of future standards. An example would be starting with FERC, NERC, and the nine Regional Reliability Organizations-approved naming conventions as well as existing “common” communication protocols (examples: Distributed Network Protocols and IEC 61850) that can appropriately integrated.

In addition, TVA would like to know if any thought has been given to how traditional transmission products would hamper or help the Smart Grid effort. What kind of transmission constraints would the Smart Grid effort encounter once operational?

Overall, TVA commends NAESB for these recommendations and believes the standards provide a workable framework for producing the granularity needed to integrate Smart Grid efforts into the business model.

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General Comments

- A. The documents being considered do not contain traditional NAESB Business Practice Standards content. Additional work will be necessary to convert these recommendation documents into Business Practice Standards, as it was a working assumption of the Smart Grid Task Force to deliver requirements only.
- B. References in these Recommendations to ‘Dispatch’, ‘Markets’, ‘Reliability’ are made relative to DR and apply to DR resources only, and not Generation resources. NERC’s compliance standards for Generation Resources are typically quite detailed, while compliance standards for DR resources are appropriately determined by the respective system operator specific to the DR product or service and the reliability need being addressed.
- C. While the recommendations for PAP-03, PAP-04 and PAP-09 posted by NAESB are not business practice standards, they should not be misconstrued as a recommendation to change existing market designs or business rules across ISOs/RTOs; each ISO RTO has its own stakeholder process as the appropriate forum for making rule changes.
- D. Although not explicitly stated in the PAP documents, compliance with orders from regulatory agencies, as they apply to DR in ISO/RTOs, is presumed.
- E. It is our understanding that the contents of the documents are being presented as recommendations and are intended to be used neither as implementation templates nor for testing of interoperability. Rather, another step will be taken by the Organization for the Advancement of Structured Information Standards (OASIS) to deliver an information model, preferably reconciled with IEC 61970, which then could be implemented and tested.
- F. The treatment of the glossary of terms – actors and definitions – is inconsistent across the recommendation documents – within the WEQ as well as the corresponding versions listed under REQ. In one case, the glossary of terms is in the recommendation without the diagram, in another it appears as an appendix, and in a third it appears in both the recommendation section *and* in an appendix. The highlighted wording regarding how the glossary will be incorporated into the WEQ-000 is unclear. The IRC requests that NAESB staff provide a clearer description to explain how the glossary of terms will be integrated into WEQ-000.
- G. It is unclear how the data requirements work beginning in Phase 2 will be integrated with these recommendations if they are being passed through the standards approval process separately. This is of particular concern since PAP-03 and PAP09-Retail have partial lists of data requirements in the current recommendations. For consistency, the IRC recommends that all data requirements be removed from the Recommendations for PAPs 03/04/and 09 until the SGTF has completed Phase 2, where the data requirements will be identified for all three PAPs.

PAP-SPECIFIC RECOMMENDATIONS

PAP-03

- 1. "The term “wholesalers” in PAP03 should be modified to clarify whether it refers to energy marketers, energy service providers or ISOs and RTOs. Without this clarification, it is unclear to whom the proposed PAP03 standards apply

NAESB PAP-03 / PAP-04 / PAP-09

2. The use cases are very short. More elaboration needs to be given to the definitions and the samples should be elevated to fully described, testable use cases.

PAP-04

3. The IRC has identified that the following requirement from PAP04 as the only requirement applicable to wholesale markets and recommends that it be incorporated into the PAP09 wholesale document:

“Demand Response Programs employ a combination of absolute dates/times, absolute periods (range) of dates/times, relative dates/times, recurring dates/times, absolute intervals and absolute durations in order to communicate temporal information pertaining to demand response transactions. Demand Response Programs must also accommodate time zone variations, leap years, leap seconds, and the use of daylight savings time. Any calendaring/scheduling standard that is applicable to Demand Response programs must be capable of supporting this range of requirements.”

4. References to the term “wholesalers” in PAP04 do not apply to ISOs and RTOs, therefore, it is the understanding of the IRC that PAP04 would not apply to ISOs and RTOs.
5. The IRC recommends that PAP-04 be moved wholly into the REQ, where it can be applied to end-device and/or human communications without impact to or potential conflict with wholesale market operations.

PAP-09 Retail

6. As previously recommended in the IRC’s informal comments in November 2009, the administration of DR products and services should be excluded from the scope of the retail use cases. Currently, language states that these processes will not be automated. If this is the case, they should not be included in a document that ultimately will lead to a machine-to-machine communication specification. Additionally, the processes for automating customer registration (as opposed to device enrollment) are likely to be handled in the future by a NAESB working group with a more global (i.e., not DR-centric) perspective. The IRC recommends removing the following sections:
 - a. REQ.14.3.2.4.1 Administrate DR Program
 - b. REQ.14.3.2.4.1.2 Create DR Program
 - c. REQ.14.3.2.4.1.3 Update DR Program
 - d. REQ.14.3.2.4.1.4 Remove DR Program
 - e. REQ.14.3.2.4.2 Administrate Customer for DR
7. Our members believe that additional descriptions of the business processes are needed. The existing illustrations consist of Use Case Diagrams, which identify the Actors involved and the hierarchy of processes, and Sequence Diagrams, which identify the ordered messages that may

NAESB PAP-03 / PAP-04 / PAP-09

be exchanged among the actors during the execution of the business processes. Activity Diagrams would better show the conditional flows and iterations that are common to these business processes and make the testing of use cases easier. Furthermore, alignment with the four governing business processes outlined in Figure 1 of the Wholesale document (page 12) would be extremely helpful. In fact, we would very much like to see integration with the wholesale business process Activity Diagrams, which have wholesale-retail integration points identified for further development by interested parties. IRC members will be made available to support such integration definition efforts should members of the REQ be interested in pursuing this activity in Phase 2.

8. The document defines DR-specific data elements (such as "Minimum Duration"), whereas the Wholesale document reuses generation/supply data elements (such as "Minimum Run Time"). These philosophies should be reconciled. See pp. 33-35, 39, and 40 for examples. As stated in cross-PAP recommendation E, this can be resolved by following the IRC recommendation that all data elements be removed from the current recommendations and submitted at a later date, when the Phase 2 data requirements work is complete.

PAP-SPECIFIC RECOMMENDATIONS (DETAILED EDITS)

Common Introduction Language

- Replace "United States of America with some overlaps to Canada" with "North America"
- 000-1: Replace "Reliability Authority (RA)" with "Regional Reliability Authority (RRA)"
- 000-2: For Response Method Aggregation, edit as follows: "...interval level consumption, e.g. a ~~site~~ **an RMA** may ~~also~~ be a physical entity ~~that may have~~ **with** its own meter..."

PAP-03

- Pg. 6 & Pg. 12: Replace "Demand Reduction" with "Demand Modification"
- Pg. 9: need to reconcile difference among TDSP / UDC / UDO
- Pg. 10: Definition of CPP is incorrect. Recommend the following change: "...at which time electric prices ~~may reflect the costs of electricity at the wholesale level~~ **are administratively adjusted to incentivize customers to actively modify their electricity usage.**"
- Pg. 10: Definition of PTR. Recommend the following change: "An incentive rate in which the utility pays **a rebate to** Customers ~~to~~ **who** reduced demand during peak periods on critical days."

PAP-04

- Pg 9: Replace "reducing" with "modifying"

PAP-09 Retail

ISO/RTO Council Comments

NAESB PAP-03 / PAP-04 / PAP-09

- Pg 15: REQ.14.3.2.3: Use Case Overview - End-to-end business process flow should be consistent with Wholesale DR Signals document
- Pgs 17, 37, 45, 53, 58: Eliminate specific references to wholesale markets
- Pg 17: change “interruption” to “modification” (2x places)
- Pg. 30: Definition for Maximum Duration. Change “The maximum amount of time the asset/resource is capable of ~~delivering power (megawatts)~~ **modifying its electricity usage**”.
- Pg 30: the Parent-Resource ID concept needs to be reconciled with the terminology and hierarchical structure of resources used in the wholesale document.
- Pg 31: the Source-Authentication concept needs to be reconciled with the approach to security used in the wholesale document
- Ph 37: revise text as follows “The Bidder may be a Customer bidding with ~~either an energy retailer (e.g., LSE, ESP), a Service Provider (e.g., CSP, DRP), or a power marketer (i.e., wholesale market participant).~~ The Bidder may also be a Service Provider bidding up to a LSE or power marketer.”
- Pg 38: recommend proper use of bids and offers, i.e. bids are to buy and offers are to sell
- Pg 44 & 53: replace “shed” with “modify” (2x place)
- Pg 45: the concept of a “number signifying the reliability of the grid” has no basis in any reliability standards with which the IRC members are acquainted
- Pg 55: replace “de-energize” with “modification”
- Pg 58 – DR Execution – Retail Time Pricing (RTP): Replace this section with the following text:
“Provide real-time or dynamic pricing (RTP) to retail customers so that customers can vary their demand based on pricing signals. RTP represents retail electricity rates that vary as a function of time.”

PAP-09 Wholesale

- Pg. 9 – unresolved reference should be fixed

FORMAL COMMENTS

Quadrant: Wholesale Electric Quadrant

Recommendations: WEQ 2010 AP Item 6 (a) / REQ Annual Plan Item 9(a); Requirements Specification for Common Electricity Product and Pricing Definition – for NIST PAP03,
WEQ 2010 AP Item 6 (b) / REQ Annual Plan Item 9(b); Requirements Specification for Common Scheduling Mechanism for Energy Transactions – for NIST PAP04, and
WEQ 2010 AP Item 6 (c); Requirements Specifications for Wholesale Standard DR Signals – for NIST PAP09

Submitted By: Midwest ISO

Date: April 14, 2010

General Comments:

- Midwest ISO is concerned with the next steps for the PAPs once they are approved by the Executive Committee and ratified by the membership. The documents in many cases are intended only to provide examples and as such were not intended to be an all inclusive set of standards. In many cases the examples are not consistent with how some entities operate their markets. We will provide more detail as to where there are differences between the Midwest ISO market and the examples. At a minimum the documents should have some statement explaining that the examples included are not to be considered the full set of examples and that some markets may have implementations that are inconsistent with the examples and sample scenarios provided since the examples were not intended to provide an exhaustive set of standards. Without having this type of clarifying language on the examples, samples, etc., these standards may inadvertently dictate how the markets can operate in the future and as well as impact existing market designs.

PAP 3

- Page 10 – Definition for Market Clearing Price for Energy should be inclusive of 5 minutes...it says 15.
- Page 10 – Midwest ISO is concerned that the examples of common tariff rate types may lock entities into having to support all the tariff rate types listed and/or prevent them from creating any new tariff rate types without having the NAESB business practice standards changed.
- Page 14 – The recommendation makes the assumption that wind is dispatchable which is not the case.
- Page 15 – The sample scenario makes an invalid assumption that wind always commands a premium over coal because with rebates it may not be in the Midwest ISO market.
- Page 15 – The sample scenario makes an invalid assumption that Consumers must buy carbon credits, which is not the case in the Midwest ISO market.
- Page 18 – Pricing Attributes...does it include ancillary service prices?
- Page 19 – GMT is used within the Midwest ISO, with an offset.
- Pages 18-19 – Midwest ISO is concerned that the pricing attributes included in the list do not have any explanation as to whether the attributes are required or optional. Additionally, we would expect that this section be driven out during Phase 2. Midwest ISO would recommend this section be removed from the recommendation and be a part of the Phase 2 Recommendation.

Comments Submitted by E. Skiba, Midwest ISO

- Pages 20-21 – Midwest ISO is concerned that it does not offer a number of the provision listed in the Product Types and Sub-types. For example, following types/sub-types are not included in the Midwest ISO market: Load Following and Reactive Power Supply From Generation Sources.

PAP 4

- Page 3 – Issue with definition of Facility: reads like elemental node for calculating price instead of a aggregated commercial pricing node
- Page 8 – The intent is table unclear since it is “an incomplete, but representative set of instances.”
- Page 16 – Entity Relationship Model – Midwest ISO has concern with the following not being connected: Resource and Facility, Zone and Facility, and Resource and P-node.

PAP 9

- Page 10 – Use Case description – Midwest ISO does not distinguish Energy between Economic and Reliability.
- Page 19 – (Visio diagram) Midwest ISO is concerned whether this is a commitment process or a dispatch process. The Reliability Assessment commitment process will notify demand response of the commitment at the commercial pricing node level. The notification goes to the demand response participant and local balancing authority.
- Page 16 – (Visio diagram)...Can we follow both paths out of the Product decision? It appears that they are exclusive, which is not the case within the Midwest ISO market.
- Page 21 – (Visio diagram)...On this diagram it appears that the processes support sending multiple data streams and does not support the capability for providing a single combined setpoint. Midwest ISO market utilizes a combined setpoint approach. Midwest ISO combines into a single setpoint: energy, spin, etc. into one message, since we run a co-optimized market. Since regulation is added to base (set point) we can have something like 3 products using one message/signal. Would Midwest ISO have to use separate notifications rather than a combined setpoint?
- Page 24 – Since we are the Designated Dispatch Entity and System Operator we have concerns with the feasibility of the Entity Diagram and Business Process. The “green arrows” are defined in or out of the System Operator (SO) swim lane. This could be an issue since Midwest ISO needs to balance its footprint in 4 seconds for ACE, which currently imposes the use of ICCP. There is a general concern with the implementation if we were required to use XML and not able to use Inter-Control Center Communications Protocol (ICCP).

Honeywell Automation and Control Solutions
1985 Douglas Drive
Golden Valley, MN 55422

April 9, 2010

Mr. Jonathan Booe
Smart Grid Task Force
North American Energy Standards Board
801 Travis Street, Suite 1675
Houston, Texas 77002

Dear Mr. Booe,

This letter is offered in response to your March 9, 2010 request for formal comments to the NAESB Smart Grid requirements relating to NIST PAPs 3, 4 and 9.

Honeywell energy management technologies are found in more than 150 million homes, five million buildings, 24 of the top 25 refineries, and nearly 5,000 industrial sites around the world. By applying our expertise in sensing and controls, we are creating energy efficient, more comfortable, safer, more secure, and productive environments for our customers. We stand ready to work together with utilities and customers to build and implement the Smart Grid.

Honeywell sees great value in the NAESB SGTF effort to describe and publish requirements for electricity product definition, pricing, scheduling and demand response signals. This important work is a key driver in the process of developing and deploying the national standards required to implement the Smart Grid.

Honeywell has reviewed your documents and offers minor comments/edits for all the documents that fall into four categories.

- 1) Representation of all 3 customer domains (Residential, Commercial, and Industrial) should be included and explicitly stated when not applicable to all three.
- 2) Listings of specific standards setting organizations should not preclude others from participating.
- 3) The use cases and examples should include, when appropriate, in-premises energy management systems in residential, commercial and industrial customer domains.
- 4) Grammatical corrections.

We have attached all 3 documents with tracked changes to indicate recommended specific edits.

We look forward to utilizing these use cases/requirements to continue our dialog with NAESB and other standards setting organizations.

Sincerely,



Steve Gabel
Principal Development Engineer
Honeywell ACS Laboratories
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763-954-6512



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

For Quadrant: Retail Electric Quadrant (REQ)
Requesters: NAESB Smart Grid Task Force (SGTF)
Request No.: 2010 Retail Annual Plan Item 9(c)
Request Title: Requirements Specifications for Retail Standard DR Signals - for NIST PAP09

1. RECOMMENDED ACTION:

☒ Accept as requested
☐ Accept as modified below
☐ Decline

EFFECT OF EC VOTE TO ACCEPT RECOMMENDED ACTION:

☒ Change to Existing Practice
☐ Status Quo

2. TYPE OF DEVELOPMENT/MAINTENANCE

Per Request:

☒ Initiation
☐ Modification
☐ Interpretation
☐ Withdrawal

☒ Principle
☒ Definition
☒ Business Practice Standard
☐ Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

Per Recommendation:

☒ Initiation
☐ Modification
☐ Interpretation
☐ Withdrawal

☒ Principle
☒ Definition
☒ Business Practice Standard
☐ Document
☐ Data Element
☐ Code Value
☐ X12 Implementation Guide
☐ Business Process Documentation

3. RECOMMENDATION

SUMMARY:

The business process flows, use cases and data requirements presented in this document illustrate the standard interactions between Utility Distribution Operator, Service Provider (Demand Response) and Utility Customer for the administration and deployment of demand response resources retail markets.

RECOMMENDED STANDARDS:

In response to NIST's Priority Action Plan 9, this document provides requirements specification, in the form of business process flows, use cases and data requirements in certain areas, to support the standardization of the information exchange between Utility Distribution Operator, Service Provider (Demand Response) and Utility Customer. This document shares a standard set of actors and terminologies with the companion Requirements Specification for Wholesale Standard DR Signals.



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New Model Business Practices REQ.14 – Smart Grid Activities

RECOMMENDED STANDARDS:

Executive Summary

Specifications for Retail Standard Demand Response Signals

The North America Energy Standards Board (NAESB) Smart Grid Task Force (SGTF) took the responsibility of consolidating and developing DR use cases that provide requirements for developing DR control and pricing signal standards, which is called for by National Institute of Standards and Technology (NIST) Priority Action Plans (PAP) 03 and 09. This document addresses the business and data requirements for standardizing control and pricing signals for Retail level Demand Response (DR) and Distributed Energy Resources (DER) as part of the Smart Grid implementation. Wholesale market DR and DER information exchanges are outside the scope of this document and are addressed in the Requirements Specification for Wholesale DR signals. The first step of use case development is the development of the Framework for Integrated DR and DER Models document, which provides an overall business context for DR and DER Models.

According to the Framework Document findings:

1. DR signals standardization must support all four market types; i.e. regions with a) no open wholesale and no retail competition, b) open wholesale market only, c) open retail competition only, d) open wholesale and open retail competition. It must also consider key differences that exist and will continue to exist in all four market types.
2. Wholesale market DR and pricing signals have different characteristics than retail market DR and pricing signals, although commonality in format is feasible.
3. Most Customers (with a few exception of Commercial and Industrial (C&I) Customers) will not interact directly with wholesale market when it comes to DR and pricing signals.
4. Retail pricing models are complex, due to the numerous tariff rate structures that exist in both regulated and un-regulated markets. Attempts to standardize DR control and pricing signals must not hinder regulatory changes or market innovations when it comes to future tariff or pricing models.
5. New business entities (Energy Service Providers (ESP), Demand Response Providers (DRP), Service Providers, and Energy Information Service Providers (ESIP)) as well as new customer energy management systems will play an increasing role in DR implementation.
6. DER may play an increasingly important role in DR, yet the development of tariff and/or pricing models that support DER's role in DR is still in its infancy.
7. The Customer's perspective and ability to react to DR control and pricing signals must be a key driver during the development of DR standards.



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The following deals exclusively with the retail level demand response signals requirements. The requirements are captured in the form of UML models, where business requirements are captured in Use Case narrative format, data requirements are captured in tabular format, and information exchange flows are captured in sequence diagram format. The top level use cases for retail DR are:

1. Administrate DR Program
2. Administrate Customer for DR
3. Administrate DR Resource
4. Execute DR Event
5. Post DR Event Management

Introduction

Specifications for Retail Standard Demand Response Signals

Purpose: The purpose of the following is to capture business and data requirements for Retail Level DR signals between entities that controls and manages the DR programs and entities that provide demand response with DR resources and assets. This is to fulfill the NAESB SGTF responsibility under the NIST Smart Grid Interoperability Standards development PAP09. This requirements document will then be used by other standards development organizations identified by NIST PAP09 for further development of DR signals technical specifications for both C&I customer and residential customer markets.

Scope: The scope of the following is to provide business and data requirements for standardizing Demand Response signals at the retail (distribution) level.

Assumptions: The following and its content have been developed with the consideration of the following key assumptions:

- The market focus of this framework is the power industry in United States of America with some overlaps to Canada, although much of the business models and practices may apply to other countries and markets.
- The scope of DER applications will be limited to the context of grid-connected DR use cases and does not include the other possible applications of DER.
- The focus of the document is business level and abstracted models of DR and DER, not specific technologies that enable DR/DER implementation.
- The wholesale (bulk power) level DR signals requirements will be captured by the companion document, yet the basic principles and definitions will be common between these two documents.

Commentary on Distributed Energy Resources: In the context of this report, Distributed Energy Resources (DER) are dispatchable energy generation and storage technologies, typically up to ten MWs in size, that are interconnected to the distribution grid to provide electric capacity and/or energy to a customer or a group of customers and potentially export the excess to the grid for economical purposes. DER systems can generate electric power, as opposed to curtailable or interruptible loads that can just reduce electric loading on the grid.



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DER may be subdivided into distributed generation (DG), distributed storage, and plug-in electric vehicles (PEVs):

Distributed generation (DG) technologies can be divided into a) **Renewable Generation**, e.g., small wind power systems, solar photovoltaic (PV), Fuel Cells, Bio-fuel generators and Digesters, and other generation resources using renewable fuel, and b) **Non-Renewable Generation**, e.g., micro-turbines, small combustion turbines, diesel, natural gas and dual-fueled engines, etc.

Storage resources could be divided into a) **Electric Storage**, e.g., battery systems and uninterruptible power supplies (UPS), flywheel, superconducting magnetic energy storage (SMES), etc. and b) **Thermal Storage** – These convert electric power to thermal (cooling/heating) energy for later use, e.g., Ice-based air cooling system, and high-capacity brick-based air heating system.

Plug-in electric and hybrid vehicles (PEV/PHEV) may also be considered as DER. The electric vehicles may be used to supply stored electric energy back to the grid, a.k.a. Vehicle-to-grid (V2G).

Behind-the-meter DER may be bundled with regular load and managed alongside the demand response resources – such as a residential roof-top PV solar panel. But often, DER is treated separately in part due to its control capabilities. In addition to a regular retail tariff, behind-the-meter DER may be subject to net-metering or feed-in tariff, where excess generation can be exported to the grid at an established or a dynamic price.

Similar to DR resources, DER assets need to be registered and enrolled into a DR program. Furthermore, DER assets are typically required to meet additional technical requirements and certification for grid interconnection. Depending on the size of a DER and its export capabilities, sub-metering and telemetry capabilities may be required to monitor the impact of the DER operation on the distribution grid reliability and power quality. Also, renewable resources may receive Renewable Energy Credits (RECs) and may also qualify as a must-run resource, e.g., wind power in some regions. These need to be incorporated into pricing and control signals associated with DER operation.



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New REQ.14.2.B Technical Abbreviations/Acronyms and Defined Terms to be added to REQ.14 are included below for reference (previously added in Recommendation 2010 WEQ Annual Plan Item 6(b) / 2010 Retail Annual Plan Item 9(b))

REQ.14.2.B Technical Definitions

Abbreviations and Acronyms

Abbreviation / Acronym	Meaning
DDE	Designated Dispatch Entity
EA	Environmental Authority
ED	End Device'
EMS	Energy Management System
FR	Federal Regulator
LA	Local Authority
LSE	Load Serving Entity
MA	Metering Authority
MP	Market Participant
RA	Reliability Authority
RM	Response Method
RMA	Response Method Aggregation
SE	Scheduling Entity
SO	System Operator
SP	Service Provider
SR	State Regulator
TDSP	Transmission/Distribution Service Provider
UC	Utility Customer
UDO	Utility Distribution Operator



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- REQ.14.2.1t** **Business Entity:** The wholesale or retail entity that interacts with other entities in its market.
- REQ.14.2.2t** **Communication Method:** The method by which an object communicates with another object to instruct, measure or control.
- REQ.14.2.3t** **Control:** The role associated with the control of an End Device.
- REQ.14.2.4t** **Demand Response Objects:** Physical and logical types of demand response resource objects.
- REQ.14.2.5t** **Designated Dispatch Entity:** A role which carries the responsibility of receiving and processing demand resource dispatch instructions or market information and (optionally) providing response information.
- REQ.14.2.6t** **End Device:** A physical end-use device that consumes or supplies electricity.
- REQ.14.2.7t** **Environmental Authority:** A regulatory authority responsible for the development, reporting and enforcement of environmental activities.
- REQ.14.2.8t** **Facility:** The location at which connection to the transmission or distribution system is made.
- REQ.14.2.9t** **Federal Regulator:** A Federal regulatory authority.
- REQ.14.2.10t** **Load Serving Entity:** A role which carries the responsibility of serving end-users and selling electric energy to end-users.
- REQ.14.2.11t** **Local Authority:** A regulatory authority responsible for the oversight and administration of utility service-related functions within its jurisdiction.
- REQ.14.2.12t** **Market Enrollment:** The collection of enrollment or tariff data for a Demand Resource Object to provide a specific market product or service.
- REQ.14.2.13t** **Market Participant:** An organization registered with the System Operator that may take on roles such as SP, LSE, TDSP, DDE, SE, and/or MA in accordance with the System Operator's market rules.
- REQ.14.2.14t** **Measurement:** The role associated with the device or algorithm that measures the consumption or supply of an End Device.
- REQ.14.2.15t** **Metering Authority:** A role which carries the responsibility of providing data necessary to determine the performance of a Resource.
- REQ.14.2.16t** **P-Node:** The price location of the Facility in the transmission and/or distribution network.
- REQ.14.2.17t** **Participant:** The entity that represents resources to a market or distribution operator.
- REQ.14.2.18t** **Regulator:** A rule-making and enforcement entity.
- REQ.14.2.19t** **Reliability Authority:** A regulatory authority responsible for the development, reporting and enforcement of electric reliability-related activities.



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- REQ.14.2.20t** **Response Method:** A measurable action taken in response to an instruction to change consumption.
- REQ.14.2.21t** **Response Method Aggregation:** A logical entity that has a reportable interval level consumption, e.g. a site may also be a physical entity that may have its own meter, a neighborhood of homes that has a net meter, or an estimate of consumption of an aggregation of retail customers.
- REQ.14.2.22t** **Resource:** A market-dependent group of Response Method Aggregations that represents a dispatchable entity.
- REQ.14.2.23t** **Scheduling Entity:** A role which carries the responsibility of submitting bids/offers and receives Schedules and Awards.
- REQ.14.2.24t** **Service Provider:** A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.
- REQ.14.2.25t** **State Regulator:** A regulatory authority responsible for the oversight and administration of electric utilities.
- REQ.14.2.26t** **Support Operator:** Objects that support the interaction of Business Entities and Demand Response Objects.
- REQ.14.2.27t** **System Operator:** An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.
- REQ.14.2.28t** **Transmission/Distribution Service Provider:** A role which carries the responsibility of operating a local electricity transmission and/or distribution system.
- REQ.14.2.29t** **Utility Customer:** An end-use customer of the Utility Distribution Operator that takes on roles such as Facility or Resource.
- REQ.14.2.30t** **Utility Distribution Operator:** An entity which carries the responsibility of operating an electricity distribution system.
- REQ.14.2.31t** **Zone:** A physical or electrical region.



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Model Business Practices

REQ.14.3.2 Specifications for Retail Standard Demand Response Signals

The following describes general business processes for implementing demand response capacities at the retail market level. The following principles apply to the development and application of these business process requirements.

#	Name	Description	Rationale	Implication
1	<u>Scalability</u>	<u>The architecture should allow for the management of millions of Customer premises devices</u>	<u>Scale-out, adding more low-cost machines, has proven to be superior to scale-up, using larger single machines, as a way to handle large loads. For example, high traffic web sites use farms of low-cost machines to serve pages to millions of simultaneous web users.</u>	<u>Architecture should allow the solution to scale-out as more devices are added.</u>
2	<u>Actionable, testable, and transferable work products</u>	<u>Any work (artifacts) that are created can be used by the audience for this work, e.g., utilities, vendors, regulators, etc. There needs to be clear, explicit guidance for how to use the artifacts. There is an expectation that the work products are useful at lower levels of design.</u>	<u>Such work products will promote market adoption and minimize the cost and risk of adoption, leverage open and best practices, and establish repeatable processes, patterns, and templates for all work products.</u>	<u>The use of common tools and methods will be fostered. Organizations that do not follow the use of the common tools and methods may have more difficulty implementing the artifacts.</u>



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#	Name	Description	Rationale	Implication
3	<u>Platform Independence, Vendor Neutral</u>	<u>Requirements and design artifacts shall be platform independent. Implementation technology shall be chosen due to its level of acceptance at the marketplace as open standards.</u>	<u>There is an expectation of differentiation and innovation in the marketplace. With greater dependence on a specific platform, there may be less architectural flexibility.</u>	<u>To achieve both technical and semantic interoperability, certain lower level technologies will need to be chosen. For example, Web Services technology is widely used for integration, and UML is widely used for modeling.</u>
4	<u>Cyber Secure</u>	<u>Architecture must incorporate latest secure computing techniques.</u>	<u>The integrity of the electric grid and market depend on preventing unauthorized actors from manipulating the DR and DER system.</u>	<u>Architecture must comply with the latest security guidance from the NIST SGIP Architecture Committee and CyberSecurity Task Group, when it comes to Web Services security related implementation.</u>
5	<u>Interoperability</u>	<u>DR signaling standards should utilize open, interoperable industry standard control and communication technologies to integrate with both common energy management and control systems that can conduct DR activities</u>	<u>Interoperability across different domains of Smart Grid is key to the success of DR signaling standards as it ensures level playing field for innovative solutions for all participants of the Smart Grid.</u>	<u>DR signaling standards must be developed in harmonization with others relevant standards as identified by the NIST SGIP.</u>
6	<u>Automatic Demand Response</u>	<u>The DR program (analysis, notification, event, action, monitoring, verification, settlement) should be automatic. DR signaling standards should provide secure, reliable communications with consumers for DR</u>	<u>Automation is the only way to ensure large scale and repeatable demand response implementation.</u>	<u>Security, reliability and testability must be ensured for DR automation.</u>



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#	Name	Description	Rationale	Implication
7	<u>Cover All Market Types</u>	<u>operations</u> <u>DR signaling standards should be supported and implementable in all four market types listed in this document</u>	<u>Standards development shall not get in the way of regulatory policy decisions.</u>	<u>DR signals design need to support a wide range of programs and tariff/pricing structures.</u>

REQ.14.3.2.1 ACTORS

The following actor roles and actors are defined and used across NAESB documents related to NIST PAP03, 04 and 09 (Wholesale and Retail).

Actor Roles

<u>Term</u>	<u>Acronym</u>	<u>Definition</u>
<u>Service Provider</u>	<u>SP</u>	<u>A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.</u>
<u>Designated Dispatch Entity</u>	<u>DDE</u>	<u>A role which carries the responsibility of receiving and processing demand resource dispatch instructions or market information and (optionally) providing response information.</u>
<u>Load Serving Entity</u>	<u>LSE</u>	<u>A role which carries the responsibility of serving end-users and selling electric energy to end-users.</u>
<u>Metering Authority</u>	<u>MA</u>	<u>A role which carries the responsibility of providing data necessary to determine the performance of a Resource.</u>
<u>Scheduling Entity</u>	<u>SE</u>	<u>A role which carries the responsibility of submitting bids/offers and receives Schedules and Awards.</u>
<u>System Operator</u>	<u>SO</u>	<u>An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.</u>
<u>Transmission/Distribution Service Provider</u>	<u>TDSP</u>	<u>A role which carries the responsibility of operating a local electricity transmission and/or distribution system.</u>



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Actors List

<u>Regulator</u>	<u>A rule-making and enforcement entity.</u>
<u>Federal Regulator (FR)</u>	<u>A Federal regulatory authority.</u>
<u>Reliability Authority (RA)</u>	<u>A regulatory authority responsible for the development, reporting and enforcement of electric reliability-related</u>
<u>Environmental Authority (EA)</u>	<u>A regulatory authority responsible for the development, reporting and enforcement of environmental activities.</u>
<u>State Regulator (SR)</u>	<u>A regulatory authority responsible for the oversight and administration of electric utilities.</u>
<u>Local Authority (LA)</u>	<u>A regulatory authority responsible for the administration of utility service-related functions within its jurisdiction.</u>

<u>Business Entity</u>	<u>The wholesale or retail entity that interacts with other entities in its market.</u>
<u>System Operator (SO)</u>	<u>An entity which carries the responsibility of administering the demand response process, from Resource enrollment to performance evaluation.</u>
<u>Market Participant (MP)</u>	<u>An organization registered with the System Operator that may take on roles such as SP, LSE, TDSP, DDE, SE, and/or MA in accordance with the System</u>
<u>Utility Distribution Operator (UDO)</u>	<u>An entity which carries the responsibility of operating an electricity distribution system.</u>
<u>Utility Customer (UC)</u>	<u>An end-use customer of the Utility Distribution Operator that takes on roles such as Facility or Resource.</u>



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<u>Participant Role</u>	<u>The entity that represents resources to a market or distribution operator.</u>
<u>Service Provider (SP)</u>	<u>A role which carries the responsibility of coordinating resources to deliver electricity products and services to a market or distribution operator.</u>
<u>Load Serving Entity (LSE)</u>	<u>A role which carries the responsibility of serving end-users and selling electric energy to end-users.</u>
<u>Scheduling Entity (SE)</u>	<u>A role which carries the responsibility of submitting bids/offers and receives Schedules and Awards.</u>
<u>Designated Dispatch Entity (DDE)</u>	<u>A role which carries the responsibility of receiving and processing demand resource dispatch instructions or market information and (optionally) providing response information</u>
<u>Transmission/Distribution Service Provider (TDSP)</u>	<u>A role which carries the responsibility of operating a local electricity transmission and/or distribution system.</u>
<u>Metering Authority (MA)</u>	<u>A role which carries the responsibility of providing electric usage data necessary to determine the performance of a Resource.</u>

<u>Resource Objects</u>	<u>Physical and logical types of resource-related objects.</u>
<u>Resource</u>	<u>A group of Response Method Aggregations that represents a dispatchable entity. Also referred to as DR Resource in this document.</u>
<u>Response Method Aggregation (RMA)</u>	<u>A logical entity that has a reportable interval level consumption, e.g. a site may also be a physical entity that may have its own meter, a neighborhood of homes that has a net meter, or an estimate of consumption of an aggregation of retail customers. Also referred to as DR Asset in this document.</u>
<u>Facility</u>	<u>The location at which connection to the transmission or distribution system is made.</u>



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<u>Resource Objects</u>	<u>Physical and logical types of resource-related objects.</u>
<u>Response Method (RM)</u>	<u>A measurable action taken in response to an instruction to change consumption.</u>
<u>End Device (ED)</u>	<u>A physical end-use device that consumes or supplies electricity.</u>
<u>Supporting Objects</u>	<u>Objects that support the interaction of Business Entities and Resource Objects</u>
<u>Measurement</u>	<u>The role associated with the device or algorithm that measures the consumption or supply of an End Device.</u>
<u>Control</u>	<u>The role associated with the control of an End Device.</u>
<u>Market Enrollment</u>	<u>The collection of enrollment or tariff data for a Demand Resource Object to provide a specific market product or service.</u>
<u>Zone</u>	<u>A physical or electrical region.</u>
<u>Communication Method</u>	<u>The method by which an object communicates with another object to instruct, measure or control.</u>
<u>P-Node</u>	<u>The price location of the Facility in the transmission and/or distribution network.</u>



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REQ.14.3.2.2 Conventions

The use case modeling technique is used for capturing business and data requirements relative to Retail Demand Response. There are two basic diagrams used in this document. The first one is the use case diagram, which shows the scope of business use cases for a given business scenario. The relationships used in the Use Case diagrams are as follows:

- Include: this indicates additional scenarios
- Extend: this indicates alternatives scenarios
- Generalization (line with triangle head): this indicates variations (sub-types) of the main use case.
- Precedes: this indicates a time sequence
- Invokes: this indicates a pre-condition or dependency

The second is the sequence diagram, which shows the information exchange flows between actors for a given use case. The message flows are shown in one way with the convention of verb and noun, verb indicating the action being taken, noun indicating the name of the information being exchanged. The return message flow is the acknowledgement of the main message flow.



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REQ.14.3.2.3 Use Case Overview

Similar to the Wholesale Demand Response use cases, Retail Demand Response use cases generally follow five main steps, see the Figure 1.

1. Administrate DR Program
2. Administrate Customer for DR
3. Administrate DR Resource
4. Execute DR Event
5. Post DR Event Management

There are many programs that exist in today's retail markets with or without open competition. New programs will be defined and deployed in the future. The goal of this use case analysis is to find commonalities among these programs so that the derived DR signal messaging specification can be implemented to support a large number of DR programs.

The focus of the Standardized DR Signals is the step 4, Execute DR Event, where the DR signals will be communicated between the DR Providers and the DR resources. All other use cases are supporting materials to ensure that DR use case requirements are documented and understood in a complete picture.

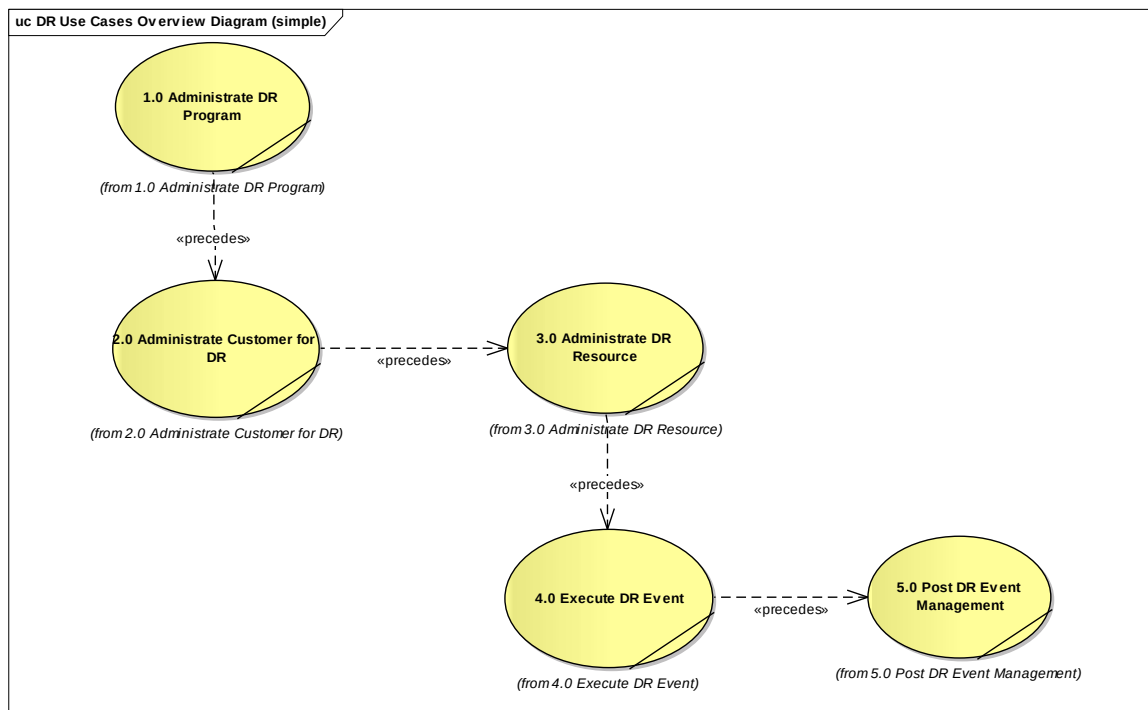


Figure 1. Retail Market DR Use Case Overview



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REQ.14.3.2.4 Specific Use Cases

REQ.14.3.2.4.1 Administrate DR Program

Typically DR programs are created for specific business needs of demand side management. However, it is not required to affect demand behavior. It is also likely that DR programs will evolve over time. Figure 2 shows the actors and use cases involved in administrating DR programs. Following are the three main use cases concerning the creation, update and removal of DR programs. It is unlikely that this step of the DR management will be automated.

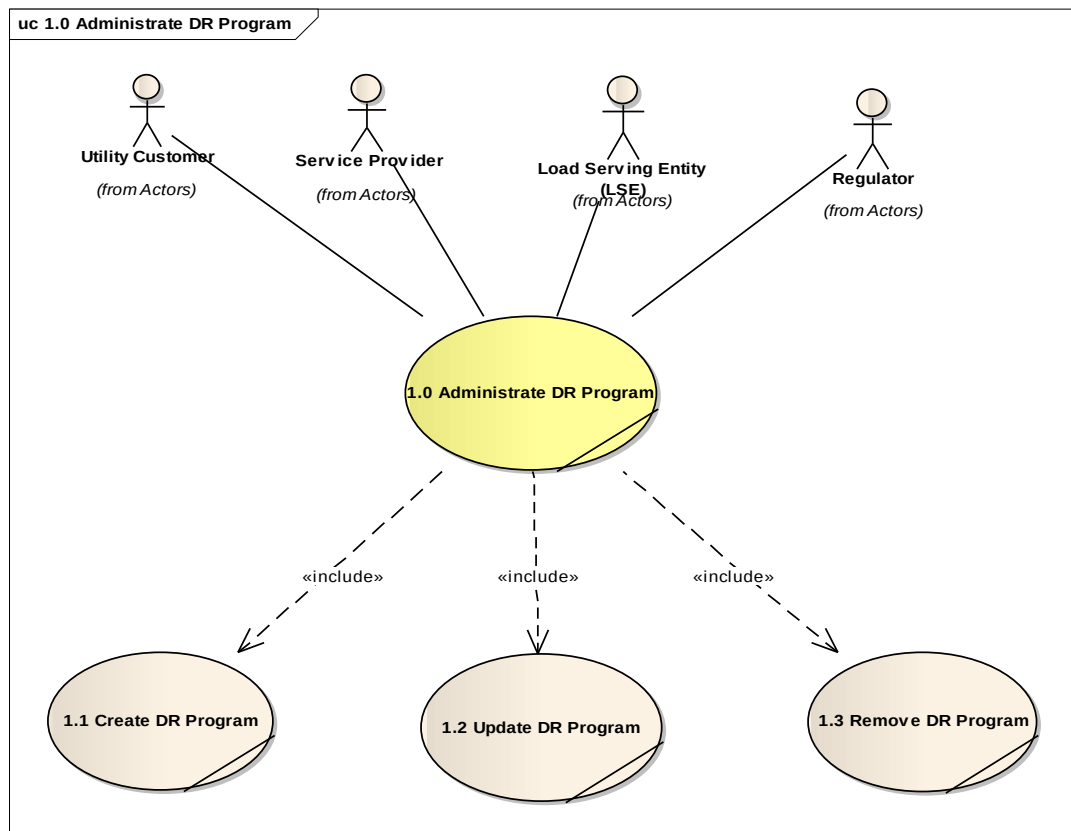


Figure 2. Administrate DR Program

REQ.14.3.2.4.1.2 Create DR Program

Description

A DR program is created to meet one of two, or both, situations. A DR program is created to meet a reliability need, i.e., a projected insufficient energy supply, and/or for economic purposes, i.e., when market prices are peaking.

A properly designed DR program will have a clearly stated goal or objective, Program Administrator, activation and operational



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protocols, and responsibilities and obligations. The items that should be considered include, but are not limited to:

- The type and size of the target Customer;
- The type of program to be implemented, e.g., Direct Load Control, Firm Service Level, Guaranteed Load Drop, etc.;
- The type and level of granularity of metering and telemetry to be used/required;
- Any regulatory requirements;
- Method of communication;
- Activation protocol;
- Marketing and Sales activities;
- Customer Education activities;
- Duration;
- Delivery Period;
- LSE/UDO Compensation;
- Data Exchange Protocols;
- Customer Authorization;
- Third Party Participation;
- Registration / Enrollment Process;
- Approval Process;
- Baseline Calculations;
- Settlement Process;
- Payment Process;
- DR Resource enablement, including incentives;
- DR Resource deployment process;
- M&V Methodology;
- Contractual Agreements;
- Dispute Resolution Process;
- Phase-in or Roll-out Plan;
- Product type offering to the ISO/RTO; energy only, ancillary service (regulation up/down, spinning/non-spinning, etc.);
- If offering to ISO/RTO, specific metering/telemetry or other requirements needed to actively participate ;
- Address multiple participation in other DR programs (retail and wholesale);
- Include/Exclude full/partial co-generation system, back-up generation, DER, etc...;
- UDO verifying DR resource physical electric grid location.



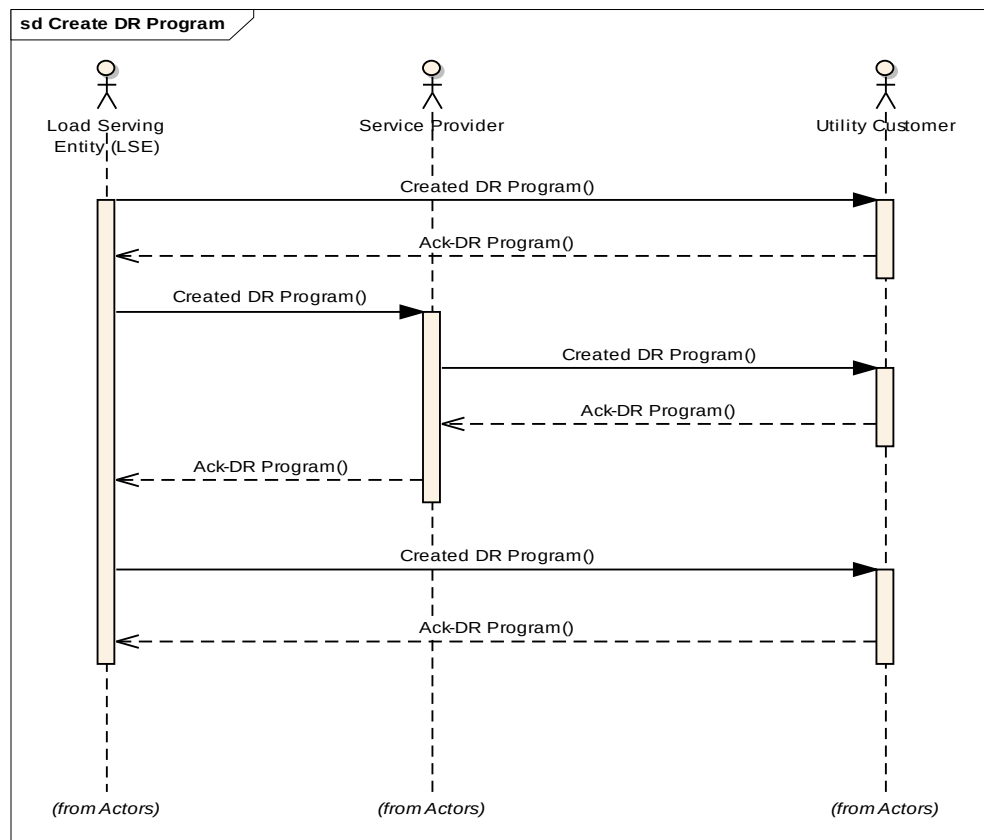
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Once the DR program is developed, it should be certified prior to its implementation. Such testing may be accomplished through a pilot program. The results of the test/pilot should then be compared against the goal/objective of the program and any needed modifications made. Upon satisfactory results, the DR program should be filed with and approved by the Applicable Regulatory Authority, if any. Depending on which Entity is creating the DR program, it must also be submitted to and approved by the System Operator. Finally, the DR program must be implemented. Upon activation of a DR program, an observable demand reduction should occur.

Sequence Diagram

The following DR Program interaction assumes the initial steps of regulatory process are completed for the approval of a DR program. This shows the potential automation of the creation of DR programs from systems perspective.





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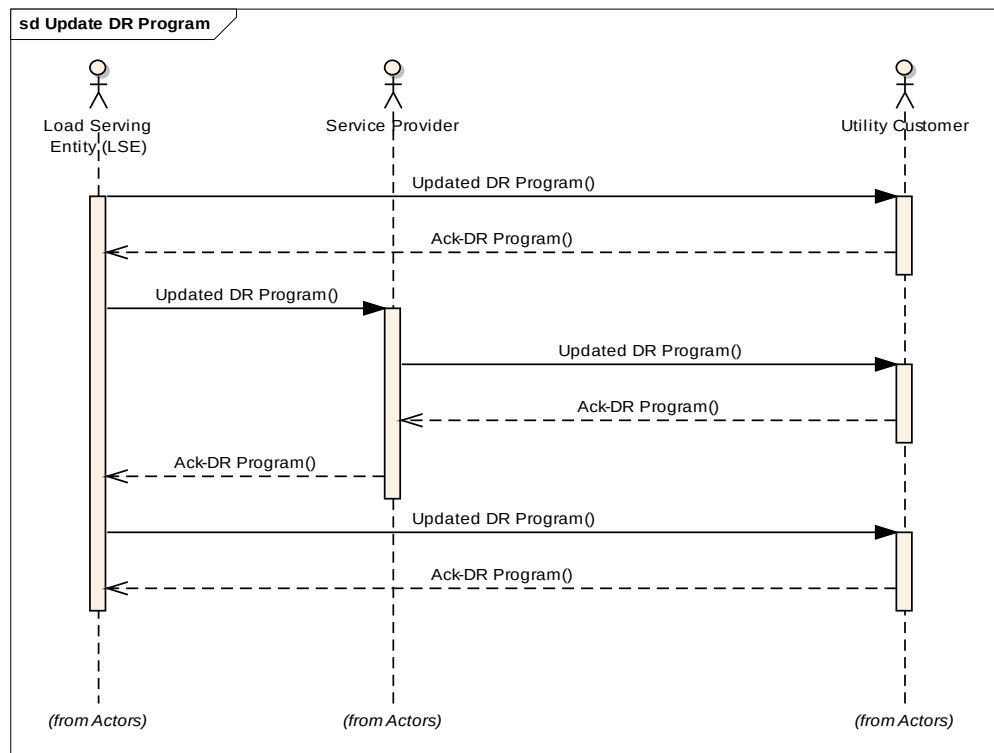
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REQ.14.3.2.4.1.3 Update DR Program

Once a DR program is initiated, changes in various elements of the program may be required or desired. After identifying the specific modification required, each of the considerations identified in the "Create" step should be investigated to insure that no unintended impacts occur as a result of the modification. If such unintended impacts occur, further investigation of the modification is required prior to implementation.

A regulated Entity must then present the modifications to the Applicable Regulatory Authority for approval and, then to the System Operator for approval. Once approved, the modifications must be communicated to Customers.

Sequence Diagram





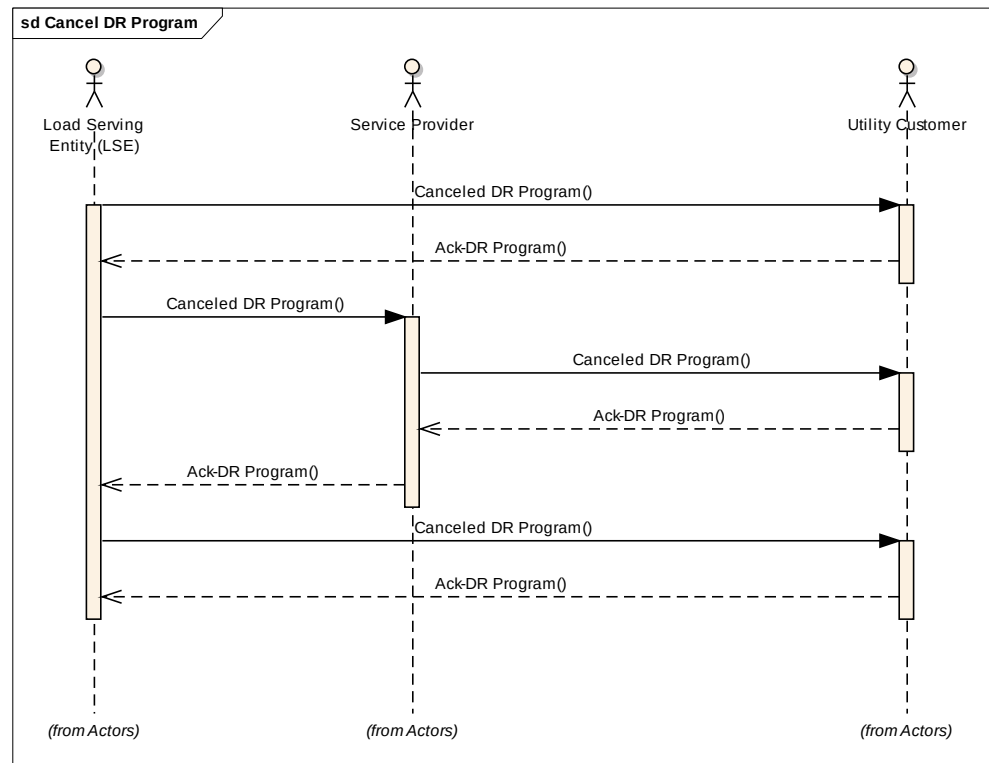
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REQ.14.3.2.4.1.4 Remove DR Program

Termination of a DR program must take into account any DR resource long term commitments in System Operator programs and contractual obligations with Service Provider (Service Providers, Energy Service Provider) or Load Serving Entities. In addition, State and or Federal regulatory agency filings and approvals must be considered prior to terminating a DR program. Termination of a DR program may involve the removal of DR infrastructure, such as Direct Load Control Devices and advanced metering and pulse devices used in the Measurement and Verification of the program. All outstanding payments to the DR resources should be completed prior to the termination of the DR program.

Sequence Diagram





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REQ.14.3.2.4.2 Administrate Customer for DR

Once the DR programs are established, there will be campaigns from Service Provider to get customers enrolled into the programs. Figure 3 shows the actors and use cases involved in administrating customers into DR programs. Following are the three main use cases concerning the creation, update and removal of customers for a DR program. Enrollment may affect how a customer is compensated for demand responses. It is unlikely that this step of the DR management will be automated.

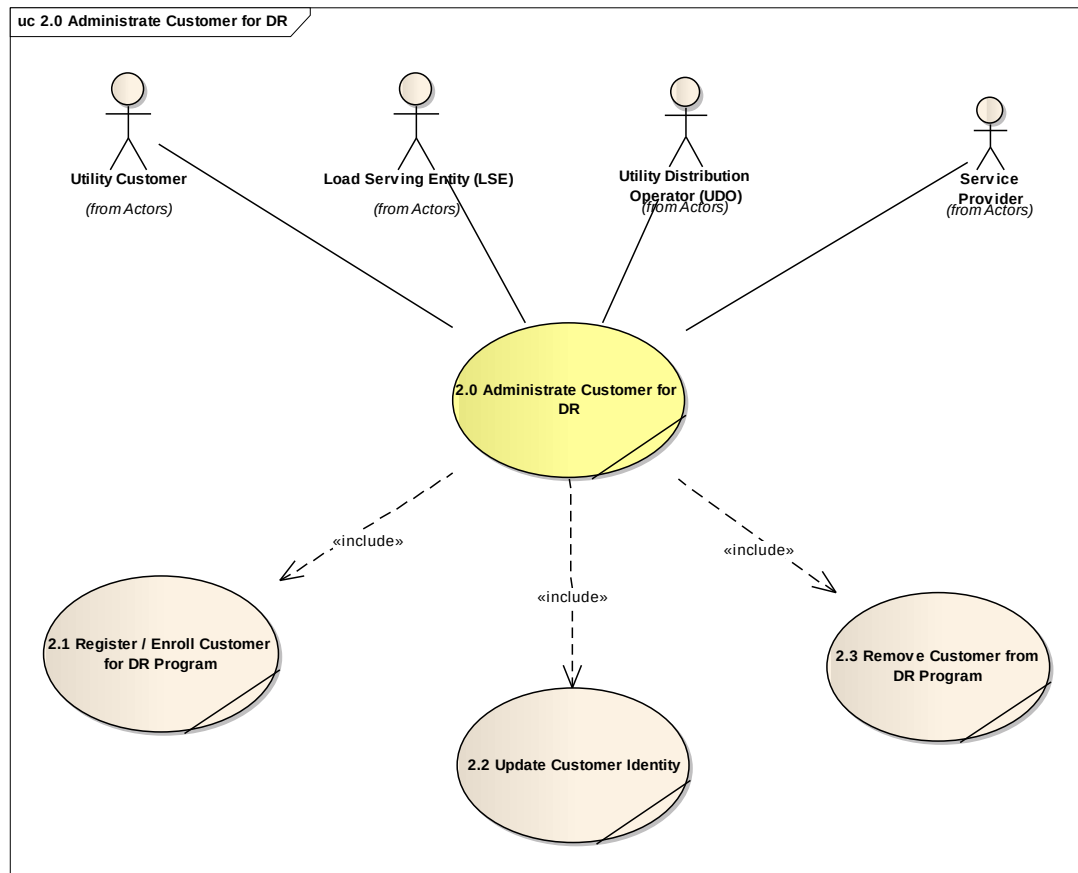


Figure 3. Administrate Customer for DR



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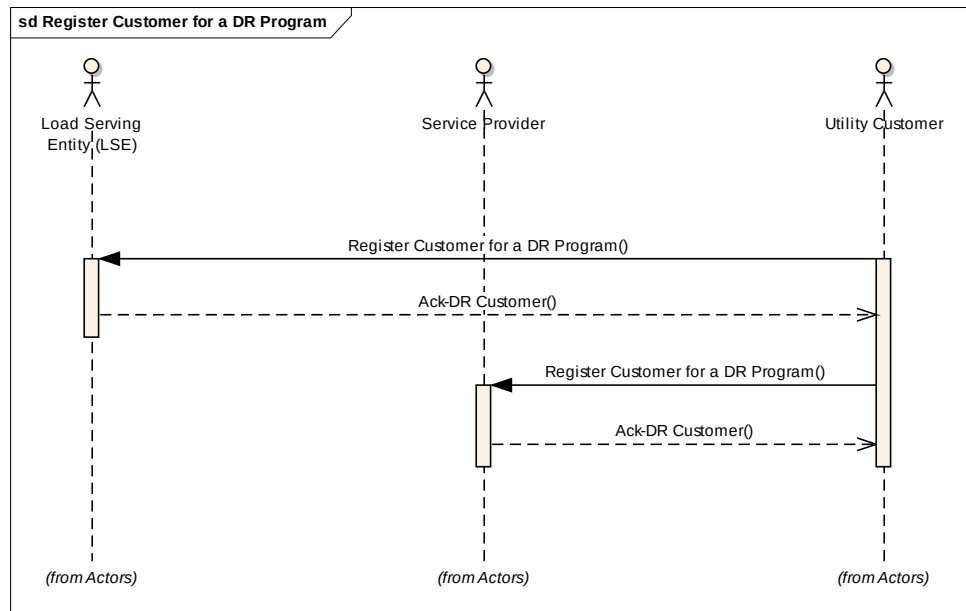
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REQ.14.3.2.4.2.1 Register / Enroll Customer for DR Program

Description

The registration/enrollment process must capture the key identifiers in order to enable accurate accounting and classification of DR resources, as well as to ensure customer understanding of the type and specific requirements of demand response service they are providing. A registration process to track registrations of System Operators or facilitating agencies and the movement of DR resources from one Service Provider to another as may occur from time to time is necessary. Internet-based applications for the registration/enrollment process are ideal for this type of program administration. There may be different applications for various service types and customer types.

Sequence Diagram





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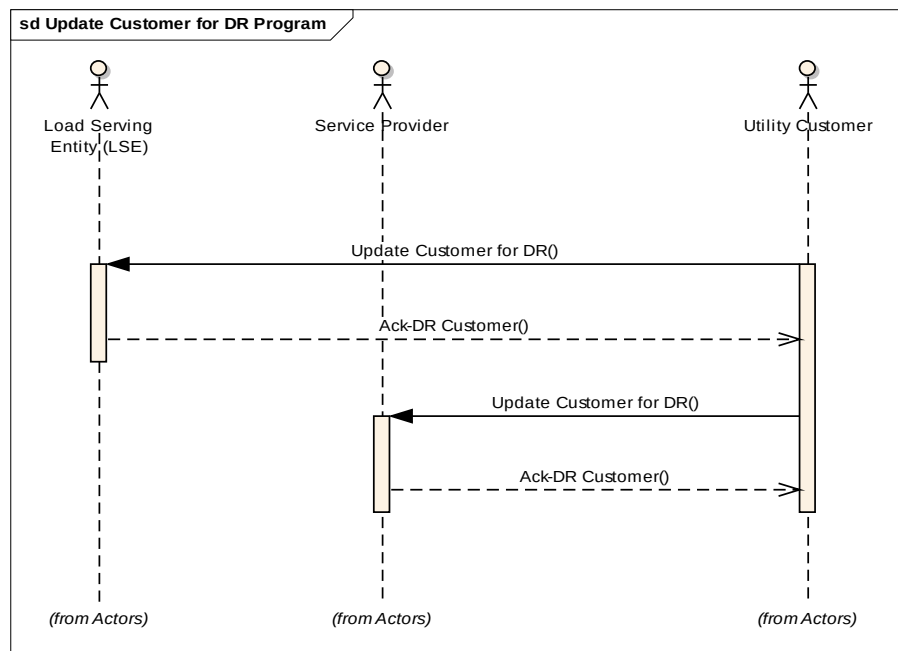
REQ.14.3.2.4.2.2 Update Customer Identity

Description

Once a DR registration is completed, changes in various elements of the registration may be required or desired. After identifying the specific modification required, each of the considerations identified in the register/enroll step should be investigated to ensure that it is accurate and complete.

All parties (Utility, Aggregators, Energy Consultants, DR resources, Regulatory Agencies) affected by the update should be given reasonable time to review, dispute, and approve/disapprove the update(s).

Sequence Diagram





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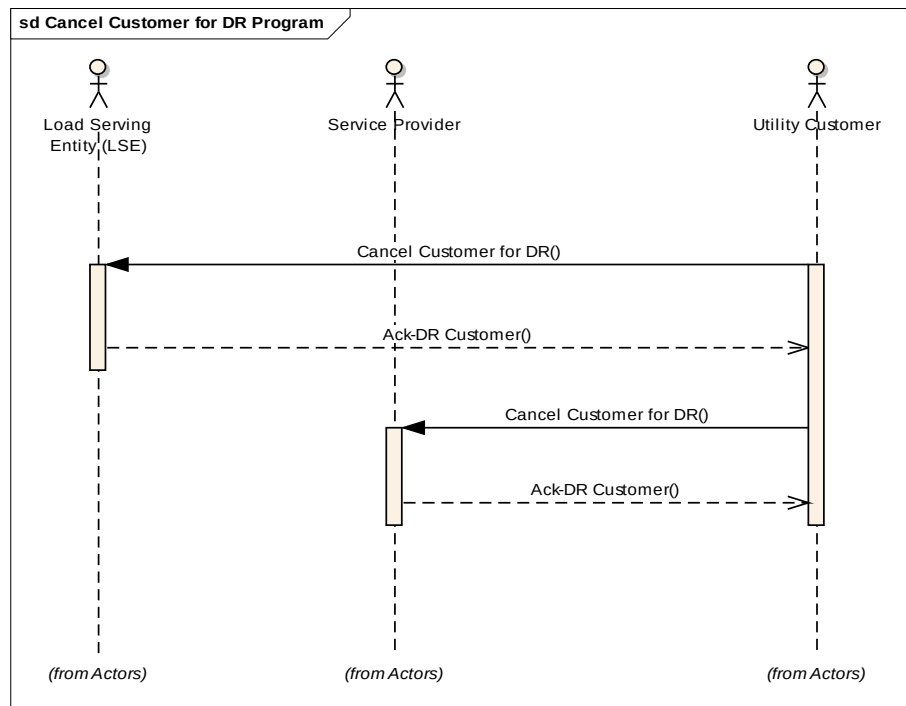
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REQ.14.3.2.4.2.3 Remove Customer from DR Program

Description

Removing a Customer Entity from a DR Program enrollment must take into account any DR resource long term commitments in System Operator programs, and contractual obligations with Service Provider or Load Serving Entities. In addition, State and/or Federal regulatory agency filings and approvals must be considered prior to removing a customer enrollment from a DR program.

Sequence Diagram





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REQ.14.3.2.4.3 Administrate DR Resource

DR Resource is an equivalent of Resource and DR Asset is an equivalent of Response Method Aggregation (RMA), defined in the actor list table.

As part of enrolling customers to a DR program, specific DR resources and assets that are associated with customers' accounts and premises will also need to be registered. Figure 4 shows the actors and use cases involved in administrating DR resources and/or assets into DR programs. The following use cases deal with the registration, update, and removal of DR resources and assets associated with a customer. When updating DR resources, there will also be potential use cases of DR bidding process, either for supplying or for buying power. There are also cases where Distributed Energy Resources will act as DR assets.

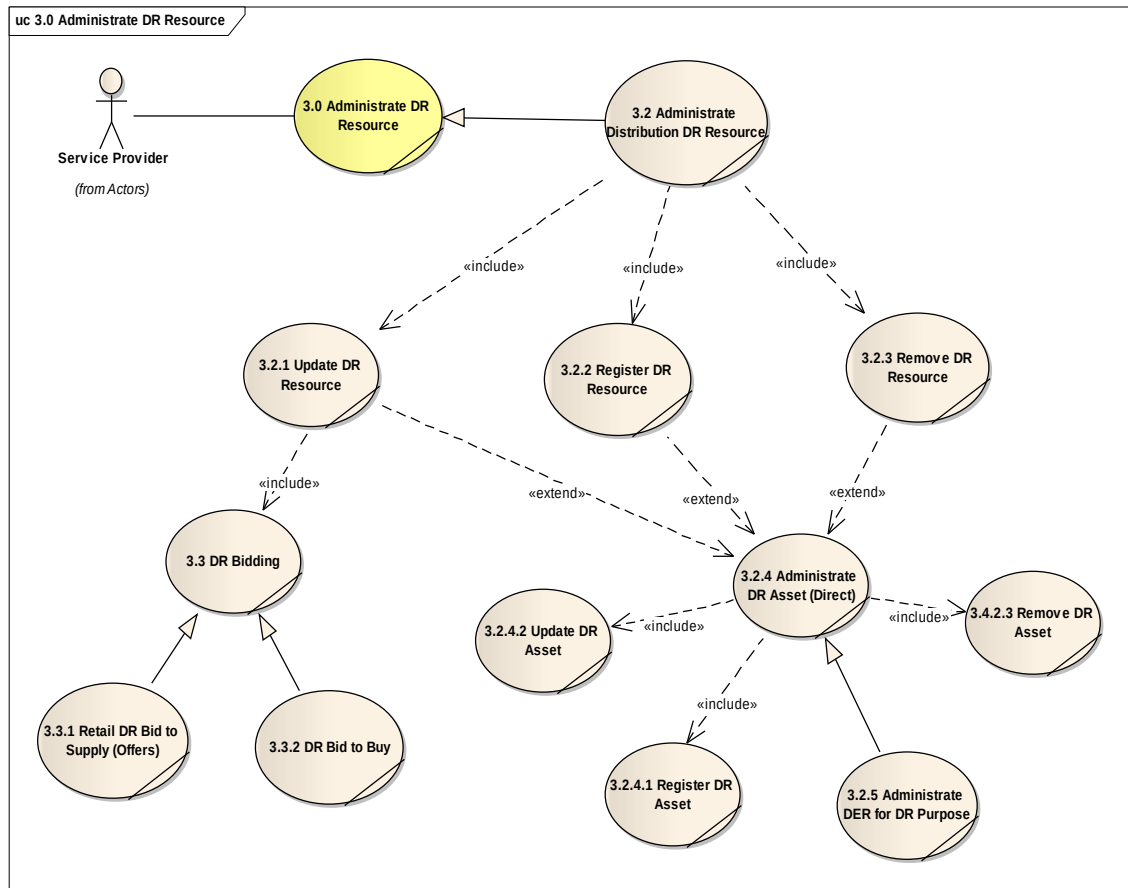


Figure 4. Administrate DR Resources and/or Assets into DR Programs



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REQ.14.3.2.4.3.1 Administrate Distribution DR Resource

These activities are used to administer all of the DR Resources and Assets, including a variety of activities surrounding the registration of DR Resources and the management of information surrounding the DR Resources that a Service Provider may call upon during a DR event. Before a DR Resource may be called upon, it must be registered with the Service Provider. The administration of a DR Resource covers the following requirements:

- The need of the Service Provider to identify a DR Resource for communications purposes;
- The need of the Service Provider to establish DR Resource accounts for accounting purposes;
- The need of the Service Provider to collect information from DR Resources prior to DR events for the purposes of determining which DR Resources to call upon during a DR Event; and
- The need of the Service Provider to collect information from DR Resources prior to DR events for the purposes of determining the nature of the DR signals to send to the DR Resources.

REQ.14.3.2.4.3.2 Update DR Resource

Description

When the base capacity of a DR Resource changes from when it was last registered with the DR provider, customer needs to provide updated information to the DR provider so that such information can be factored into the consideration for DR event planning.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>Asset-ID</u>	<u>This uniquely identifies a DR Asset</u>
<u>DR Resource Operational Constraints</u>	<u>These are constraints that define the amount load that can be made available during a DR event, including the following:</u> <u>• Minimum load</u> <u>• Maximum load.</u>
<u>DR Resource Bid</u>	<u>This is a bid from the DR Resource. See the DR Bidding use case for a description of the information requirements.</u>



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<u>Attribute Name</u>	<u>Description</u>
<u>DR Resource Schedule Constraints</u>	These are a set of constraints that specify when the DR Resource will be available. It may contain such information as: • <u>Time of day schedule constraints</u> • <u>Black out dates</u> • <u>Maximum consecutive days of participation</u> • <u>Maximum duration of DR event participation</u> • <u>Minimum duration of DR event participation</u> • <u>Max number of times per day the DR Resource may be called</u> • <u>Minimum advanced notification necessary.</u> Provide details if DR asset or DR resource is in any other DR programs (wholesale and retail)
<u>DR Resource Identifier</u>	<u>This identifies the DR Resource.</u>
<u>DR Resource Qualification</u>	<u>This shows the qualification of a DR resource for certain type(s) of DR programs</u>
<u>Effective-Start-Date</u>	<u>The date and time when the declared capabilities will be in effect.</u>
<u>Hourly-Capacity-Availability</u>	<u>The amount of capacity available for interruption by hour for the period defined by the effective start/end date, expressed in kW or MW with appropriate precision.</u>
<u>Message-Exchange-Pattern</u>	<u>The means by which price information is communicated to any party that is interested in this information. The following are valid options:</u> • <u>In-Only</u> • <u>Robust In-Only</u> • <u>In-Out.</u> <u>Refer to http://www.w3.org/TR/wsdI20-adjuncts/#patterns for complete descriptions.</u>
<u>Monthly-Capacity-Availability</u>	<u>The average capacity available for interruption by month for the period defined by the effective start/end date, expressed in Megawatts with appropriate precision.</u>

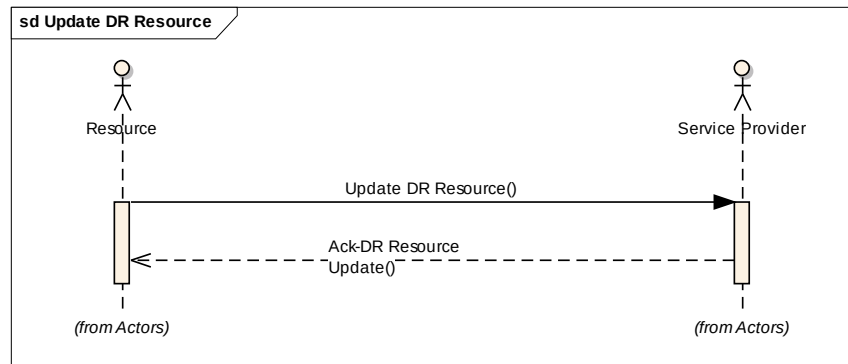


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Attribute Name	Description
<u>Source-Authentication</u>	<u>The recipient must have some assurance that the message was produced by a reliable, authoritative party. This requires some ability to validate the authenticity of the source and integrity of the data (e.g., digital signature applied to a price message).</u>
<u>Temporary Opt-Out</u>	<u>This is used to temporarily opt out of DR Events and to override the normal operational constraints. The opt-out can be specified using the following criteria:</u> <u>All events in a program indefinitely</u> <u>Specific DR Event</u> <u>All events in a specific time period.</u> <u>Other triggered programs for which an asset or DR resource is already called upon (reduce double counting of available capacity)</u>

Sequence Diagram



REQ.14.3.2.4.3.3 Register DR Resource

Description

A party with ownership, controlling interest, or administrative responsibilities for a DR Asset or DR Resource that communicates status-related operational information about the DR Asset or DR Resource to a Service Provider. For example, the owner of a DR Resource or Asset may wish to declare their inability to shed load (an outage) due to summer shutdown or may wish to reduce the available capacity of a resource/asset due to equipment maintenance or other causes.



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Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>Asset-ID</u>	<u>This uniquely identifies a DR Asset.</u>
<u>Available-Capacity</u>	<u>The total amount of power (megawatts) available from the asset/resource, expressed in integer format representing the amount of kilowatts available.</u>
<u>Customer Identifier</u>	<u>This is a customer identifier (e.g., account number) that signifies the owner of the DR Resource to the Utility.</u>
<u>DR Program Identifier</u>	<u>This identifies the DR program in which a DR Resource is participating.</u>
<u>DR Resource Identifier</u>	<u>This identifies the DR Resource that is being registered.</u>
<u>DR Resource Qualification</u>	<u>This shows the qualification of a DR resource for certain type(s) of DR programs</u>
<u>DR Resource Operational Constraints</u>	<u>These are constraints that define the amount of load that can be made available during a DR event and includes the following:</u> <u>Minimum load</u> <u>Maximum load.</u>
<u>DR Resource Schedule Constraints</u>	<u>These are a set of constraints that specify when the DR Resource will be available. It may contain such information as:</u> <u>Time of day schedule constraints</u> <u>Black out dates</u> <u>Maximum consecutive days of participation</u> <u>Maximum duration of DR event participation</u> <u>Minimum duration of DR event participation</u> <u>Max number of times per day the DR Resource may be called</u> <u>Minimum advanced notification necessary.</u> <u>Provide details if DR asset or DR resource is in any other DR programs (wholesale and retail)</u>
<u>Effective-Start-Date-Time</u>	<u>The start date and time which an asset/resource is available.</u>



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

For Quadrant: Retail Electric Quadrant (REQ)
Requesters: NAESB Smart Grid Task Force (SGTF)
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<u>Attribute Name</u>	<u>Description</u>
<u>Location</u>	<u>An identifier to indicate the location of the asset/resource.</u>
<u>Location-type</u>	<u>A value used to interpret the value contained in the Location element.</u> <u>Examples of Location-type include:</u> <u>Zone</u> <u>Node</u> <u>Zip-code.</u>
<u>Maximum-Duration</u>	<u>The maximum amount of time the asset/resource is capable of delivering power (megawatts). this may be expressed in hours using decimal notation. For example, a value of 0.5 indicates a maximum duration of 30 minutes which the asset/resource can reduce power consumption by the level indicated in Available Capacity.</u>
<u>Message-Exchange-Pattern</u>	<u>The means by which price information is communicated to any party that is interested in receiving this information. The following are valid options:</u> <u>In-Only</u> <u>Robust In-Only</u> <u>In-Out.</u> <u>Refer to http://www.w3.org/TR/wsd120-adjuncts/#patterns for complete descriptions.</u>
<u>Minimum-Duration</u>	<u>The minimum amount of time that an Asset/Resource Owner is willing to allow the resource/asset to be utilized during a DR event. It may be expressed in decimal format representing hours. For example, a value of 1.5 indicates that an asset/resource must be utilized for no less than one hour and 30 minutes during any DR event.</u>
<u>Parent-Resource ID</u>	<u>This is used by an Asset to indicate that it "belongs to" a particular Resource. Assets may be aggregated into a Resource, but are not required to be so aggregated. Resources are autonomous and may not be aggregated.</u>

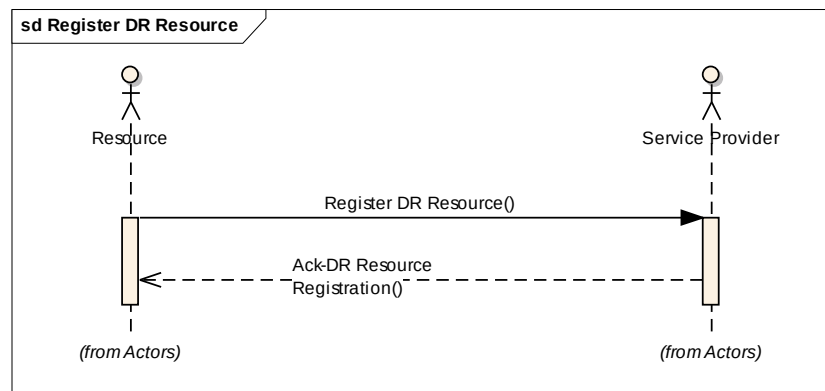


RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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Attribute Name	Description
<u>Report-type</u>	This indicates the type of report being issued by the Asset or Resource Owner. This is an enumerated value containing one of the following: <u>REGISTRATION</u> (to register a new asset/resource) <u>CHANGE</u> (refers to permanent changes) <u>RETIREMENT</u>.
<u>Response-time</u>	The amount of time before an asset/resource is capable of meeting its full performance, in response to a request by a Service Provider to shed load, expressed as minutes in decimal format.
<u>Source-Authentication</u>	The recipient must have some assurance that the message was produced by a reliable, authoritative party. This will require some ability to validate the authenticity of the source and integrity of the data (e.g., digital signature applied to a price message).

Sequence Diagram





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REQ.14.3.2.4.3.4 Remove DR Resource

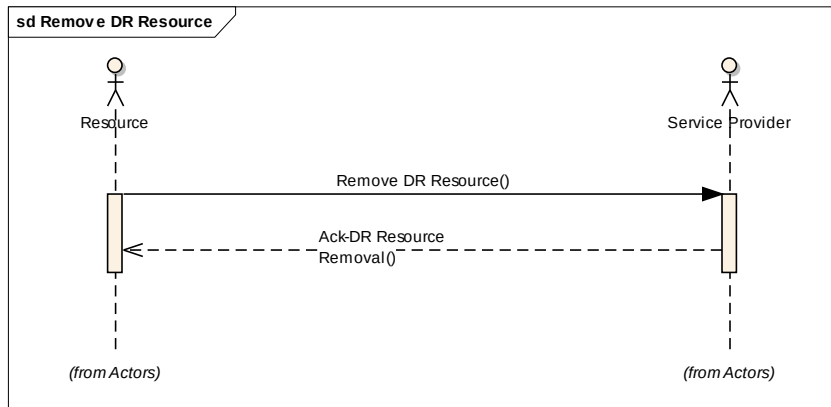
Description

When a DR resource is no longer available permanently for DR purpose, it needs to be removed from the DR program for that customer so that it will be accounted for DR event planning.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>DR Resource Identifier</u>	<u>This identifies the DR Resource that is being removed.</u>
<u>Removal Effective Date/time</u>	<u>Date/time when the DR resource is no longer available.</u>

Sequence Diagram



REQ.14.3.2.4.4 Adminstrate DR Asset (Direct)

REQ.14.3.2.4.4.1 Register DR Asset

Description

The DR Asset registration process must capture key identifiers to enable accurate tracking of DR assets and their capabilities. A requirement for a System and Market Operator, Load Serving Entity, Service Provider, or other entity facilitating the registration process (hereinafter referred to as DR Asset Administrator) is to track assets. This is done through DR asset registration and association of physical DR assets to DR Resources to recognize the asset and its potential contribution as part of a DR Resource. The DR Asset Administrator ultimately administers the DR Asset registration process to recognize DR Assets that can serve as part of a DR Resource, although the Customer may be party to the registration process.

Data Requirements



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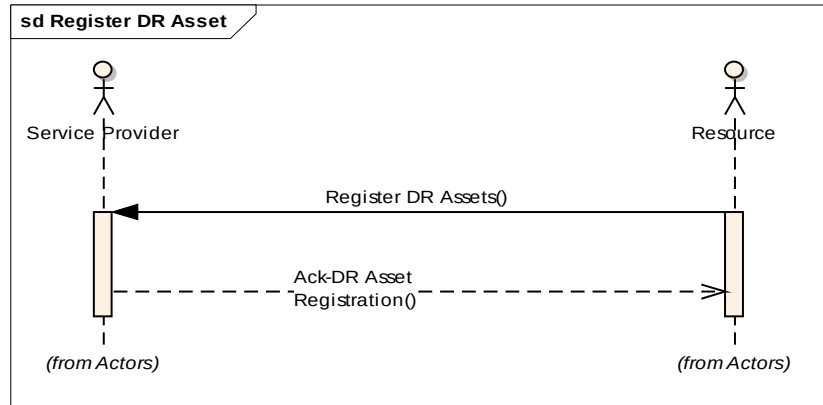
<u>Attribute Name</u>	<u>Description</u>
<u>Asset Operator</u>	<u>The business entity that operates the DR assets</u>
<u>Asset Owner</u>	<u>The business entity that owns the DR assets</u>
<u>Asset Physical Location</u>	<u>The location of where the DR assets reside</u>
<u>Authorized Asset Servicers</u>	<u>The authorized service providers of the operation and maintenance of DR assets</u>
<u>Date of Registration and Last Update</u>	<u>Date of which the DR Assets registered for DR purpose.</u>
<u>DR Asset Administrator</u>	• <u>System and Operator</u> • <u>Distribution Utility</u> • <u>Load Serving Entity</u> • <u>Service Providers</u>
<u>DR Asset Availability and Status</u>	<u>Run Status, Set point, Override status, etc.</u>
<u>DR Asset Identifier</u>	<u>The unique identifier and name of the DR Assets.</u>
<u>DR Asset Physical Capabilities</u>	<u>Ramp Up/Down Rate, Maximum Capacity</u>
<u>DR Asset Product</u>	<u>Manufacturer, Model, Version, Date of Manufacturer</u>
<u>DR Asset Type</u>	<u>(DG, renewable, storage, curtailable or interruptible load)</u>
<u>DR Resources</u>	<u>The identifier of DR resources that the DR Assets belong to</u>
<u>State of Registration Process</u>	<u>The state/status of the registration process of the DR assets.</u>



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Sequence Diagram



REQ.14.3.2.4.4.2 Update DR Asset

Description

Once a DR asset registration is completed, changes to elements of the registration may be required or desired. After identifying the specific required modification and verifying the authorization to perform the update, each of the considerations identified in the DR Asset registration step should be evaluated and utilized, where necessary, during the update of the DR Asset information. The ability to update DR Asset information helps to ensure the asset information on record is current and complete.

Parties that are privy to and rely on the update should be notified of updates as soon as practicable after they are made. Additionally, these parties should have access to review and, in some cases, to approve/disapprove the update(s).

Data Requirements

Attribute Name	Description
<u>Asset Operator</u>	<u>The business entity that operates the DR assets</u>
<u>Asset Owner</u>	<u>The business entity that owns the DR assets</u>
<u>Asset Physical Location</u>	<u>The location of where the DR assets reside</u>
<u>Authorized Asset Servicers</u>	<u>The authorized service providers of the operation and maintenance of DR assets</u>
<u>Date of Registration and Last Update</u>	<u>Date of which the DR Assets registered for DR purpose.</u>

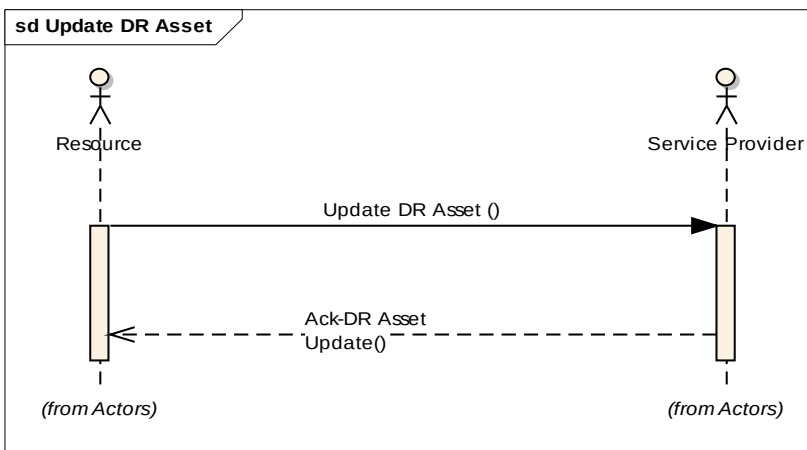


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Attribute Name	Description
<u>DR Asset Administrator</u>	<u>System and Operator</u> <u>Distribution Utility</u> <u>Load Serving Entity</u> <u>Service Providers</u>
<u>DR Asset Availability and Status</u>	<u>Run Status, Set point, Override status, etc.</u>
<u>DR Asset Identifier</u>	<u>The unique identifier and name of the DR Assets.</u>
<u>DR Asset Physical Capabilities</u>	<u>Ramp Up/Down Rate, Maximum Capacity</u>
<u>DR Asset Product</u>	<u>Manufacturer, Model, Version, Date of Manufacturer</u>
<u>DR Asset Type</u>	<u>(DG, renewable, storage, curtailable or interruptible load)</u>
<u>DR Resources</u>	<u>The identifier of DR resources that the DR Assets belong to</u>
<u>State of Registration Process</u>	<u>The state/status of the registration process of the DR assets.</u>

Sequence Diagram





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For Quadrant: Retail Electric Quadrant (REQ)
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Request No.: 2010 Retail Annual Plan Item 9(c)
Request Title: Requirements Specifications for Retail Standard DR Signals - for NIST PAP09

REQ.14.3.2.4.4.3 Remove DR Asset

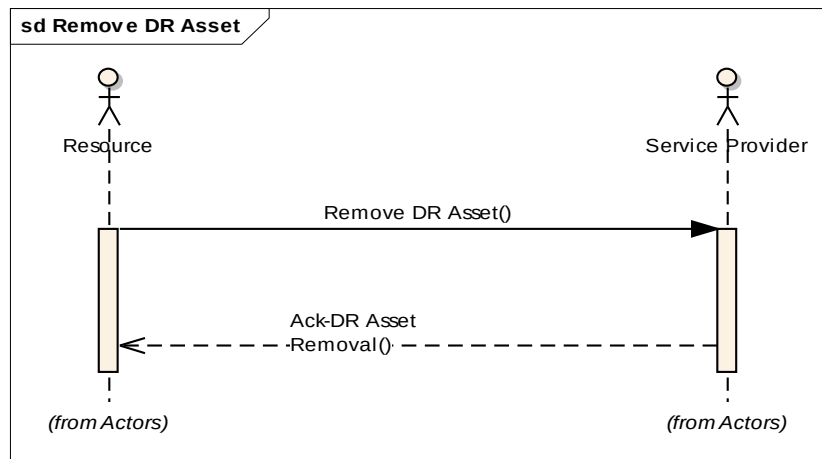
Description

Removing a DR Asset must take into account any DR Resource long term commitments in System Operator programs and contractual obligations with Service Providers or Load Serving Entities. In addition, State and or Federal regulatory agency filings and approvals must be considered prior to removing a DR Asset from a DR program.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>Contractual Agreements</u>	<u>Contractual agreement under which the DR assets could be removed.</u>
<u>DR Asset Administrator</u>	• <u>System and Operator</u> • <u>Distribution Utility</u> • <u>Load Serving Entity</u> • <u>Service Providers</u>
<u>DR Resources</u>	<u>The identifier of DR resources that the DR Assets belong to</u>
<u>Third Party Participation</u>	<u>The identification of third parties involved in the removal of DR assets.</u>

Sequence Diagram





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REQ.14.3.2.4.5 DR Bidding

Description

Demand Response Bidding occurs after the DR Assets and Resources that are to comprise the desired bid have been registered and a bid is to be formed. The DR Bidding use case has two sub-use cases, depending on the type of bid to be developed for submission: a bid to supply (i.e., an offer), or a bid to buy. The entity operating the DR bidding program (the Bid Receiver) receives bids from participants (the Bidders). The Bidder may be a Customer bidding with either an energy retailer (e.g., LSE, ESP), a Service Provider (e.g., CSP, DRP), or a power marketer (i.e., wholesale market participant). The Bidder may also be a Service Provider bidding up to a LSE or power marketer.

Before the start of the bidding process, it is assumed that DR Resources available for selection are already registered to provide the physical resource participating in the DR Bidding program. It is also assumed that the bidder has already registered to bid with the bid receiver and has been informed on the appropriate timing and parameters for bid participation. The DR bidding process starts with the decision of the Bidder to develop a bid for submission. The Bidder submits its bid to the Bid Receiver within the appropriate time window and following set guidelines for bidding. The Bidder receives information on the outcome of the submitted bid from the Bid Receiver, who notifies of the bid outcome (e.g., a resource award or other DR commitment).

Examples of retail DR Bidding programs include:

- Demand Bidding
- Capacity Bidding

Examples of types of ISO/RTO products that may be (or become) eligible for DR bidding include:

- Installed Capacity;
- Day-ahead Energy;
- Real-time Imbalance Energy;
- Ancillary Service Operating Reserve;
- Regulation

The above are wholesale products that retail DR capabilities may be (or become) aggregated to bid into. Required advances to establish linkages between purely retail DR bidding and ISO/RTO DR bidding programs are works in progress, and beyond the scope of this document.



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Request Title: Requirements Specifications for Retail Standard DR Signals - for NIST PAP09

REQ.14.3.2.4.5.1 DR Bid to Supply (Retail Offers)

Description

The Bid Receiver opens the forum/venue for receiving a bid. (This may include initiating the bidding process by sending initial information to Bidders indicating parameters of acceptability for bids to be made). The Bidder communicates an offer to supply a specified product/service and the pricing or other incentive structure the bidder is willing to accept for DR. (This may be as simple as the customer sending a response back to the Bid Receiver that accepts or rejects the initial bid sought, or may involve more complex bid structuring).

Each bid will have a clearly specified product or service that is being bid and the pricing/incentive structure being offered. The bidder also nominates the amount of and nature of supply being offered, the DR Resource to physically provide the service, and other physical parameters affecting resource availability and capability, in addition to the identity (or ID) of the bidder and resource(s) that comprise the bid.

The Bid Receiver reviews bids received and clears them, notifying the bidders of the outcome.

The Bidder receives the notification of awards or resource commitments and uses the information internally in preparation for DR Resource Dispatch.

Data Requirements (Generalized)

<u>Attribute Name</u>	<u>Description</u>
<u>Bidder Identity</u>	<u>Identification of entity submitting a bid</u>
<u>Identity of Resource(s)</u>	<u>Identification of resources that physically support a bid</u>
<u>Bid structure</u>	<u>Prices and/or quantities in an offer to supply a service, or a supply schedule</u>
<u>Product/Service type</u>	<u>The Product/Service type offered to supply.</u>
<u>Quantity of offer</u>	<u>Instantaneous amount of demand response available for dispatch</u>
<u>Resource Capacity (Rated)</u>	<u>Rated or maximum capacity of a resource to supply a service</u>
<u>Resource Capability</u>	<u>Ramp up/down rate and other resource-specific operating characteristics and constraints</u>
<u>Resource Type</u>	<u>Type of distributed resource</u>
<u>Resource Type</u>	<u>Timing associated with a bid</u>



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

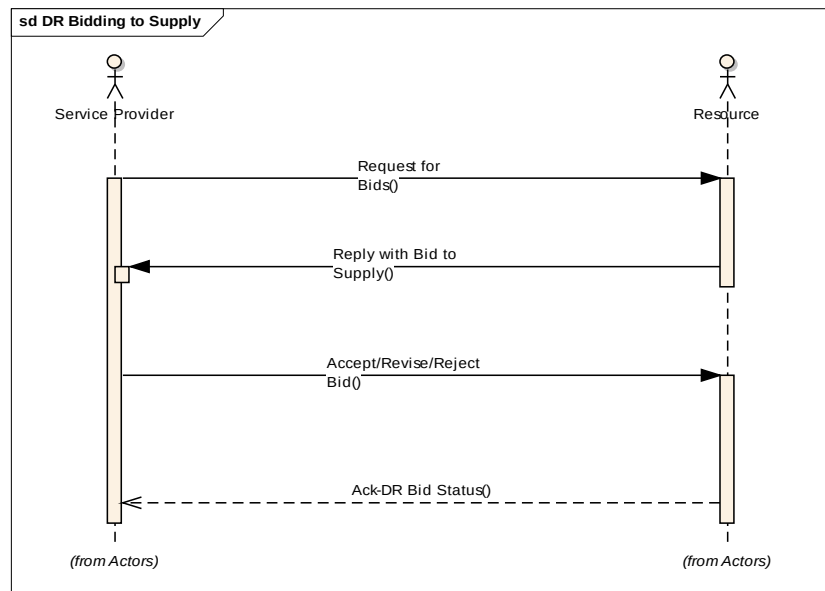
For Quadrant: Retail Electric Quadrant (REQ)
Requesters: NAESB Smart Grid Task Force (SGTF)
Request No.: 2010 Retail Annual Plan Item 9(c)
Request Title: Requirements Specifications for Retail Standard DR Signals - for NIST PAP09

Attribute Name	Description
Timestamp of Bid	The effective date(s) of an offer.

Data Requirements (Simplified Example of Retail DR Bidding)

Attribute Name	Description
DR Resource Identifier	This identifies the DR Resource for which the bid is being submitted.
Load Amount	This is the amount of load that the DR Resource can make available during the scheduled period.
Load Profile Schedule	This is the schedule during which the DR Resource's load profile will be available.
Offer Price	This is the price at which the DR Resource is offering to shed their resource.

Sequence Diagram





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Requesters: NAESB Smart Grid Task Force (SGTF)
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Request Title: Requirements Specifications for Retail
Standard DR Signals - for NIST PAP09

REQ.14.3.2.4.5.2 DR Bid to Buy

Description

The Bid Receiver opens the forum/venue for receiving a bid. (This may include initiating the bidding process by sending initial information to Bidders indicating parameters of acceptability for bids to be made). The Bidder communicates a bid to buy a specified product/service and the pricing or other incentive structure the bidder is willing to pay to avoid DR. (This may be as simple as the customer sending a response back to the Bid Receiver that accepts or rejects the initial bid sought, or may involve more complex bid structuring).

Each bid will have a clearly specified product or service that is being bid for purchase and the corresponding pricing structure that is acceptable to the Bidder. The Bidder also includes the quantity of product/service in the bid to buy, and specifies any DR Resource(s) that can physically substitute for the product/service in the event the bid to buy is not cleared (i.e., the bidder is unwilling to pay more than the going/market outcome price for the product/service). Other information submitted include physical parameters affecting resource availability and capability, in addition to the identity (or ID) of the bidder and resource(s) that comprise the bid.

The Bid Receiver reviews bids received and clears all bids, notifying the bidders of the outcome. The Bidder receives the notification of resource commitments and uses the information internally in preparation for DR Resource Dispatch.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>Bidder Identity</u>	<u>Identification of entity submitting a bid</u>
<u>Identity of Resource(s)</u>	<u>Identification of resources that physically support a bid</u>
<u>Bid structure</u>	<u>Prices and/or quantities in a bid to buy a service, or a demand schedule</u>
<u>Product/Service type</u>	<u>The Product/Service type being bid for purchase</u>
<u>Resource Availability</u>	<u>Instantaneous amount of demand response available for dispatch</u>
<u>Resource Capacity (Rated)</u>	<u>Rated or maximum demand of a resource</u>

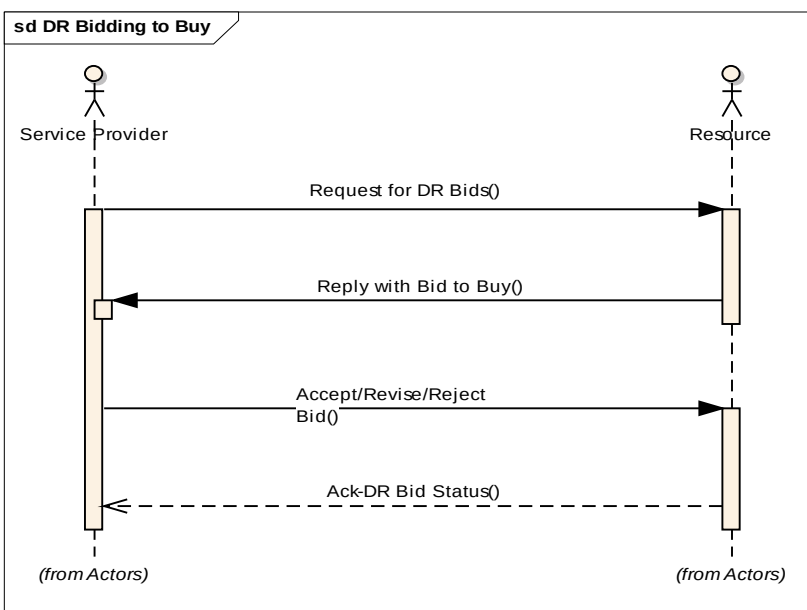


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<u>Attribute Name</u>	<u>Description</u>
<u>Resource Physical Operating Capability</u>	<u>Ramp up/down rate and other resource-specific operating characteristics and constraints</u>
<u>Resource Type</u>	<u>Type of distributed resource</u>
<u>Timestamp of Bid</u>	<u>Timing associated with a bid</u>
<u>Trade Date or Period</u>	<u>The effective date(s) of a bid.</u>

Sequence Diagram





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Standard DR Signals - for NIST PAP09

REQ.14.3.2.4.6 Execute DR Event

The execution of a DR event takes different forms depending on operational situation and the type of DR programs being executed. Typically, they fall into one of the following four use cases, see Figure 5:

1. Advanced DR Notification
2. Broadcast DR Message (price plus information)
3. DR dispatch instruction
4. DR direct load control.

Operational considerations for DR event execution are also associated with DR programs where direct load control or dispatching instructions are carried out.

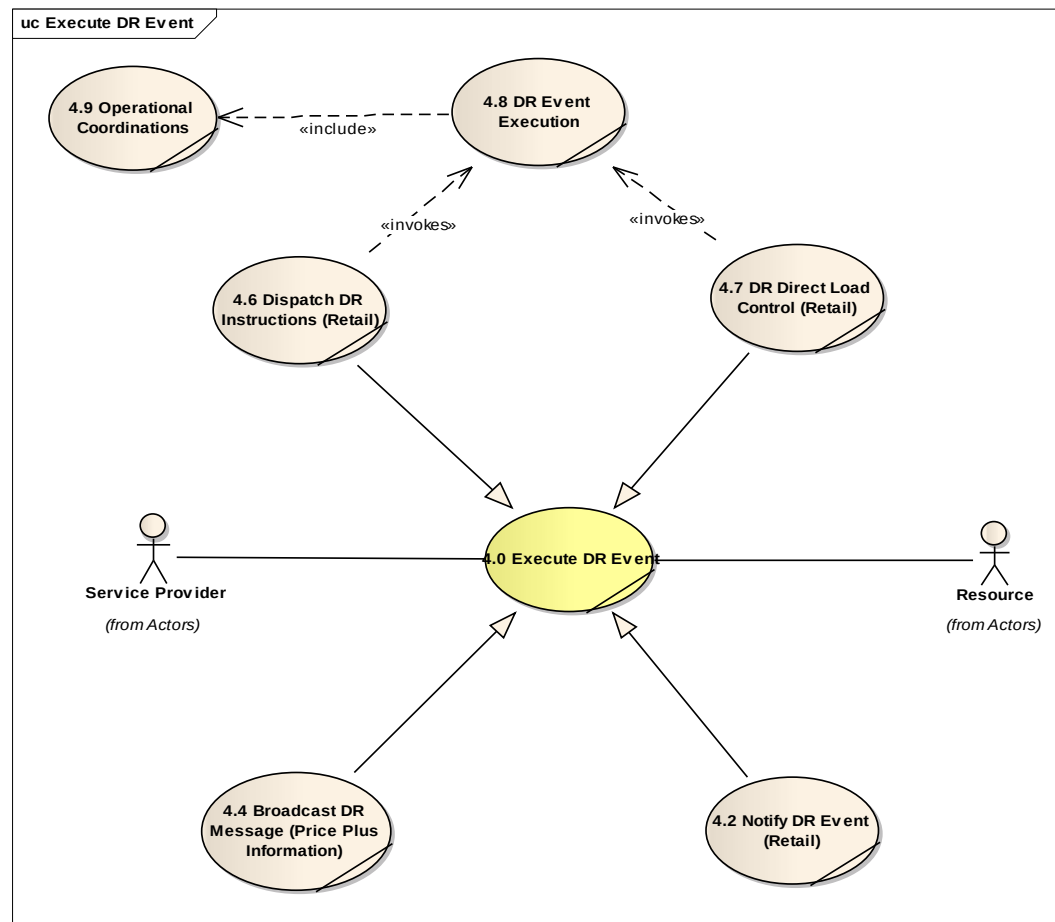


Figure 5. Execute DR Events



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

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Standard DR Signals - for NIST PAP09

REQ.14.3.2.4.7 Notify DR Event (Retail)

REQ.14.3.2.4.7.1 Advanced Notification for DR (Retail)

Description

This is used by the Service Provider to send the DR Event notification (i.e., DR signal) to the DR Resource.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>Service Provider ID</u>	<u>An identifier for the Service Provider issuing the DR event.</u>
<u>DR Program ID</u>	<u>An identifier of the program for which a DR event was issued.</u>
<u>DR Resource Group ID</u>	<u>A group to which a DR Resource belongs. This can be used for multi-cast notifications.</u>
<u>DR Resource ID</u>	<u>An identifier of the DR Resource for which an Event is intended.</u>
<u>DR Resource Operation Mode (Schedule)</u>	<u>Operation modes are representations of how the DR Resource should respond to the Event Data that is part of an event. Operation modes allow DR logic to be implemented within the DR Service Provider and allow the DR Resource to respond to a much simpler representation of the DR Event data. Operation modes are simple enumerations of the values that may be scheduled during the DR Event active period. The possible values are the following:</u> <u>NORMAL - This value is used to signify that no response to the DR Event is necessary by the DR Resource.</u> <u>MODERATE - This value is typically used to signify a moderate level of response by the DR Resource.</u> <u>HIGH- This value is typically used to signify a high level of response by the DR Resource.</u> <u>SPECIAL- This value is typically used to signify a circumstance special to the DR Resource.</u>



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<u>Attribute Name</u>	<u>Description</u>
<u>DR Resource Specifications</u>	This specifies which DR Assets within a DR Resource should be used, and can be specified in the following fashion: • <u>Geographic location</u> • <u>Grid location</u> • <u>DR Asset group ID.</u>
<u>DR Resource Type ID</u>	A program specific field that can be used to identify a type of DR Resource within a DR program.
<u>Event Data</u>	A collection of information that is associated with a DR event. An instance of such information represents a specific type of information that was defined to exist for DR events when the program was first developed and implemented. For example, a DR program may have been developed and implemented to use real-time pricing as the values that are sent when DR events are issued. In that case, the information would be prices. Furthermore, each type of information may have a schedule of values that are valid across the entire period for which the DR event is active. Therefore, a single type of information may have multiple values, each of which are valid during a different time period during the event. Each type of information has the following attributes when it is defined: • <u>name</u> • <u>data type.</u> The following data types should be supported: • <u>PRICE_ABSOLUTE - Price number</u> • <u>PRICE_RELATIVE - Change in price</u> • <u>PRICE_MULTIPLE - Multiple of current price</u> • <u>LOAD_LEVEL - Amount of load based on an enumeration, i.e. moderate, high, etc</u> • <u>LOAD_AMOUNT - Fixed amount of load to shed in kW</u> • <u>LOAD_PERCENTAGE - Percentage of load to shed, i.e. 10%</u>

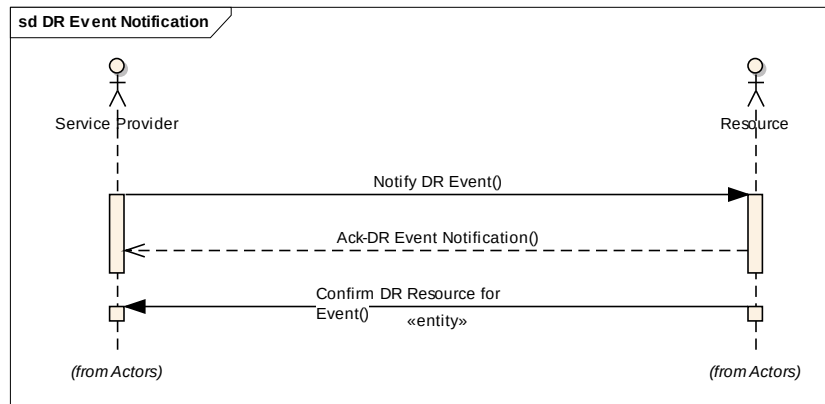


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Attribute Name	Description
	GRID RELIABILITY - Number signifying the reliability of the grid.
Event ID	An identifier for the DR Event that was created when the DR event was first issued. This should be a globally unique identifier for each Service Provider.
Event Schedule	A Schedule for the DR Event periods that includes the following: - Notification date/time - Event start date/time - Ramp time (potentially randomized) - Event end date/time (possibly specified as the duration).
Test Event Flag	This attribute signifies whether this is a test event or not. Test events may be issued by the Utility/ISO like other DR audit events.

Sequence Diagram





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Request Title: Requirements Specifications for Retail Standard DR Signals - for NIST PAP09

REQ.14.3.2.4.7.2 Update a DR Event (Retail)

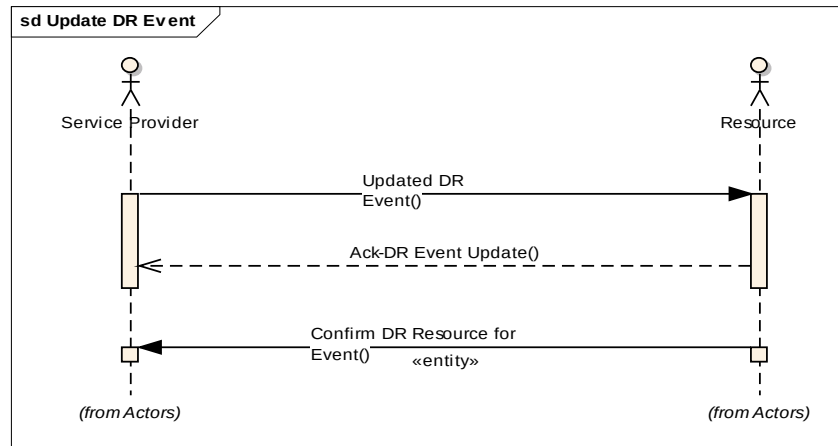
Description

This is used to update a DR event that has been previously notified. The requirements for this use case are the same as those for the "Advanced Notification for DR" use case.

Data Requirements

Attribute Name	Description
<u>Event</u>	<u>See the "Advanced Notification for DR" use case.</u>
<u>Event Modification Number</u>	<u>This is Modification number of the DR event. It is used to indicate that the DR Event has been modified by the Utility. Each time a DR Event is modified, this number is incremented.</u>
<u>Modification reason code</u>	<u>The reason the event was modified.</u>

Sequence Diagram





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Request No.: 2010 Retail Annual Plan Item 9(c)
Request Title: Requirements Specifications for Retail Standard DR Signals - for NIST PAP09

REQ.14.3.2.4.7.3 Cancel a DR Event (Retail)

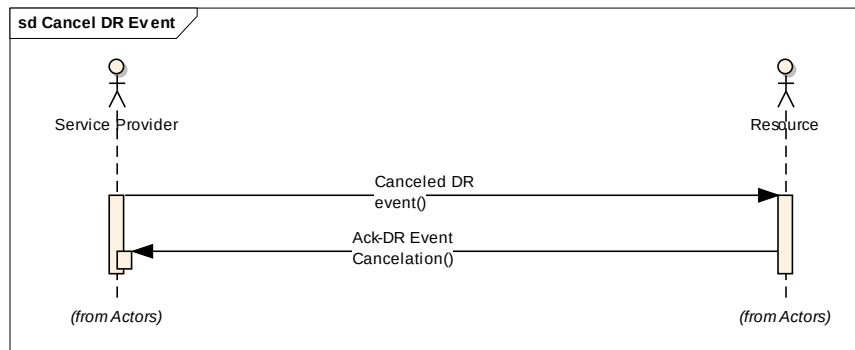
Description

This is used by the Service Provider to notify the DR Resource that a DR Event is being cancelled. It should only be executed if a DR Resource has previously received notification of a DR Event and that event has subsequently been cancelled.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>Cancellation reason code</u>	<u>The reason the event is being cancelled.</u>
<u>DR Event Identifier</u>	<u>An identifier for the event that is being cancelled.</u>
<u>Effective date/time</u>	<u>The date and time a cancellation takes effect.</u>

Sequence Diagram





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REQ.14.3.2.4.7.4 DR Resource Confirmation (Retail)

Description

This is a confirmation message that is sent by a DR Resource to the Service Provider as a result of receiving a DR Signal from the Service Provider. It may be used as an acknowledgement of the receipt of the DR signal, but it may also contain various information used to signify how the DR Resource will respond to the DR Signal.

Data Requirements

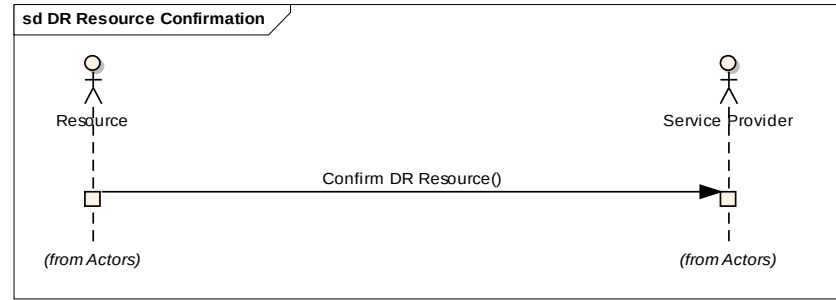
<u>Attribute Name</u>	<u>Description</u>
<u>DR Assets Characteristics</u>	<u>The expected response characteristics of each DR Asset that is part of the DR Resource. These may be needed for aggregated DR Assets and may be as simple as whether a DR Asset is participating or its actual load profile. For each DR Asset, the following should be given:</u> <u>Location of Asset, either geographic or grid location</u> <u>Asset schedule of participating</u> <u>Asset load profile (schedule).</u>
<u>DR Resource ID</u>	<u>The identifier of the DR Resource.</u>
<u>DR Resource Load Profile Response</u>	<u>The load profile response characterization of the DR Resource in response to getting the DR signal.</u>
<u>Notification Received Acknowledgement</u>	<u>This is an acknowledgement of the receipt of a DR notification or dispatch. It should include any necessary provisions for non-repudiation.</u>
<u>Opt in/out</u>	<u>This is used to temporarily opt in/out of DR Events and to override the normal operational constraints. The opt-in/out can be specified using the following criteria:</u> <u>All events in a program indefinitely</u> <u>Specific DR Event</u> <u>All events in a specific time period.</u> <u>In addition, there may be a schedule associated with the opt in/out state.</u>



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Sequence Diagram



REQ.14.3.2.4.8 Broadcast DR Message (Price Plus Information)

Description

Demand Response programs are designed to address different power system concerns caused by the imbalance between generation, transmission and consumption, or environmental concerns. Some DR programs are conducted on a voluntary basis, where the customer can opt to maintain the level or load. Some DR programs are mandatory, where either the customer loads will be curtailed under certain conditions or the customer will incur financial penalties for noncompliance.

In retail market, certain "DR Messages" can be broadcasted to DR resources either directly or through Service Providers. DR Message is defined as information about the DR signals that may affect the demand behaviors of the energy consumers. Obviously, the main component of the DR Message is the pricing information. However, there are other attributes of energy being delivered that may be of interest to energy consumers and could be included in the DR Message.

Based on the OpenADR discussion, the broadcasting function is mainly used for volunteer or non-mission critical DR messages. Therefore, message acknowledgement or confirmation is optional.

DR Source of Power/Generation

"DR Message" also can be source of power or generation. ANSI C12.19-2008 defined the following source of power/generation in Standard Table 12.

Precondition:

The DR Service Provider sends the DR message to service providers. In the case of DR pricing, the DR Service Provider calculates the wholesale price per location and communicates the appropriate price associated with the DR product to service providers.



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Post Condition:

DR Resources received the DR pricing information, and may or may not act based on the DR agreement or contract.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>Currency</u>	<u>Identifier used to interpret the price element. MUST follow ISO 4217 standard.</u>
<u>Duration</u>	<u>The amount of time for which this price is valid, commencing at the Effective-Date-Time specified. A value of zero means price is valid until next price broadcast override.</u> <u>Specified in decimal notation where integers represent minutes and decimals represent fractions of minutes. For example:</u> <u>5 indicates that prices will be published every 5 minutes</u> <u>.5 indicates that prices will be published every 30 seconds</u>
<u>Effective-Date-Time</u>	<u>The date and time which the price is in effect. In ISO 8601 standard format.</u>
<u>Location</u>	<u>An identifier used to indicate an area which this price is in effect. A value of "null" indicates that the price is in effect for all areas.</u>
<u>Location-type</u>	<u>A value used to interpret the value contained in the Location element. Examples of Location-type include:</u> <u>Zone</u> <u>Node</u> <u>Zip-code</u> <u>USNG</u>
<u>Message-Exchange-Pattern</u>	<u>The means by which price information is communicated to any party that is interested in receiving this information. The following are valid options:</u> <u>In-Only</u> <u>Robust In-Only</u> <u>In-Out</u> <u>Refer to http://www.w3.org/TR/wsd120-adjuncts/#patterns for complete descriptions.</u>



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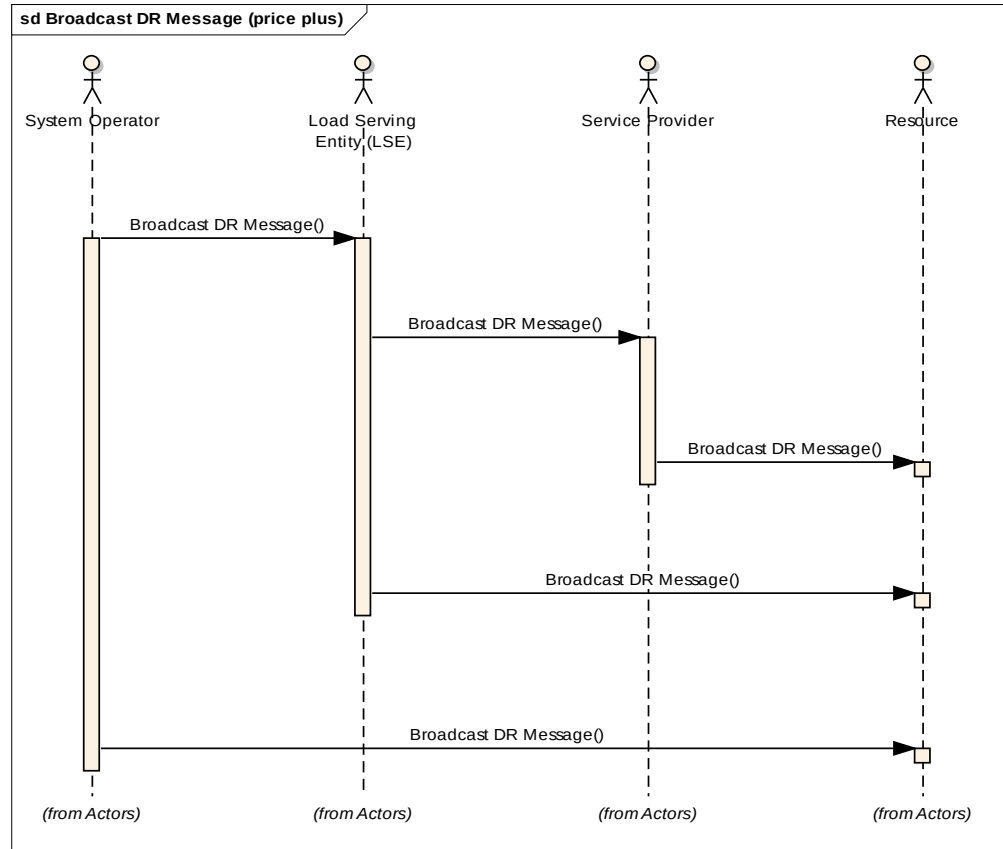
<u>Attribute Name</u>	<u>Description</u>
<u>Price</u>	<u>Expressed in decimal notation with a precision up to 6 decimal places. Prices MAY be either positive or negative</u>
<u>Product-Identifier</u>	<u>Identifies the type of product (e.g. energy, regulation, etc.) which this price pertains. Contains an enumeration of various products that may be offered. Extensibility MUST be supported in order to accommodate multiple jurisdictions and markets.</u>
<u>Publishing-Interval</u>	<u>Indicates the frequency with which price information is expected to be published. Specified in decimal notation where integers represent minutes and decimals represent fractions of minutes. For example:</u> <u>5 indicates that prices will be published every 5 minutes</u> <u>.5 indicates that prices will be published every 30 seconds</u>
<u>Source-Authentication</u>	<u>The recipient of a "Price Message" must have some assurance that the message was produced by a reliable, authoritative party. This will require some ability to validate the authenticity of the source and integrity of the data (e.g. digital signature applied to a price message).</u>
<u>TimeStamp</u>	<u>Indicates the Date and Time when this information was published. MUST follow ISO 8601 standard representation.</u>
<u>Unique-Identifier</u>	<u>An identifier used to identify the message. Should be expressed as a URI in accordance with http://www.w3.org/TR/uri-clarification/#uri-schemes</u>
<u>Unit-of-Measure</u>	<u>Indicates the unit of measure for which the price pertains. MUST be compliant with the International System of Units as defined by NIST SP 330, ref: http://physics.nist.gov/Pubs/SP330/sp330.pdf</u> <u>Examples of NIST compliant units of measure include:</u> <u>kWh</u> <u>MWh</u>



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Sequence Diagram



REQ.14.3.2.4.9 Dispatch DR Instructions (Retail)

Description

This interaction is used to dispatch DR Resources. This type of interaction is used when the Service Provider needs to achieve specific objectives from the DR Resources during DR events. This means that specific instructions will be given to the DR Resource with objectives (e.g. shed 100 kW) for the load profile of the DR Resource.

Note that for the retail use cases, a Dispatch is considered a special type of DR Notification, and thus, it is very similar in nature to the requirements given for that interaction.



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Data Requirements

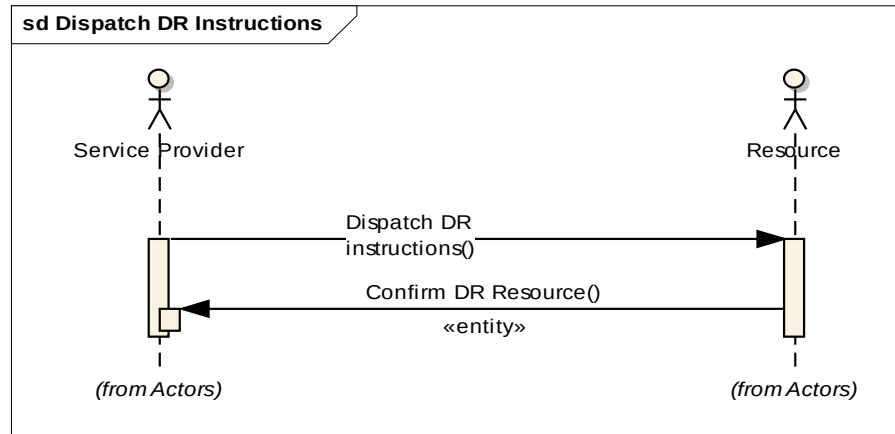
<u>Attribute Name</u>	<u>Description</u>
<u>Dispatch Instructions</u>	A collection of dispatch instructions that is associated with a DR event. An instance of such instructions represents a specific type of instruction that was defined specifically for the DR program. Each type of instruction may have a schedule of values that are valid across the entire period for which the DR event is active. Therefore, a single type of instruction may have multiple values, each of which are valid during a different time period during the event. Each type of instruction has the following attributes when it is defined: • <u>name</u> • <u>Instruction type.</u> The following instruction types should be supported: • <u>LOAD LEVEL</u> - Amount of load based on an enumeration, i.e., moderate, high, etc • <u>LOAD AMOUNT</u> - Fixed amount of load to shed in kW • <u>LOAD PERCENTAGE</u> - Percentage of load to shed, i.e., 10%.
<u>DR Program Name</u>	An identifier of the program for which a DR event was issued.
<u>DR Resource ID</u>	An identifier of the DR Resource for which a dispatch is intended.
<u>Event ID</u>	An identifier for the DR event that was created when the DR event was first issued.
<u>Event Modification Number</u>	A modification number for the DR event. This is used to indicate if the DR Event has been modified by the Utility. Each time it is modified, this number is incremented.
<u>Event Schedule</u>	Schedule for the DR Event periods, which includes the following: • <u>Notification date/time</u> • <u>Event start date/time</u> • <u>Event end date/time.</u>
<u>Test Event Flag</u>	This attribute signifies whether this is a test event or not. Test events may be issued by the Utility/ISO like other DR Events.



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Sequence Diagram



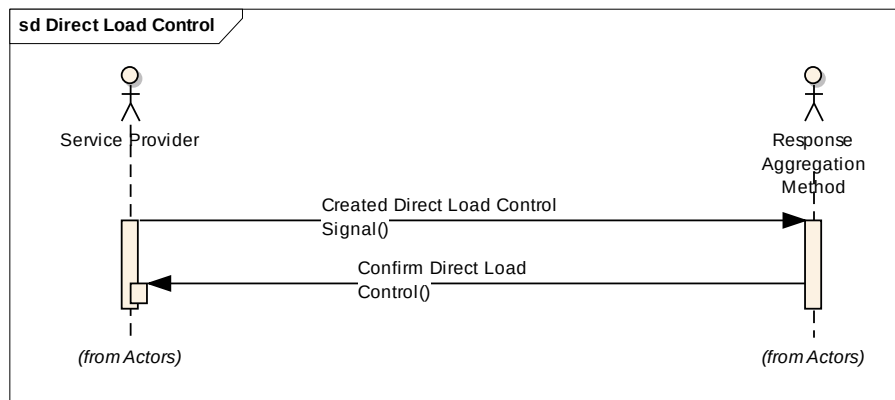
REQ.14.3.2.4.10 DR Direct Load Control (Retail)

Description

This use case covers direct interactions between the DR Service Provider and a specific DR Asset for the purposes of putting that asset into a specific load control state (e.g., to turn it on or off). In this case, the DR Asset is a DR Resource with only one DR Asset, and thus, the interaction is directly with the DR Asset.

See REQ.14.3.2.4.11.3, DR Execution - Direct Load Control (DLC) for more details.

Sequence Diagram





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REQ.14.3.2.4.10.1 Monitor DR Event (DR Resource)

Description

This interaction is used to monitor a DR Resource's behavior. It may be executed as a result of the DR Resource receiving a DR signal or it may be conducted continuously.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>Operational Constraints</u>	<u>This is used to supply information about when and how a DR Resource may participate in a DR Event. The following items may be supplied:</u> <u>Limits on load profile performance</u> <u>Schedule of participation.</u> <u>Note that this information may also be supplied as part of the administration of the DR Resource, and thus, it may not be necessary that it be part of this interaction.</u>
<u>Opt in/out state</u>	<u>This is used to temporarily opt in/out of DR Events and to override the normal operational constraints. The opt-in/out can be specified using the following criteria:</u> <u>All events in a program indefinitely</u> <u>Specific DR Event</u> <u>All events in a specific time period.</u> <u>In addition, there may be a schedule associated the opt in/out state.</u>
<u>Usage Information</u>	<u>Information about the near real time electricity usage of the DR Resource.</u>
<u>Latency</u>	<u>Allowable time between dispatch launch and load de-energize. Examples: 4 Seconds Response for Regulation Dispatch, 1 Minute Response for Reserve Dispatch, Sub-second Response to Frequency Deviation, 10 Minute Response to Energy Market</u>
<u>Dispatch Trigger</u>	<u>Examples: Market Bid (Energy Price > Offer Price), Reliability Event Based Dispatch from System Operator, Frequency Deviation, Peak Period Time</u>

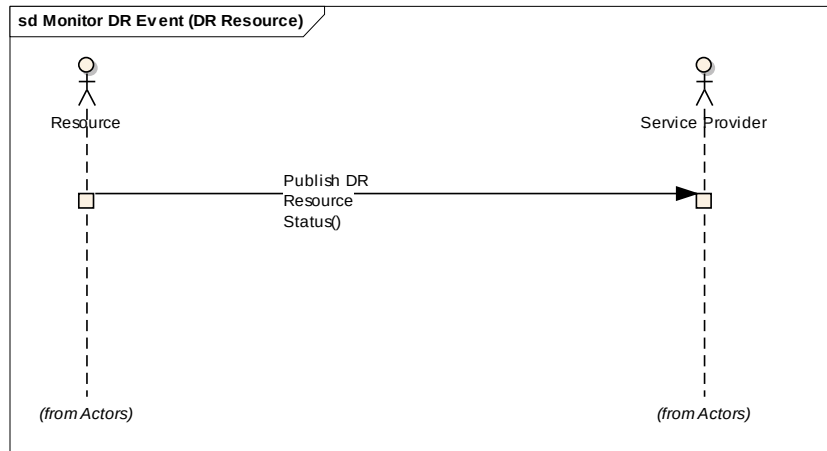


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Attribute Name	Description
<u>Response Duration – Time Out or Held Until Released</u>	<u>Examples: Variable with Signal Up or Down (Regulation), 20 Minutes with Dispatched Release (Responsive Reserve), 1 or 2 Hour Time Out (Emergency Interruption), Multiple Hours (Peak Shifting)</u>

Sequence Diagram



REQ.14.3.2.4.10.2 Monitor DR Event (DR Asset)

Description

This interaction is used to monitor the state of a DR Asset. It may be executed as a result of the DR Asset receiving a DR signal or it may be conducted continuously.

Data Requirements

Attribute Name	Description
<u>Exception Conditions</u>	<u>This is used to report that the load controller may not behave as commanded because of a variety of conditions including:</u> <u>Faults in device</u> <u>Customer override.</u>
<u>Load Control State</u>	<u>The state of the load, which includes both commanded states and user settings. This may include a schedule of future states if a particular control algorithm for the load controller is being executed.</u>

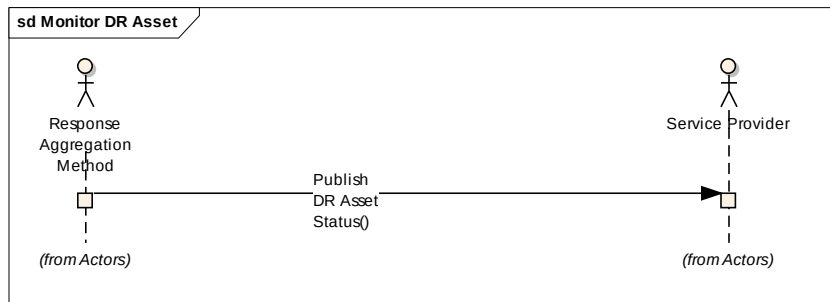


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Attribute Name	Description
<u>Operational Constraints</u>	<u>Constraints on how the load may be controlled. This may include limits on the state of the load controller as well as schedules upon those constraints.</u>

Sequence Diagram



REQ.14.3.2.4.11 DR Event Execution

Demand Response is deployed for economic or a reliability purposes. At high penetration levels, demand response has to be integrated with the power supply scheduling process, and it may impact the distribution grid operation and reliability, and perhaps the transmission grid operation and reliability. Thus it is important to that include the required considerations for the grid and system level operations when developing DR Use Cases and DR signal standards. Such impacts may not be significant at low penetration levels; however, proper considerations must be given to support scalability and expandability for future deployments.

Power system operates based on a real-time balancing of supply and demand. To economically schedule the supply, an accurate load forecast is needed. Traditionally, load forecast was generated using the historical consumption patterns, weather forecast and other similar parameters. With the potential of high-penetration of DR, it will be necessary to incorporate the planned or forecasted DR levels into the load forecast. Also, DR capabilities can be used to support the power system capacity or emergency supply (ancillary service) needs. Such services require proper scheduling and monitoring capabilities.

A demand response event may be initiated by a power system operator in response to a reliability event, e.g., loss of a generating station causing a lack of supply to meet demand, or an uncontrolled set of PEVs overloading of a distribution transformer. A demand response event may also be initiated by utility operational systems based on economic considerations, e.g., reducing or shifting peak load at the system level or at specific feeder or facility. Demand response may also be initiated by a customer in response to a market pricing signal



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Considering that the distribution grid in the US is typically a three-phase imbalance circuit, i.e., many customers are on a single-phase or two-phase of the three-phase system. Thus significant changes in customer load patters could result in undesirable imbalanced conditions on a feeder. Also, load pickup following the termination of a major DR event could possibly cause overloads and other operational problems, if the load pickup is not properly scattered/managed.

The following provides three representative use cases to highlight some the key interactions. These include:

- Dynamic Price-based DR
- Notification-based DR
- Direct Load Control

REQ.14.3.2.4.11.1 DR Execution – Retail Time Pricing (RTP)

Description

Traditionally, retail tariff has based on a fixed or tiered rate structure with possible considerations of static rates for pre-established time of use (TOU) conditions. Real time or dynamic pricing (RTP) represent retail electricity rate that could vary as a function of time and is intended to modify demand. It requires interval metering for accurate billing based on time-varying prices. A number of states have implemented RTP or other dynamic pricing tariffs for large customers. With a broader deployment of advanced meters, RTP rates may become more common nation-wide.

The scenario presented here is represents a case where a location-dependent real-time retail pricing for energy is established based on the wholesale Locational Marginal Price (LMP) for that location. LMP values are typically established by an ISO (for regions covered by an ISO/RTO) on a day-ahead (hourly resolution) and real-time basis, typically on a five minute resolution. For the RTP, it will be appropriate to use the real-time LMP as the basis for computing the retail dynamic tariff. However, decisions should be made on the time and the spatial resolution of the RTP. For example, an hourly RTP averaging the five minute pricing values, or a Critical Peak Pricing model to reflect the extreme conditions only, may be adopted. In addition to the wholesale energy price, the retail RTP rate may also include the appropriate uplift charges to cover for distribution wire/services charges and for the power loss compensations. Note that the uplift charges are typically subject to a regulatory review and approval.



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Special care must be given to the RTP rate design to ensure customer acceptance and adaptation. Also grid operational issues may have to be addressed. For example, during low LMP (RTP) periods (e.g., at night), certain distribution circuits may get over loaded (congested), with customers shifting consumption, e.g., charging PEVs, to that period. This improves the overall system economy, but may cause circuit congestion. To combat this, some have proposed use of demand charges or an additional incentive payment for load reduction, a locational incentive to relief congestion.

Data Requirements

The real-time DR price (RTP) signal requirements are similar to those specified in the DR signal specified in REQ.14.3.2.4.8.

RTP Price Data

<u>Attribute Name</u>	<u>Description</u>
<u>Effective-Date-Time Interval</u>	<u>The date and time interval which the price is in effect.</u>
<u>Price</u>	<u>Single or multiple valued price (e.g., for energy, demand, etc.) Expressed in decimal notation with a precision up to 6 decimal places. Prices MAY be either positive or negative</u>
<u>Currency</u>	<u>Identifier used to interpret the price element.</u>
<u>Unit-of-Measure</u>	<u>Indicates the unit of measure for which the price pertains (e.g., kW).</u>
<u>Product-Identifier</u>	<u>Identifies the type of product (e.g. energy, spinning reserve, etc.) which this price pertains.</u>
<u>Location</u>	<u>Location Identifier for the applicable price.</u>
<u>Location-type</u>	<u>A value used to interpret the value contained in the Location element. Examples of Location-type include:</u> <u>• Zone (Load Aggregation Point)</u> <u>• Zip-code</u> <u>• USNG</u>
<u>Time Stamp</u>	<u>Indicates the Date and Time when this information was published.</u>
<u>Duration</u>	<u>The amount of time for which this price is valid, commencing at the Effective-Date-Time specified.</u>



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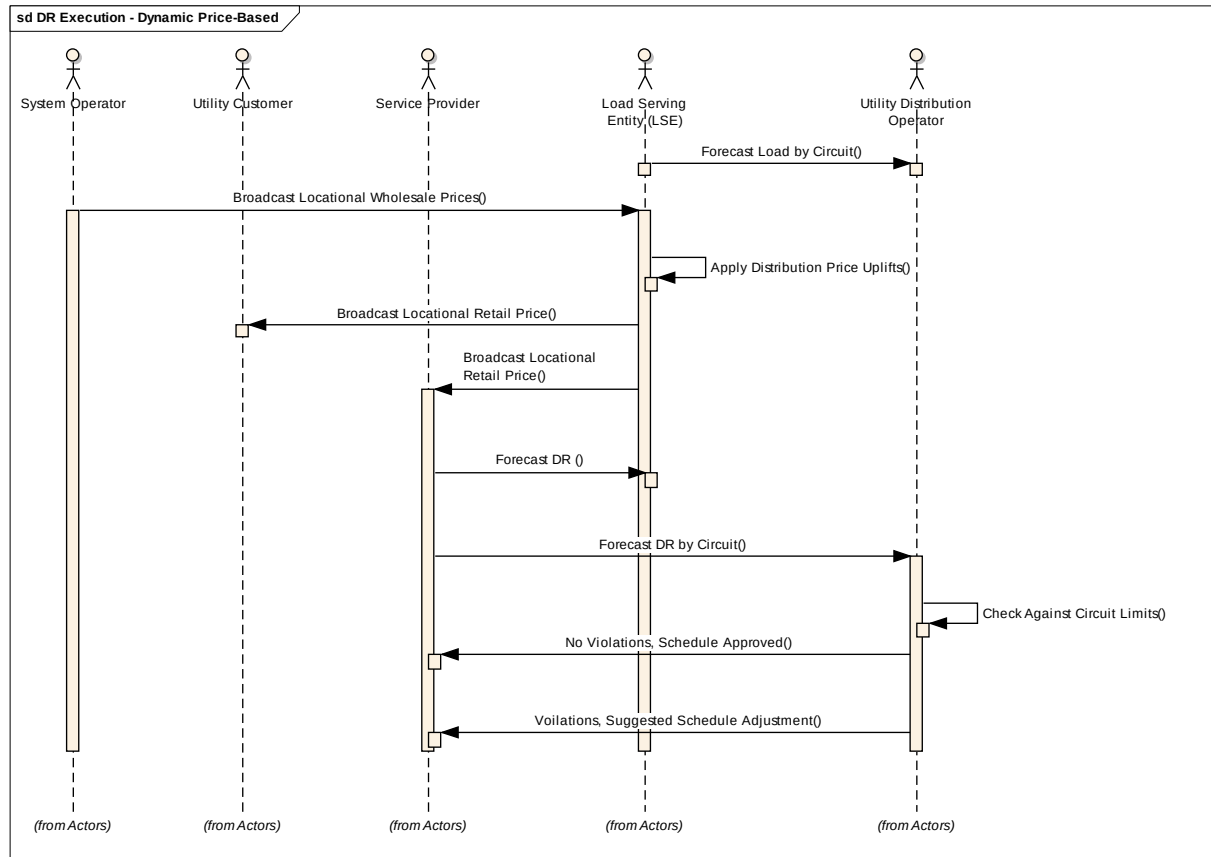
<u>Attribute Name</u>	<u>Description</u>
<u>Source-Authentication</u>	The recipient of a "Price Message" must have some assurance that the message was produced by a reliable, authoritative party.
<u>Message-Exchange-Pattern</u>	The means by which price information is communicated to any party that is interested in receiving this information. The following are valid options: <u>In-Only</u> <u>Robust In-Only</u> <u>In-Out</u> Refer to http://www.w3.org/TR/wsd120-adjuncts/#patterns for complete descriptions.
<u>Unique-Identifier</u>	An identifier used to identify the message. Should be expressed as a URI in accordance with http://www.w3.org/TR/uri-clarification/#uri-schemes



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Sequence Diagram



REQ.14.3.2.4.11.2 DR Execution – Notification Based

Description

Notification-based DR is mostly used for economic purposes based on a day-ahead or hours or hour-ahead basis. Notification-based DR may also be used for reliability events when the system operator expects a contingency or operating condition (e.g., congestion or planned outage) on the distribution or the transmission grid that requires a reduction (or an increase) on the load at a given location.

Considering that the business processes for demand response have not yet been standardized across the nations, the following is a representative scenario that captures some of the interactions between the key stakeholders (actors).

At high penetration levels, the DR operation, especially on a day-ahead or hour ahead basis, need to be coordinated with the overall operations and supply scheduling process. As is shown in the Sequence Diagram below, this may require a



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timely update of the “locational” load forecast and an up-to-date nomination of the DR capabilities. This information may be supplied to the “system” and/or market operator to be incorporated in the overall supply and demand scheduling process. The DR capabilities are specified by the DR Provider to the System Operator based on a DR Program, a price curve, or other nomination protocol. The DR Provider may also inform the Load Serving Entity (LSE) of the locational available DR capabilities.

The notification-based DR dispatch process is typically initiated by the System or Market Operator; the process may also be initiated by an LSE or UDO. It is also possible that the DR Provider be the initiator of the DR process based on a market opportunity (economic operation) or based on a pre-established program.

At high DR penetration levels, it is expected that the DR provider will need to clear the DR schedule with the Distribution Grid Operator, the UDO. This is to insure that the high penetration DR has no adverse impact on the distribution grid reliability and power quality, e.g., cause of excessive imbalances, voltage violation, or an overload during load pickup period. The UDO, in a timely fashion, will inform the DR Provider, if the schedule is cleared or requires an adjustment. Please note that if the DR deployed by a utility company that includes both LSE and UDO functions, such coordination is performed within the company’s operational systems (e.g., DRMS, DMS, etc.), or it can be an integral part of the DR scheduling application.

Following the clearing the DR schedule, notifications are sent to customers for DR operation. Under this scenario, the Market Operator and the LSE are also informed of the final DR schedule.

Data Requirements

The notification data elements are described in more detail in REQ.14.3.2.4.9.

<u>Attribute Name</u>	<u>Description</u>
<u>Dispatch Instructions</u>	<u>A collection of dispatch instructions that is associated with a DR event. This will include the amount of load to be reduced (or increased – in the cases of very low load levels and excess generation, e.g., wind)</u>



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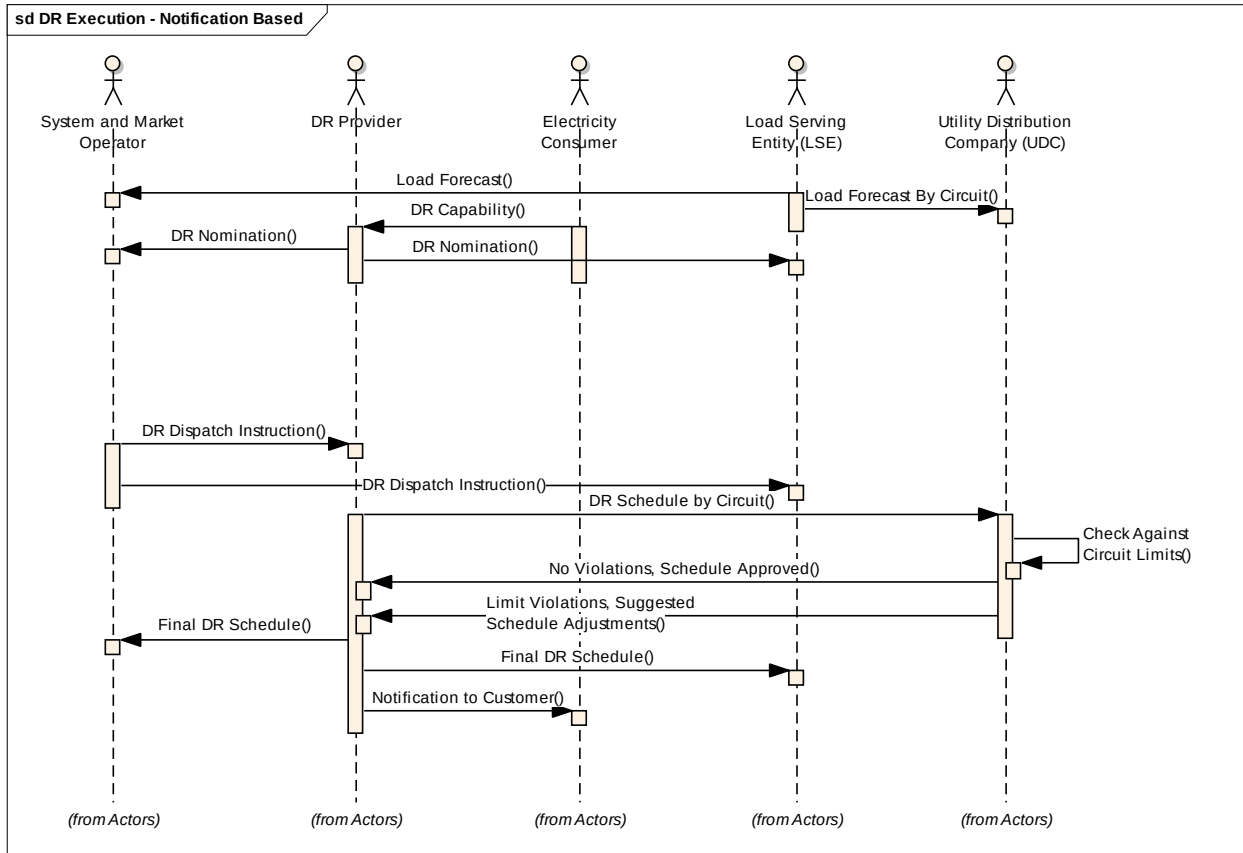
<u>Attribute Name</u>	<u>Description</u>
<u>DR Program Name</u>	<u>An identifier of the program for which a DR event was issued.</u>
<u>DR Resource ID</u>	<u>An identifier of the DR Resource for which a dispatch is intended.</u>
<u>Event ID</u>	<u>An identifier for the DR event that was created when the DR event was first issued.</u>
<u>Event Modification Number</u>	<u>A modification number for the DR event.</u>
<u>Event Schedule</u>	<u>Schedule for the DR Event periods, which includes the following:</u> <u>Notification date/time</u> <u>Event start date/time</u> <u>Event end date/time.</u>
<u>Test Event Flag</u>	<u>This attribute signifies whether this is a test event or not.</u>
<u>Source-Authentication</u>	<u>This is for authentication of the notification signal.</u>



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Sequence Diagram



REQ.14.3.2.4.11.3 DR Execution – Direct Load Control (DLC)

Description

Direct-Load Control is typically used for reliability-based events such as contingency and emergency support, supply of balancing energy or other ancillary service. Many of these programs require quick response time, e.g., five minutes or faster, that is practically only possible through a DLC capability. Direct-Load Control may also be used for economic operations, e.g., water heater programs to reduce or shift peak load.

Considering that the business processes for demand response have not yet been standardized across the nations, the following is a representative DLC scenario that captures the interactions between the key stakeholders (actors).

Direct Load Control is typically called for by a system operator, a transmission or distribution operator. It could be also issued by a Market Operator based on an ancillary service DR award,



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or by an LSE or DRP for an economic purpose. At high penetration levels, DLC operation needs to be coordinated with the distribution grid operator, the UDO.

As is shown in the sequence diagram below, the customer DR capabilities are aggregated by location and specified/nominated to the Distribution Grid Operator, Load Serving Entity, and/or to the System/Market Operator. In addition to location, the capabilities may also be aggregated by the DR response time, e.g., four seconds, five minutes, 30 minutes, etc.

The DLC Dispatch process is typically initiated by the Transmission or Distribution Operator. The process may also be initiated by the Market Operator or the LSE. The actual control of the DR resources may be done by the DR provider based on the dispatch signal received.

At high DR penetration levels, it is expected that the DLC activation schedule to be coordinated with the Distribution Grid Operator, the UDO. This is to insure that there are no adverse impact on the distribution grid reliability and power quality, e.g., voltage violation, excessive phase imbalances, or an overload during load pickup period. If the DLC deployed by a utility company such coordination can be accomplished within the company's DR and distribution management systems, or performed as an integral part of the DR control functions.

For a "fast" DR, e.g., provision of ancillary services, a telemetry capability is required to enable the real-time monitoring of the resource condition and its response to the DR control signal.

Data Requirements

<u>Attribute Name</u>	<u>Description</u>
<u>DR Resource ID</u>	<u>An identifier of the DR Resource for which the control is intended.</u>
<u>Status Check</u>	<u>A signal to inquire the DR resource status to be sent back</u>
<u>Pending DLC Notification</u>	<u>A signal indicating a pending DLC operation – A multi-value signal indicating the start time, duration, and the magnitude (kW, or resource specific options) of the control.</u>

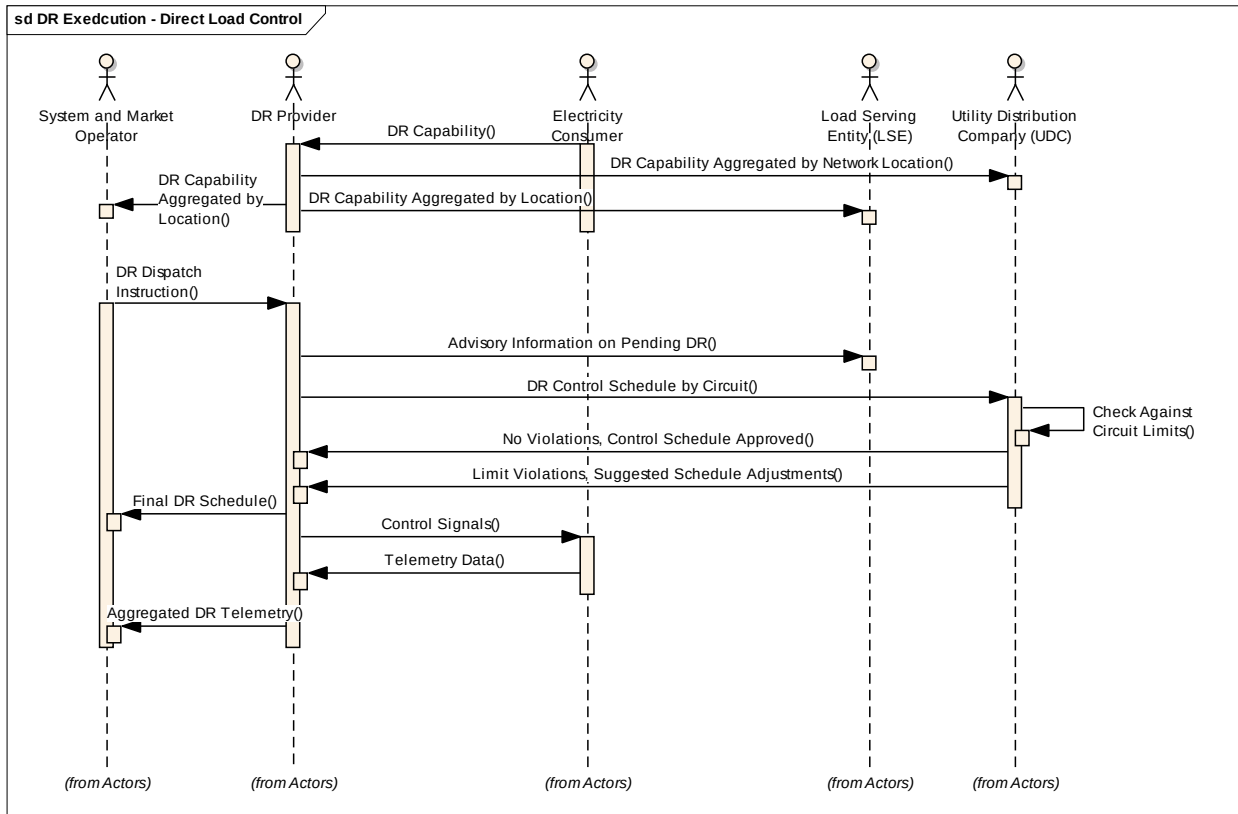


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Attribute Name	Description
<u>DR Control Command</u>	<u>This may include multiple parameters Schedule for the DR initiation, or termination, and type/level of control. Please note that the control signal may be sent to an building-EMS or a smart device with a multi-function control capability.</u>
<u>Source-Authentication</u>	<u>This is for authentication of the control signal.</u>
<u>Unique-Identifier</u>	<u>An identifier used to identify the message.</u>

Sequence Diagram



REQ.14.3.2.4.12 Operational Coordination

Due to the existing differences in the regional retail energy market regulations, wholesale market structure and protocols, and supply and demand conditions, currently there are regional differences in business practices and processes governing demand response. As a result, operational coordination requirements for demand response somewhat vary from region to region, depending on the available retail tariff, retail market structure, available wholesale market for DR and the market mechanics.



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The following table summarizes the major roles and responsibilities of the key stakeholders with respect to demand response operation. As can be seen in this table, a significant level of stakeholder coordination is required for an end-to-end DR operation spanning from the wholesale markets to the end-use customers.

<u>Stake Holder</u>	<u>Key Responsibilities</u>
<u>Wholesale Market Operator</u>	• <u>Establish, administer, and operate wholesale demand response programs and markets;</u> • <u>Determine and publish locational prices for wholesale demand response products;</u> • <u>Improve energy market efficiencies (economics) by integrating demand response products and capabilities;</u> • <u>Monitor compliance to wholesale DR instructions and financially settle with the participating stakeholders.</u>
<u>Transmission Grid / System Operator - Balancing Authority</u>	• <u>Monitor and maintain transmission grid reliability, and call upon wholesale demand-side (demand response) capabilities to address contingency/emergency conditions;</u> • <u>Dispatch demand-side capabilities to balance supply and demand, e.g., mitigating impact of variable generation (e.g., wind).</u> • <u>In regions with no organized wholesale energy market, economically dispatch available generation and demand resources including demand response to optimize supply economics.</u>



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<u>Stake Holder</u>	<u>Key Responsibilities</u>
<u>Distribution Grid Operator – Utility Distribution Company</u>	• <u>Monitor and maintain the distribution grid reliability and the quality of power supply (e.g., voltage levels). Call upon DR to mitigate the distribution contingencies and reliability concerns.</u> • <u>Review and approve the integration of distributed energy resources with the distribution grid.</u> • <u>Assess the operational impact of distributed resources and demand response (DR/DER) on power quality and reliability of the distribution grid, approve high-penetration DR schedules (especially cold-load pickup operation).</u> • <u>Coordinate with the respective Load Serving Entity and Energy Service Providers for the assessment of distribution service and loss compensation charges to retail customers.</u>
<u>Load Serving Entity</u>	• <u>Forecast load and economically schedule supply to meet demand at all times. Incorporate demand response capabilities to improve load factor, reducing/shifting peak load.</u> • <u>Establish and obtain regulatory approval for a fair and unbiased retail tariff for all customer classes. For real-time dynamic pricing (RTP) tariff, apply distribution service, loss compensation and other uplifts to the wholesale locational prices.</u> • <u>Establish and administer demand response and distributed resource management programs including DR tariff.</u> • <u>Meet regional requirements for Renewable Portfolio Standards compliance for power delivery.</u> • <u>Aggregate and schedule DR capabilities in wholesale markets, manage DR programs.</u> • <u>Manage customer metering and billing process.</u>



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<u>Stake Holder</u>	<u>Key Responsibilities</u>
<u>Power Marketer</u>	• <u>Forecast load and economically schedule supply to meet demand at all times. Incorporate demand response capabilities to improve load factor, reducing/shifting peak load.</u> • <u>Establish and obtain regulatory approval for a fair and unbiased retail tariff for all customer classes. For real-time dynamic pricing (RTP) tariff, apply distribution service, loss compensation and other uplifts to the wholesale locational prices.</u> • <u>Operate a wholesale and/or retail demand response programs with wholesale and/or retail customers.</u>
<u>Energy Service Provider</u>	• <u>Operate only in regions with competitive retail market</u> • <u>Be an alternative supplier of electric power to end-use customers by offering competitive products, services and prices.</u> • <u>Forecast aggregated load of the enrolled customers by location as required.</u> • <u>Coordinate the power supply with the respective LSE and UDO.</u> • <u>Support demand response programs (DR/DER) for enrolled customers.</u> • <u>Aggregate demand and demand-side capabilities; schedule the aggregated load and DR capabilities in wholesale markets.</u> • <u>Provide for DR telemetry and other monitoring requirements, on a resource or aggregated basis.</u> • <u>Apply the necessary uplifts (e.g., distribution service and loss compensation charges) to the wholesale locational prices.</u> • <u>Meet regional requirements for Renewable Portfolio Standards compliance for power delivery.</u> • <u>Bill and settle with customers for energy supply and DR operation.</u>



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<u>Stake Holder</u>	<u>Key Responsibilities</u>
<u>Demand Response Provider</u>	• <u>Offer competitive demand response services to the end-use customers.</u> • <u>Design and manage DR programs, establish pricing structure and signals for DR operation</u> • <u>Aggregate demand and demand-side capabilities; and offer/schedule these capabilities with the respective LSE or the wholesale market.</u> • <u>Provide for DR telemetry and other monitoring requirements, on a resource or aggregated basis.</u> • <u>Bill and settle with customers for energy supply and DR operation.</u>
<u>Electricity Customer</u>	• <u>Subscribe to a DR program, and update DR availability and capability information as appropriate</u> • <u>Maintain DR resources, data communications, telemetry, metering and control devices as required.</u> • <u>Respond to pricing signals, DR notifications, or control signals as appropriate.</u>

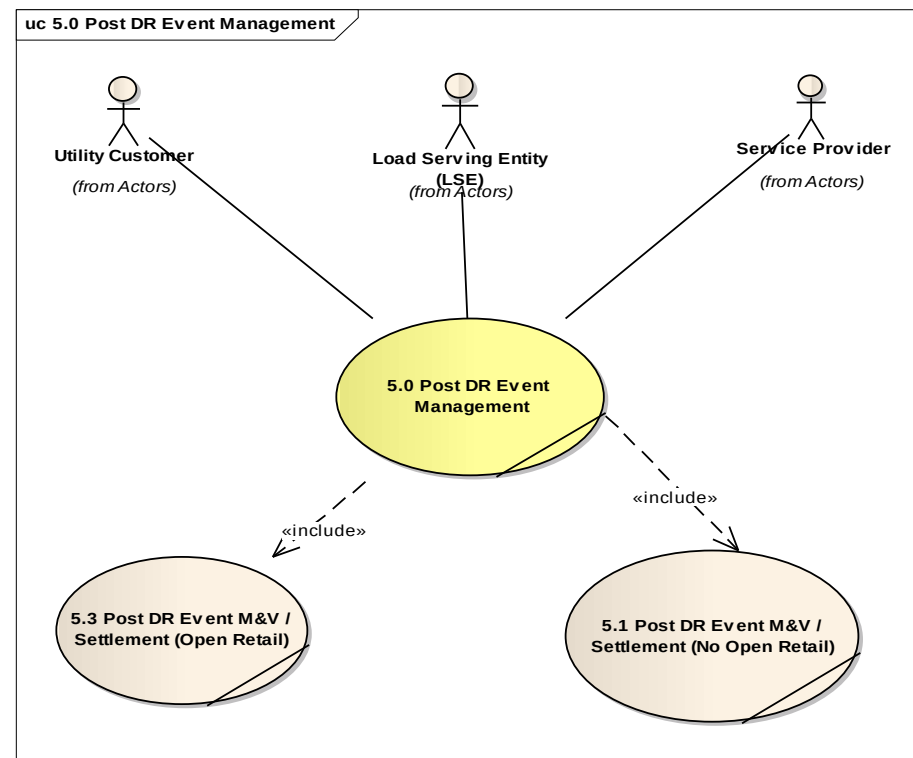


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REQ.14.3.2.4.13 Post DR Event Management

Post DR event management mainly concerns with the reconciliation of the actual consumption of energy within the duration of a DR event with the expected behavior so that proper financial reward or penalties could be carried out. The NAESB M&V standard for DR defines the requirements for most of the post event management. The following use cases describe post DR event management for three different market types.





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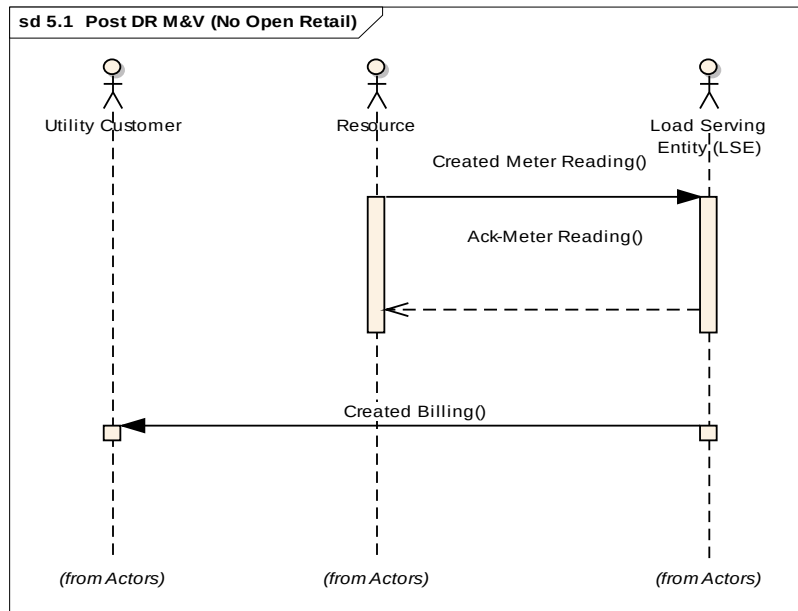
For Quadrant: Retail Electric Quadrant (REQ)
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REQ.14.3.2.4.13.1 Post DR Event M&V / Settlement (No Open Retail)

Description

After DR Event has been completed, then Measurement and Verification (M&V) can confirm whether action has been taken or to measure the impact of the response. After the M&V, then the Financial Settlement is calculated and sent to the Electricity Customer¹. This Use Case covers the scenarios with no Open Retail Markets.

Sequence Diagram



¹ In wholesale markets, the settlement for a DR Event is between the System Operator and Market Participant and possibly between the Market Participant and the Electricity Customer.



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE

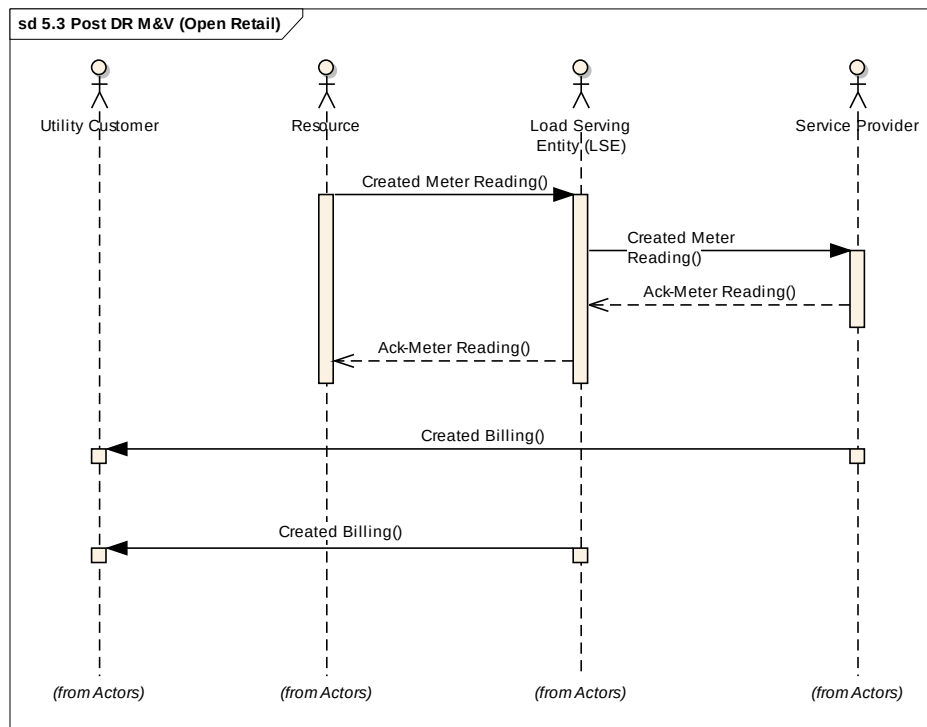
For Quadrant: Retail Electric Quadrant (REQ)
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Request Title: Requirements Specifications for Retail
Standard DR Signals - for NIST PAP09

REQ.14.3.2.4.13.2 Post DR Event M&V / Settlement (Open Retail)

Description

After DR Event has been completed, Measurement and Verification (M&V) can confirm action has been taken or to measure the impact of the response. After the M&V, the Financial Settlement is calculated and sent to the Electricity Customer. This Use Case covers the scenarios with Open Retail Markets.

Sequence Diagram





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4. Supporting Documentation

a. Description of Request:

On September 30, 2009 the National Institute of Standards and Technology officially assigned NAESB the responsibility to develop Requirements and Use Cases pertinent to Priority Action Plan items 3, 4 and 9. A complete description of each item is available on the NIST Web site located at <http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/PAP09DRDER>

This recommendation specifically pertains to PAP 09², "Standard DR and DER Signals".

b. Description of Recommendation:

See Section 3 Summary

c. Business Purpose:

This recommendation has been developed in response to a request from NIST to provide use cases and requirements germane to the development of standard DR and DER signals.

d. Commentary/Rationale of Subcommittee(s)/Task Force(s):

Joint Smart Grid Standards Task Force and Fix Protocol Meeting Notes/Documents:

- September 17, 2009 Meeting Notes – To be posted
- October 1, 2009 Meeting Notes – To be posted
- October 15, 2009 Meeting Notes – To be posted

NAESB Smart Grid Standards Task Force Sub-Group Meeting Notes/Documents:

- October 13, 2009 Meeting Notes – To be posted
- October 20, 2009 Meeting Notes – To be posted
- October 27, 2009 Meeting Notes – To be posted
- November 3, 2009 Meeting Notes – To be posted
- November 4-6, 2009 Meeting Notes – To be posted
- November 10, 2009 Meeting Notes – To be posted

NAESB Smart Grid Standards Task Force Meeting Notes/Documents:

- October 22, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd102209notes.doc
- October 29, 2009 Meeting Notes – To be posted
- November 5, 2009 Meeting Notes – To be posted
- November 13, 2009 Meeting Notes – To be posted
- December 3, 2009 Meeting Notes – To be posted

² <http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/PAP09DRDER>



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- December 10, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd121009notes.doc
- December 17, 2009 Meeting Notes –
http://naesb.org/pdf4/smart_grid_ssd121709notes.doc
- January 7, 2010 Meeting Notes – To be posted
- January 14, 2010 Meeting Notes – To be posted
- January 21, 2010 Meeting Notes – To be posted
- January 28, 2010 Meeting Notes – To be posted
- February 5, 2010 Meeting Notes – To be posted
- February 15, 2010 Meeting Notes – To be posted
- February 25, 2010 Meeting Notes – To be posted

NAESB PAP-03 / PAP-04 / PAP-09

General Comments

- A. The documents being considered do not contain traditional NAESB Business Practice Standards content. Additional work will be necessary to convert these recommendation documents into Business Practice Standards, as it was a working assumption of the Smart Grid Task Force to deliver requirements only.
- B. References in these Recommendations to ‘Dispatch’, ‘Markets’, ‘Reliability’ are made relative to DR and apply to DR resources only, and not Generation resources. NERC’s compliance standards for Generation Resources are typically quite detailed, while compliance standards for DR resources are appropriately determined by the respective system operator specific to the DR product or service and the reliability need being addressed.
- C. While the recommendations for PAP-03, PAP-04 and PAP-09 posted by NAESB are not business practice standards, they should not be misconstrued as a recommendation to change existing market designs or business rules across ISOs/RTOs; each ISO RTO has its own stakeholder process as the appropriate forum for making rule changes.
- D. Although not explicitly stated in the PAP documents, compliance with orders from regulatory agencies, as they apply to DR in ISO/RTOs, is presumed.
- E. It is our understanding that the contents of the documents are being presented as recommendations and are intended to be used neither as implementation templates nor for testing of interoperability. Rather, another step will be taken by the Organization for the Advancement of Structured Information Standards (OASIS) to deliver an information model, preferably reconciled with IEC 61970, which then could be implemented and tested.
- F. The treatment of the glossary of terms – actors and definitions – is inconsistent across the recommendation documents – within the WEQ as well as the corresponding versions listed under REQ. In one case, the glossary of terms is in the recommendation without the diagram, in another it appears as an appendix, and in a third it appears in both the recommendation section *and* in an appendix. The highlighted wording regarding how the glossary will be incorporated into the WEQ-000 is unclear. The IRC requests that NAESB staff provide a clearer description to explain how the glossary of terms will be integrated into WEQ-000.
- G. It is unclear how the data requirements work beginning in Phase 2 will be integrated with these recommendations if they are being passed through the standards approval process separately. This is of particular concern since PAP-03 and PAP09-Retail have partial lists of data requirements in the current recommendations. For consistency, the IRC recommends that all data requirements be removed from the Recommendations for PAPs 03/04/and 09 until the SGTF has completed Phase 2, where the data requirements will be identified for all three PAPs.

PAP-SPECIFIC RECOMMENDATIONS

PAP-03

- 1. "The term “wholesalers” in PAP03 should be modified to clarify whether it refers to energy marketers, energy service providers or ISOs and RTOs. Without this clarification, it is unclear to whom the proposed PAP03 standards apply

NAESB PAP-03 / PAP-04 / PAP-09

2. The use cases are very short. More elaboration needs to be given to the definitions and the samples should be elevated to fully described, testable use cases.

PAP-04

3. The IRC has identified that the following requirement from PAP04 as the only requirement applicable to wholesale markets and recommends that it be incorporated into the PAP09 wholesale document:

“Demand Response Programs employ a combination of absolute dates/times, absolute periods (range) of dates/times, relative dates/times, recurring dates/times, absolute intervals and absolute durations in order to communicate temporal information pertaining to demand response transactions. Demand Response Programs must also accommodate time zone variations, leap years, leap seconds, and the use of daylight savings time. Any calendaring/scheduling standard that is applicable to Demand Response programs must be capable of supporting this range of requirements.”

4. References to the term “wholesalers” in PAP04 do not apply to ISOs and RTOs, therefore, it is the understanding of the IRC that PAP04 would not apply to ISOs and RTOs.
5. The IRC recommends that PAP-04 be moved wholly into the REQ, where it can be applied to end-device and/or human communications without impact to or potential conflict with wholesale market operations.

PAP-09 Retail

6. As previously recommended in the IRC’s informal comments in November 2009, the administration of DR products and services should be excluded from the scope of the retail use cases. Currently, language states that these processes will not be automated. If this is the case, they should not be included in a document that ultimately will lead to a machine-to-machine communication specification. Additionally, the processes for automating customer registration (as opposed to device enrollment) are likely to be handled in the future by a NAESB working group with a more global (i.e., not DR-centric) perspective. The IRC recommends removing the following sections:
 - a. REQ.14.3.2.4.1 Administrate DR Program
 - b. REQ.14.3.2.4.1.2 Create DR Program
 - c. REQ.14.3.2.4.1.3 Update DR Program
 - d. REQ.14.3.2.4.1.4 Remove DR Program
 - e. REQ.14.3.2.4.2 Administrate Customer for DR
7. Our members believe that additional descriptions of the business processes are needed. The existing illustrations consist of Use Case Diagrams, which identify the Actors involved and the hierarchy of processes, and Sequence Diagrams, which identify the ordered messages that may

NAESB PAP-03 / PAP-04 / PAP-09

be exchanged among the actors during the execution of the business processes. Activity Diagrams would better show the conditional flows and iterations that are common to these business processes and make the testing of use cases easier. Furthermore, alignment with the four governing business processes outlined in Figure 1 of the Wholesale document (page 12) would be extremely helpful. In fact, we would very much like to see integration with the wholesale business process Activity Diagrams, which have wholesale-retail integration points identified for further development by interested parties. IRC members will be made available to support such integration definition efforts should members of the REQ be interested in pursuing this activity in Phase 2.

8. The document defines DR-specific data elements (such as "Minimum Duration"), whereas the Wholesale document reuses generation/supply data elements (such as "Minimum Run Time"). These philosophies should be reconciled. See pp. 33-35, 39, and 40 for examples. As stated in cross-PAP recommendation E, this can be resolved by following the IRC recommendation that all data elements be removed from the current recommendations and submitted at a later date, when the Phase 2 data requirements work is complete.

PAP-SPECIFIC RECOMMENDATIONS (DETAILED EDITS)

Common Introduction Language

- Replace "United States of America with some overlaps to Canada" with "North America"
- 000-1: Replace "Reliability Authority (RA)" with "Regional Reliability Authority (RRA)"
- 000-2: For Response Method Aggregation, edit as follows: "...interval level consumption, e.g. a ~~site~~ **an RMA** may ~~also~~ be a physical entity ~~that may have~~ **with** its own meter..."

PAP-03

- Pg. 6 & Pg. 12: Replace "Demand Reduction" with "Demand Modification"
- Pg. 9: need to reconcile difference among TDSP / UDC / UDO
- Pg. 10: Definition of CPP is incorrect. Recommend the following change: "...at which time electric prices ~~may reflect the costs of electricity at the wholesale level~~ **are administratively adjusted to incentivize customers to actively modify their electricity usage.**"
- Pg. 10: Definition of PTR. Recommend the following change: "An incentive rate in which the utility pays **a rebate to** Customers ~~to~~ **who** reduced demand during peak periods on critical days."

PAP-04

- Pg 9: Replace "reducing" with "modifying"

PAP-09 Retail

ISO/RTO Council Comments

NAESB PAP-03 / PAP-04 / PAP-09

- Pg 15: REQ.14.3.2.3: Use Case Overview - End-to-end business process flow should be consistent with Wholesale DR Signals document
- Pgs 17, 37, 45, 53, 58: Eliminate specific references to wholesale markets
- Pg 17: change “interruption” to “modification” (2x places)
- Pg. 30: Definition for Maximum Duration. Change “The maximum amount of time the asset/resource is capable of ~~delivering power (megawatts)~~ **modifying its electricity usage**”.
- Pg 30: the Parent-Resource ID concept needs to be reconciled with the terminology and hierarchical structure of resources used in the wholesale document.
- Pg 31: the Source-Authentication concept needs to be reconciled with the approach to security used in the wholesale document
- Ph 37: revise text as follows “The Bidder may be a Customer bidding with ~~either an energy retailer (e.g., LSE, ESP), a Service Provider (e.g., CSP, DRP), or a power marketer (i.e., wholesale market participant).~~ The Bidder may also be a Service Provider bidding up to a LSE or power marketer.”
- Pg 38: recommend proper use of bids and offers, i.e. bids are to buy and offers are to sell
- Pg 44 & 53: replace “shed” with “modify” (2x place)
- Pg 45: the concept of a “number signifying the reliability of the grid” has no basis in any reliability standards with which the IRC members are acquainted
- Pg 55: replace “de-energize” with “modification”
- Pg 58 – DR Execution – Retail Time Pricing (RTP): Replace this section with the following text: “Provide real-time or dynamic pricing (RTP) to retail customers so that customers can vary their demand based on pricing signals. RTP represents retail electricity rates that vary as a function of time.”

PAP-09 Wholesale

- Pg. 9 – unresolved reference should be fixed

MC10019

North American Energy Standards Board

Request for Minor Correction/Clarification of a NAESB Business Practice Standard, Model Business Practice or Electronic Transaction

Instructions:

- 1. Please fill out as much of the requested information as possible. It is mandatory to provide a contact name, phone number and fax number to which questions can be directed. If you have an electronic mailing address, please make that available as well.**
- 2. Attach any information you believe is related to the request. The more complete your request is, the less time is required to review it.**
- 3. Once completed, send your request to:**
Rae McQuade
NAESB, Executive Director
1301 Fannin, Suite 2350
Houston, TX 77002

Phone: 713-356-0060
Fax: 713-356-0067

by either mail, fax, or to NAESB's email address, naesb@naesb.org

Once received, the request will be routed to the appropriate subcommittees for review.

MC10019

North American Energy Standards Board

Request for Minor Correction/Clarification of a NAESB Business Practice Standard, Model Business Practice or Electronic Transaction

NAESB Correction/Clarification Procedure

Minor Clarifications and Corrections to Standards

Minor clarifications and corrections to existing standards include: (a) clarifications or corrections made by a regulatory agency to standards that are of a jurisdictional nature, or by the American National Standards Institute or its successor; (b) clarifications or corrections to the format, appearance, or descriptions of standards in standards documentation; (c) clarifications or corrections to add code values to tables; and (d) clarifications and corrections that do not materially change a standard. Any request for a minor clarification or correction to an existing standard should be submitted in writing to the executive director. This request shall include a description of the minor clarification or correction and the reason the clarification or correction should be implemented.

1. Processing of Requests

The executive director shall promptly notify the EC and any appropriate subcommittee(s) of the receipt of the request. The members of the applicable quadrant's EC shall promptly determine whether the request meets the definition of a minor clarification or correction. Through the decision of the vice chair of the applicable quadrant, this determination may be delegated to one of the quadrant's subcommittees, with the concurrence of the subcommittee chair, in which case the subcommittee shall make a prompt decision.

If the request is determined to meet the definition of minor clarification or correction, the applicable quadrant's EC, with input from any subcommittee(s) to which the request has been forwarded, shall act on the request within one month of its receipt. A meeting to discuss the request is not required; the decision may be made by notational vote. A simple majority of the votes received shall determine the outcome. The members of the applicable quadrant's EC shall be given at least three working days to consider and vote on the request.

2. Public Notice

The results of the vote on the request for a minor clarification or correction shall be posted on the NAESB website and the members of the applicable quadrant shall be notified of the request by e-mail. If the request has been approved by the applicable quadrant's EC, the notification shall include a brief description of the request, the contact name and number of the requester so that further information can be obtained, and the proposed effective date of the clarification or correction. The proposed effective date of the minor clarification or correction shall normally be one month from the date of the public notice. Any interested party shall have an opportunity to comment on the request, and the comments shall be posted on the NAESB website. The comment period is two weeks.

3. Final Disposition of Approved Requests

If no comments are received on an approved request, the standard shall be clarified or corrected as specified in the approved request on the effective date proposed. If comments are received, they shall be forwarded to the members of the applicable quadrant's EC for consideration. Each comment requires a public written response from the applicable quadrant's EC. The applicable quadrant's EC shall determine whether changes are necessary as a result of the comments. Members of the applicable quadrant's EC shall be given three working days to consider the comments and determine the outcome, which shall be decided by a simple majority of the votes received. A meeting to discuss the request is not required; the decision may be made by notational vote. The standard shall be clarified or corrected in accordance with the outcome of the vote, effective with the completion of voting, and notice thereof shall be posted on the NAESB website.

MC10019

North American Energy Standards Board

Request for Minor Correction/Clarification of a NAESB Business Practice Standard, Model Business Practice or Electronic Transaction

Date of Request: 4/12/10

1. Submitting Entity & Address:

Williams Gas Pipeline
P.O. Box 1396
Houston, TX, 77056

2. Contact Person, Phone #, Fax #, Electronic Mailing Address:

Name : Dale Davis
Title : Industry Standards Consultant
Phone : 713-215-2396
E-mail : dale.m.davis@williams.com

3. Version and Standard Number(s) suggested for correction or clarification:

Minor Correction for NAESB WEQ Standard WEQ-014-A and WGQ Version 1.9 Standard No. 11.4.1 (Implementation Guide for Electronic Tariff Filing)

4. Description of Minor Correction/Clarification including redlined standards corrections:

Corrections to the WEQ/WGQ Implementation Guide for Electronic Tariff Filing to correspond to modifications made by FERC to its Implementation Guide for Electronic Filing of Parts 35, 154, 284, 300, and 341 Tariff Filings..

See attached – color coded corresponding to the date of the FERC versions

5. Reason for of Minor Correction/Clarification:

The Federal Energy Regulatory Commission (FERC) issued the FERC Implementation Guide for Electronic Filing of Parts 35, 154, 284, 300, and 341 Tariff Filings dated January 5, 2009 which essentially is the same as Pages 4 – 44 of the NAESB WEQ/WGQ Implementation Guide for Electronic Tariff Filing. Subsequently, FERC issued 6 revised versions to its implementation guide. The FERC revised version dates are as follows:

March 27, 2009,
April 21, 2009,
May 1, 2009,
July 28, 2009,
December 18, 2009, and
January 21, 2010

The purpose of this request for minor correction is to make corresponding revisions to the comparable sections of the NAESB WEQ/WGQ Implementation Guide for Electronic Tariff Filing. The remaining portion of the NAESB WEQ/WGQ implementation guide (the Use Cases, Examples and FAQ sections) are unchanged and therefore, those pages are not included in this request.

Implementation Guide for Electronic Tariff Filing

NAESB WGQ Standard 11.4.1 and WEQ Standard WEQ-014

April 4, 2008 to be updated after WEW/WGQ adoption

This grayed section is on the cover of FERC's official implementation guide – **NOT to be part of NAESB WEQ/WGQ implementation guide**– and is provided for ease in identifying the changes corresponding to the FERC revision dates.

1/5/09 – Two sentences on Page 11 of the NAESB Implementation Guide were not included in FERC's original publication

Changes made 3/27/09 – only change to Official cover page

Changes made 4/21/09 – only change was to Official cover page

Changes made 5/1/09

Changes made 7/28/09

Changes made 12/18/09

Changes made 1/21/10

Implementation Guide for Electronic Filing of Parts 35, 154, 284, 300, and 341 Tariff Filings

Version: January 21, 2010

Form Approved

OMB Nos. 1902-0089 (Oil program) (Expires 4/30/2012)

1902-0096 (Electric program) (Expires 7/31/2012)

1902-0154 (Gas program) (Expires 3/31/2012)

1902-0086 (NGPA 311 program) (Expires 12/31/2011)

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Executive Summary

This implementation guide is for use by entities required to submit tariffs, rate schedules, and service agreements together with supporting documentation to the Federal Energy Regulatory Commission (FERC) pursuant to Title 18 Code of Federal Regulations Parts 35, 154, 284, 300, 341 or other Parts as required by FERC. Filings which historically were submitted in hard copy should be submitted electronically according to the guidelines contained herein. To accomplish this, the components of the previous filings will need to be separated into various pieces of identifying information as defined by the data elements contained herein. These data elements and their accompanying data, are hierarchically organized by the XML schema and when compiled constitute an XML filing package for an electronic Tariff Filing. The XML filing package is then uploaded through a web portal. The following is a guide describing the various processes/mechanisms, data tables, code values/reference tables, and technical specifications used in the submission of such Tariff Filings.

Business Process

Definitions and Standards

Definitions

WGQ 11.2.1 (WEQ-014-0.3) Tariff Submitter is the term used to describe any entity that is required to submit a Tariff Filing.

WGQ 11.2.2 (WEQ-014-0.1) Tariff Filing is the term used to describe a compilation of all document(s), associated data and supporting documents that is required to be filed electronically by a Tariff Submitter pursuant to Title 18 Code of Federal Regulations Parts 35, 154, 284, 300, 341 or other Parts as required by the Federal Energy Regulatory Commission.

WGQ 11.2.3 (WEQ-014-0.2) Tariff Record is the term used to describe the part of a Tariff Filing that consists of the data elements that relate to a sheet, section, or entire tariff, rate schedule, or service agreement that is required to be filed with the Federal Energy Regulatory Commission.

WGQ 11.2.4 (WEQ-014-0.4) Sheet-Based Format and Section-Based Format are the terms used to describe the subdivision into sheets or sections, respectively, of a tariff, rate schedule, or service agreement for purposes of a Tariff Filing.

WGQ 11.2.5 (WEQ-014-0.5) Whole Document Format is the term used to describe a tariff, rate schedule, or service agreement submitted as a single document within a Tariff Record for purposes of a Tariff Filing.

Standards

WGQ 11.3.1 (WEQ-014-1) A Tariff Submitter should electronically submit a Tariff Filing pursuant to the requirements as set forth in NAESB WGQ Standard 11.4.1 / NAESB WEQ Standard WEQ-014.

WGQ 11.3.2 (WEQ-014-2) For the electronic submission of a Tariff Filing, a tariff, rate schedule, or service agreement, and changes thereto, should be structured using one or more of the following methods:

- i. Sheet-Based Format,
- ii. Section-Based Format, or
- iii. Whole Document Format

NAESB WGQ Standard 11.4.1 and NAESB WEQ Standard WEQ-014 Technical Implementation of Business Processes

GENERAL PURPOSE:

The purpose of the eTariff Submission implementation guide is to define the requirements for the submission of a Tariff Filing to the Federal Energy Regulatory Commission (FERC) in an electronic format such that the information can be stored in the FERC eTariff database and in eLibrary. The eTariff Submission dataset is used by an entity (Tariff Submitter) required to electronically submit Tariff Filings to the FERC pursuant to Title 18 Code of Federal Regulations Parts 35, 154, 284, 300, 341 or other Parts as required by FERC.

Set forth below is an explanation of how the eTariff Submission dataset works, including instructions describing the various processes / mechanisms, data tables, code values / reference tables, and technical specifications used in the submission of a Tariff Filing.

The eTariff Submission dataset is used to electronically submit a new, modify an existing, and withdraw or cancel a tariff, rate schedule, or service agreement. Within the FERC eTariff database, each Tariff Submitter will have one or more of its own database(s). A Tariff Submitter's database must contain at least one Tariff Record. A Tariff Record is a single occurrence (row) in a database (similar to a row in a spreadsheet) consisting of multiple data elements that relate to a sheet, section, or entire tariff, rate schedule, or service agreement.

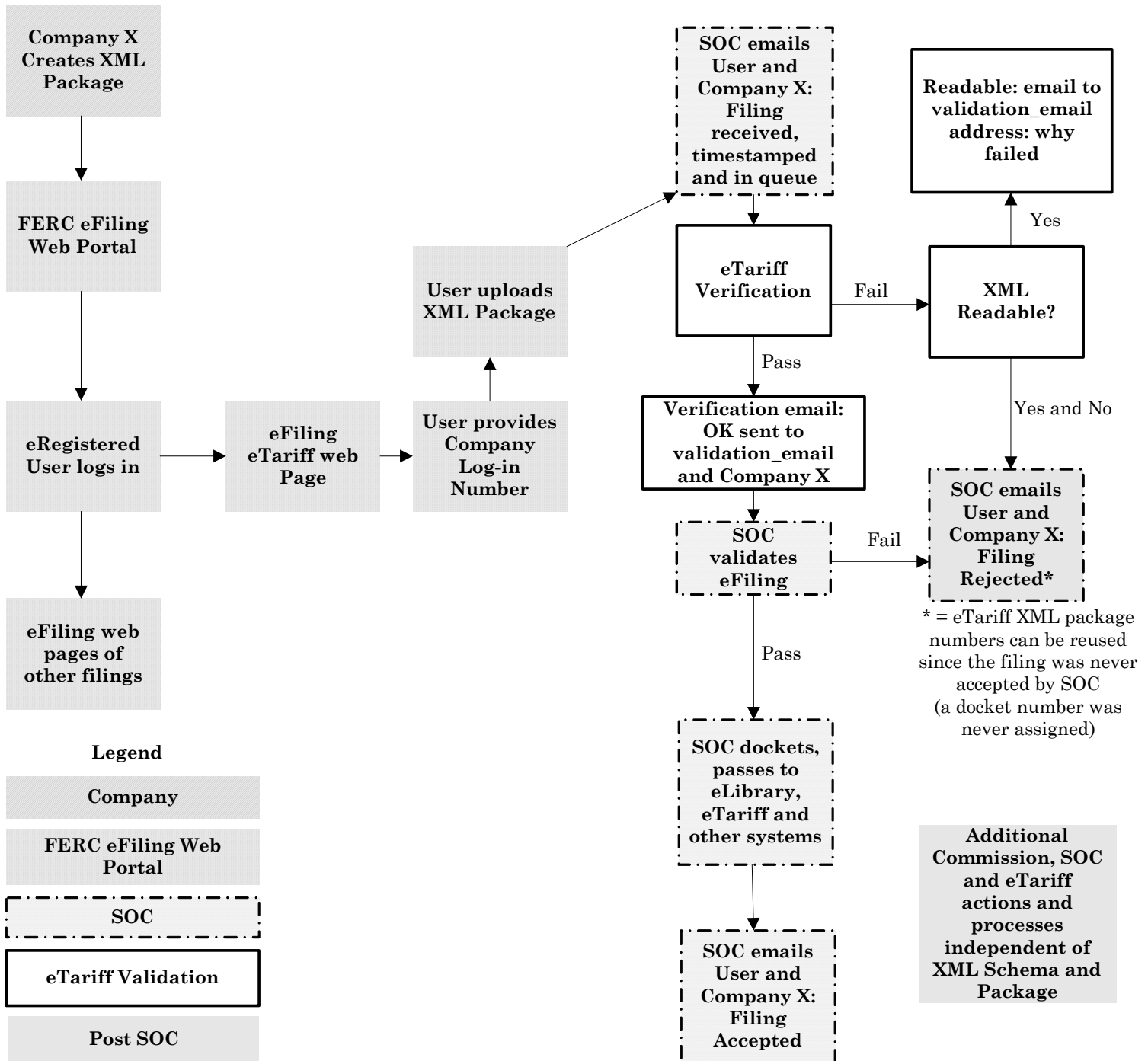
Sheet-Based Format and Section-Based Format describes the subdivision into sheets or sections, respectively, of a tariff, rate schedule, or service agreement for purposes of a Tariff Filing. Whole Document Format describes a tariff, rate schedule, or service agreement submitted as a single document within a Tariff Record for purposes of a Tariff Filing. A single database may contain one or more tariff(s), rate schedule(s), and service agreement(s) that are in different formats. For example, a tariff may be in a Sheet-Based Format or Section-Based Format, while the rate schedules may be in Whole Document Format.

The decision to use Sheet-Based Format, Section-Based Format, or Whole Document Format is left to the Tariff Submitter consistent with FERC regulations.

eTariff Filings Process Flow through the FERC eFiling Web Portal

DIAGRAM

The following is a high level diagram representing the overall process flow from the creation of an eTariff XML filing package by a Tariff Submitter through the Secretary of the Commission (SOC) acceptance or rejection of the filing. Following the diagram is a more detailed description of the submission to FERC and the processing the eTariff XML filing package.



Description of eTariff Filing Process Flow

Disclaimer:

The following summary represents FERC Staff's best understanding of how the eFiling process, including eTariff, will be designed. As of January 2008 the process has not been built, or fully designed, therefore FERC may change the process.

The FERC's eFiling *Reference Guide*, located at www.ferc.gov, provides a step-by-step set of instructions and expected results for the eFiling process.

- A User is a person authorized to submit a filing on behalf of a Tariff Submitter, as defined in NAESB WGQ Standard 011-2.1 and NAESB WEQ Standard WEQ-014-0.3. The User must be an eRegistered party for eFiling.
- The User will login into the FERC eFiling portal.
- The User, upon successfully logging into the FERC eFiling portal, will be presented with the introductory screen indicating success in accessing the site, and presented with a link to the filing creation part of the site.
- Upon entering the filing creation site, the User will choose to make an eTariff filing.
- The eTariff portal will prompt the User to enter company login information (see Note 1 below). After successfully passing this step, the User will upload an eTariff XML filing package.
- Once the filing is uploaded, the eFiling web page indicates the Tariff Filing has been submitted.
- After the filing has been submitted, SOC will send a Confirmation of Receipt e-mail to the User and to the e-mail address on file with FERC for the company that logged in. This e-mail only acknowledges the receipt of the filing through the eFiling portal, provides a timestamp, and indicates that the filing is placed in the queue to be processed.
- The eTariff XML filing package will be validated programmatically by an eTariff verification process.
 - o If the XML is unreadable, an e-mail will be sent by SOC to the User and to the e-mail address on file with FERC for the company logged-in (as a result of the XML being unreadable, the Validation e-mail address contained in the XML package cannot be obtained).
 - o If the verification is completed successfully, an e-mail will be sent to the Validation e-mail address provided in the eTariff XML package

and to the e-mail address associated with the Company Identifier (or multiple Company Identifiers, as applicable (see Note 2 below)) for the affected database. This does not mean that the filing has been accepted by SOC.

- o In the event the XML filing package can be read and the Validation e-mail can be obtained, but the data does not pass verification, (an e-mail will be sent to the Validation e-mail address provided in the eTariff XML filing package. This e-mail will provide information about the problems encountered during the verification process.
- FERC's SOC will send an e-mail to the User and the e-mail address on file with FERC for the company logged in. The e-mail will indicate that either the filing:
 - o Has been accepted through SOC's process for filing and docketed (which does not guarantee that other filing deficiencies will not result in rejection later in the review processes within FERC). At this time the filing is passed on to eLibrary, eTariff and other FERC systems; or
 - o Has been rejected and not docketed (see Note 3 below).

Notes:

- (1) As of January 2008, the FERC staff does not know whether the company that logs-in will be required to correlate to the company identified by the Company Identifier in the XML package).
- (2) As of January 2008, the FERC Staff does not know how joint filings will be handled. A "Joint Filing" refers to a Tariff Filing made on behalf of multiple parties with an identical tariff, rate schedule, or service agreement that is part of a single XML filing package. This is different from a shared tariff, rate schedule, or service agreement that refers to any situation where multiple parties are allowed to add or change the contents of a specific tariff, rate schedule, or service agreement, which is associated with one company_id.
- (3) If the filing is rejected at any point prior to receiving a docket number, the filing can be corrected and re-submitted using the same Filing Identifier. Once it is docketed it becomes part of the public record, the Filing Identifier cannot be re-used.

eTariff Submission Dataset Overview:

The eTariff Submission dataset consists of a Data Dictionary that contains three data tables, as more fully explained below. The data tables explain the data elements used when creating a single Tariff Filing. The dataset also includes Code Value Dictionaries used for populating some data elements with standardized code values. Once the Tariff Submitter has completed all of the requirements for the various data elements, the data will need to be compiled into a single XML file pursuant to the XML schema contained in the technical section below, and then zipped for submission to FERC via the eFiling / eTariff web portal.

Data Dictionary Data Tables Overview:

The eTariff Submission Data Dictionary consists of the following three data tables, which are presented in hierarchical order:

Filing Data Table:

This table includes, but is not limited to, the data elements that identify the company making the Tariff Filing, the Type of Filing, and the name of the database that is being created, modified, or cancelled. A single Tariff Filing may only have one set of Filing Data. The data in this table is required for each Tariff Filing.

Attachment Data Table:

This table includes, but is not limited to, the data elements that describe each of the attachments (e.g., transmittal letter, redline and clean versions of a tariff, rate schedule, or service agreement or portions thereof, and supporting materials) regardless of whether they are required or optional for the given Type of Filing, as set forth in the FERC rules and regulations. Currently, all Type of Filings will have at least one attachment and thus at least one set of attachment data elements (e.g., the transmittal letter).

Tariff Record Content Data Table:

This table includes, but is not limited to, the data elements that are used to uniquely identify the individual Tariff Records being submitted, the proposed effective date, the order in which the Tariff Records should be assembled, and the binary data and plain text for each Tariff Record. A single Tariff Filing may have multiple sets of Tariff Record Content Data. Based on the Type of Filing there may or may not be any Tariff Record Content Data.

Data Element Overview:

The data elements are the individual pieces of information or data that make up the Tariff Filing. Each will have a defined format, may be required, conditional or optional and may have restricted values. A data element may contain text or an electronic file (e.g., a .PDF file) as more fully explained in this implementation guide. An explanation of the individual data elements is provided in the data table portion of this implementation guide. In such tables, for each data element, the following information is provided:

- Business Name
- Element Name (this is the corresponding technical (metadata) name used in the XML schema)
- Definition of Data Element
- Field Format (length)
- Valid Values
- Usage / Responsibility and Conditions

~~A Tariff Filing is unique by the combination of the Company Identifier, Filing Identifier, and Tariff Identifier. A Tariff Record is unique by the combination of the Tariff Record Identifier, Option Code, Tariff Record Proposed Effective Date and Record Effective Priority Order.~~

Details of Individual Data Elements:

The following are the individual data elements provided in the same order as they appear in the Data Tables:

Note: For additional information on each data element, e.g., formatting requirements, see the definitions and other requirements as set forth in the data tables.

Filing Data Table Data Elements:

Schema Version:

This is the version of the XML schema used to create the specific Tariff Filing. The Schema Version and the actual schema will be published on the FERC website located at www.ferc.gov. Any changes to the schema will be made through a FERC notice or order.

Company Identifier:

A FERC-designated company identifier code used to define an entity registered with FERC to make Tariff Filings. **To acquire a company identifier code, company should apply at FERC Online's Company Registration application, located at www.ferc.gov.**

Tariff Identifier:

A unique identifier for a Tariff Submitter's database as it pertains to the database being modified by a Tariff Filing. A Tariff Submitter may have more than one active database. A database may contain one or more tariffs, rate schedules, or service agreements. A Tariff Identifier is supplied by the Tariff Submitter. Once a Tariff Identifier in a Tariff Filing has been accepted for filing by the SOC, it cannot be changed. A Tariff Identifier, even if cancelled, cannot be reused.

Tariff Title:

The name of the database assigned by the Tariff Submitter. The name of the database may not be changed. It is suggested that the Tariff Submitter's name not be included in the Tariff Title, as the Tariff Submitter's name is captured by the Company Identifier.

Filing Identifier:

A unique number identifying the subject Tariff Filing. The Tariff Submitter assigns the value. Filing Identifiers do not have to be assigned sequentially from one filing to the next. If a Tariff Filing is rejected by SOC prior to being docketed, the Filing Identifier may be reused.

Filing Title/Description:

The title given to the filing by the Tariff Submitter. Additional instructions may be published on the FERC website or via FERC notice or order. This data element will be used in eLibrary as part of the description of the Tariff Filing. The description may be edited by the SOC before or after posting in eLibrary.

Type of Filing Code:

A numeric code that identifies the Type of Filing being made as defined by FERC regulation. Only one Type of Filing can be submitted in a single Tariff Filing. The Type of Filing will dictate the data requirements for the subject filing. A list of allowable codes will be published on the FERC website located at www.ferc.gov, with changes communicated via a FERC notice or order. FERC will provide this information in CSV (comma separated value) and PDF formats which will be updated as regulations are

modified. The Commission will use the Type of Filing Code together with the Tariff Record Proposed Effective Date to establish whether a filing is statutory and the applicable statutory timelines.

Associated Filing Identifier:

Identifies the previous filing, if any, to which the subject filing pertains. The value provided is the Filing Identifier for the previous filing. When Associated Filing data is required, only one Associated Filing number can be provided.

Validation e-mail:

An e-mail address provided by the Tariff Submitter for notification of the results of the technical validations from the eTariff verification process. The Validation e-mail address does not have to be eRegistered with FERC.

Payment Confirmation Code:

For certain Type of Filings, the regulations require that a fee be paid along with the Tariff Filing. The payment of such fee is made at www.pay.gov. The confirmation number obtained after the successful payment is used to populate the Payment Confirmation Code. It is suggested that the Tariff Submitter be familiar with the www.pay.gov procedures or pre-pay a set of fees prior to making the Tariff Filing with FERC to avoid last minute delays that may prevent a timely filing.

Suspension Motion:

As of January 2008, this data element is only applicable to certain Part 154 filings made by interstate natural gas pipelines. It is not applicable to the electric or oil industries. This data element indicates whether or not the Tariff Records should automatically go into effect at the end of the applicable suspension period. If the value provided is no ("N"), the status of the Tariff Record will remain "Suspended" until such time as the Tariff Submitter files an appropriate motion filing. If the value provided is yes ("Y"), FERC's eTariff maintenance will automatically change the status from "Suspended" to "Effective" at the end of the suspension period with no further action required of the Tariff Submitter.

Attachment Data Table Data Elements:

Attachment Reference Code:

The data code identifies the type of attachment based on the Type of Filing. A list of allowable codes will be published on the FERC website located at www.ferc.gov, with changes communicated via a FERC notice or order. FERC will provide this information in CSV and PDF formats which will be updated as regulations are modified. This data element must be completed for each required attachment, regardless of whether a waiver is requested for the subject attachment.

Attachment Description:

This is the description of the individual attachment. For attachments that are pre-defined by FERC's regulations, the description should be the FERC pre-defined description. For attachments that are added by the Tariff Submitter that are "Other", the description can be any value desired. The Attachment Description is not required if a waiver has been requested for the subject attachment. The Attachment Descriptions provided will be displayed in eLibrary. Additional instructions regarding this data element may be published on the FERC website or via FERC notice or order.

Attachment Waiver Requested:

This data element indicates whether or not a waiver is requested. A FERC table providing rules for attachments is located at www.ferc.gov. This table indicates whether an attachment for a given Type of Filing can be waived. If an attachment is provided, the field is filled with no ("N"). If a waiver for the attachment is allowed, and the Tariff Submitter wants to request a waiver, the field is filled with a yes ("Y"). If "Y" is chosen, there is no need to attach the corresponding attachment. The Waiver Request code is solely for the purpose of passing the SOC's electronic filing validation checks. The actual request for waiver of the FERC's regulations and supporting documentation must be provided in the transmittal letter.

Attachment Document File Name:

This is the actual file name for the identified attachment provided by the Tariff Submitter. The file name is the name of the individual electronic document, including the extension. The name is chosen by the Tariff Submitter, unless otherwise provided in FERC instructions. The SOC's file name extension rules will be enforced. The Attachment Document File Name will appear in eLibrary. The Attachment Document File Name is not required if a waiver has been requested for the subject attachment.

Attachment Document:

This is the content of the actual attached document in a base64 bit encoded binary file. This binary file is in the native format of the saved file generated from the word processing software, or other FERC approved software format(s), in which the attachment was written. Base64 bit encoding is an additional step that must be applied to the binary file, using encoding software, enabling the file to be inserted into the XML. The Attachment Document is not required if a waiver has been requested for the subject attachment.

All Tariff Filing attachments must meet the same rules and requirements applicable to any document filed with FERC through its eFiling portal. Instructions with regard to the electronic format and content of electronic documents will be published on the FERC website located at www.ferc.gov or via FERC notice or order. However, the eTariff verification process does not enforce these rules, which are subject to other FERC processes.

A clean copy of the proposed tariff, rate schedule, or service agreement for posting in eLibrary is required for all Tariff Filings. The guidelines for this document are as follows:

Guidelines for the attachment that represents the clean copy of the proposed tariff, rate schedule, or service agreement, or portion thereof, for posting in eLibrary:

1. The electronic version of the clean copy of the proposed tariff, rate schedule, or service agreement, or portion thereof, must conform with the SOC's guidelines for electronically filed text documents, located at www.ferc.gov.
2. No information is required in the header or footer of the clean tariff, rate schedule, or service agreement, or portion thereof, to be posted in eLibrary. At its discretion, a Tariff Submitter may include information in the header or footer.

3. When using Whole Document Format and the Record Binary Data is submitted in PDF, a title page should be included containing the following information:
 - a. Tariff Submitter
 - b. FERC Tariff Program name. The current programs are:
 - i. FERC FPA Electric Tariff
 - ii. FERC PA Electric Tariff
 - iii. FERC NGA Gas Tariff
 - iv. FERC NGPA Gas Tariff
 - v. FERC ICA Oil Tariff
 - c. Tariff Title
 - d. Tariff Record Proposed Effective Date
 - e. Tariff Record Title
 - f. Option Code
 - g. Other information as the FERC may require by notice or order
4. The attachment that is the clean copy for posting in eLibrary must be identical with that provided in the Record Binary Data with the exception of the text in the header or footer information.

Attachment Content Type Code:

This is the numeric code representing the software format of the specific attachment. A list of allowable codes will be published on the FERC website located at www.ferc.gov with changes communicated via a FERC notice or order. FERC will provide this information in CSV and PDF formats which will be updated as necessary. The Attachment Content Type Code is not required if a waiver has been requested for the subject attachment.

Attachment Security Level:

This code is used to indicate the level of security for the specific attachment. For example, the code indicates whether the attachment is Public, Privileged, or if Critical Energy Infrastructure Information (CEII) classification is being requested. Certain attachments are required to be Public; however, those attachments may be submitted in redacted form along with an un-redacted copy of the attachment. Additional instructions may be published on the FERC website located at www.ferc.gov or via FERC notice or order. The Attachment Security Level is not required if a waiver has been requested for the subject attachment.

Tariff Record Content Data Table Data Elements:

Tariff Record Identifier:

This data element is a numeric value assigned by the Tariff Submitter to uniquely identify each Tariff Record. This identifier will not change with each revision within a given Tariff Record. The Tariff Record Identifier does not have to be sequential.

Option Code:

This data element permits a Tariff Submitter to propose alternate sets of Tariff Records (Option Sets) in a single Tariff Filing, with a request that FERC determine which Option Set to accept (i.e., place into effect). For each set of Tariff Records, the Tariff Submitter proposed options must start with "A" and increment sequentially through the alphabet, i.e., the Tariff Record can not have an option designated as "A" and another option designated as "C" without having an option of "B". If no alternative Options Sets are being proposed, the value for this data element would be an "A". Each Option Set

must contain all Tariff Records for the relevant Tariff Filing even if some of the Tariff Records are identical across the Option Sets. **For Tariff Filings with multiple Option Sets, the Tariff Submitter should make Option “A” its primary proposal. If the Type of Filing Code provides for a statutory period and the Commission does not formally act, Option “A” will be deemed Accepted and all other Options deemed Rejected.** If FERC accepts Tariff Records from various Option Sets, it will require a compliance filing.

Tariff Record Title:

The Tariff Record Title is chosen by the Tariff Submitter for the individual Tariff Record. The Tariff Record Title may be changed in a subsequent Tariff Filing. If the Whole Document Format is used, the Tariff Record Title of the tariff, rate schedule, or service agreement should reflect the existing FERC naming conventions e.g., FERC Electric Tariff Volume Number 1, Rate Schedule X-5, Service Agreement No. 4 Under Tariff Volume No. 3.

Record Content Description:

This is a textual description of the Tariff Record. When the database is assembled, this field may be used to generate the database Table of Contents. The Record Content Description may be changed in a subsequent Tariff Filing.

Record Version Number:

This is a representation of the version (designation) of the Tariff Record, in the format of x.y.z, where “x” represents revision number for the given Tariff Record, “y” delineates that it is a substitute for a previously filed Tariff Record, and “z” indicates that it is a “squeeze” Tariff Record. A “squeeze” Tariff Record occurs when a Tariff Record needs to be made effective on a date which occurs between the effective dates of two Tariff Records with the same Tariff Record Identifier already on file with FERC. Commonly, this occurs when a Tariff Record is suspended and subsequent Tariff Records need to be made effective prior to when the suspended Tariff Record becomes effective. The Tariff Submitter may choose to use only “x” for all revised, substitute, and squeezed Tariff Records. In that case, the “y” and “z” should be zero.

This information is not used to determine actual status of a Tariff Record. This field will not be checked by the eTariff verification process. FERC will not use it in any automated fashion. This field is provided for ease of business and FERC referencing and will only be used for display.

Guidelines for the Record Version Number:

1. Each version of a Tariff Record must have a unique Record Version Number.
2. The “x”, “y” and “z” components:
 - are integers
 - begin with 0.0.0
 - increment separately by one
3. Record Version Numbers are not required for the following Type of Filings and Tariff Record changes:
 - Withdrawal
 - Motions to place Tariff Records into effect or delay effectiveness

Record Narrative Name:

This is an optional data element that provides the Tariff Submitter the ability to include an additional narrative description of the Tariff Record. As of January 2008, FERC has not determined how this information will be utilized.

Tariff Record Collation Value:

This is a value provided by the Tariff Submitter that determines the order in which the Tariff Records are compiled. In other words, it will provide the appropriate sequencing of the Tariff Records. For each Tariff Record:

- Use a unique Tariff Record Collation Value, and
- It is recommended that in the preparation of a new database, a sufficient gap (e.g., increments of 1,000) be provided between the collation values to allow for future insertion of new Tariff Records.

A Tariff Record Collation Value may be modified as part of another Tariff Filing.

Example:

Tariff Record	Collation Value
Common Service Provisions	2000
Definitions	3000
Table of Contents	1000

The Tariff Records would be assembled in the following order:

Table of Contents
Common Service Provisions
Definitions

Tariff Record Parent Identifier:

The Tariff Record Parent Identifier provides the hierarchical structure to identify the higher-level part of the database to which the subject Tariff Record belongs.

When a database is first organized, thought should be given to how the electronic Table of Contents will appear. A Tariff Record that has no parent has a Tariff Record Parent Identifier of "0", i.e., top level record. If the value provided is not "0", it must be a valid Tariff Record Identifier of another Tariff Record. It is suggested by FERC that no more than 7 levels under a top level record be used.

A Tariff Record Parent Identifier may be modified as part of another Tariff Filing.

Tariff Record Proposed Effective Date:

This indicates the date the given Tariff Record is proposed to go into effect. It is used to determine which version of a Tariff Record change is effective in accordance with applicable law, regulations and business practices. The data in this field is subject to FERC review and disposition, which will impact the status of a Tariff Record for any given period of time. **The Commission will use the Type of Filing Code together with the Tariff Record Proposed Effective Date to establish whether a filing is statutory and the applicable statutory timelines.**

If the effective date is not known at the time of the filing, such as the effective date is contingent on FERC approval, the closing of a plant sale, etc., the date of **12/31/9999**

must be used. Use of this option may have regulatory consequences depending on the FERC Tariff Program.

Changing a Tariff Record Proposed Effective Date requires a Tariff Filing.

Record Effective Priority Order:

A positive integer assigned by the Tariff Submitter that indicates the order of multiple changes for a given Tariff Record (i.e., the same Tariff Record Identifier) proposed to go into effect on the same date. The Tariff Record with the highest Record Effective Priority Order will supersede any other Tariff Records with the same Tariff Record Identifier also proposed to be effective for that date. The value must be unique across Tariff Records with the same Tariff Record Identifier and Tariff Record Proposed Effective Date. It is recommended that the default Record Effective Priority Order value be set relatively high, e.g., 500, thereby allowing subsequent Tariff Filings with Record Effective Priority Orders either before or after the initial Record Effective Priority Order.

Record Content Type Code:

This is the numeric code representing the software format of the specific Record Binary Data. A list of allowable codes will be published on the FERC website located at www.ferc.gov with changes communicated via a FERC notice or order. FERC will provide this information in CSV and PDF formats which will be updated as necessary.

Record Binary Data:

This is the content of the Tariff Record in a Base64 bit encoded binary file. This binary file is in the native format of the saved file generated from the word processing software, or other FERC approved software format(s), in which the Tariff Record content was written. Base64 bit encoding is an additional step that must be applied to the binary file, using encoding software, enabling the file to be inserted into the XML.

All Record Binary Data must meet the same rules and requirements applicable to any document filed with FERC through its eFiling website. Instructions with regard to the electronic format and content of electronic documents will be published on the FERC website located at www.ferc.gov or via FERC notice or order. However, the eTariff verification process does not enforce these rules, which are subject to other FERC processes.

Record Plain Text:

This is the plain text version of the content of the Record Binary Data. Formatting and other binary values are stripped from this content. This field will be used for searching and indexing.

Record Change Type:

This data element indicates the type of change / revision / maintenance action being requested for the Tariff Record, e.g., new, change, cancel, etc. Some Type of Filings are restricted to the choice of Record Change Types.

Business descriptions of the Record Change Types are as follows:

NEW:	To create a new Tariff Record Identifier.
CHANGE:	To change an existing Tariff Record. Modifications to a Tariff Record that has been cancelled may be made if the Tariff Record Proposed Effective Date is prior to the cancellation date.

CANCEL: Used to cancel a Tariff Record Identifier. Once cancelled, the Tariff Record Identifier cannot be changed with a filing that contains a Tariff Record Proposed Effective Date that is after the accepted date of cancellation. Cancellation of a Tariff Record Identifier that is a Tariff Record Parent Identifier will automatically cancel all related child Tariff Record Identifiers.

Cancellation of a Tariff Record Identifier should not be confused with cancelling a Tariff Identifier, which requires the submission of a cancellation Type of Filing.

WITHDRAW: Used to withdraw a pending or suspended Tariff Record. The withdrawal of a “NEW” Tariff Record Parent Identifier will automatically cancel all “NEW” children. Withdrawal of “CHANGE” Tariff Records requires identification of each changed Tariff Record to be withdrawn. Filings to withdraw Tariff Records that are no longer pending or suspended will result in a verification error and SOC rejection. ~~“WITHDRAW” can only be used with a withdrawal Type of Filing.~~ Depending on the program, withdrawal’s effectiveness may be reflected automatically by FERC’s eTariff database maintenance. At a minimum, the Tariff Submitter needs to provide the following data elements:

- Tariff Record Identifier
- Option Code
- Record Change Type
- Associated Filing Identifier
- Associated Record Identifier
- Associated Option Code

PRO FORMA: Used to submit a Tariff Record proposal without invoking statutory processing timelines. The Tariff Submitter should include a Tariff Record Proposed Effective Date, which is used for database maintenance. Pro Forma Tariff Records cannot be converted to effective Tariff Records by FERC, and should be resubmitted as actual Tariff Records.

Associated Filing Identifier:

Used to provide the Tariff Filing Identifier associated with a previously filed Tariff Record that the subject Tariff Record replaces. This field is only populated when the Associated Filing Identifier data element (in the Filing Data Table) is populated. This data element is used in conjunction with the Associated Record Identifier and the Associated Option Code (below). This is not applicable to all Type of Filings.

An Associated Filing Identifier for the subject Tariff Record does not have to be the same as the Associated Filing at the filing level used in this Tariff Filing.

Amendment and Compliance Type of Filings permit multiple Associated Filing Identifiers, however only one Associated Filing Identifier may be provided for each Tariff Record.

Associated Record Identifier:

This field is used in conjunction with the Associated Filing Identifier and the Associated Option Code to provide the Tariff Record Identifier of the Tariff Record which the

subject Tariff Record replaces. It should refer to a Tariff Record Identifier in a previous filing, and this value should be that record's Tariff Record Identifier.

Associated Option Code:

This field is used in conjunction with the Associated Filing Identifier and the Associated Record Identifier. The value should be the correct Option Code for the Associated Record Identifier.

DATA DICTIONARY

NAESB WGQ Standard 11.4.1 and NAESB WEQ Standard WEQ-014

Introduction

The following three Data Tables make up the Data Dictionary for electronic Tariff Filings. Conceptually, the purpose of each table is:

- Filing Data - describes the overall filing.
- Attachment Data - supporting documents required by specific Type of Filing or additional documents supplied by the Tariff Submitter.
- Tariff Record Content Data - the actual “text” or “content” of the tariff, rate schedule, or service agreement along with its associated metadata.

The data elements contained in the three data tables are presented in the order in which they appear in the XML schema.

Filing Data

This data defines the Tariff Filing and this data will be provided with each Tariff Filing.

Business Name (1)	Element Name (2)	Definition of Data Element (3)	Field Format (length) (4)	Valid Values (5)	Usage Responsibility Conditions (6)
Schema Version	schema_version	The version of the XML schema used to create the specific Tariff Filing.	Numeric (10)	Any number between 1 and 2,147,483,648	Required.
Company Identifier	company_id	A FERC-designated Company Identifier code used to identify an entity required to submit Tariff Filings to FERC pursuant to Title 18 Code of Federal Regulations Parts 35, 154, 284, 300, 341 or other Parts as required by FERC.	Alphanumeric (10)	Free form text	Required. Assigned by FERC and provided in the Tariff Filing by the Tariff Submitter.
Tariff Identifier	tariff_id	A unique identifier for the Tariff Submitter's database assigned by the Tariff Submitter as it pertains to the database being modified by the Tariff Filing. This can be any value in the allowable range of numbers, but it must be unique for each Tariff Submitter's database. A Tariff Submitter may have more than one active database.	Numeric (10)	Any number between 1 and 2,147,483,648	Required. Assigned and provided by the Tariff Submitter. The Tariff Identifier of the database cannot change.
Tariff Title	tariff_title	The name of the database assigned by the Tariff Submitter.	Alphanumeric (100)	Free form text.	Required only when creating a new database. After the initial submission, the Tariff Identifier is used, and this data element may be left blank. Assigned and provided by the Tariff Submitter. The Tariff Title of the database cannot change.

NAESB WGQ Standard 11.4.1 – WEQ / WGQ eTariff Related Standards

Business Name (1)	Element Name (2)	Definition of Data Element (3)	Field Format (length) (4)	Valid Values (5)	Usage Responsibility Conditions (6)
Filing Identifier	filing_id	A unique identifier for the subject Tariff Filing for the Tariff Submitter.	Numeric (10)	Any number between 1 and 2,147,483,648	Required. Assigned and provided by the Tariff Submitter. This can be any value in the valid range of numbers, but it must be unique across all Tariff Filings for a specific Tariff Submitter.
Filing Title / Description	filing_title	The title given to the Tariff Filing by the Tariff Submitter.	Alphanumeric (80)	Free form text.	Required. Assigned and provided by the Tariff Submitter. This will not be used in FERC's eTariff system and will be used in eLibrary.
Type of Filing Code	filing_type	A code that identifies the specific FERC defined type of Tariff Filing as set forth in Title 18 Code of Federal Regulations Parts 35, 154, 284, 300, 341 or other Parts as required by the Commission (e.g., initial, compliance, surcharge, etc.). The Type of Filing will dictate the data requirements for the subject filing	Numeric (10)	See list of codes posted @ www.ferc.gov	Required.
Associated Filing Identifier	associated_filing_id	The Filing Identifier for the previous Tariff Filing to which the subject filing pertains (i.e., associated).	Numeric (10)	Any number between 1 and 2,147,483,648	Conditional. Assigned and provided by the Tariff Submitter. This is not applicable to all Type of Filings. Where it is used, it must refer to a previous Tariff Filing, and the value should be that previous Tariff Filing's "filing_id" value. An example might be the subject Tariff Filing is a compliance (or withdrawal) filing and the previous, applicable Tariff Filing to which it pertains must be identified in this field.

NAESB WGQ Standard 11.4.1 – WEQ / WGQ eTariff Related Standards

Business Name (1)	Element Name (2)	Definition of Data Element (3)	Field Format (length) (4)	Valid Values (5)	Usage Responsibility Conditions (6)
Validation e-mail	validation_email	The email address provided by the Tariff Submitter for notification of whether the Tariff Filing meets the technical requirements such that it can be passed on to the Secretary of the Commission (SOC) for further processing.	Alphanumeric (100)	Free form text	Required.
Payment Confirmation Code	pay_confirm_code	The confirmation number for the associated fee that has been previously submitted via www.pay.gov, as applicable.	Alphanumeric (15)	Free form text	Conditional based on the Type of Filing. Required if payment is required by the regulations. Provided by the Tariff Submitter.
Suspension Motion	suspend_motion	An indication of whether or not the Tariff Records should automatically go into effect at the end of the applicable suspension period.	Character (1)	"Y" or "N"	Conditional based off of Type of Filing. Provided by the Tariff Submitter.

Attachment Data

This defines data for each supporting / attached document that is either (1) being provided with the Tariff Filing or (2) for which a waiver is requested.

Business Name (1)	Element Name (2)	Definition of Data Element (3)	Field Format (length) (4)	Valid Values (5)	Usage Responsibility Conditions (6)
Attachment Reference Code	att_ref_code	The FERC assigned reference code for each attachment type.	Numeric (10)	See list of codes posted @ www.ferc.gov	Required. Provided by the Tariff Submitter. If the attachment pertains to a specific document defined for the Type of Filing, the appropriate document reference code must be used. Note: The code may be different for each Type of Filing.
Attachment Description	att_desc	The title given to the attachment submitted by the Tariff Submitter.	Alphanumeric (80)	Free form text.	Required. For attachments that are pre-defined by FERC's regulations, the description will be the FERC pre-defined description. For other attachments that are added by the Tariff Submitter, the description can be any value desired. These descriptions will be displayed in eLibrary as assigned and provided by the Tariff Submitter.
Attachment Waiver Requested	att_waiver_request	An indication of whether or not the Tariff Submitter is requesting a waiver for submission of the attachment specified as required by the Attachment Reference Code.	Character (1)	"Y" - waiver is requested "N" or " " - waiver not requested	Conditional on the Type of Filing – required for those attachments that are required by regulations. Assigned and provided by the Tariff Submitter. For each document that is requested to be waived, the Attachment Reference Code (above) is provided, and a value of "Y" is entered here. If an actual document is being provided, this value should be "N" or " ".

NAESB WGQ Standard 11.4.1 – WEQ / WGQ eTariff Related Standards

Business Name (1)	Element Name (2)	Definition of Data Element (3)	Field Format (length) (4)	Valid Values (5)	Usage Responsibility Conditions (6)
Attachment Document	att_binary_data	This is the actual document content.	Binary (50 MB)	Binary Base64 bit encoded file content	Conditional on the Type of Filings. Required if Attachment Document is required by regulation and waiver of such is not requested in the field "Attachment Waiver Requested." Provided by the Tariff Submitter.
Attachment Document File Name	att_filename	The complete file name, including the extension, assigned by the Tariff Submitter of the Attachment Document being attached.	Alphanumeric (60)	Free form text.	If the Attachment Waiver Requested is "Y", Attachment Document File Name is not required. Assigned and provided by the Tariff Submitter if not otherwise pre-defined by FERC's regulations or instructions. This file name will be used to identify the document and the extension will be used for retrieval purposes. Valid file names cannot include special characters such as: ? / * \ " ' > <
Attachment Content Type Code	att_content_type_code	The numeric code representing the software format of the specific Attachment Document.	Numeric (10)	See list of codes posted @ www.ferc.gov	Conditional, required when the Attachment Document is provided.
Attachment Security Level	att_security_level	The level of security requested for the specific attached document corresponding to the applicable Attachment Document.	Character (1)	"P" - Public "M" - Privileged "X" - Critical Energy Infrastructure Information See list of codes posted @ www.ferc.gov	Conditional based on Type of Filing. Required when the Attachment Document is provided. Certain Attachment Documents are required to be Public. Assigned and provided by the Tariff Submitter.

Tariff Record Content Data

This provides the data for each Tariff Record.

Business Name (1)	Element Name (2)	Definition of Data Element (3)	Field Format (length) (4)	Valid Values (5)	Usage Responsibility Conditions (6)
Tariff Record Identifier	record_id	An identifier for the Tariff Record within a given database that will not change as a result of revisions to the content of the Tariff Record (with same or different effective dates). No two different Tariff Records in the same database may have the same Tariff Record Identifier.	Numeric (10)	Any number between 1 and 2,147,483,648	Required. Assigned by the Tariff Submitter. Each Tariff Record in the database has an associated Tariff Record Identifier number that does not change with each revision within a given database. The Tariff Record Identifier is not used for collation and does not have to be assigned sequentially.
Option Code	option_code	An identifier that designates the alternative Tariff Record option being submitted. An identifier that designates the primary Tariff Record as "A" and designates all alternative Tariff Record options being submitted, if any, sequentially in alphabetic order.	Character (1)	"A" thru "Z" allowed.	Required. Provided by the Tariff Submitter. Default (no more than one option is provided) is "A".
Tariff Record Title	record_title	The name of the Tariff Record contents.	Alphanumeric (60)	Free form text.	Required, if Tariff Record is a first-level Parent or in a Whole Document Format. Optional in other cases. Assigned by the Tariff Submitter. This field may be used in a database generated Table of Contents.
Record Content Description	record_content_desc	Textual description of the Tariff Record.	Alphanumeric (25)	Free form text.	Required. Assigned by the Tariff Submitter. This field may be used in a database generated Table of Contents.

NAESB WGQ Standard 11.4.1 – WEQ / WGQ eTariff Related Standards

Business Name (1)	Element Name (2)	Definition of Data Element (3)	Field Format (length) (4)	Valid Values (5)	Usage Responsibility Conditions (6)
Record Version Number	record_version_num	A representation of the version (designation) of the Tariff Record.	Alphanumeric (10)	x.y.z x = revision number y = substitute number z = "squeezed" number	Conditional based on Type of Filing. This information is not used to determine actual status of a Tariff Record. It is not used in any automated fashion other than display (possibly in the table of contents). This data is provided for ease of business and FERC referencing only.
Record Narrative Name	record_narrative_name	An additional narrative description of the Tariff Record.	Alphanumeric (254)	Free form text	Optional.
Tariff Record Collation Value	collation_value	A value that will determine the sort order in which the Tariff Records are merged.	Numeric (25)	Any number between 1 and 2,147,483,648	Required. Assigned by the Tariff Submitter.
Tariff Record Parent Identifier	record_parent_id	Provides the hierarchical structure to identify the higher-level part of the database to which this Tariff Record belongs.	Numeric (10)	Any number between 0 and 2,147,483,648	Required. Assigned by the Tariff Submitter. If the Tariff Submitter chooses not to use the functionality of this field, they must still populate the field with "0". Otherwise, the value must be a valid Tariff Record Identifier.
Tariff Record Proposed Effective Date	proposed_effective_date	The proposed effective date for the specified Tariff Record.	Date (10)	YYYY-MM-DD	Required. Assigned by the Tariff Submitter.

NAESB WGQ Standard 11.4.1 – WEQ / WGQ eTariff Related Standards

Business Name (1)	Element Name (2)	Definition of Data Element (3)	Field Format (length) (4)	Valid Values (5)	Usage Responsibility Conditions (6)
Record Effective Priority Order	priority_order	A positive integer that directs which of multiple changes of a given Tariff Record (the same Tariff Record Identifier) proposed to go into effect on the same day, will take precedence, i.e., the Tariff Record with the highest numeric value will supersede any other Tariff Records with the same Record Identifier also proposed to be effective for that day.	Numeric (10)	Any number between 1 and 2,147,483,648	Required. Assigned by the Tariff Submitter. Default value should allow for priority values below and above the Tariff Record of a specific Tariff Record Proposed Effective Date initial value (for example: 500). The value must be unique for a specific Tariff Record for a specific Tariff Record Proposed Effective Date. When the current database is assembled for a particular effective date and there are multiple Tariff Records with the same Record Identifier and the same effective date, the approved Tariff Record for that effective date with the highest Record Effective Priority Order number will be the effective Tariff Record.
Record Content Type Code	record_content_type_code	The version of the software used to create the specific Tariff Record.	Numeric (10)	See list of codes posted @ www.ferc.gov	Conditional based on Type of Filing and/or structure of database. Provided by the Tariff Submitter.
Record Binary Data	record_binary_data	The actual Tariff Record content.	Binary (10 MB)	Binary Base64 bit encoded file content	Conditional based on Type of Filing and/or structure of database. Provided by the Tariff Submitter.
Record Plain Text	record_plain_text	The plain text version of the content of the Record Binary Data. Formatting and other binary values are stripped from this content.	Alphanumeric (10 MB)	Free form text	Conditional based on Type of Filing and/or structure of database. Provided by the Tariff Submitter.
Record Change Type	record_change_type	A description of the type of change being requested.	Alphanumeric (15)	See Code Values Dictionary	Required. Assigned by the Tariff Submitter. Used to identify the appropriate Tariff Record maintenance action. Some Type of Filings restrict the choice of Record Change Types.

NAESB WGQ Standard 11.4.1 – WEQ / WGQ eTariff Related Standards

Business Name (1)	Element Name (2)	Definition of Data Element (3)	Field Format (length) (4)	Valid Values (5)	Usage Responsibility Conditions (6)
Associated Filing Identifier	associated_filing_id	The Tariff Filing Identifier associated with a previously filed Tariff Record which the subject Tariff Record replaces. Note: This is used in conjunction with the Associated Record Identifier and the Associated Option Code (below).	Numeric (10)	Number between 1 and 2,147,483,648 used by the Tariff Submitter in a previous Tariff Filing	Conditional. Assigned by the Tariff Submitter. This is not applicable to all Type of Filings. Where the Type of Filings permits or requires its use, it must refer to a previous Tariff Filing, and the value should be that previous Tariff Filing's Filing Identifier.
Associated Record Identifier	associated_record_id	This is used to associate the specific content with a previously filed Tariff Record. For example, withdrawal Tariff Filings must identify the content being requested to be withdrawn. Note: This is used in conjunction with the Associated Filing Identifier (above) and the Associated Option Code (below).	Numeric (10)	Number between 1 and 2,147,483,648 used by the Tariff Submitter for the targeted Tariff Record Identifier	Conditional. Assigned by the Tariff Submitter. This is not applicable to all Type of Filings. Where it is used, it must refer to a Tariff Record Identifier in the associated filing.
Associated Option Code	associated_option_code	An identifier that designates the alternative associated record option of a previously filed Tariff Record. Note: This is used in conjunction with the Associated Filing Identifier and the Associated Record Identifier (above).	Character (1)	"A" thru "Z" used by the Tariff Submitter for the targeted Tariff Record Identifier	Conditional. Assigned by the Tariff Submitter. Where it is used, the value should be the applicable Option Code value for the Associated Record Identifier.

Code Values Dictionaries and FERC Reference Tables

Certain data elements need to be populated with standardized responses (code values). Some of these data elements lend themselves to simple code value tables as provided below. For others, FERC will provide reference tables in a downloadable CSV file. After the following data element code values tables is an extensive explanation of the FERC reference tables.

Data Element: Attachment Waiver Requested

Code Value	Code Value Description
N	No, a waiver of the attachment is not being requested.
Y	Yes, a waiver of the attachment is being requested.

Data Element: Option Code

Code Value	Code Value Description
A	Default for the primary Tariff Record.
B, C, through Z	Subsequent codes used for alternatives and must be provided in alphabetical order.

Data Element: Record Change Type - (code values is case sensitive)

Code Value	Code Value Description
CANCEL	Used to cancel a Tariff Record Identifier.
CHANGE	Used to change an existing Tariff Record.
NEW	Used to create a new Tariff Record Identifier.
PRO FORMA	Used to submit a Tariff Record proposal without invoking statutory processing timelines.
WITHDRAW	Used to withdraw a pending or suspended Tariff Record.

Data Element: Suspension Motion

Code Value	Code Value Description
N	No, the filing should not become effective without a separate filing to request such.
Y	Yes, the Tariff Record(s) should go into effect at the end of the suspension period.

FERC Reference Tables Provided in Downloadable Files

FERC will provide reference tables in downloadable files for the remaining data elements which have standardized code values, as well as to provide information to assist in the development of a Tariff Submitter's document management system and the creation of a Tariff Filing. The downloadable files will contain the appropriate codes to be used to populate the identified XML data elements (schema) and/or contain data that can be used to assist in error processing, provide FERC validation information and/or FERC business rules used to process the Tariff Filing.

This section is composed of three parts:

- (1) A list of the FERC File Downloads and their contents;
- (2) The Format of the FERC File Download Files; and
- (3) A description of the data elements contained in the FERC File Downloads

(1) List of FERC File Downloads

The following is a list of the downloadable files that FERC will post on its website, located at www.ferc.gov. The files listed will be available in CSV and may be provided in PDF formats.

- Type of Filing (filing_type) – code values and rules of use
- Attachment Reference Code (att_ref_code) – code values and rules of use
- Attachment Content Type Code (att_content_type_code) – code values
- Attachment Security Level (att_security_level) – code values
- Record Content Type Code (record_content_type_code) – code values
- Validation error codes provided by FERC.

(2) Format of the FERC File Downloads

The downloadable files posted on the FERC website will be formatted in CSV. The first row of the file will be the title of each of the columns and will determine the order in which the corresponding data is to appear in all subsequent rows. The following are the CSV file format specifications:

- Rows are separated by a carriage return/line feed (CRLF).
- Fields are separated by commas.
- When a field contains a comma, the field will be enclosed by double-quotes.
- When numeric data contains decimal precision, the decimal point will be included within the field.
- When a field contains no data, the empty field will contain two delimiters next to each other. Note that there will be no blank spaces between the delimiters.

(3) Description of the Data Elements contained in the FERC File Downloads

FERC's Tariff Filing requirements are the function of many statutory, regulatory and business processes. A Tariff Filing must satisfy many rules simply to be considered a filing acceptable for processing by the FERC. How FERC maintains the contents of Tariff Filings is a function of these statutory, regulatory and business rules, plus its own findings with regard to the merits of the Tariff Submitter's proposal(s). FERC has created software for internal purposes of automating the Tariff Filing review process and much of the eTariff maintenance process. It is in the interest of the FERC that Tariff Submitters create electronic Tariff Filings that are compatible with FERC's automated Tariff Filing and eTariff maintenance processes. For that reason, FERC provides the public information on additional data elements that it uses as part of its processes. This information may be used by Tariff Submitter's document management system to add functionality to the processes and to improve accuracy of the Tariff Filings. FERC will not review or certify any Tariff Submitter's document management system.

Following is a description of each of the downloadable files and the data contained in such files (both eTariff XML data elements and non-eTariff data elements used by FERC). The names of the columns that will be contained in the downloadable files are reflected below and are either shown in **bold text** (XML schema data elements) or in *italics* (non-XML schema data elements).

- **Type of Filing** (*filing_type*) - This file contains thirteen columns:
 1. **filing_type** – The values are used to populate the *filing_type* XML data element for the subject Tariff Filing. The statutes, regulations and business rules provide for many different filing types. Every Type of Filing has a unique code that is randomly generated by FERC. It is used to direct the software to a set of data elements that describe that filing type.
 2. *description* – Description of the *filing_type*. In this column FERC will provide its description for each Type of Filing code.
 3. *prog_code*: The “program code” refers to the different FERC Tariff Programs. As of January 2008, FERC has divided the various Type of Filings into five programs which are reflected by the six values below. FERC will allow the Tariff Submitter to determine which Type of Filing codes are relevant based on its FERC Tariff Programs. Within the five programs are dozens of different Type of Filings. The values in this column are defined below:
 - E = Federal Power Act Electric (Traditional Cost of Service and Market Based Rates) Public Utilities
 - F = Power Administrations
 - G = NGA Gas Pipelines
 - K = NGPA 311 Gas Pipelines
 - M = Federal Power Act Electric (Market Based Rate) Public Utilities
 - O= Oil Pipelines

FERC assigns one of the above program codes to a Tariff Submitter at the time the Tariff Submitter registers with FERC as part of the company registration

process. The Tariff Submitter can only make Tariff Filings with one of the Type of Filing codes that are under the same program code as the Tariff Submitter.

Note: The program code of “M” is a subset of the “E” program code unique for FPA Tariff Submitters that only sell power at Market Based Rates. Tariff Submitters with “E” and “M” program codes will need to change their program code through the FERC company registration process if it requires access to Type of Filing codes not available in its program.

4. *new_type* – This column will indicate either yes (Y) or no (N). This reflects a type of Baseline category Type of Filing that requires both the creation of a new Company Identifier and a new Tariff Identifier. A more detailed explanation of the broad category of Baseline is provided below.
5. *refiled_type* – This column will indicate either yes (Y) or no (N). This reflects a type of Baseline category Type of Filing wherein the Tariff Submitter already has a pre-existing database or collection of paper tariffs, rate schedules, or service agreements and is requesting a new Tariff Identifier. A more detailed explanation of the broad category of Baseline is provided below.
6. *compliance_type* – This column will indicate either yes (Y) or no (N). This reflects a Type of Filing more fully explained below for the broad category of Compliance type.
7. *amendment_type* – This column will indicate either yes (Y) or no (N). This reflects a Type of Filing more fully explained below for the broad category of Amendment type.
8. *motion_type* – This column will indicate either yes (Y) or no (N). This reflects a Type of Filing more fully explained below for the broad category of Motion type.
9. *withdraw_type* – This column will indicate either yes (Y) or no (N). This reflects a Type of Filing more fully explained below for the broad category of Withdraw type.
10. *report_type* – This column will indicate either yes (Y) or no (N). This reflects a Type of Filing more fully explained below for the broad category of Report type.
11. *cancellation_type* – This column will indicate either yes (Y) or no (N). This reflects a Type of Filing more fully explained below for the broad category of Cancellation type.
12. *suspend_motion_response* – This column will indicate either yes (Y) or no (N). FERC may suspend certain Type of Filings. For some programs, the Tariff Submitter is required to inform FERC whether or not it is submitting a motion to place suspended Tariff Records into effect at the end of the suspension period. The download file will indicate the Type of Filings requiring such a data element be populated by the Tariff Submitter.

13. *status_change_timeout* – Many Type of Filings must be acted upon by FERC by a certain number of days from the date of the Tariff Filing. This data element shows the number of days from the date of the filing before the FERC internal system will automatically change the status in the absence of a FERC order.
14. *fee_required* – this column will indicate either yes (Y) or no (N). if yes(Y), then this Type of Filing requires a filing fee be made with the Commission.
15. *active_date* – This column will indicate the effective date of the other data elements on the row.
16. *inactive_date* – This column will indicate the retirement date of the other data elements on the row. If there is no known retirement date, the date of 12/31/9998 will appear.

Explanation of Type of Filing Categories:

Different Type of Filings have different business processes as required by statute, regulation or business practice. FERC breaks down the dozens of different Type of Filings into eight broad categories that have similar business processes. The eight broad categories are explained below however, not all of them have individual columns in the download file.

The eight broad categories of Type of Filings are defined by FERC as:

- **Baseline** - This category is used for a Type of Filing that requires a new Tariff Identifier. Every Tariff Submitter establishing a new Tariff Identifier must start with a Baseline filing. However, the automated processing is different depending on whether the requested action is "New" or "Refiled" as more fully explained in the description above for the columns "*new_type*" and "*refiled_type*":
- **Normal/Statutory** - This category is used for a Type of Filing wherein the Tariff Submitter is the proponent of the change(s) in a tariff, rate schedule, or service agreement. This business process rule will be the most commonly used by Tariff Submitters. FERC has rules for some programs, such as when a Type of Filing is appropriate relative to various indices, such as the status of a Tariff Filing or Tariff Identifier. Statutory, regulatory and business rules apply to the status of a proposed change(s) in a tariff, rate schedule, or service agreement. Many of these rules are automated to change the status conditions in the appropriate circumstances. A Type of Filing is a "normal" type if the data in the columns on the download file for all category types (*motion_type*, *report_type*, *amendment_type*, etc.) are set to "N".
- **Compliance** - This category is used for a Type of Filing wherein the Tariff Submitter proposes to comply with a FERC order. There is no automated rule to change the status of the Tariff Filing. These status changes will require FERC action.

- **Amendment** - This category is used for Type of Filings wherein the Tariff Submitter proposes to change a pending Tariff Filing prior to FERC or business process rule action on a Normal/**Statutory** or Compliance Type of Filing. A Tariff Submitter cannot amend a filing that FERC has acted upon either by order or by rule of law. Amendment Type of Filings modify the timing of automated action on the associated Normal/**Statutory** or Amendment Type of Filing. An Amendment subordinates the associated Type of Filing to the Amendment Type of Filing. Amendments can be infinitely associated with each other with the same result of modifying the timing of automated action on the associated Normal/**Statutory** Type of Filing and subordinates it to the Amendment Type of Filing.
- **Motion** - This category of Type of Filing can only be associated with Tariff Records whose status condition in the FERC eTariff database is “suspended”. The only action that a filing in this category can do is to change the Proposed Effective Date of the Tariff Record that is “suspended”. Any change in the tariff, rate schedule, or service agreement is ignored. If a Tariff Submitter wishes to change both the status of suspended Tariff Record and tariff, rate schedule, or service agreement, it must file a “Compliance” Type of Filing.
- **Withdraw** - This category of Type of Filing can only be associated with Tariff Records that are (depending on the program) in the FERC eTariff database in a “pending”, “conditional” or “suspended” status condition. Any change in the tariff, rate schedule, or service agreement is ignored. This business process rule may (depending on the program) automatically withdraw the targeted Tariff Record and change the formerly “superseded” Tariff Records to “effective.” Therefore, no additional Tariff Filing or Tariff Records are required to reinstate the superseded Tariff Record.

Note: ~~A Withdraw Type of Filing may only be for a specific Tariff Record, or for all Tariff Records, in the associated filing. If the Tariff Submitter desires to withdraw a complete filing, it must target every Tariff Record in the associated filing. The Withdraw category of Type of Filing should not be confused with the Record Change Type of WITHDRAW. The withdraw category of Type of Filing acts upon the associate filing as a whole, whereas the WITHDRAW Record Change Type acts upon the associated tariff record.~~

- **Report** - This category of Type of Filing contains no Tariff Record information. It can only be used to supplement the record of the proceeding. Basically, the Report Type of Filing is meant to provide Tariff Submitters a means to make complex filings with FERC in an established proceeding as an alternative to FERC’s eFiling website portal for non-Tariff Filings.
- **Cancellation** - This category of Type of Filing is used by the Tariff Submitter to terminate a Tariff **RecordIdentifier**. Once a Tariff

~~Record-Identifier~~ is cancelled, only Compliance Type of Filings with a Proposed Effective Date before the effective date of the cancelled Tariff Record may be filed using the cancelled ~~Record-Tariff Identifier~~.

- **Attachment Reference Code** (att_ref_code) - This file contains seven columns:
 1. **filing_type** – This column relates the Type of Filing with the available selection of attachments.
 2. **att_ref_code** – This column is used to populate the att_ref_code XML data element field for each attachment.
 3. **att_desc** – This column is used to populate the att_desc XML data element field for each attachment.
 4. *citations* – This column provides the corresponding Citation to FERC regulation. This is simply a text field that provides the reader with additional information as to the source of the requirement.
 5. *is_required* – This column will indicate either yes (Y) or no (N). Certain documents are required by either regulation or business rule for the Tariff Filing to be considered complete enough for the SOC to accept for filing. For each Type of Filing code, the attachments expected with each filing are identified, and for each attachment the coding as to whether the attachment is required by the SOC as a minimal condition is provided.
 6. *can_waive* - This column will indicate either yes (Y) or no (N). Some attachments may be required, but FERC may permit the Tariff Submitter to request that the requirement be waived. FERC will post whether a required attachment may be waived.
 7. *req_access_lvl* – This column indicates the required security level on a file as indicated in the att_security_level download file. A blank indicates no required security level. The values are defined below:
 - P = Public
 - M = Privileged
 - X = Critical Energy Infrastructure Information
- **Attachment Content Type Code** (att_content_type_code) - This file contains two columns:
 1. **att_content_type_code** - The values are used to populate the att_content_type_code XML data element for each attachment.
 2. *description* – The description of the electronic format represented by the code.
 3. *file_extension* – This column contains the electronic format extensions.

4. *active_date* – This column will indicate the effective date of the other data elements on the row.
 5. *inactive_date* – This column will indicate the retirement date of the other data elements on the row. If there is no known retirement date, the date of 12/31/9998 will appear.
- **Attachment Security Level** (*att_security_level*) - This file contains two columns:
 1. **att_security_level** – The values are used to populate the *att_security_level* field for each attachment.
 2. *description* - Description of the FERC security level associated with the *att_security_level*. Note that every attached document must have a populated *att_security_level*. FERC will not presume any default document security level.
 3. *active_date* – This column will indicate the effective date of the other data elements on the row.
 4. *inactive_date* – This column will indicate the retirement date of the other data elements on the row. If there is no known retirement date, the date of 12/31/9998 will appear.
 - **Record Content Type Code** (*record_content_type_code*) - This file contains two columns:
 1. **record_content_type_code** – The values are used to populate the *record_content_type_code* field for each record.
 2. *description* - Describes the *record_content_type_code*.
 - **Validation ~~error codes~~ Error Codes** (*validation_error_code.csv*) - This file contains two columns:
 1. *error_code* – The values for the identified error.
 2. *description* - Describes the error.

Technical Specifications

Electronic Delivery Specifications

- **High-level Summary**

The following section defines the technical details and processes for computer-to-computer exchange of an XML file between a Tariff Submitter and FERC for electronic-Tariff Filings. It also defines eFiling authentication, eTariff portal security, and information on error / messages, security and maintenance. It does not provide information related to developing a Tariff Submitter's document management system as FERC is not providing a system to manage the Tariff Submitter's tariffs, rate schedules, or service agreements. The Tariff Submitter can either purchase a third party software system, or design and develop its own system (manual or automated) to maintain its tariffs, rate schedules, or service agreements. The Tariff Submitter will provide an XML formatted eTariff filing in accordance with the eTariff standards and other FERC requirements.

The Tariff Submitter will not have direct access to the FERC eTariff database to add, change or delete records. The Tariff Submitter will only be able to maintain its data in the FERC eTariff database via data sent through the eTariff filing process.

The following process describes the electronic Tariff Filings that **must** be filed through the FERC's eFiling web page located at www.ferc.gov.

- **Format of Upload Data**

The eFiling portal for eTariff filing packages assumes the Tariff Submitter has already produced an XML file that contains both data tags and embedded data per the business specifications provided and has been packaged as a zip file. There are no restrictions on the file name other than "normal" file naming conventions (i.e., a file name should contain no periods except the period preceding the file extension and no backslashes), the total character length must be 64 characters or less, and must have a ".ZIP" extension.

- **Login/authentication Requirements**

eRegistration:

In order to submit a Tariff Filing through the eTariff portal, the User must be eRegistered with FERC. The eRegistration process will allow the User to login to FERC's eFiling portal. The instructions on how a User may become eRegistered are located at www.ferc.gov.

eFiling Requirements:

The FERC's eFiling *Reference Guide* located at www.ferc.gov provides a step-by-step set of instructions and expected results for the eFiling process.

Company Registration Requirements:

To log into FERC's eTariff portal, the User will be required to have a Company ~~Login number~~ Identifier and password. This ~~number~~ Company Identifier is unique for each company filing tariffs, rate schedules, or service agreements with FERC. All Users will enter the same Company Identifier ~~number~~ for a given company. This ~~number~~ Company Identifier's password is company proprietary and should be treated as such. Instructions on how to obtain a Company ~~Login number~~ Identifier and password are located at FERC Online's Company Registration application, located at www.ferc.gov. Note: ~~this number~~ The eTariff Company Identifier should not be confused with the data element Company Identifier contained in the data dictionary.

- **Minimum Technical Capabilities of Browser Clients**

FERC's eFiling portal is compatible with most common internet browsers, but is optimized for use with Microsoft® Internet Explorer 6.0.

- **Error Codes and Handling**

Error codes that can occur during the upload of the eTariff package on the FERC eFiling portal will be provided as described in the eFiling documentation, located at www.ferc.gov.

The e-mail that results from the eTariff verification process will use specific error codes/descriptions. The error codes provided within the e-mail can be decoded with the FERC-published code table located at www.ferc.gov. This table can be downloaded in CSV format and may be available in PDF format.

~~As of January 2008, FERC eTariff verification process has not been written. Examples of some validation tests that may be included are:~~

- ~~• The Company Login number entered by the User is not an eTariff registered company;~~
- ~~• Missing required attachments;~~
- ~~• Unacceptable file types;~~
- ~~• Binary data files that are larger than FERC's eFiling electronic document size limit;~~
- ~~• Missing required data, such as Tariff Identifier and Filing Identifier;~~

- ~~•Conflicting and/or inconsistent data, such as Tariff Identifier and Filing Identifier; and,~~
- ~~•Missing/invalid Tariff Record data as determined by the Type of Filing.~~

- **Security Specifications**

Tariff Submitters are responsible for security of the Company ~~Login-number Identifier's password~~ and all data contained in their filing that resides on their internal systems. ~~The Company Identifier is public information.~~

Electronic transfer of the ZIP file is via the FERC eFiling portal using secure login (from eRegistration) and HTTPS for User interaction, and data transfer using a web browser. Refer to FERC eFiling specifications for minimal requirements of browsers using FERC web pages located at www.ferc.gov.

Data security at FERC is the responsibility of FERC.

- **Testing Guidelines**

FERC will provide a facility/function that will receive an eTariff XML filing package and verify it can be opened and parsed. This facility will be available for use at any time. It will not validate data content or other FERC business processing. Information on how to access and use this testing facility ~~will be made~~ is available at www.ferc.gov.

Other testing of further system functions may be provided during the transition period when eTariff is being developed and finalized inside FERC, e.g., the type of testing that was allowed during the eTariff Field Software prototype effort. This additional testing capability would only be available for a specific, pre-defined, amount of time during FERC system development.

- **Maintenance**

The eTariff XML schema and associated code definition and downloadable CSV files will be maintained on the FERC website. Significant changes to any of these items will follow normal FERC notice/comment process. This process will also indicate the effective date of the change, and whether there will be a transition period.

Revisions to the eTariff XML schema code definition files will be posted in downloadable XSD and PDF formats located at www.ferc.gov. In the event of a discrepancy between the PDF and XSD files, the XSD file shall take precedence.

Revised code definition files will be posted in downloadable CSV file and may be available in a PDF file on FERC's website located at www.ferc.gov.

FERC will not certify or will not support software that Tariff Submitters may develop or purchase. Owners of these software packages are responsible for their maintenance and ensuring that any required eTariff XML schema and/or code revisions posted by FERC are properly recognized by such software.

XML Schema Version 1

Set forth below is Version 1 of the XML Schema that must be used to submit a Tariff Filing through FERC's eFiling / eTariff Portal.

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema id="ferc_tariff_filing" targetNamespace="http://ferc.gov/etariff.xsd"
elementFormDefault="qualified" xmlns="http://ferc.gov/etariff.xsd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" >
  <xs:element name="document">
    <xs:complexType>
      <xs:choice minOccurs="1" maxOccurs="1">
        <xs:element name="ferc_filing_data" minOccurs="1" maxOccurs="unbounded">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="schema_version" type="xs:string" nillable="true"/>
              <xs:element name="company_id" type="xs:string" nillable="true"/>
              <xs:element name="tariff_id" type="xs:integer" nillable="true"/>
              <xs:element name="tariff_title" type="xs:string" nillable="true"/>
              <xs:element name="filing_id" type="xs:integer" nillable="true"/>
              <xs:element name="filing_title" type="xs:string" nillable="true"/>
              <xs:element name="filing_type" type="xs:integer" nillable="true"/>
              <xs:element name="associated_filing_id" type="xs:integer" nillable="true"/>
              <xs:element name="validation_email" type="xs:string" nillable="true"/>
              <xs:element name="pay_confirm_code" type="xs:string" nillable="true"/>
              <xs:element name="suspend_motion" type="xs:string" nillable="true"/>
              <xs:element name="attachment_data" minOccurs="1"
maxOccurs="unbounded">
                <xs:complexType>
                  <xs:sequence>
                    <xs:element name="att_ref_code" type="xs:integer" nillable="true"/>
                    <xs:element name="att_desc" type="xs:string" nillable="true"/>
                    <xs:element name="att_waiver_request" type="xs:string" nillable="true"/>
                    <xs:element name="att_binary_data" type="xs:base64Binary" nillable="true"
/>
                    <xs:element name="att_filename" type="xs:string" nillable="true"/>
                    <xs:element name="att_content_type_code" type="xs:integer"
nillable="true"/>
                    <xs:element name="att_security_level" type="xs:string" nillable="true"/>
                  </xs:sequence>
                </xs:complexType>
              </xs:element>
            <xs:element name="record_data" minOccurs="0" maxOccurs="unbounded">
              <xs:complexType>
                <xs:sequence>
```

```

    <xs:element name="record_id" type="xs:integer" nillable="true"/>
    <xs:element name="option_code" type="xs:string" nillable="true"/>
    <xs:element name="record_title" type="xs:string" nillable="true"/>
    <xs:element name="record_content_desc" type="xs:string" nillable="true"/>
    <xs:element name="record_version_num" type="xs:string" nillable="true"/>
    <xs:element name="record_narrative_name" type="xs:string"
nillable="true"/>
    <xs:element name="collation_value" type="xs:integer" nillable="true"/>
    <xs:element name="record_parent_id" type="xs:integer" nillable="true"/>
    <xs:element name="proposed_effective_date" type="xs:date"
nillable="true"/>
    <xs:element name="priority_order" type="xs:integer" nillable="true"/>
    <xs:element name="record_content_type_code" type="xs:integer"
nillable="true"/>
    <xs:element name="record_binary_data" type="xs:base64Binary"
nillable="true"/>
    <xs:element name="record_plain_text" type="xs:string" nillable="true"/>
    <xs:element name="record_change_type" type="xs:string" nillable="true"/>
    <xs:element name="associated_filing_id" type="xs:integer" nillable="true" />
    <xs:element name="associated_record_id" type="xs:integer" nillable="true"
/>
    <xs:element name="associated_option_code" type="xs:string"
nillable="true" />
  </xs:sequence>
</xs:complexType>
</xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
</xs:choice>
</xs:complexType>
</xs:element>
</xs:schema>

```

Note: The XML Schema definition language (XSD) defines four attributes for use in XML instance documents, indicated by the <http://www.w3.org/2001/XMLSchema-instance> namespace. Information regarding these four attributes is located at <http://msdn2.microsoft.com/en-us/library/ms256207.aspx> and <http://www.w3.org/TR/xmlschema-1/>. The eTariff specifications contained in this document utilize the `nil="true"` attribute to indicate an empty (null) numeric element. It has been determined that some XML software tools do not support the `nil="true"` attribute. The software

developer should thoroughly investigate the capabilities of their development tool sets to ensure that they support the nil="true" attribute.



North American Energy Standards Board

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Home Page: www.naesb.org

April 5, 2010
Via email and posting

TO: NAESB Executive Committee (EC) Members, posting for interested parties
FROM: NAESB Office
cc: EC Alternates, Submitters, Subcommittee Chairs of Subcommittees noted in text below
RE: NAESB Triage Actions Pending for R10001 and R10002

Dear Triage Subcommittee and EC members,

We have two requests to triage – R10001 and R10002 -- provided below as hyperlinks. The NAESB office recommends the following actions:

For [R10001](#), submitted by [Amy Burden](#), [Brenda Horton](#), and [Kathryn Burch](#) on behalf of Enbridge, Kern River Gas Transmission and Spectra Energy Transmission:

This request is (1) found within scope; (2) to be assigned to the Wholesale Gas Quadrant (WGQ); and (3) because it is a request to update the NAESB Wholesale Gas Quadrant (WGQ) Quadrant Electronic Delivery Mechanism (QEDM) Manual to add the ability to provide Informational Postings reports downloads in a CSV file format, the request should be assigned jointly to the WGQ Business Practices Subcommittee (BPS) and the WGQ Electronic Delivery Mechanisms (EDM) Subcommittee. There was nothing in the request indicating that it should be assigned a high priority, therefore, it should be addressed in the normal course of business of the WGQ BPS and WGQ EDM.

For [R10002](#), submitted by [James Tillet](#) on behalf of Endeavor Engineering Inc.:

This request is (1) found within scope; (2) to be assigned jointly to the Wholesale Electric Quadrant (WEQ) and the Retail Electric Quadrant (REQ); and (3) because it is a request to create common interfaces and data structures necessary for enrolling demand response sites into a demand response program, the request should be assigned to the WEQ/REQ DSM-EE Subcommittee. There was nothing in the request indicating that it should be assigned a high priority, therefore, it should be addressed in the normal course of business of the WEQ/REQ DSM-EE Subcommittee.

If you have any questions on a specific request, please contact the requestor directly -- their email addresses are provided as links with the requests. If you have any concerns on the above actions, please respond via email with your concern stated, and we will convene a conference call for its resolution. Comments may certainly be provided and will be posted on the [Triage Subcommittee](#) page of the NAESB web site. If no concerns are raised, then on April 20, triage notes will be posted on the NAESB web site indicating that the Triage Subcommittee and the EC agrees with the above actions, and the requests will be forwarded to the chairs of the subcommittees to which they have been assigned.



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April 28, 2010
Via email and posting

TO: NAESB Executive Committee (EC) Members, posting for interested parties
FROM: NAESB Office
cc: EC Alternates, Submitters, Subcommittee Chairs of Subcommittees noted in text below
RE: NAESB Triage Actions Taken for R10001 and R10002

Dear Triage Subcommittee and EC members,

Tow requests were sent out for review and determination of disposition on April 2, 2010, all provided below as hyperlinks. There were no requests for conference cal for discussion, and there were no comments received. The requests were triaged as follows:

For [R10001](#), submitted by [Amy Burden](#), [Brenda Horton](#), and [Kathryn Burch](#) on behalf of Enbridge, Kern River Gas Transmission and Spectra Energy Transmission:

This request is (1) found within scope; (2) to be assigned to the Wholesale Gas Quadrant (WGQ); and (3) because it is a request to update the NAESB Wholesale Gas Quadrant (WGQ) Quadrant Electronic Delivery Mechanism (QEDM) Manual to add the ability to provide Informational Postings reports downloads in a CSV file format, the request should be assigned jointly to the WGQ Business Practices Subcommittee (BPS) and the WGQ Electronic Delivery Mechanisms (EDM) Subcommittee. There was nothing in the request indicating that it should be assigned a high priority, therefore, it should be addressed in the normal course of business of the WGQ BPS and WGQ EDM.

For [R10002](#), submitted by [James Tillet](#) on behalf of Endeavor Engineering Inc.:

This request is (1) found within scope; (2) to be assigned jointly to the Wholesale Electric Quadrant (WEQ) and the Retail Electric Quadrant (REQ); and (3) because it is a request to create common interfaces and data structures necessary for enrolling demand response sites into a demand response program, the request should be assigned to the WEQ/REQ DSM-EE Subcommittee. There was nothing in the request indicating that it should be assigned a high priority, therefore, it should be addressed in the normal course of business of the WEQ/REQ DSM-EE Subcommittee.

If you have any questions on a specific request, please contact the requestor directly -- their email addresses are provided above. The noted dispositions for the requests and the requests themselves were forwarded to the Triage Subcommittee and the EC members on April 2. . There were no dissenting comments received. As such, the requests are considered in scope and assigned to the indicated subcommittees for development. Please note that this communication serves as notice to the subcommittee chairs of the subcommittees to which the requests are assigned.



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NAESB UPDATE: VERSION 2.0 – WHOLESALE GAS QUADRANT (WGQ) APRIL 12, 2010

ACTIONS TO BE APPLIED TO WGQ VERSION 1.9 TO CREATE WGQ VERSION 2.0:

Version 1.9 was published on September 30, 2009.

2009-10:

Final Actions:

2009 Annual Plan Item 3/2009 Annual Plan Item 2(a)/R07009 – Update Model ISDA North American Gas Annex, November 2004 to correspond to the updated Base Contract for Sale and Purchase of Natural Gas, dated September 5, 2005, in accordance with NAESB WGQ Request No. R07009 as adopted by the WGQ Executive Committee on October 29, 2009 - http://naesb.org/member_login_check.asp?doc=model_isda_addendum102909.pdf (This is a model and does not require member ratification)

Recommendations:

R09006 - Add a new data element “Contract” in the following Transaction Datasets for the NAESB WGQ Version 1.8 release: NAESB WGQ Standard No. 3.4.2, Payment Remittance and NAESB WGQ Standard No. 3.4.4, Service Requester / Charge Allowance Invoice – Formal Comment period ended February 26, 2010.

Recommendation: http://naesb.org/pdf4/r09006_rec.doc

R09011 - Change the term Power Plant Operator to Power Plant Gas Coordinator in WEQ-011 – Formal comment period ends April 29, 2010.

Recommendation: http://naesb.org/pdf4/r09011_rec.doc

R08020 – Provide for enhanced granularity for public utilities in identifying critical operational flow orders, - Approved by the WGQ EC on February 4, 2010.

Recommendation: http://naesb.org/pdf4/r08020_rec.doc

R09001 – Add two data elements to the Transactional Reporting – Interruptible Transportation Document (5.4.22) – Approved by the WGQ EC on February 4, 2010.

Recommendation: http://naesb.org/pdf4/r09001_rec.doc

Minor Corrections:

MC10009 - Errata for: NAESB WGQ Standard No.5.4.1 (Offer Download), NAESB WGQ Standard No.5.4.2 (Bid Download) and NAESB WGQ Standard No.5.4.3 (Award Download), Submitted by D. Davis, Williams Gas Pipeline - http://naesb.org/pdf4/wgq_mc10009.doc,

Recommendation: http://naesb.org/pdf4/wgq_mc10009_rec_040910.doc for WGQ EC consideration.

MC10010 - Errata for NAESB WGQ Standard No.5.4.20 (Transactional Reporting – Capacity Release), Submitted by D. Davis, Williams Gas Pipeline - http://naesb.org/pdf4/wgq_mc10010.doc,

Recommendation: http://naesb.org/pdf4/wgq_mc10010_rec_040910.doc for WGQ EC consideration.

MC10011 - Errata for NAESB WGQ Standard Nos.3.4.1 (Transportation/Sales Invoice), Submitted by D. Davis, Williams Gas Pipeline - http://naesb.org/pdf4/wgq_mc10011.doc ,

Recommendation: http://naesb.org/pdf4/wgq_mc10011_rec_040910.doc for WGQ EC consideration.



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NAESB UPDATE: VERSION 2.0 – WHOLESALE GAS QUADRANT (WGQ) APRIL 12, 2010

MC10014 - Errata for NAESB WGQ Standard No.5.4.18 (Bid Upload), Submitted by D. Davis/M. Stender, Co-Chairs Information Requirements/Technical Subcommittee - http://www.naesb.org/pdf4/wgq_mc10014.doc
Recommendation: http://naesb.org/pdf4/wgq_mc10014_rec_032910.doc - for WGQ EC consideration.

MC10015 - Errata to NAESB WGQ Version 1.9 - Standard No.5.4.15 (Response to Upload of Request for Download of Posted Datasets), Submitted by D. Davis/M. Stender, Co-Chairs Information Requirements/Technical Subcommittee - http://naesb.org/pdf4/wgq_mc10015.doc - proposed recommendation to be reviewed by WGQ IR/Technical on April 13-15, 2010.

MC10016 - Errata for NAESB WGQ Version 1.9 Standard No.3.4.1 (Transportation/Sales Invoice), Submitted by D. Davis/M. Stender, Co-Chairs Information Requirements/Technical Subcommittee - http://naesb.org/pdf4/wgq_mc10016.doc - proposed recommendation to be reviewed by WGQ IR/Technical on April 13-15, 2010.

MC10017 - Version 1.9 NAESB WGQ Standard No. 2.4.6 – Measurement Volume Audit Statement, Submitted by D. Davis/M. Stender, Co-Chairs Information Requirements/Technical Subcommittee - http://naesb.org/pdf4/wgq_mc10017.doc - proposed recommendation to be reviewed by WGQ IR/Technical on April 13-15, 2010.

MC10012 –Errata for NAESB WGQ Internet Electronic Transport (Internet ET) Manual, Version 1.9 and NAESB RXQ Internet ET Manual Version 1.2: http://www.naesb.org/pdf4/wgq_req_rgq_mc10012.doc - notational ballot due March 5, 2010.

MC10001 - Revised - Minor Correction Submitted by M. Stender, El Paso Natural Gas to NAESB standard 5.4.1, 5.4.2 and 5.4.17 version 1.9: http://www.naesb.org/pdf4/wgq_mc10001_revised011210.doc - approved by the WGQ EC on February 4, 2010. (*Effective date March 31, 2010*)

MC10002/R09019 - Minor Correction (errata to Version 1.9) to modify three and add one new Allocation Transaction Type Code Values and modify the Allocation Transaction Type Matrix accordingly in the following data set: Allocation, NAESB WGQ Standard No. 2.4.3 (Note: This recommendation corrects the actions taken for R05028 which were published in Version 1.9.): http://www.naesb.org/pdf4/wgq_mc10002.doc - approved by the WGQ EC on February 4, 2010. (*Effective date March 31, 2010*)

MC10003 - Minor Correction to Version 1.9 NAESB WGQ Standard No. 2.2.4 – Shipper Imbalance (EDI Implementation: ASC X12 Mapping Guidelines and Data Element Cross Reference): http://www.naesb.org/pdf4/wgq_mc10003.doc - approved by the WGQ EC on February 4, 2010. (*Effective date March 31, 2010*)

MC10005 - Recommendation – Submitted by C. Burden, Williams Gas Pipeline – This request proposes the correction of language for the NAESB WGQ Version 1.9 release: NAESB WGQ Standard 4.3.16: http://www.naesb.org/pdf4/wgq_mc10005.doc - approved by the WGQ EC on February 4, 2010. (*Effective date March 31, 2010*)



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NAESB UPDATE: VERSION 2.0 – WHOLESALE GAS QUADRANT (WGQ) APRIL 12, 2010

MC10006 Recommendation – Submitted by C. Burden, Williams Gas Pipeline – This request proposes corrections to NAESB WGQ Standards Booklet 1 of 2, NAESB WGQ QEDM Standards Manual and NAESB WGQ Capacity Release Standards Manual to correct an error in wording: http://www.naesb.org/pdf4/wgq_mc10006.doc - approved by the WGQ EC on February 4, 2010. *(Effective date March 31, 2010)*

MC10007 Recommendation – Submitted by C. Burden, Williams Gas Pipeline – This request proposes corrections to NAESB WGQ QEDM Standards Manual, Version 1.9 to correct browser and plug-in information and a spelling correction: http://www.naesb.org/pdf4/wgq_mc10007.doc - approved by the WGQ EC on February 4, 2010. *(Effective date March 31, 2010)*

MC10008 Recommendation – Submitted by D. Davis / M. Stender, Chair / Co-Chair WGQ Information Requirements / WGQ Technical Subcommittees – This request proposes corrections to NAESB WGQ Standard Nos. 3.4.1 (Transportation/Sales Invoice) and 3.4.4 (Service Requester Level Charge/Allowance Invoice, Version 1.9 to correct the code values in the Code Values Dictionaries: http://naesb.org/pdf4/wgq_mc10008.doc - approved by the WGQ EC on February 4, 2010. *(Effective date March 31, 2010)*

MC09024 Recommendation - Submitted by M. Schmitz, Northern Natural Gas - This request proposes the addition of 1 code values for the data element “Validation Code (Detail)” in the following datasets for the NAESB WGQ Version 1.9 release: NAESB WGQ Standard 1.4.2 - Nomination Quick Response http://www.naesb.org/pdf4/wgq_mc09024_rec_011810.doc - approved by the WGQ EC on February 4, 2010. *(Effective date March 31, 2010)*

MC09033 Recommendation - Submitted by M. Schmitz, Northern Natural Gas - This request proposes the addition of 4 code values for the data element “Charge Type” in the following datasets for the NAESB WGQ Version 1.9 release: NAESB WGQ Standard 3.4.1 – Transportation / Sales Invoice: http://www.naesb.org/pdf4/wgq_mc09033_rec_011910.doc - approved by the WGQ EC on February 4, 2010. *(Effective date March 31, 2010)*

MC09032 Minor Correction to the Canadian Addendum, dated August 2, 2007 (NAESB Standard 6.3.1.CA) as submitted by K. Sappenfield, Chair, WGQ Contracts Subcommittee - http://naesb.org/pdf4/wgq_mc111209reqcom.doc - approved by the WGQ EC on October 29, 2009 *(Effective date December 14, 2009)*

TIMELINE:

- Version 2.0 is scheduled for publication no earlier than November 1, 2010 and no later than November 30, 2010.
- To back into this date – all standards should be ratified by date of publication, and EC actions should be taken one month prior, to publication, all subcommittee actions should be taken three months prior to publication.

Month - 4	Subcommittee Recommendations Completed and sent out for comment
Month - 3	EC Actions taken
Month - 2	Ratifications sent out and completes, minor corrections applied
Month - 1	Review of draft publication
Month - 0	Date of Publication.



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NAESB UPDATE: VERSION 2.0 – WHOLESALE GAS QUADRANT (WGQ)
APRIL 12, 2010

Items not to be included:

R09017 – Develop a new ISDA Gas Confirmation Form for use with the ISDA Gas Annex based on the current Confirmation Form under the NAESB Base Contract for Sale and Purchase of Natural Gas –
http://naesb.org/member_login_form.asp?doc=wgq_rat011310_r09017_rec.doc - Ratification on February 12, 2010.

Attachment (Exhibit A):

http://naesb.org/member_login_form.asp?doc=wgq_rat011310_r09017_rec_attachment.doc



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**NAESB UPDATE: VERSION 002.2 – WHOLESALE ELECTRIC QUADRANT (WEQ)
APRIL 12, 2010**

ACTIONS TO BE APPLIED TO WEQ VERSION 002.1 TO CREATE WEQ VERSION 002.2:

Version 002.1 was published on March 11, 2009.

2009-10:

Final Actions:

2008 WEQ Annual Plan Item 5(a) – Review and develop business practice standards to support DR and DSM-EE programs – Ratified March 16, 2009 - http://naesb.org/member_login_check.asp?doc=fa_weq_2008_api5a.doc (New WEQ-015)

2009 WEQ Annual Plan Item 3(d) – Order 717, Standards of Conduct – Ratified June 15, 2009 - http://naesb.org/member_login_check.asp?doc=fa_weq_2009_api_3d.doc (WEQ-001, WEQ-002, WEQ-003)

2009 WEQ Annual Plan Item 2(a)(ii)(3) – Rollover Rights on Redirect on a Firm Basis – Ratified July 27, 2009 - http://naesb.org/member_login_check.asp?doc=fa_weq_2009_ap_2aii3.doc (WEQ-001, WEQ-002, WEQ-003, WEQ-013)

2009 WEQ Annual Plan Item 1(a), 3(a)(vii)/R05020 – Modifications to WEQ-004 Coordinate Interchange as approved by the WEQ EC on October 27, 2009 – Ratified December 14, 2009 - http://naesb.org/member_login_form.asp?doc=fa_weq_2009_api_1a_3avii_r05020.doc (WEQ-001, WEQ-002, WEQ-003, WEQ-004, WEQ-013)

Attachment: http://naesb.org/member_login_form.asp?doc=fa_weq_2009_api_1a_3avii_r05020_attach.doc

2009 WEQ Annual Plan Item 5(b) – Modify NAESB definition to address internal inconsistencies and inconsistencies with the NERC glossary – approved by the WEQ EC on February 2, 2010 – Ratified March 24, 2010 - http://naesb.org/member_login_check.asp?doc=fa_weq_2009_api5b.doc

Recommendations:

2009 WEQ Annual Plan Items 3(a)(ii)(1)/R07013 - Develop a Confidentiality Agreement - Action pending – http://www.naesb.org/pdf4/weq_2009_api_3aai1_r07013_rec.doc

2009 WEQ Annual Plan Items 5(a)(2), 5(i)/R08004/R09011 – Multiple Annual Plan Items affecting WEQ-011 Gas/Electric Coordination – Formal comment period ended November 2, 2009 - http://naesb.org/pdf4/weq_2009_api_5a2_5i_r08004_r09011_rec.doc

Attachments:

WEQ-001 (Redlined): http://naesb.org/pdf4/weq_2009_api_5a2_5i_r08004_r09011_rec_attach1.doc

WEQ-001 (Clean): http://naesb.org/pdf4/weq_2009_api_5a2_5i_r08004_r09011_rec_attach2.doc

WEQ 2010 Annual Plan Item 6a / Retail 2010 Annual Plan Item 9a - Requirements Specifications for Common Electricity Product and Pricing Definition - for NIST PAP03 – Formal comment period ended April 9, 2010.

Recommendation: http://naesb.org/pdf4/weq_2010_ap6a_retail_2010_ap9a_rec.doc



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NAESB UPDATE: VERSION 002.2 – WHOLESALE ELECTRIC QUADRANT (WEQ) APRIL 12, 2010

WEQ 2010 Annual Plan Item 6b / Retail 2010 Annual Plan Item 9b - Requirements Specifications for Common Scheduling Mechanism for Energy Transactions - for NIST PAP04 – Formal comment period ended April 9, 2010.
Recommendation: http://naesb.org/pdf4/weq_2010_ap6b_retail_2010_ap9b_rec.doc

WEQ 2010 Annual Plan Item 6c - Requirements Specifications for Wholesale Standard DR Signals - for NIST PAP09 – Formal comment period ended April 9, 2010.
Recommendation: http://naesb.org/pdf4/weq_2010_ap_6c_rec.doc

2009 WEQ Annual Plan Item 2(a)(i)(1-8) – Develop business practice standards to better coordinate the use of the transmission system among neighboring transmission providers. Such business practice standards would be based on recommendations from NERC's Long Term ATC/AFC Task Force and would involve revised procedures for the ATC calculation and/or revised protocols as determined by the final order. Development is using joint standards development process with NERC. Request R050004 was expanded to include the Order No. 890 ([Docket Nos. RM05-25-000 and RM05-17-000](#)) and Order No. 890-A ([Docket Nos. RM05-17-001, 002 and RM05-25-001, 002](#)), "Preventing Undue Discrimination and Preference in Transmission Services," issued April 11, 2007). Group 3: Network Service on OASIS – Recommendation currently under development by the WEQ OASIS Subcommittee http://naesb.org/weq/weq_oasis.asp

Minor Corrections:

Minor Correction for WEQ-001 to be applied to versions 002.1 and 002.2 submitted by JT Wood, Southern Company and approved by the WEQ Executive Committee on October 27, 2009. - http://naesb.org/pdf4/weq_mc111209_reqcom.doc Comment period ends November 30, 2009 (*Effective date December 14, 2009*)

TIMELINE:

- Version 002.2 is scheduled for publication end of second quarter 2010.
- To back into this date – all standards should be ratified by date of publication, and EC actions should be taken one month prior, to publication, all subcommittee actions should be taken three months prior to publication.

Month - 4	Subcommittee Recommendations Completed and sent out for comment
Month - 3	EC Actions taken
Month - 2	Ratifications sent out and completes, minor corrections applied
Month - 1	Review of draft publication
Month - 0	Date of Publication.



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NAESB UPDATE: VERSION 1.3 – RETAIL ELECTRIC AND RETAIL GAS QUADRANT (REQ/RGQ) APRIL 12, 2010

ACTIONS TO BE APPLIED TO RETAIL VERSION 1.2 TO CREATE RETAIL VERSION 1.3:

Version 1.2 was published on December 31, 2009.

2009-10:

Final Actions:

None to date

Recommendations:

2009 Retail Annual Plan Item 1/R05016 – Develop Technical Electronic Implementation Standards and Data Dictionaries (*Book 9: Customer Billing and Payment Notification via Uniform Electronic Transaction*) – approved by the Retail ECs on February 3, 2010.

Recommendation – Part A with Revised Attachments -

http://www.naesb.org/pdf4/retail_2009_api1_r05016_rev_rec.doc

Revised Attachment 1 – Data Dictionaries -

http://www.naesb.org/pdf4/retail_2009_api1_r05016_rev_rec_attach1.doc

Revised Attachment 2 – X12 Technical Implementation Guidelines -

http://www.naesb.org/pdf4/retail_2009_api1_r05016_rev_rec_attach2.doc

WEQ 2010 Annual Plan Item 6a / Retail 2010 Annual Plan Item 9a - Requirements Specifications for Common Electricity Product and Pricing Definition - for NIST PAP03 – formal comment period ended April 9, 2010.

Recommendation - http://naesb.org/pdf4/weq_2010_ap6a_retail_2010_ap9a_rec.doc

WEQ 2010 Annual Plan Item 6b / Retail 2010 Annual Plan Item 9b - Requirements Specifications for Common Scheduling Mechanism for Energy Transactions - for NIST PAP04 – formal comment period ended April 9, 2010.

Recommendation - http://naesb.org/pdf4/weq_2010_ap6b_retail_2010_ap9b_rec.doc

Retail 2010 Annual Plan Item 9c - Requirements Specifications for Retail Standard DR Signals - for NIST PAP09 – formal comment period ended April 9, 2010.

Recommendation - http://naesb.org/pdf4/retail_2010_ap_9c_rec.doc

Retail 2009 Annual Plan Item 10a and 10c - Service Request, Disconnection and Reconnection in the Registration Agent Model – formal comment period ends May 7, 2010.

Recommendation - http://naesb.org/pdf4/retail_2009_ap_10a_10c_rec.doc

Minor Corrections:

MC10012 –Errata for NAESB WGQ Internet Electronic Transport (Internet ET) Manual, Version 1.9 and NAESB RXQ Internet ET Manual Version 1.2: http://www.naesb.org/pdf4/wgq_req_rgq_mc10012.doc - notational ballot due March 5, 2010.



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NAESB UPDATE: VERSION 1.3 – RETAIL ELECTRIC AND RETAIL GAS QUADRANT (REQ/RGQ) **APRIL 12, 2010**

TIMELINE:

- Version 1.3 is scheduled for publication in 2011.
- To back into this date – all standards should be ratified by date of publication, and EC actions should be taken one month prior, to publication, all subcommittee actions should be taken three months prior to publication.

Month - 4	Subcommittee Recommendations Completed and sent out for comment
Month - 3	EC Actions taken
Month - 2	Ratifications sent out and completes, minor corrections applied
Month - 1	Review of draft publication
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NORTH AMERICAN ENERGY STANDARDS BOARD 2010 ANNUAL PLAN for the WHOLESALE ELECTRIC QUADRANT As Approved by NAESB Board of Directors on March 25, 2010

Item Description	Completion ¹	Assignment ²
1 Develop business practices standards as needed to complement reliability standards		
Develop business practice standards to support and complement NERC reliability standards, NERC policies and NERC standards authorization requests (SARs) using the NERC/NAESB Coordination Joint Standards Development Process as appropriate. Current NAESB activities underway to develop business practice standards that are supportive of this annual plan item are:		
a) Parallel Flow Visualization/Mitigation for Reliability Coordinators in the Eastern Interconnection.	2010	BPS
Note: Consideration should be given to provisional item 4. Work is being coordinated with the NERC IDC Working Group.		
Status: Underway		
b) Time Error and Inadvertent (BAL-004 and BAL-006) Coordination with NERC	TBD	TIMTF
Status: Monitor. (Upon initiation of this item by NAESB, a completion date will be determined. Based on discussions with NERC staff regarding the Balancing Authority Controls Standards Drafting Team's timeline the completion date has been changed to tbd.)		
c) DCS and AGC (BAL-002 and BAL-005) Coordination with NERC	TBD	TIMTF
Status Monitor. (Upon initiation of this item by NAESB, a completion date will be determined. Based on discussions with NERC staff regarding the Balancing Authority Controls Standards Drafting Team's timeline the completion date has been changed to tbd.)		
2 Develop business practice standards in support of the FERC RM05-25-000 and RM05-17-000 (OATT Reform)¹		
a) Develop version 2 business practice standards to better coordinate the use of the transmission system among neighboring transmission providers. Such business practice standards would be based on recommendations from NERC's Long Term ATC/AFC Task Force and would involve revised procedures for the ATC calculation and/or revised protocols as determined by the final order.		
Status: Underway		
Development is using joint standards development process with NERC. Request R050004 was expanded to include the Order No. 890 (Docket Nos. RM05-25-000 and RM05-17-000) and Order No. 890-A (Docket Nos. RM05-17-001, 002 and RM05-25-001, 002), "Preventing Undue Discrimination and Preference in Transmission Services," issued April 11, 2007).		
i) Group 3: Network Service On OASIS		
1) Use of OASIS to Make Electronic Requests to Designate and Terminate Network Resource	2 nd Q, 2010	OASIS
Status: Underway		

¹ FERC Order No. 890, issued February 16, 2007 can be accessed from the following link - http://www.naesb.org/doc_view4.asp?doc=ferc021607.doc



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NORTH AMERICAN ENERGY STANDARDS BOARD
2010 ANNUAL PLAN for the WHOLESALE ELECTRIC QUADRANT
As Approved by NAESB Board of Directors on March 25, 2010

	Item Description	Completion¹	Assignment²
2)	Ability to Query Requests to Designate and Terminate Network Resources and Allow for Queries of All Information Provided with Designation Requests Status: Underway	2 nd Q, 2010	OASIS
3)	Masking of Designated Network Resource Operating Restrictions and Generating Cost Information Status: Underway	2 nd Q, 2010	OASIS
4)	Procedural Requirements for Submitting Designations over new OASIS Functionality Status: Underway	2 nd Q, 2010	OASIS
5)	Specify How Designated Network Service Informational Postings are Posted on OASIS Status: Underway	2 nd Q, 2010	OASIS
6)	Develop standards for the treatment of OASIS Requests when the Customer Fails to Provide the Necessary Attestation Status: Underway	2 nd Q, 2010	OASIS
7)	Procedural Requirements for Submitting Both Temporary and Indefinite Terminations of Network Resources Status: Underway	2 nd Q, 2010	OASIS
8)	Procedures for Submitting and Processing Requests for Concomitant Evaluations of Transmission Requests and Temporary Terminations Status: Underway	2 nd Q, 2010	OASIS
ii)	Group 4: Pre-Emption; Request No. R05019		
1)	Pre-Emption Status: Not Started	2011	OASIS
2)	Request No. R05019 Status: Not Started	2011	OASIS



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	Item Description	Completion ¹	Assignment ²
iii)	Group 5: Paragraph 1377 ² – Group 5 work should precede group 4 work		
	1) Paragraph 1377 Status: Underway	4 th Q, 2010	OASIS
	2) Re-Bid Of Partial Service across Multiple Transmission Providers' Systems Status: Underway, Scoping Group identified in 2-2-10 WEQ EC meeting	4 th Q, 2010	OASIS
	3) Group DNR requests from a system with point-to-point requests on other systems for synchronization Status: Not Started	2nd Q, 2010	OASIS

² Paragraph 1377 of FERC Order No. 890, issued February 16, 2007: The Commission agrees that transmission requests across multiple transmission systems should be coordinated by the relevant transmission providers. We will not, however, amend the pro forma OATT to require such coordination. Rather, we require transmission providers working through NAESB to develop business practice standards related to coordination of requests across multiple transmission systems. In order to provide guidance to NAESB, we will articulate the principles that should govern processing across multiple systems. All the transmission providers involved in a request across multiple systems should consider a request that requires studies across multiple systems to be a single application for purposes of establishing the deadlines for rendering an agreement for service, revising queue status, eliciting deposits and commencing service. In order to preserve the rights of other transmission customers with studies in the queue, the priority for the single application should be based on the latest priority across the transmission providers involved in the multiple system request. We note that regional entities like wesTTrans are already coordinating requests across multiple transmission systems and we believe such coordination is an acceptable solution to this issue.



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	Item Description	Completion ¹	Assignment ²
iv)	Group 6: Miscellaneous (Paragraphs 1390 ³ and 1627 ⁴ of FERC Order No. 890)		
	1) Paragraph 1390 of Order 890 Status: Not Started	2011	OASIS
	2) Paragraphs 1627 of Order 890 Status: Not Started	2011	OASIS
	3) Redispatch Cost Posting to allow for posting of third party offers of planning redispatch services. Status: Not Started	2011	OASIS
b)	Develop the needed business practices as companion to the NERC standards for ATC related efforts		
i)	Develop standards to support existing Request No. R05004 .		

³ Paragraph 1390 of FERC Order No. 890, issued February 16, 2007: We will not modify the pro forma OATT to address requests to allow the transmission provider to terminate idle transmission service requests. NAESB's business practice 001-4.11 allows the transmission provider to retract a request if the transmission customer does not respond to an acceptance within the time established in NAESB business practice standard 001-4.13. Therefore, we interpret TDU Systems comments to refer to circumstances when a transmission customer fails to respond to the transmission provider's request for additional information during the course of a request study. As discussed above, by the time the transmission provider offers a system impact study agreement, it should have all of the information that it needs to complete the study. Pursuant to section 17.4 of the pro forma OATT, the transmission provider can deem a transmission service request deficient if the transmission customer does not provide all of the information the transmission provider needs to evaluate the request for service. We will revise section 17.7 of the pro forma OATT so that the transmission provider is able to terminate a request for transmission service if a transmission customer that is extending the commencement of service does not pay the required annual reservation fee within 15 days of notifying the transmission provider that it would like to extend the commencement of service. We will not change the pro forma OATT to allow the transmission provider to terminate a transmission service request if the transmission customer changes its application for service. We believe the existing pro forma OATT is sufficient to allow a transmission provider to manage situations where the transmission customer modifies its application for service to the point that the customer is requesting transmission service that is meaningfully different than its initial request.

⁴ Paragraph 1627 of FERC Order No. 890, issued February 16, 2007: We agree with suggestions for the posting of additional curtailment information on OASIS and, therefore, require transmission providers, working through NAESB, to develop a detailed template for the posting of additional information on OASIS regarding firm transmission curtailments. Transmission providers need not implement this new OASIS functionality and any related business practices until NAESB develops appropriate standards. These postings must include all circumstances and events contributing to the need for a firm service curtailment, specific services and customers curtailed (including the transmission provider's own retail loads), and the duration of the curtailment. This information is in addition to the Commission's existing requirements: (1) when any transmission is curtailed or interrupted, the transmission provider must post notice of the curtailment or interruption on OASIS, and the transmission provider must state on OASIS the reason why the transaction could not be continued or completed; (2) information to support any such curtailment or interruption, including the operating status of facilities involved in the constraint or interruption, must be maintained for three years and made available upon request to the curtailed or interrupted customer, the Commission's Staff, and any other person who requests it; and, (3) any offer to adjust the operation of the transmission provider's system to restore a curtailed or interrupted transaction must be posted and made available to all curtailed and interrupted transmission customers at the same time.



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NORTH AMERICAN ENERGY STANDARDS BOARD 2010 ANNUAL PLAN for the WHOLESALE ELECTRIC QUADRANT As Approved by NAESB Board of Directors on March 25, 2010

Item Description		Completion ¹	Assignment ²
1)	The processing of transmission service requests, which use TTC/ATC/AFC, in coordination with NERC changes to MOD 001 where the allocation of flowgate capability based on historical Network Native Load impacts the evaluation of transmission service requests, requiring the posting of those allocation values in conjunction with queries of service offerings on OASIS Status: Underway	2 nd Q, 2010	OASIS
3 Develop business practices standards to improve the current operation of the wholesale electric market and develop and maintain business practice and communication standards for OASIS and Electronic Scheduling			
a)	Develop and/or maintain business practice standards as needed for OASIS and electronic scheduling. Specific items to address include:		
i)	Network Services: Determine and develop needed business practice standards or other support is needed to support use of OASIS for Network Service transactions (R04006E). (Related to AP 2(a)(iii)) Status: Underway	2 nd Q, 2010	OASIS
ii)	Registry (TSIN): Determine and develop needed business practice standards to support the registry functions currently supported by NERC (R04037 , R06027).		
1)	Transition the TSIN Registry from NERC to NAESB as the enhanced Electric Industry Registry (EIR), (R06027). Status: Underway	2010	NAESB/NERC Administration, JESS
iii)	Document procedures used to implement the displacement/interruption terms of the Pro Forma tariff (R05019). Status: Deleted as a duplicate of 2009 AP item 2.a.ii.2	2011	OASIS
iv)	Make remaining incremental enhancements to OASIS as an outgrowth of the NAESB March 29, 2005 conference on the future of OASIS (R05026). Scoping statement completed by SRS and assignments made to BPS and OASIS.		
1)	Eliminate Masking of TSR tag source and sink when requested status is denied, withdrawn refused, displaced, invalid, declined, annulled or retracted Status: Not Started	2011	OASIS
2)	Initiate standard that eliminates the disparity of posting "sensitive" information. This standard should also include procedures of user certification that allows access to this class of information. Status: Underway (upon further development of this item by NAESB, a completion date will be determined)	2011	OASIS



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	Item Description	Completion ¹	Assignment ²
3)	Enhance the TSR result postings to allow showing of (i) limiting transmission elements and (ii) available generation dispatch options that would allow acceptance of reservation request. Status: Not Started (upon initiation of this item by NAESB, a completion date will be determined)	2011	OASIS
v)	Develop, coordinate interoperability testing, and implement e-Tag version 1.8.1 Status: Underway	1 st Q, 2010	JESS
vi)	Review and correct WEQ-004 Coordinate Interchange Business Practice Standard as needed based on activities in NERC Project 2008-12, Coordinate Interchange Standards Revisions and supporting EOP-002-2 R4 and R6. [note: this is a new item] Status: Not started – dependent on currently projected NERC activity (upon initiation of this item by NAESB, a completion date will be determined)	2010	JESS
b)	Develop and/or maintain standard communication protocols and cyber-security business practices as needed.		
i)	Develop PKI certification program for e-Tag and OASIS Status: Not Started (upon initiation of this item by NAESB, a completion date will be determined)	2010	Board Certification Program Committee
ii)	Develop PKI standards for OASIS. Status: Not Started (upon initiation of this item by NAESB, a completion date will be determined)	2011	OASIS
iii)	Develop Industry Implementation Plan for meeting PKI Standard requirements for e-tagging. Status: Underway. Full e-Tag implementation (server & client side) is linked to the transition of the Registry from NERC to NAESB and NAESB implementation..	TBD – dependent on item above (i) and EIR	JESS



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NORTH AMERICAN ENERGY STANDARDS BOARD 2010 ANNUAL PLAN for the WHOLESALE ELECTRIC QUADRANT As Approved by NAESB Board of Directors on March 25, 2010

Item Description	Completion ¹	Assignment ²
4 Review and develop business practices standards to Demand Response, Demand Side Management and Energy Efficiency Programs		
Review and develop needed model business practices for a standardized method for quantifying benefits, savings, cost avoidance and/or the reduction in energy demand and usage derived from the implementation of demand side management and energy efficiency programs. This effort will include demand side response, energy efficiency programs and metering, including the 'curtailment service provider' program.		
a) Review the NAESB Business Practices for Measurement and Verification of Wholesale Electricity Demand Response (WEQ-015) in conjunction with the IRC developed Demand Response Matrix and identify business practice requirements that could be improved or made clearer through the addition of specific technical detail. The wholesale and retail demand response work groups and the Smart Grid task force should actively and timely communicate and coordinate work products to ensure consistency between the three work groups. Each work group should take into account the work products developed by the other.	Phase 2	WEQ Section of the Joint WEQ/REQ DSM-EE Subcommittee
Status: In Progress		
b) For each performance evaluation type/service type combination identified in WEQ-015, using the IRC matrix as a starting point, assess and determine what standards or guidelines, if any, should be developed to aid all participants in the use of measurement and verification methods for demand response programs in organized wholesale electric markets. If the determination is made that standards or guidelines will be developed, those items will be added as sub-items to 4(b).	Phase 2	WEQ Section of the Joint WEQ/REQ DSM-EE Subcommittee
Status: In Progress		
c) Develop glossary for business practice standards	Ongoing	Joint WEQ/REQ DSM Subcommittee
Status: Ongoing		
d) Develop business practice standards used to measure and verify reductions in energy and demand from energy efficiency in wholesale and retail markets.³ This includes developing business practice standards to measure and verify energy reductions that are made to comply with a Renewable Portfolio Standard that included energy efficiency or a stand-alone Energy Efficiency Portfolio Standard.	2010	Joint WEQ/REQ DSM-EE Subcommittee
Status: Underway (An estimated completion date will be established in 1st Q, 2010 after the new subcommittee has been formalized)		
5 Maintain existing body of Version 2.x standards		
a) Make consistency changes to Version 2.2 standards as directed by the WEQ Leadership Committee on December 12, 2007 OASIS Consistency Changes (R08001, R08002, R08003, R08005)	2011	OASIS
Status: Not Started (upon initiation of this item by NAESB, a completion date will be determined)		



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NORTH AMERICAN ENERGY STANDARDS BOARD 2010 ANNUAL PLAN for the WHOLESALE ELECTRIC QUADRANT As Approved by NAESB Board of Directors on March 25, 2010

Item Description	Completion ¹	Assignment ²
b) Consistent with ¶51 of FERC Order No. 890-A, add AFC and TFC values to the “System_Attribute” data element of the NAESB Standard WEQ-003: OASIS S&CP Data Dictionaries. (R08011) Status: Not Started. This Standards Request was assigned to the OASIS in May 2008.	2011	OASIS
c) Correct WEQ 013-2.6.7.2. – Resale off OASIS (R08027) Status: Not Started	TBD	OASIS
d) Add language to WEQ-001-4 Online Negotiation and Confirmation process to clarify Table 4-3 (R09003) Status: Not Started	TBD	OASIS
e) Create a new OASIS mechanism that allows for the merger of like reservations without the use of the resale mechanism (R09015) Status: Not Started	TBD	OASIS
6. Develop Smart Grid Wholesale and Retail Electric Standards - The wholesale and retail demand response work groups and the Smart Grid task force should actively and timely communicate and coordinate work products to ensure consistency between the three work groups. Each work group should take into account the work products developed by the other.		
a) Develop requirements and use cases for PAP 03 – Pricing Model		
i). Phase 1 Status: Completed	1 st Q, 2010	Joint WEQ/REQ SGS Task Force
ii) Phase 2 Status: Underway	2 nd Q, 2010	Joint WEQ/REQ SGS Task Force
b) Develop requirements and use cases for PAP 04 – Scheduling Model		
i) Phase 1 Status: Completed	1 st Q, 2010	Joint WEQ/REQ SGS Task Force
ii) Phase 2 Status: Underway	2 nd Q, 2010	Joint WEQ/REQ SGS Task Force
c) Develop requirements and use cases for PAP 09 – Demand Response/Distributed Energy Resources		
i) Phase 1 Status: Completed	1 st Q, 2010	WEQ Section of the Joint WEQ/REQ SGS Task Force
ii) Phase 2 Status: Underway	2 nd Q, 2010	WEQ Section of the Joint WEQ/REQ SGS Task Force



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NORTH AMERICAN ENERGY STANDARDS BOARD
2010 ANNUAL PLAN for the WHOLESALE ELECTRIC QUADRANT
As Approved by NAESB Board of Directors on March 25, 2010

Item Description	Completion ¹	Assignment ²
d) Act as a convener (develop and implement a plan to expedite harmonized standards development and adoption within the associated standards bodies) and develop business practice standards as needed and assigned to NAESB for PAP 10 – Standard Energy Usage Information Status: Underway	2 nd Q. 2010	Joint WEQ/REQ SGS Task Force
7. Develop or modify standards to Support FERC Order No. 676-E, (Docket No. RM 05-5-013)		
a) Review standards 001-14.1.3 and 001-15.1.2 based on FERC Order No. 676-E (See ¶ 39 ⁵) Status: Not Started	2011	OASIS
b) Develop standards to support the Transmission Provider right to reassess the availability of conditional firm (See ¶ 72 ⁶) Status: Not Started	2011	OASIS
c) Prepare status reports every six months regarding the development of standards for the coordination of transmission service requests across multiple transmission systems (See ¶ 105 ⁷). This annual plan item is tied to Annual Plan Item 2(a)(iii) Status: Not Started	Ongoing	NAESB Office

⁵ 39. In regards to Entergy's question of whether the transmission provider's calculated and posted available flowgate capability values should be used to fulfill the posting requirements set forth in Standard 001-14 and 001-15 in instances where there is no requirement to convert this calculation to available transfer capability values, we agree with Entergy that this requirement can be met by the transmission provider posting its available flowgate capability values. As to EPSC's argument that Standard 001-15 falls short of the goals of Order No. 890, we find that, with the exception of Standard 001-15.1.2, compliance with Standard 001-15 provides all of the information required by Order No. 890. However, Standards 001-14.1.3 and 001-15.1.2 permit transmission providers to post an available transfer capability change narrative within five business days of meeting the criteria under which a narrative is required to be posted. In Order No. 890, the Commission rejected calls for delays prior to posting data and required posting as soon as possible. We do not find the NAESB standard meets this criterion and therefore decline to incorporate Standards 001-14.1.3 and 001-15.1.2 by reference. Transmission providers must post their narratives as soon as feasibly possible. Posting within one day would appear in most cases to be reasonable.

⁶ 72. However, we reiterate here the Commission's finding in Order No. 890 that a transmission provider is permitted to extend its right to reassess the availability of conditional firm service. Since the Version 002.1 Standards do not specifically address this issue, we would ask the industry, working through NAESB, to continue to look at additional business practice standards facilitating a transmission provider's extension of its right to perform a reassessment

⁷ 105. We agree that insufficient progress has been made on this issue. While we acknowledge that development of standards addressing this issue is included in NAESB's 2009 WEQ Annual Plan, we nevertheless urge NAESB to address this issue as soon as possible. Accordingly, we request that NAESB provide the Commission with a status report concerning its progress on this issue every six months, counting from the date this final rule is published in the Federal Register, until NAESB's adoption of the applicable standard(s).



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NORTH AMERICAN ENERGY STANDARDS BOARD
2010 ANNUAL PLAN for the WHOLESAL ELEC TRIC QUADRANT
as Approved By the NAESB Board of Directors on March 25, 2010

PROVISIONAL ITEMS

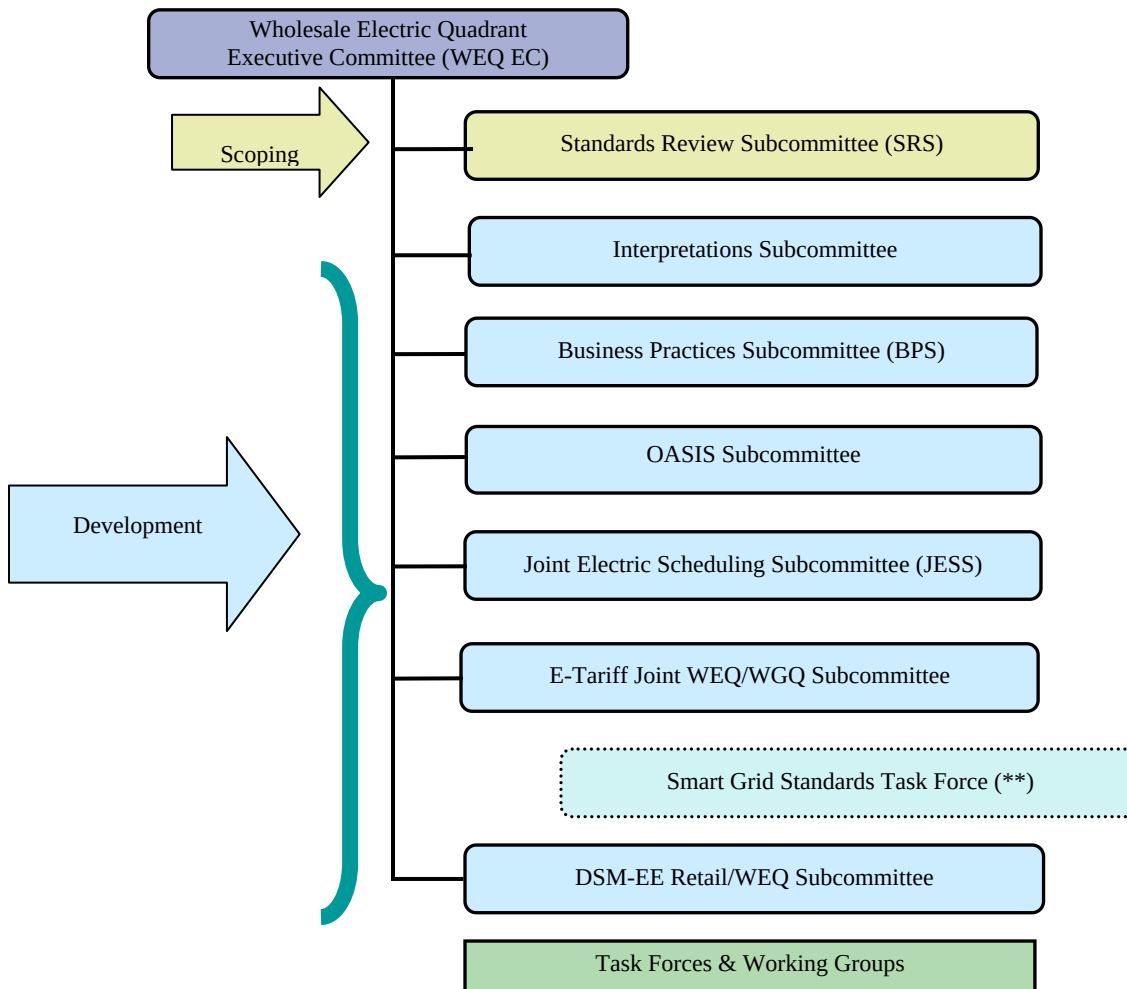
- 1 Develop and or modify business practices related to support of NERC effort on the NERC Resources and Transmission Adequacy (Project 2009-05 Resource Adequacy Assessment).
- 2 Develop business practices for allocating capacity among requests received during a submittal window Order 890-A ([Docket Nos. RM05-17-001, 002 and RM05-25-001, 002](#) - Paragraph 805).
- 3 Determine any needed NAESB action in support of the Interchange Distribution Calculator (IDC) and develop any necessary standards.
- 4 Prepare recommendations for future path for TLR (equity concerns) in concert with NERC, which may include alternative congestion management procedures⁴. Work on this activity is dependent on completing 2010 WEQ Annual Plan 1.a (Parallel Flow Visualization/Mitigation for Reliability Coordinators in the Eastern Interconnection).
- 5 Develop complementary standards that align with NERC Project 2008-01 Voltage and Reactive Control, for which a white paper is expected after the SAR is authorized to proceed by the NERC Standards Committee.
- 6 Develop NAESB business practices as needed to complement NERC reliability standards for FAC-012 and FAC-013.
- 7 Determine NAESB action needed to support FERC Action Plan for Smart Grid Technology.
- 8 Develop business practice standards for cap and trade programs for green house gas
- 9 Conduct assessment to determine if Electric Industry Requirements documented in WEQ-011 Gas / Electric Coordination should be considered reliability requirements and transition to NERC.
- 10 Develop needed business practice standards for organization/company codes for NAESB standards – and address current issues on the use of DUNs numbers. Common code usage is linked to the transition of the Registry from NERC to NAESB.
- 11 Support the second phase of retail development of model business practice standards for demand response programs (Shown as Item 3e on the Retail 2010 Annual Plan).
- 12 Review the need for, and develop standards where appropriate, in response to issues raised by FERC's National Action Plan on Demand Response.



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WHOLESALE ELECTRIC QUADRANT EXECUTIVE COMMITTEE AND SUBCOMMITTEE STRUCTURE



NAESB WEQ EC and Subcommittee Leadership:

Executive Committee: Kathy York (WEQ EC Chair) and Alan Johnson (WEQ EC Vice Chair)

Standards Review Subcommittee: Narinder Saini, Ed Skiba

Interpretations Subcommittee: Robert Schwermann

Business Practices Subcommittee & Task Forces: Jim Busbin (TLR), Ed Skiba

Open Access Same Time Information System (OASIS): Paul Sorenson, J.T. Wood, Marcie Otondo

Joint Electric Scheduling Subcommittee (JESS): Bob Harshbarger (NAESB), Jim Hansen (NERC)

e-Tariff Joint WEQ/WGQ Subcommittee (e-Tariff): Jane Daly (WEQ), Keith Sappenfield (WGQ)

DSM-EE REQ/WEQ Subcommittee: Ruth Kiselewich and David Koogler (Retail), Roy True and Paul Wattles (WEQ)

(**) The Smart Grid Task Force is a joint group of the retail electric and wholesale electric quadrants with other standards development groups such as OASIS (Organization for the Advancement of Structured Information Standards, not Open Access Same Time Information Systems related to NAESB standards and FERC actions), CalConnect, FIX and UCAlug, among others. Direction may be given from NIST, DoE or FERC and the group reports to the NAESB Board Smart Grid Strategic Steering Committee. The group is chaired by Brent Hodges, Joe Zhou, Wayne Longcore and Robert Burke.



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End Notes WEQ 2010 Annual Plan:

¹ Dates in the completion column are by end of the quarter for completion by the assigned committee, sub-committee or task force. The dates do not necessarily mean that the standards are fully staffed to be implementable by the industry, and/or ratified by membership. If one item is completed earlier than planned, another item can begin earlier and possibly complete earlier than planned. There are no begin dates on the plan.

² The assignments are abbreviated. The abbreviations and sub-committee structure can be found at the end of the annual plan document.

³ Energy efficiency may be a wholesale product, such as capacity. Energy efficiency in retail markets may be from individual energy efficiency measures at the project level or a portfolio of projects that make up an energy efficiency program.

⁴ For additional information, please see comments submitted by PJM and MISO for this Annual Plan Item:
http://www.naesb.org/pdf3/weq_aplan102907w1.pdf.



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April 1, 2010

TO: NAESB Board of Directors, Executive Committee (EC) Members, EC Alternates, and Invited Guests
FROM: Jonathan Booe, NAESB Staff Attorney
RE: Draft Minutes of the NAESB Board Meeting – March 25, 2009

**NAESB BOARD OF DIRECTORS MEETING
Marriott IAH Airport Hotel, Houston, Texas
Thursday, March 25, 2010 – 9:00 a.m. to 1:00 pm Central
DRAFT MINUTES**

1. Administration and Welcome

Mr. Cleveland welcomed the Board members and guests in the room and on the phone. Mr. Boswell provided the antitrust guidance. Mr. Booe called the roll of the NAESB Board members. Quorum was established.

2. Adoption of the Agenda and Minutes

The Board members reviewed the draft agenda. Mr. Desselle moved to adopt the agenda as drafted and Ms. Crockett seconded the motion. The motion passed without objection.

Next, the Board members reviewed the draft minutes from the December 10, 2009 Board meeting. Mr. Cleveland asked if there were any proposed modifications. No modifications were offered. Mr. Desselle moved to adopt the minutes as drafted and Ms. Crockett seconded the motion. The motion passed without objection.

3. Membership and Financial Report

Membership Report: Ms. McQuade reviewed the [membership report](#). This quarter NAESB has experienced a net gain in membership, largely in response to the creation of the new WEQ segment and smart grid activities. Several of the new members include state commission staff, which may result in additional membership in the Retail Quadrants. The hard work of the Board has paid off this quarter and there are currently several new prospects in touch with the NAESB staff.

Financial Report: Ms. McQuade provided the [financial report](#) and reviewed the [financial profile](#) comparing the 2009 budget with the 2010 year to date budget. NAESB experienced a positive net income for 2009 that was applied to the negative retained earnings. The positive net income can be attributed to the increase in the membership fee implemented by the Board in 2009. The NAESB staff has not received notice of any member resigning his membership due to the increase in the membership fee. The financial profile only reports through January of 2010, making it difficult to determine if modifications to Organization's budget need to be made at this time. NAESB is in the process of relocating offices, which has resulted in a savings that will be reflected in the report at the June Board meeting.

4. Reports from Board Committees

Resources: Mr. Brown provided the [report](#) of the Resources Committee. He noted the ten new memberships and three resignations that resulted in a positive gain in membership during the last quarter. He also noted the increase in home page subscription requests, which have been an unexploited revenue stream in the past, and encouraged Board members to recommend home page access to their company's outside counsel. The biggest draw to NAESB has been through the recently created Technology and Service segment in the WEQ. This trend should continue as a number of available Board and Executive Committee seats in the new segment were recently announced by NAESB. The restructuring of the Retail Quadrants has made membership more attractive to state regulatory commissions and the Resources Committee and Board members should encourage membership at upcoming NARUC meetings. An increase in participation by state regulatory commissions should result in an increased interest by companies that are



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regulated by state commissions. The Resource Committee intends to work with the NAESB staff during the next quarter to develop a letter to the various trade organizations informing them of current NAESB activities and explaining the value of participation in NAESB for their constituents. Mr. Brown also encouraged the Board members to consider how the vacant seats in the WEQ Board and Executive Committee could be filled by new or existing members.

Managing Committee Update: Ms. McQuade provided an [update](#) of the Managing Committee activities and noted that the Committee met during the last quarter to approve compensation adjustments. Mr. Desselle stated that the managing committee also addressed the proposed WEQ Annual Plan item that was presented at the December Board meeting regarding best practices for demand response products and procedures. He stated that the issue was discussed at the NAESB Advisory Council in February and with FERC staff on multiple occasions to determine the level of support for including the item on the WEQ Annual Plan. After discussions with FERC staff, some Board members and the Advisory Council, the Managing Committee circulated a resolution via email to defer adding the item from the WEQ Annual Plan and present to the Board. Mr. Desselle reviewed the approved resolution, which can be found through the following hyperlink: <http://www.naesb.org/pdf4/managing031710notes.doc>. Mr. Phillips moved to adopt the resolution as presented by Mr. Desselle and Mr. Kirby seconded the motion. The motion passed without opposition. At the request of Mr. Phillips, Mr. Desselle recommended that the NAESB staff flag all proposed additions to Annual Plans that are received after Executive Committee approval but prior to the Board meeting. Ms. McQuade agreed to do so in the future.

Critical Infrastructure Committee: Mr. Hurley provided an update of the activities of the [Critical Infrastructure Committee](#) and an outline of the national cyber security activities currently underway. The Committee consists of named members but all meetings are open to the public and are accessible by anyone who wishes to participate. During the Committee's March 22, 2010 conference call, the participants adopted a mission and scope statement and discussed NAESB's involvement in cyber security activities. The Committee will continue to meet every other month through the end of the year and will report to the Board at each quarterly meeting. Mr. Hurley emphasized NAESB's need to be involved on the cyber security front and provide a voice for the private industry that may be affected by government mandated standards. Ms. McQuade reiterated that the Committee will only function as an advisory group to the Board on cyber security and critical infrastructure issues concerning commercial aspects and will not address the electric reliability aspects which are more appropriately addressed in the NERC venue.

Retail Restructuring Update: Mr. Minneman provided an update of the restructuring of the Retail Quadrants. The Retail Quadrants modified their structure in the third quarter of 2009 creating three segments; 1) the Suppliers/Services Providers segment, 2) the Utilities segment, and 3) the End Users/Public Agencies segment. This segment structure was developed in an effort to better reflect the status of the current retail market and appeal to participants interested in the Demand Side Management and Energy Efficiency (DSM-EE) and Smart Grid efforts. Since the last quarter, the Retail Quadrants have seen an increase in membership and a growing interest of potential members. Several of the new members are representatives from state commission staff and the May Executive Committee meetings are to be hosted by the Pennsylvania Public Utility Commission. Mr. Minneman noted that the restructuring actions taken last year appear to be moving the Quadrants in the right direction, even though the Quadrants membership statistics are still below the minimum requirements. Mr. Desselle moved to extend the resolution passed at the March 2009 Board meeting allowing a waiver of the minimum membership requirements for the Retail Quadrants for twelve months with quarterly reports from the Retail Quadrants regarding membership for an additional 12 months. Ms. Crockett seconded the motion and the motion passed without opposition.

5. Report from Advisory Council

Mr. Ellsworth provided an update of the February 13, 2010 [Advisory Council meeting](#). During the meeting, Ms. McQuade presented a primer of the NAESB standards development process as well as an update of the Organizations development activities related to Smart Grid and other initiatives. Mr. Ellsworth noted that the Advisory Council is an excellent opportunity to receive advice and guidance from industry leadership outside of the NAESB membership and that it provides a less formal setting for federal and state agencies to discuss emerging



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issues. Ms. McQuade encouraged the NAESB Board members to attend in conjunction with the winter NARUC meeting.

6. Special Report on Smart Grid Efforts and Links to the Natural Gas Market

Mr. Considine gave a presentation concerning smart energy and the normalization of markets to increase engagement and innovation. He noted that the smart grid initiative, while primarily focused on the electric market, would be more appropriately referred to as the smart energy initiative. Many of the activities currently underway to develop the smart grid will have far reaching implications that will impact a broad group of energy industry participants, including those in the wholesale and retail natural gas markets. His presentation can be found on the NAESB website through the following hyperlink: <http://www.naesb.org/pdf4/bd032510a2.pdf>.

7. Updates on Specific Efforts

Publications: Ms. McQuade provided an update of the NAESB publication schedule. WEQ Version 2.2 will be published in the July-August time frame and will include the smart grid and NITS standards currently under development. The Retail Quadrant has scheduled Version 1.3 to be published in first quarter 2011 and the WGQ is scheduled to publish Version 2.0 in November 2010.

WEQ, Update on FERC Order No. 890 efforts: Ms. York provided an update on the Order No. 890 efforts. The OASIS subcommittee is working to address NITS and has postponed their expected completion date from first quarter to second quarter. In an effort expedite the work of the OASIS subcommittee, the WEQ Executive Committee formed a Task Force to scope 2010 WEQ Annual Plan item 2.a.iii (business practices to support service across multiple transmission systems), which will be addressed upon the completion of the NITS effort. The Task Force met on March 22, 2010 and has developed a list of issues that need to be resolved before the subcommittee addresses the item. The FERC has asked that NAESB provide progress reports on the item beginning in June and has expressed their desire to have it addressed quickly. The Task Force has scheduled a conference call for March 31, 2010 and will continue to scope the item.

WEQ/Retail Electric, Update on Demand Response and Demand Side Management: Mr. True provided an update of the DR and DSM activities. The Wholesale DR Task Force has held two conference calls this year to review the work of the Glossary Task Force, the Model Business Practice sub-working group and the Performance Evaluation sub-working group. The next Wholesale DR Task Force meeting is scheduled for Friday, April 23, 2010. On the Retail side, the DR Task Force has met twice to review formal comments that were submitted in response to the first phase of standards. The Task Force is roughly half way through the comments and has scheduled a meeting on Thursday, April 22, 2010 to continue the review. The Retail Energy Efficiency work group has held two conference calls to discuss the scope of the standards to be developed. The work group has agreed to use the National Action Plan for Energy Efficiency as a guide for their work and will continue efforts during their next conference call on April 15, 2010. The next full DSM-EE meeting is scheduled for May 20, 2010 from 10:00 am to 4:00 pm Eastern in Holyoke, MA.

WEQ/Retail Electric, Smart Grid Update: Mr. Booe provided an update of the Smart Grid effort. Since the last Board meeting, the Smart Grid Standards Task Force voted out four recommendations containing use case and data requirement standards that were created in response to the NIST assignments related to Priority Action Plans (PAP) 3 (Common Price Communication Model), 4 (Common Scheduling Mechanism) and 9 (Standard Demand Response Signals) and requested at the September 2009 NIST meeting. A single recommendation was voted out of the Task Force for PAPs 3 and 4 respectively and separate wholesale and retail recommendations were voted out of the Task Force for PAP 9. These recommendations were posted for a 30 day formal comment period for the WEQ and REQ Quadrants on March 9, 2010 and the comments are due April 9, 2010. After the comment period has ended, the Task Force will review the comments and provide a set of late comments in response to help provide guidance for the Executive Committees. The Executive Committees will have single topic conference call to review the recommendations followed by a single topic meeting to vote on the recommendations. As part of phase two of the smart grid effort, the Task Force plans to refine and further develop the data requirements that were developed in phase one of the effort in order to provide a more complete and consistent set of standards. This effort will be done expediently and in coordination with the other groups such as OASIS and Zigbee who are tasked with providing the



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schemas and technical standards based on the use case and data requirement standards. Related to Priority Action Plan 10, the Standard Energy Usage Information PAP, NAESB was asked to develop a survey to determine the types of energy usage information communicated today and consolidate use cases and requirements for those communications. The Task Force's role in PAP 10 is different from PAPs 3, 4, and 9, in that, the Task Force will be acting as a facilitator and gather of information, rather than developing standards. The Task Force is on schedule to have a completed survey developed and ready for distribution to NAESB membership and other groups that have been identified by the Task Force by April 9, 2010. The Task Force will gather the results and create a report in the May-June time frame.

RFP Status for the Electric Industry Registry: Ms. McQuade noted that NAESB put out an RFP seeking an administrator for the Electric Industry Registry (EIR). The RFP was distributed on February 22, 2010 and proposals must be submitted to NAESB by May 21, 2010. NAESB, in consultation with NERC, will select an administrator by the end of the second quarter. Mr. True noted that the RFP references DUNs numbers and suggested NAESB consider using GLN numbers moving forward. Mr. Minneman asked how the maintenance of the EIR would be funded. Ms. McQuade responded that the RFP requires that a proposed funding mechanism be included in submissions.

8. 2010 Executive Committee Reports

Ms. Davis reviewed the [2010 WGQ Annual Plan](#); Mr. Minneman reviewed the [2010 Retail Annual Plan](#); and Ms. York reviewed the [2010 WEQ Annual Plan](#). Mr. Desselle noted that the status of item 6.a.ii on the WEQ Annual Plan should reflect that the item is underway. Ms. McQuade stated that she would make the correction. Mr. Desselle moved to adopt the Annual Plans as reviewed and Mr. Lucas seconded the motion. The motion passed a simple majority vote.

9. Plan for June 2010 Board Meeting

Ms. McQuade noted that the June 24, 2010 Board meeting will be held in Houston, Texas and asked the participants to submit any agenda items they wish to discuss during the meeting to the NAESB office. She also noted that the September Board meeting will be the strategic session for 2011. The 2010 Board meeting schedule can be found through the following link: http://www.naesb.org/misc/2010_schedule.doc.

10. Old and New Business

Ms. McQuade stated that she is in the process of setting up meetings with the FERC Commissioners over the next month to discuss NAESB activities. She stated that some Managing Committee members may attend the meetings and that they will also meet with DoE and FCC representatives. Mr. Brown emphasized the importance of establishing a strong relationship with the new Commissioners.

11. Adjourn

The meeting adjourned at 11:28 a.m. Central on March 25, 2010.

12. Board Attendance and Voting Record (Vacancies Omitted)

WGQ PRODUCERS SEGMENT		ATTENDANCE
Richard D. Smith	Regulatory & Compliance Manager, Noble Energy Inc.	
Mark Stultz	Vice President – Policy and Regulatory Affairs, US America Gas and Power, BP Energy Company	In Person
Keith Sappenfield	Regional Director – US Regulatory Affairs, EnCana Oil & Gas (USA), Inc.	Phone
Randy E. Parker	Global Regulatory Advisor, ExxonMobil Gas and Power Marketing Company	
Pete Frost	Director – Regulatory Affairs, ConocoPhillips Gas and Power Marketing	In Person



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12. Board Attendance and Voting Record (Vacancies Omitted)

WGQ PIPELINE SEGMENT

Cathie Legge	Manager – Customer Service, Alliance Pipeline, LP	
Bill Grygar	Vice President, Panhandle Eastern Pipe Line	Phone
Susanna B. Barry	Vice President – Commercial Operations, Tennessee Gas Pipeline Company	In Person
Richard Kruse	Senior Vice President, Spectra Energy Transmission	In Person

WGQ LOCAL DISTRIBUTION COMPANY (LDC) SEGMENT

Craig Colombo	Energy Trader III, Dominion Resources	
Adrian Chapman	Vice President – Regulatory Affairs & Energy Acquisition, Washington Gas	Phone
Mike Novak	Asst. General Manager, National Fuel Gas Distribution Corporation	
Lee Stewart	Senior Vice President, Gas Transmission, Southern California Gas Company	

WGQ END USERS SEGMENT

Valerie Crockett	Senior Program Manager – Energy Markets & Policy, Tennessee Valley Authority	In Person
Timothy W. Gerrish	Director of Origination-Energy Marketing and Trading, Florida Power & Light	
Tina Burnett	Natural Gas Resources Administrator, The Boeing Company	Phone
Lori-Lynn C. Pennock	Senior Fuel Supply Analyst, Salt River Project	In Person
Jim Templeton	Principal, Comprehensive Energy Services	In Person

WGQ SERVICES SEGMENT

Steve Abbey	Manager of Regulatory Affairs – Marketing Department, Anadarko Energy Services Company	
Rusty Braziel	Managing Director, Bentek Energy, LLC	
Paul Kahler	Midstream Regulatory Advisor, Cenovus Energy Inc.	
Lori Leeder	Relationship Manager/Business Development – Asset Optimization, Vega Energy Partners, Ltd	Phone

REQ SERVICE PROVIDERS/SUPPLIERS SEGMENT

Jim Minneman	Controller, PPL Solutions LLC	In Person
J Cade Burks	Executive Vice President of ista	
Austin Morris	Managing Partner – Energy, SunGard Consulting Services, LLC	In Person

REQ UTILITIES SEGMENT

David Koogler	Director – State Regulation, Dominion Virginia Power	In Person
Dennis Derricks	Director Regulatory Policy and Analysis, Wisconsin Public Service Corporation	
Ruth Kiselewich	Director – Demand Side Management Programs, Baltimore Gas & Electric Company	
Debbie McKeever	Market Advocate, Oncor	In Person



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12. Board Attendance and Voting Record (Vacancies Omitted)

REQ END USERS/PUBLIC AGENCIES SEGMENT

James P. Cargas Senior Assistant City Attorney, City of Houston

WEQ TRANSMISSION SEGMENT

SUBSEGMENT

Dan Klempel	Director Transmission Regulatory Compliance, Basin Electric Power Cooperative	Muni/Coop	
Chuck Feagans	Senior Manager, Reliability Policy, Tennessee Valley Authority	Fed/State/Prov	Phone
John E. Lucas	Director – Transmission Policy and Services, Southern Company Transmission	IOU	In Person
Jill Horswell	Director Transmission, Southern California Edison	at large	Phone
Edward J. Davis	Policy Consultant, Entergy Services, Inc.	at large	In Person

WEQ GENERATION SEGMENT

Douglas L. Curry	Administrator and CEO, Lincoln Electric System	Muni/Coop	
Belinda Thornton	General Manager – Energy Origination, Tennessee Valley Authority	Fed/State/Prov	
Lou Oberski	Director – Electric Market Policy, Dominion Resources Services, Inc.	IOU	In Person
Wayne Moore	Regulatory Affairs & Energy Policy Director and Compliance Officer – Generation, Southern Company Services, Inc.	IOU	
Gloria Godson	Vice President Energy Policy, Conectiv Energy Supply, Inc.	Merchant	
Shah Hossain	Senior Regulatory Specialist, Westar Energy, Inc.	at large	

WEQ MARKETERS/BROKERS SEGMENT

Roy True	Manager of Regulatory and Market Affairs, ACES Power Marketing	Muni/Coop	In Person
Jeff Ackerman	Manager – Colorado River Storage Project Energy Management and Marketing Office, Western Area Power Administration	Fed/State/Prov	Phone
Gavin Cunningham	Manager – FirstEnergy Solutions Corp.	at large	In Person
Jack Cashin	Senior Manager of Policy, Electric Power Supply Association (EPSA)	at large	
Sam Forrest	Vice President – Energy Marketing and Trading, Florida Power & Light	IOU	
R. Scott Brown	Vice President and Director, Exelon Generation Power Team	IOU	In Person

WEQ DISTRIBUTION/LOAD SERVING ENTITIES (LSE) SEGMENT

Arthur G. Fusco	Vice President and General Counsel, Central Electric Power Cooperative Inc.	Muni/Coop	Phone
Paul McCurley	Manager – Power Supply, National Rural Electric Cooperative Association	Muni/Coop	
Nelson Peeler	Vice President System Operations, Duke Energy	IOU	In Person



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12. Board Attendance and Voting Record (Vacancies Omitted)

Joe Hartsoe	Managing Director – Federal Policy, American Electric Power Service Corp.	at large	Phone
Bruce Ellsworth	New York State Reliability Council	At-Large	In Person

WEQ END USERS SEGMENT

Jesse D. Hurley	Chief Executive Officer, Shift Research, LLC	at large	In Person
Aaron Breidenbaugh	Senior Manager – Regulatory Affairs and Public Policy – New York, EnerNOC, Inc.	at large	
Thomas G. Dvorsky	Director of the Office of Electricity, Gas, and Water at the New York State Department of Public Service, rep. National Association of Regulatory Utility Commissioners	Regulator	
Rick Lentz	Fellow with SunGard	at large	
Michehl Gent	Open Access Technology International, Inc.	At-Large	In Person

WEQ INDEPENDENT GRID OPERATORS/PLANNERS

Michael Desselle	Vice President Process Integrity, Southwest Power Pool		In Person
Kent Saathoff	Vice President of System Operations, ERCOT		In Person
Kevin Kirby	Vice President Market Operations, ISO New England, Inc.		In Person
Rana Mukerji	Vice President Market Structures, New York Independent System Operator, Inc. (NYISO)		Phone
Andy Ott	Senior Vice President Marketing, PJM Interconnection, LLC		Phone
Bill Phillips	Vice President Standards Compliance & Strategy, Midwest ISO (MISO)		In Person
Peter Sergejewich	Director of Corporate Planning, Independent Electricity System Operator (IESO)		Phone

WEQ TECHNOLOGY AND SERVICES

Jim Buccigross	Vice President Energy Industry Practice, 8760 Inc.		
Laurent M. Liscia	Executive Director, Organization for the Advancement of Structured Information Standards (OASIS)		Phone
David A. Wollman	Leader, Smart Grid Team – Standards and Electrical Metrology Groups, National Institute of Standards and Technology (NIST)		Phone

RGQ SERVICE PROVIDERS/SUPPLIERS SEGMENT

Leigh Spangler	President, Latitude Technologies Inc.		Phone
Dave Darnell	President & CEO, Systrends USA		
Greg Lander	President, Capacity Center		

RGQ DISTRIBUTORS SEGMENT

Alonzo Weaver	Vice President of Engineering and Operations, Memphis Light, Gas & Water Division (APGA)		
Ralph Cleveland	Senior Vice President – Engineering and Operations, AGL Resources,		In Person



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12. Board Attendance and Voting Record (Vacancies Omitted)

Inc.

13. Other Attendance

Name	Organization	Attendance
Jonathan Booe	NAESB	In Person
Bill Boswell	NAESB	In Person
Kathryn Burch	Spectra Energy Transmission	In Person
Christopher Burden	Williams Gas Pipeline	In Person
Toby Considine	University of North Carolina	In Person
Lorraine Cross	Cross & Company	In Person
Cory Cummings	NAESB	In Person
Dale Davis	Williams Gas Pipeline	In Person
Rufus Gladney	Consumers Energy Co.	In Person
Mark Gracey	El Paso Gas Pipeline Company	In Person
Bill Griffith	El Paso Natural Gas	In Person
John Goodin	California ISO	Phone
Susan Munson	ERCOT	In Person
Sylvia Munson	SunGard Energy Systems	In Person
Rae McQuade	NAESB	In Person
Phil Precht	Baltimore Gas and Electric	Phone
Denise Rager	NAESB	In Person
Barbara Rehman	Bonneville Power Administration	Phone
Ed Skiba	Midwest ISO	In Person
Veronica Thomason	NAESB	In Person
Nancy Traweek	California ISO	Phone
Kim Van Pelt	Panhandle Eastern Pipeline	In Person
Jill Vaughn	Preferred Legal Services	In Person
Charles Yeung	SPP	In Person
Kathy York	Tennessee Valley Authority	In Person
Randy Young	Boardwalk Pipeline Partners	Phone



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via posting

TO: NAESB Web Site for Posting
RE: Notes from the NAESB Advisory Council Meeting – February 13, 2010
DATE: March 1, 2010

NORTH AMERICAN ENERGY STANDARDS BOARD ADVISORY COUNCIL MEETING NOTES
Renaissance Washington Hotel – Washington, DC
February 13, 2010 – 4:00 PM to 6:00 PM Eastern

1. Welcome

Mr. Ellsworth opened the meeting and welcomed the Advisory Council members and observers. The attendees introduced themselves around the table. Mr. Culliton provided antitrust guidance. The agenda¹ as posted was adopted without opposition.

2. Primer: The development of a standard from introduction through approval and publication

Mr. Buccigross guided attendees through the NAESB standards development process using a slideshow presentation². A summary of his presentation and related commentary follows.

He stated that NAESB's participatory philosophy, balanced organizational structure, robust and multi-tiered voting process yields a well-distilled final standard that adheres to the American National Standards Institute's principles of openness, balance, due process and consensus.

Mr. Boswell noted that a particular standard under development will occasionally reach an impasse due to uncertainty regarding an underlying policy aim. He expressed his appreciation that open lines of communication permit NAESB to consult regulators for policy clarification in such cases. He further stated that it does not advocate before regulators or seek to establish policy direction, but seeks to implement articulated policies.

Mr. Buccigross referred attendees to the NAESB Certificate at Article 2, Section 1, which defines the organization's scope as the promotion of streamlined transactional processes that foster competition and market efficiency in the electric and natural gas industries. He added that over 800 cross-spectrum industry volunteers per month assist in the drafting of these standards; the development process typically takes 12 months, although technical complexities and regulatory compliance timelines vary from standard to standard. Mr. Buccigross presented the details of this process to attendees on-screen. NAESB has been able to develop standards from start to finish in as short as 4 months when there is strong executive direction and championship, underlying policies are unambiguous and there is visible and vocal support from regulators for the urgency.

Ms. McQuade noted that the recording of minority positions and their treatment at each step along the way helps to address potential due process concerns. It was noted that the Board is responsible for providing strategic direction and establishing a budget, it does not participate directly in standards development – it does however set the stage for standards development through the annual plans, a tool of the Board. The Board identifies items on the plans and provides the priorities for all development.

Mr. Ellworth observed that NAESB has generated over 2000 standards through a largely volunteer process; Messrs. Boswell and Buccigross added that transaction and implementation costs to affected businesses have been greatly reduced as a result. Ms. McQuade noted that the emergence of NAESB has provided a collaborative venue for the

¹ The agenda may be downloaded at: <http://naesb.org/pdf4/advisory021310ma.doc>.

² The presentation may be downloaded at: <http://naesb.org/pdf4/advisory021310primer.pdf>.



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industry to interact with regulators in the implementation of policy through the adoption of standards. Mr. Freitas asked whether it was possible to quantify the savings benefit provided by the adoption of any particular standard; Mr. McAllister added that FERC orders contain estimated implementation costs. Noting that the universal adoption of electronic transactions, made possible by NAESB standards, has resulted in a more robust, efficient and open marketplace, Mr. Buccigross indicated that he would further research Mr. Freitas' question and provide the Council with a response.

Continuing the presentation, Mr. Buccigross related that NAESB and NERC have developed a process for the joint development of standards that affect both reliability and commercial interests. After the presentation of this process, several attendees expressed satisfaction that the relationship between the two organizations has evolved into an open collaboration; Mr. Ellsworth called this maturation a credit to both organizations.

Mr. Buccigross next detailed NAESB's voting procedures before giving an overview of the mechanics of making minor corrections and creating interpretations. He opened the floor to questions.

Mr. Boswell added that NAESB standards are themselves copyrighted; he referenced a FERC decision from December 2009 that underlined this status.

3. Update on Quadrant Activities and Strategic Directions

Mr. Ellsworth suggested combining this agenda item with the next (NAESB's role relative to federal and state regulators, the Department of Energy, the Department of Commerce and the National Institute of Standards & Technology) in order to facilitate discussion; none were opposed.

- WEQ 2010 Annual Plan³ and Issues

Ms. York presented key items from the WEQ 2010 Annual Plan. She called particular attention to item 1(a) Parallel Flow Visualization/Mitigation for Reliability Coordinators in the Eastern Interconnection. She stated that this effort is intended to better identify congestion and tailor relief in affected areas, through changes to the frequency of data collection, the data organization and the data collected itself. This information is provided to a toll administered by NERC, the Interchange Distribution Calculator. After the changes are made to the IDC, the original IDC and the .revised IDC will run parallel for a period of 12-18 months, before it is determined whether to switch over to the revised IDC. Ms. York also mentioned the following ongoing efforts: 1) the creation of entirely new standards for network service on OASIS; 2) the transition of the TSIN registry from NERC to NAESB; and, 3) the development of demand response, demand-side management, and energy efficiency standards. She also noted the intent to pursue the directives in FERC Order No. 676(e) beginning in June 2010.

Special attention was called to item 12 on the WEQ Provisional Items relating to FERC's National Action Plan on Demand Response. In particular, Ms. McQuade asked for guidance as to whether continued NAESB efforts in response to FERC's directive would be a direction the Advisory Council would suggest NAESB undertake, or should this item remain with the stakeholder processes administered by the ISOs and RTOs. While standards can and do incorporate regional or operational differences to support flexibility in the market, the need for such differences are also identified. The question goes to the heart of the issue of how standards if pursued could impact individual ISO program designs and terms in tariffs. Mr. Ellsworth asked the Advisory Council members to consider this issue and respond to Ms. McQuade at their convenience.

Mr. Camp mentioned that, while measurement and verification standards may reasonably be expected to be uniform, there are certain state-by-state processes contemplated in the National Action Plan. He suggested close coordination between retail and wholesale segments in these areas. Ms. McQuade observed that both wholesale and retail DR and Smart Grid standards are under concurrent and coordinated development to ensure that differences between the two markets can be accommodated, but only if those differences are understood by both groups and determined that they are needed.

³ The WEQ Annual Plan is available at: http://www.naesb.org/pdf4/weq_2010_annual_plan.doc.



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Ms. York next announced NAESB's role in the development of the Smart Grid Priority Action Plans (PAPs). After this presentation was made, Ms. McQuade brought up a procedural issue: since NAESB has been given the exclusive responsibility to respond to certain PAPs using its unique process, yet NIST is accountable for the overall Smart Grid project's completion, how should NAESB file its finished product at FERC. Mr. Wollman expressed a preference that NAESB include its PAP efforts into its established filing procedures at FERC, which is also agreeable to FERC staff. The standards should be submitted in late second quarter 2010 to the FERC as part of the WEQ Version 2.2 standards filing.

Mr. Ellsworth asked if additional PAPs were expected and, if so, whether any of them were likely to fall to NAESB to complete. Mr. Wollman replied that the Smart Grid Interoperability Panel had just finished a new PAP relating to IEC standards for wind energy; he added that this effort was likely to be tasked to NAESB. Ms. McQuade also noted that automated demand response enrollment may undertaken by NAESB, it it may bear some similarities to existing NAESB retail standard for enrollments for customer choice programs.

- Retail 2010 Annual Plan⁴ and Issues

Ms. McQuade presented the Retail Annual Plan. She asked that the Advisory Council provide information on the robustness and relevancy of the annual plan standards development vis-à-vis the small number of participants. Mr. Gee asked if NAESB had considered qualification for federal stimulus funds, stating that in his view a strong case could be made. Mr. Freitas stated that DOE could consider funding a staff position at NARUC for support of NAESB and retail standards development. Ms. McQuade stated that if state regulators join NAESB the companies that operate within their jurisdictions might follow. Mr. Camp offered to make various organizations to which he belongs aware of NAESB's Retail efforts and urge them to consider participating in NAESB. The Advisory Council can provide input to Ms. McQuade at its convenience.

- WGQ 2010 Annual Plan⁵ and Issues

Mr. Buccigross presented the WGQ Annual Plan. He stated that this segment's efforts were largely focused on modernizing certain outdated mechanisms in the standards. As an example, he noted that the industry has shifted from the use of EDI; EBB has become universal. He confirmed that Sandia National Laboratories still approves all standards. It was asked to the Advisory Council if the WGQ annual plan items identified provided adequate relevance and support of the wholesale gas market. The Advisory Council can provide input to Ms. McQuade at its convenience.

4. New Business

- Ideas and Suggestions from the Floor

A brief discussion ensued about the emerging build-out of CO₂ pipelines. Mr. Gee noted that such a build-out is required since it is not possible to run CO₂ through the existing natural gas pipeline infrastructure. The observation was also made that there remains a significant unresolved issue: whether the federal government or individual states have jurisdiction over CO₂ pipeline siting decisions. Ms. Crockett asked attendees for written comments about CO₂ pipelines before June 2010. Ms. Cross observed that a significant amount of information needs to be exchanged relating to the quantification of released greenhouse gases to avoid double-counting. She also noted that the upcoming climate bill and the reporting requirements for transparency reporting may well require additional standards development by NAESB that would impact both the wholesale gas and electric markets.

- Election of Chair for 2010

Mr. Boswell nominated Mr. Ellsworth to continue as the NAESB Advisory Council Chair for 2010; Mr. Ellsworth was unanimously re-elected.

⁴ The Retail Annual Plan is available at: http://www.naesb.org/pdf4/retail_2010_annual_plan.doc

⁵ The WGQ Annual Plan is available at: http://www.naesb.org/pdf4/wgq_2010_annual_plan.doc



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5. Adjourn

The meeting was adjourned at 6:20 PM Eastern by consensus.

6. Attendance

Advisory Council Members in Attendance

Bruce Ellsworth, Chair	New York State Reliability Council
Vicky Bailey	Anderson Stratton Enterprises
Alex DeBoissiere	Duane, Morris
Christopher Freitas	Department of Energy
Robert Gee	The Gee Strategies Group
Annunciata Marino	Pennsylvania Public Utilities Commission
Thom Pearce	Ohio Public Utilities Commission

Board Members in Attendance

Jim Buccigross	8760
Ralph Cleveland	AGL Resources
Valerie Crockett	Tennessee Valley Authority
Lori-Lynn Pennock	Salt River Project

Guests in Attendance

Irene Ladner	Unaffiliated
David Wollman	National Institute of Standards and Technology
Bruce McAllister	Federal Energy Regulatory Commission
Ward Camp	Landis+Gyr
Grace Soderberg	Edison Electric Institute
Kathy York	Tennessee Valley Authority
Lorraine Cross	Cross & Company

NAESB Staff in Attendance

Rae McQuade	NAESB President
Bill Boswell	NAESB General Counsel
James Culliton	NAESB Meeting Administrator/Staff Attorney
Veronica Thomason	NAESB Staff



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via posting

TO: NAESB Board Critical Infrastructure Committee Members and posting for Interested Industry Parties
FROM: Jonathan Booe, NAESB Counsel
RE: Meeting Notes for the NAESB Board Critical Infrastructure Committee
DATE: March 22, 2010

Dear Critical Infrastructure Committee Members,

A Critical Infrastructure Committee meeting was held on March 22, 2010. The meeting was called to order at 2:00 pm C. Mr. Burks and Mr. Hurley presided over the meeting and Mr. Booe served as counsel for the meeting. The notes below serve as a record for the meeting.

Notes for the March 22, 2010 NAESB Board Critical Infrastructure Meeting

Administrative : Ms. McQuade welcomed the participants to conference call and thanked them for attending. She noted that the Critical Infrastructure Committee is a named Board Committee and that only named participants may vote, although any interested party is welcome to participate. Ms. McQuade reviewed the roster of Committee Members and Mr. Booe provided the antitrust guidance. Mr. Burks reviewed the draft agenda. Mr. Hurley proposed that the agenda be modified to include a review of an executive summary from a whitepaper he drafted with Dr. Adams of the Department of Homeland Security ("DHS"). Mr. Burks suggested the review of the executive summary be included in the agenda as item 4c. Mr. Hurley made a motion to adopt the agenda as modified. Mr. Templeton seconded the motion and the motion passed without opposition.

Discussion and Adoption of the Scope & Mission of the Committee: Mr. Burks reviewed the proposed scope and mission of the Committee:
The NAESB Board Critical Infrastructure Committee is created to formulate positions and identify actions and assignments that should be taken regarding cyber security and other critical infrastructure issues that affect NAESB and NAESB standards development, for Board consideration.
Mr. Gallagher asked if the scope and mission proposed by Mr. Burks accurately describes the Board's intent for the Committee when it was formed. Ms. McQuade confirmed that the Board's intent is captured by the proposed language and noted that the scope was drafted intentionally broad. Mr. McCurley confirmed that the Committee would not be responsible for drafting standards but would serve in an advisory capacity to the NAESB Board of Directors regarding critical infrastructure security issues. Mr. Hurley noted that there is currently a bill in congress that proposes the creation of a new public/private critical infrastructure protection group. Mr. Gent asked if the protection group would address design based threats. Mr. Burke suggested that the participants focus on the proposed language before addressing other issues. Mr. Templeton moved to adopt the language proposed by Mr. Burks as the scope and mission of the Critical Infrastructure Committee. Mr. Hurley seconded the motion and the motion passed without opposition.



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Notes for the March 22, 2010 NAESB Board Critical Infrastructure Meeting

Discussion and Adoption of the Scope & Mission of the Committee

National Energy Sector Cyber Organization: Ms. McQuade noted that a [funding opportunity](#) has been announced for the creation of the National Energy Sector Cyber Organization. She stated that the Organization has not yet been formed but NAESB should stay abreast of developments as there could be some overlap between the Organization's activities and the NAESB PKI standards and NERC CIP standards. Mr. Hurley stated that private industry has an interest in staying active in the cyber security field as implementation of government mandated standards can be costly. Mr. Gent stated that he would contact NERC to determine if they had any insight or information regarding the creation of the new Organization. Ms. McQuade stated that she would contact Annabelle Lee with NIST to determine if the NIST Cyber-Security Work Group is monitoring the formation of the Organization. Mr. Hurley stated that he would also contact Hank Kenchington at the Department of Energy for additional information. Mr. Gallagher stated that he has not heard anything about the funding opportunity from APPA or NRECA. He also noted the apparent shift from NERC to other standards organizations under the current Administration. Ms. Ogg suggested that NAESB be proactive in the cyber security initiative because it can be difficult to get involved in projects once groups have been formed and activities are underway. Mr. Hurley noted the severity of the consequences to the country if an attack on the U.S. electric grid is attempted and reemphasized the need to make cyber-security protection a top priority. Mr. Burks supported the participants' comments and recommended that everyone address their action items prior to the next meeting.

Mr. Hurley's White Paper: Next, Mr. Hurley reviewed the [executive summary of a white paper](#) he developed with Dr. Adam of the Department of Homeland Security. He noted that the proposal in the white paper discusses the need for accurate, real-time information concerning attacks and other reliability concerns to be communicated across the electric grid. He stated that the white paper requests funding for a research product and that he would be happy to share the proposal with the participants on the conference call. Ms. McQuade stated that the project would have to be done in coordination with NERC as there are obviously reliability implications. Mr. Gallagher asked if there are cyber security standards for the natural gas industry. Ms. Van Pelt stated that the standards might be mandated by the Department of Transportation. Mr. Hurley confirmed Ms. Van Pelt's statement and undertook to discuss the activities of the Committee with the Jeff Weeks at the Department of Transportation. Mr. Burks stated the Committee needs to develop a recommendation to be given to the Board of Directors concerning the white paper. Ms. McQuade suggested that the Managing Committee review the whitepaper before any Board action is taken and noted that it is positive to let others know that NAESB is involved in cyber security. Mr. Hurley stated it is important for the Administration to see that the industry is moving quickly on the issue.

Smart Grid Cyber Security Report: Ms. McQuade reviewed the [NIST Smart Grid Cyber Security Report](#). Mr. Hurley stated that Report is inconsistent and a bit ambiguous, in that it is very specific in some areas and very broad in others. He also noted that if the FERC mandates cyber security standards it could be very expensive for the industry to implement. Mr. Gent supported Mr. Hurley's statement and asked about NERC's involvement in the development of the report. Mr. McCurley stated that he is chairing the NERC Smart Grid Task Force and that Aaron Bennett, the NERC staff representative, has been monitoring the NIST activities. Ms. McQuade asked Mr. McCurley if the NERC Task Force has been coordinating with NIST Cyber Security Work Group. Mr. McCurley responded that the Task Force has focused on developing a report regarding reliability concerns of smart grid applications and has not provided any direct review or analysis of the NIST Report to the Work Group. Mr. Hurley stated that NIST is leading the development of standards that will have a direct impact on NERC standards and overlap is inevitable. He also questioned whether the FERC is aware of the lack of coordination. Mr. McCurley stated that the NERC CIP standards group is aware of the NIST activities but he does not know how involved they are in the development of the Report. He and Mr. Rodriguez undertook to contact Mark Lauby with NERC for more information.



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Notes for the March 22, 2010 NAESB Board Critical Infrastructure Meeting

Other Business/Next Meeting and Action Items:

Ms. McQuade reviewed the action items from the meeting:

1. Mr. Gent to contact NERC to gain information on the development of the National Energy Sector Cyber Organization
2. Ms. McQuade to contact Annabelle Lee of NIST to gain information on the development of the National Energy Sector Cyber Organization
3. Mr. Hurley to contact Hank Ketchington of the DoE to gain information on the development of the National Energy Sector Cyber Organization
4. Mr. Hurley to contact Jeff Weeks of the DoE to discuss the activities of the Committee and the existence of cyber security standards related to the natural gas industry
5. Managing Committee to review executive summary of Mr. Hurley's white paper
6. Mr. McCurley and Mr. Rodriguez to contact Mark Lauby with NERC to gain information concerning NERC's involvement in the NIST Smart Grid Cyber Security Report.

Mr. Burks reviewed the schedule of conference calls for the Critical Infrastructure Committee and the participants agreed to meet at 2 month intervals. The next meeting is scheduled for May 13, 2010.

Ms. Van Pelt asked if the Committee will address physical infrastructure as well as cyber infrastructure security issues. Ms. McQuade stated that the Committee will address but that the focus will be on cyber security. Ms. Van Pelt stated that it would be helpful if the participants could limit the use of acronyms as the new participants come up to speed on the topics. Ms. McQuade directed her to the documents posted that provided context for the discussion, including the descriptions of the acronyms used.

Adjourn:

Mr. Templeton moved to adjourn and Mr. Hurley seconded the motion. The motion passed without opposition and the meeting was adjourned at 3:16 pm Central.

Work Papers Provided for the Meeting:

Meeting Related Documents:

NIST Draft Smart Grid Cyber Security Strategy Press Release:

http://www.nist.gov/public_affairs/releases/smartgrid_020310.html

Smart Grid Cyber Security Strategy and Requirements Draft Report: http://csrc.nist.gov/publications/drafts/nistir-7628/draft-nistir-7628_2nd-public-draft.pdf

Notice of Intent to Issue Funding Opportunity Announcement No. DE-FOA-0000245: <http://www.security-innovation.org/pdfs/NoticeofIntent-01-2010.pdf>

Roadmap to Secure Control Systems in the Energy Sector:

<http://www.oe.energy.gov/DocumentsandMedia/roadmap.pdf>

U.S. Department of Energy Control System Security Program: <http://www.oe.energy.gov/controlsecurity.htm>

Article: U.S. Fails in Simulated Cyber attack:

http://www.darkreading.com/security/cybercrime/showArticle.jhtml?articleID=222900775&cid=nl_DR_DAILY_2010-02-18_h

Article: Mock cyber attack shows U.S. unpreparedness: <http://www.net-security.org/secworld.php?id=8878>



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Notes for the March 22, 2010 NAESB Board Critical Infrastructure Meeting

CRITICAL INFRASTRUCTURE COMMITTEE MEMBERS

Name	Organization	Attendance
Jim Buccigross	8760, Inc.	Phone
Ralph Cleveland	AGL Resources, Inc.	
Joelle Ogg	Brunenkant & Cross, LP	Phone
Chris Eisenbrey	Edison Electric Institute	
Bob Gee	Gee Strategies Group	Phone
J. Cade Burks	ista	Phone
Leigh Spangler	Latitude Technologies	
Paul McCurley	NRECA	Phone
Bill Boswell	NAESB General Counsel	
Rick Smead	Navigant Consulting, Inc.	
Diane Barney	New York State Department of Public Service Staff	
Bruce Ellsworth	New York State Reliability Council	
Michehl Gent	Open Access Technology International, Inc	Phone
Chris Kotting	Public Utilities Commission of Ohio	
Thomas Pearce	Public Utilities Commission of Ohio	Phone
Jesse D. Hurley	Shift Research, LLC	Phone
Michael Desselle	Southwest Power Pool	
Dave Darnell	Systrends USA	
Susanna B. Barry	Tennessee Gas Pipeline Company	
Chuck Feagans	Tennessee Valley Authority	Phone
Valerie Crockett	Tennessee Valley Authority	Phone
Christopher Freitas	US Department of Energy	
Brett Perlman	Vector Consultants	
William Gallagher	Vermont Public Power Supply Authority	Phone



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Notes for the March 22, 2010 NAESB Board Critical Infrastructure Meeting

OTHER ATTENDEES

Attendee	Organization
Jim Templeton	Comprehensive Energy Services
Jeanne Kurzynowski	Consumers Energy
Phyllis Withers	Duke Energy
Bill Griffith	El Paso
Mike Stender	El Paso
Keith Sappenfield	Encana Oil & Gas
Ed Davis	Entergy Services
Rob Martinko	FirstEnergy
Tom Gwilliam	Iroquois Gas Transmission System
Jason Marshall	Midwest ISO
Ed Skiba	Midwest ISO
Jonathan Booe	NAESB
Rae McQuade	NAESB
Andy Rodriquez	NERC
Kim Van Pelt	Panhandle Eastern Pipe Line
Richard Ishikawa	Southern California Gas Company
Steve Ritter	Southern Union
Kathryn Burch	Spectra Energy Transmission
Kathy York	Tennessee Valley Authority
Christopher Burden	Williams Gas Pipeline
Dale Davis	Williams Gas Pipeline
Jeremy Zins	Williston Basin Interstate Pipeline Company



North American Energy Standards Board

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March 10, 2010

NAESB AT A GLANCE: MONTHLY UPDATE

UPDATE ON e-TAG TESTING: Mr. Harshbarger, co-chair of the Joint Electric Scheduling Subcommittee, provided the update on e-Tag testing in preparation of [implementing e-Tag version 1.8.1](#). E-Tag is a method of communicating interchange schedules between operating entities of the bulk electric system to ensure a common understanding of the nature of a transaction. Version 1.8.1 does not contain any changes to the schema; most of the changes were made to the way in which information is processed. The formal vendor testing occurred during the first two weeks of February, 2010. At the conclusion of the first two weeks of testing, the vendors agreed to continue testing, which delayed implementation by two weeks. On the first of March, vendors concluded testing and the cutover date was updated to March 30, 2010.

UPDATE ON NITS: Mr. Wood of Southern Company, and co-chair of the WEQ OASIS subcommittee provided a review of the [NAESB progress on NITS](#). Since the last monthly update call, the OASIS subcommittee has met twice in person and held one conference call. They have completed the application and evaluation of NITS and are currently working on modifications to the application. The next OASIS subcommittee meeting is scheduled for Tuesday, March 23, 2010 from 9:00 am to 4:00 pm Central. The next face-to-face OASIS subcommittee meeting is scheduled for April 13-15 in Little Rock, AR, hosted by Entergy.

UPDATE ON DSM-EE EFFORTS:

Wholesale Demand Response Activities: Mr. True, chair of the wholesale demand response work group and co-chair of the DSM-EE subcommittee, provided an update on the wholesale demand response work. Two conference calls have been held in 2010 to continue to address the EC Demand Response Task Force's action items. The wholesale demand response work group created three task forces (glossary, model business practices and performance evaluation methods) to accomplish this work. The glossary task force has met twice to review and synchronize the [wholesale and retail demand response glossary terms](#). The model business practice task force and performance evaluation methods task force will both meet tomorrow, March 11, to kick off their efforts.

Retail Demand Response Activities: Ms. Cummings, NAESB counsel, provided the update on the retail demand response efforts. The retail demand response work group has met twice to review the formal comments that were submitted to them by the Retail Electric EC after approval of the first phase of retail demand response standards. In those two meetings they have reviewed approximately half of the comments that were submitted on the standards. The comments include proposed additions and deletions of the standards. The work group's [comment matrix](#) includes these comments, as well as the response of the retail demand response work group. The next retail demand response work group meeting is scheduled for Thursday, April 22 from 9:00 am to 11:00 am Central.

Retail Energy Efficiency Activities: Mr. Loper, co-chair of the retail energy efficiency work group, provided the update. The retail EE work group has met twice to discuss the scope of work to be developed. The biggest challenge has been deciding whether or not to include evaluation with measurement and verification. The group ultimately agreed to include evaluation within the scope of their work product. The work group has also discussed the level of detail necessary for this effort. They ultimately agreed to focus on a high level guidance and will use the [National Action Plan for Energy Efficiency guide](#), specifically chapters 3-5, as guidance for standards development.



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UPDATE ON SMART GRID ACTIVITIES: Mr. Booe, NAESB counsel, provided an update on the [ongoing Smart Grid activities](#). This week, four documents were distributed for formal comment:

1. PAP03: Requirements Specifications for Common Electricity Product and Pricing Definition:
http://www.naesb.org/pdf4/weq_2010_ap6a_retail_2010_ap9a_rec.doc
2. PAP04: Requirements Specifications for Common Scheduling Mechanism for Energy Transactions:
http://www.naesb.org/pdf4/weq_2010_ap6b_retail_2010_ap9b_rec.doc
3. PAP09: Requirements Specifications for Wholesale Standard DR Signals:
http://www.naesb.org/pdf4/weq_2010_ap_6c_rec.doc
4. PAP09: Requirements Specifications for Retail Standard DR Signals:
http://www.naesb.org/pdf4/retail_2010_ap_9c_rec.doc

The Smart Grid Task Force is now addressing the phase II efforts to further refine and develop the detail of these specifications for PAP03, 04 and 09. They will also address tasks 5 and 6 for PAP10, which addressed standardization of usage information. Task 5 will involve the creation of a usage communication questionnaire and task 6 will consolidate use cases and requirements for existing and planned energy communications. The Smart Grid Task Force meets every Thursday from 2:00 pm to 4:00 pm Central.

UPDATE ON THE REGISTRY RFP: Ms. McQuade provided the update. The [Request for Proposals on the Electric Industry Registry Administrator](#) was released February 22, with a request that all proposals be returned by close of business on May 21. The registry is a tool currently administered by NERC, but is being transferred to NAESB, as a more appropriate venue.

UPDATE ON TLR AND PARALLEL FLOW VISUALIZATION: Mr. Busbin provided the [update](#). During the development of this work product, the subcommittee has addressed issues and approaches to be taken associated with prioritizing generation to load flows, in particular the prioritization of firm and non-firm. This issue of firm flow subordination to non-firm flow can be found in [FERC Docket RM10-9 – NOI for Transmission Loading Relief Reliability Standard and Curtailment Priorities](#) currently out for comment. The deadline for returning comments to FERC on this NOI is March 29, 2010. While the NOI is more specific to NERC activities, there is a strong correlation between NERC and NAESB on this issue. The WEQ BPS will meet on March 17-18 in Norristown, PA to continue discussion on this issue.

ADVISORY COUNCIL UPDATE: Mr. Ellsworth, Chairman of the NAESB Advisory Council, presented the update. The [Advisory Council meeting](#) is an opportunity for NAESB to provide an update on its activities and for the Advisory Council to provide input to NAESB on their efforts. Issues were discussed regarding every quadrant in NAESB. For WEQ, the council discussed whether or not to develop standards that could impact program design; the Retail Quadrants discussed how to increase participation; and the WGQ discussed areas that could benefit from standardization.

NEXT CONFERENCE CALL: The next Monthly Update Call is scheduled for May 26, 2010 from 1-2 PM Central. The agenda and any work papers will be posted on the Monthly Update page of the NAESB website: http://www.naesb.org/monthly_update.asp. We hope you can join us. If there are particular topics you would like to see covered or would like to receive additional information, please contact the NAESB Office (713)356-0060, naesb@naesb.org.



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NAESB Monthly Update Conference Call, Participant List

March 10, 2010 2:00 PM Eastern

Name	Organization
Manisha Aggarwal	Portland Natural Gas Transmission
Philip Bedingfield	Georgia Public Service Commission
Jonathan Booe	NAESB
Christopher Burden	Williams Gas Pipeline
Jim Busbin	Southern Company
Warren Clark	Avista
Cory Cummings	NAESB
Rhonda Denton	BP
Bruce Ellsworth	New York State Reliability Council
Chris Fan	ConEdison
Marilyn Franz	NV Energy
Bill Gallagher	Vermont Public Power Supply Authority
John Goodin	California ISO
Michelle Greening	PPL Energy Plus
Bob Harshbarger	Puget Sound Energy
Josh Hoepner	DTE Energy
Rachel Hogge	Dominion
Wayne Lewis	Progress Energy
Joe Loper	Itron, Inc.
John Lucas	Southern Company
Rae McQuade	NAESB
Avygdor Moise	Future DOS R&D, Inc.
Marcie Otondo	Arizona Public Service
Lee Pedowicz	North East Power Coordination Council
Sig Peplowski	New York State Department of Public Service
Brad Petzold	Enbridge
Alan Pritchard	Duke Energy
Judy Ray	Southern Company
Barbara Rehman	BPA
Guy Ridgely	Midwest ISO
Norberto Rivera	ConEdison
Ed Skiba	Midwest ISO
Roy True	ACES Power
JT Wood	Southern Company



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NORTH AMERICAN ENERGY STANDARDS BOARD

2010 Annual Plan for the Wholesale Gas Quadrant as Approved by the Board of Directors on March 25, 2010

Item Description	Completion ¹	Assignment ²
1. Gas-Electric Interdependency		
Respond to directives of FERC Order No. 698 issued 6-25-07 , Docket Nos. RM05-5-001 and RM96-1-027 as related to the NAESB reports submitted in Docket No. RM05-28-000 :		
a. Provide for Enhanced Granularity for Public Utilities in Identifying Critical Operational Flow Orders. (R08020) Status: Completed	4th Q, 2009	BPS, IR/Tech jointly with WEQ BPS
2. Promotion of a More Efficient Capacity Release Market		
Review FERC Order Nos. 712 and 712A and modify NAESB standards as appropriate (Docket Nos. RM08-1-000, RM08-1-001).		
a. Review recent FERC order on flow-through of Discounted or Negotiated Rates (Docket No. RP09-70 et al, October 15, 2009) and develop business practice standards as appropriate Status: Not Started	2 nd Q, 2010	BPS/Interpretations
3. Capacity Release EDI Review		
Review capacity release transactions upload and related responses to determine suitability for EDI		
a. Develop Business Practice Standards as appropriate Status: Underway	2 nd Q, 2010	BPS
b. Prepare fully staffed recommendation Status: Underway (Adjustments may be made to Completion Dates based on report from Item 3.a)	3 rd Q, 2010	BPS, IR/Technical
4. Customer Security Administration		
Review and develop standards as appropriate to support Customer Security Administration Standards (Comment Submittal, 10-29-07) Status: Not started (Scoping to take place 2 nd Q, 2010 after which a Completion Date will be set)		
5. Electronic Delivery Mechanisms		
Review minimum technical characteristics in Appendices B, C, and D of the WGQ QEDM Manual, and make changes as appropriate. Status: Not Started		
6. FERC Strategic Plan FY2009-2014		
a. For the FERC Strategic Plan , under the section "Promote efficient design and operation of natural gas facilities", review and develop standards as needed to support EBB posting requirements regarding waste heat feasibility (NAESB Standard No. 4.2.23) Status: Underway	2 nd Q, 2010	BPS



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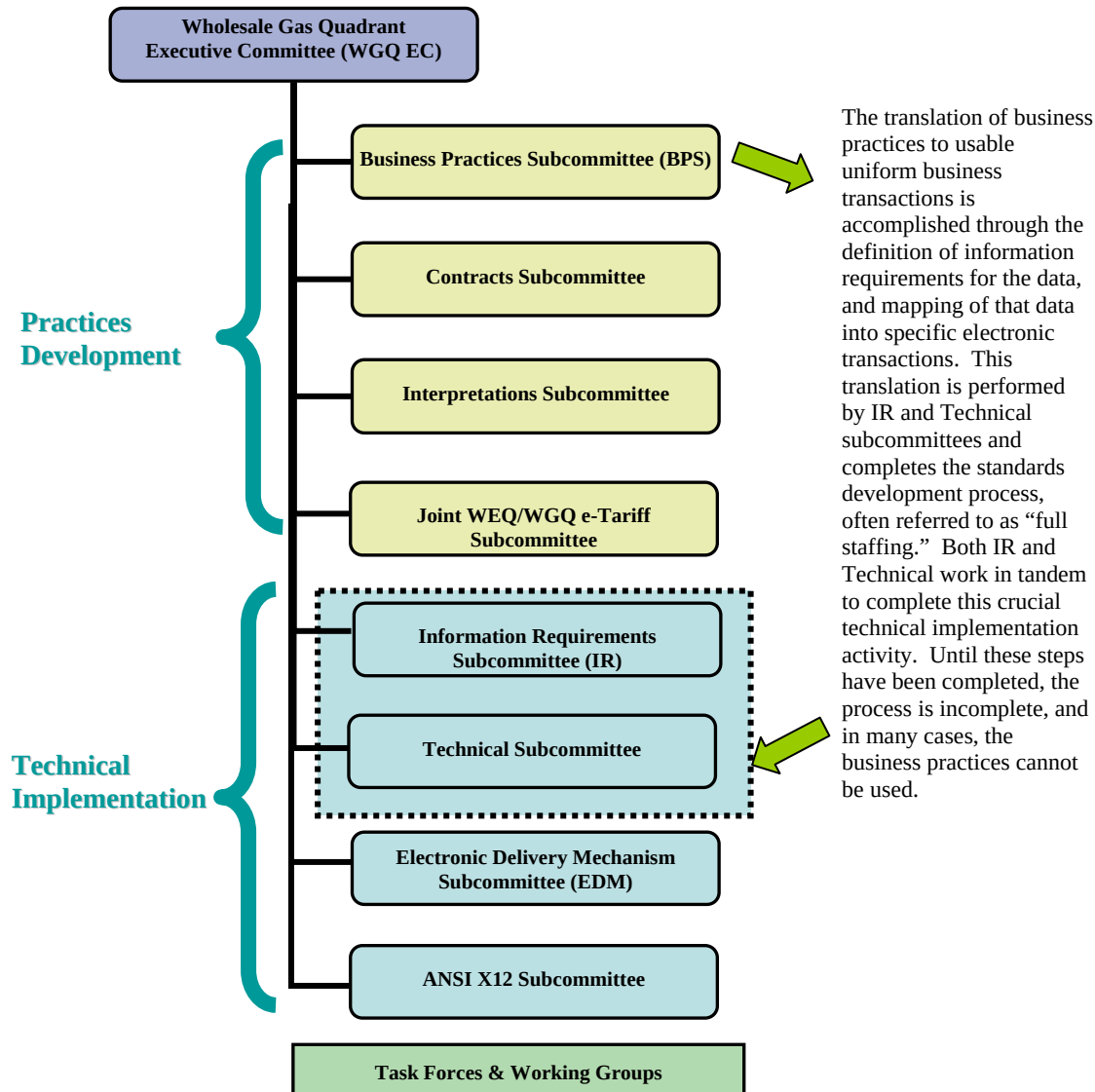
NORTH AMERICAN ENERGY STANDARDS BOARD

2010 Annual Plan for the Wholesale Gas Quadrant as Approved by the Board of Directors on March 25, 2010

Item Description		Completion ¹	Assignment ²
7. Common Codes			
a.	Review common code specifications for common location codes and determine if changes are necessary to the existing specifications to support both intrastate and interstate pipelines Status: Not Started	4 th Q, 2010	BPS
Program of Standards Maintenance & Fully Staffed Standards Work			
	Business Practice Requests	Ongoing	Assigned by the EC ³
	Continue review against plan for migration to ANSI ASC X12 new versions as needed and coordinate such activities with DISA.	Ongoing	ANSI X12 Subcommittee
	Information Requirements and Technical Mapping of Business Practices	Ongoing	Assigned by the EC ³
	Interpretations for Clarifying Language Ambiguities	Ongoing	Assigned by the EC ³
	Maintenance of Code Values and Other Technical Matters	Ongoing	Assigned by the EC ³
	Maintenance of Contracts Standards	As Requested	Contracts Subcommittee
	Maintenance of eTariff Standards	As Requested	Assigned by the EC ³
Provisional Activities			
1	Review and develop standards as needed, related to Docket No. RM09-2-000 , (Contract Reporting Requirements of Intrastate Natural Gas Companies).		
2	Review and develop standards as needed related to the FERC Strategic Plan 2009-2014		

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NAESB 2010 WGQ EC and Subcommittee Leadership:

Executive Committee: Jim Buccigross, Chair and Dale Davis, Vice-Chair
Business Practices Subcommittee: Kim Van Pelt, Valerie Crockett, Steve Abbey, Mike Novak and Richard Smith
Information Requirements Subcommittee: Dale Davis
Technical Subcommittee: Mike Stender, Kim Van Pelt
Contracts Subcommittee: Keith Sappenfield
Electronic Delivery Mechanism Subcommittee: Leigh Spangler, Christopher Burden
Interpretations Subcommittee: Paul Love
Joint WEQ/WGQ e-Tariff Subcommittee: Keith Sappenfield, Jane Daly



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End Notes, WGQ 2010 Annual Plan:

¹ Dates in the completion column are by end of the quarter for completion by the assigned committee. The dates do not necessarily mean that the standards are fully staffed to be implementable by the industry, and/or ratified by membership. If one item is completed earlier than planned, another item can begin earlier and possibly complete earlier than planned. There are no begin dates on the plan.

² The assignments are abbreviated. The abbreviations and committee structure can be found at the end of the annual plan document.

³ The EC assigns maintenance of existing standards on a request-by-request basis.



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**NORTH AMERICAN ENERGY STANDARDS BOARD
2010 ANNUAL PLAN for the RETAIL GAS and ELECTRIC QUADRANTS
As Approved by the NAESB Board of Directors on March 25, 2010**

Item Number & Description ¹	Completion ²	Assignment ^{3,4}
1. Develop Technical Electronic Implementation Standards and Data Dictionaries – Book 10: Customer Enrollment, Drop and Account Information Change		
a.. For the Distribution Company Registration Model Registration Agent Model Status: Not Started	4 th Q, 2010	TEIS
2. Develop NAESB Certification checklist criteria for Retail Quadrants to be used in the NAESB Certification Program. The certification checklist may address test scripts, a checklist of items to be tested, data connectivity for test scripts and EDM testing. Status: Not Started. Dependent upon publication of Version 2.0 at a minimum, but more dependent upon completion of Customer Choice efforts, expected 1 st Q 2011 at the earliest.	2011	Ad Hoc EC Certification Group
3. Review and develop needed model business practices for a standardized method for quantifying benefits, savings, cost avoidance and/or the reduction in energy demand and usage derived from the implementation of demand side management and energy efficiency programs. This effort will include demand side response, energy efficiency programs and metering, including the 'curtailment service provider' program. The wholesale and retail demand response work groups and the Smart Grid task force should actively and timely communicate and coordinate work products to ensure consistency between the three work groups. Each work group should take into account the work products developed by the other.	Ongoing	Joint WEQ/REQ DSM Subcommittee
a. Develop glossary for business practice standards Status: Ongoing	Ongoing	Joint WEQ/REQ DSM Subcommittee
b. Develop business practice standards used to measure and verify reductions in energy and demand from energy efficiency in wholesale and retail markets. ⁵ This includes developing business practice standards to measure and verify energy reductions that are made to comply with a Renewable Portfolio Standard that included energy efficiency or a stand-alone Energy Efficiency Portfolio Standard. Status: Underway (An estimated completion date will be established in 1 st Q, 2010 after the new subcommittee has been formalized)	4 th Q, 2010	Joint WEQ/REQ DSM-EE Subcommittee
c. Support the second phase of retail development of model business practice standards for demand response programs Status: Underway	2 nd Q, 2010	REQ Section of the Joint WEQ/REQ DSM Subcommittee
4. Billing and Payments		
a. Develop Process Flows to be included as models in Book 3 – Billing and Payments Status: Underway	2 nd Q, 2010	BPS
b. If the development of Process Flows indicate a gap in the model business practices, then develop new model business practices to address the gap. Status: Underway	2 nd Q, 2010	BPS



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NORTH AMERICAN ENERGY STANDARDS BOARD 2010 ANNUAL PLAN for the RETAIL GAS and ELECTRIC QUADRANTS As Approved by the NAESB Board of Directors on March 25, 2010

Item Number & Description ¹	Completion ²	Assignment ^{3,4}
5. Model Business Practices User Guide Add a new section to Book 0 to describe what Books have been developed, how the Books are laid out, and revised the title of the Book to reflect the additions Status: Underway	3 rd Q, 2010	BPS
6. Additional Registration Agent Processes		
a. Review all existing Model Business Practices to determine if the Customer Information process is already covered, and if necessary develop any new Model Business Practices required Status: Completed	1 st Q, 2010	BPS
b. Review all existing Model Business Practices to determine if the disconnection and reconnection process is already covered, and if necessary develop any new Model Business Practices required. Status: Completed		
i. Create MBPs for disconnection/reconnection initiated by the supplier Status: Completed	4 th Q, 2009	BPS
ii. Create MBPs for disconnection/reconnection initiated by the distribution company Status: Completed	4 th Q, 2009	BPS
c. Review all existing Model Business Practices to determine if there are other Registration Agent Model processes not covered, and develop a prioritized list of those processes, if any. Status: Underway	3 rd Q, 2010	BPS
d. Develop Model Business Practices and Process Flows for those Registration Agent Model processes on the prioritized list developed in (c) above, if any. Status: Underway	3 rd Q, 2010	BPS
e. Develop Technical Electronic Implementation Standards and Data Dictionaries to support Model Business Practices of Book 14 – Service Requests, Disconnections and Reconnections in the registration Agent Model Status: Underway	3 rd Q, 2010	IR/TEIS
f. Develop Technical Electronic Implementation Standards and Data Dictionaries to support any Model Business Practices developed in (d) above Status: Underway	3 rd Q, 2010	IR/TEIS
7. Supplier Certification Develop practices for Distribution Companies to register/certify new Suppliers when they seek to begin doing business in the Distribution Company's service area. Status: Not Started	4 th Q, 2010	BPS



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Item Number & Description¹	Completion²	Assignment^{3,4}
8. Supplier Marketing Practices Develop Model Business Practices providing for a “Consumer Disclosure Statement” to be presented to residential and small commercial customers describing the Supplier’s service offering and related contract provisions. This statement would also identify how certain Supplier-Customer interactions are conducted. Amongst the topics to be considered for inclusion on the statement would be the following: • the most important terms of the Supplier agreement, such as the contract’s term and termination fee provisions; • training and identification of Supplier marketing representatives; • protocols for Supplier in-person and telephone contacts with customers; • added measures for protecting non-English speaking customers; and • Processes for handling customer complaints and resolving disputes arising from Supplier marketing activities. Status: Not Started	4 th Q, 2010	BPS
9. Develop Smart Grid Wholesale and Retail Electric Standards		
a. Develop Requirements and Use Cases for PAP 03 – Pricing Model		
i. Phase 1 Status: Completed	1 st Q, 2010	Joint WEQ/REQ SGS Task Force
ii. Phase 2 Status: Underway	2 nd Q, 2010	Joint WEQ/REQ SGS Task Force
b. Develop Requirements and Use Cases for PAP 04 – Scheduling Model		
i. Phase 1 Status: Completed	1 st Q, 2010	Joint WEQ/REQ SGS Task Force
ii. Phase 2 Status: Underway	2 nd Q, 2010	Joint WEQ/REQ SGS Task Force
c. Develop Requirements and Use Cases for PAP 09 – Demand Response/Distributed Energy Resources		
i. Phase 1 Status: Completed	1 st Q, 2010	REQ Section of the Joint WEQ/REQ SGS Task Force
ii. Phase 2 Status: Underway	2 nd Q, 2010	REQ Section of the Joint WEQ/REQ SGS Task Force



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Item Number & Description ¹	Completion ²	Assignment ^{3,4}
d. Act as a convener (develop and implement a plan to expedite harmonized standards development and adoption within the associated standards bodies) and develop business practice standards as needed and assigned to NAESB for PAP 10 – Standard Energy Usage Information Status: Underway	2 nd Q, 2010	Joint WEQ/REQ SGS Task Force
10. Reserved (Items added under action item 6)		
11. Master List of Defined Terms: Review the definitions of all Defined Terms in Book 0 – Master List of Defined Terms, including other Ratified Terms not yet published, and revise the definitions of all Defined Terms not specifically related solely to the competitive marketplace to broaden their applicability to conform to NAESB's expanded scope. Status: Not Started	2 nd Q, 2010	Glossary

Program of Standards Maintenance & Fully Staffed Standards Work⁶

Business Practice Requests	Ongoing	Assigned by the EC
Information Requirements and Technical Mapping of Business Practices	Ongoing	Assigned by the EC
Ongoing Interpretations for Clarifying Language Ambiguities	Ongoing	Assigned by the EC
Ongoing Maintenance of Code Values and Other Technical Matters	Ongoing	Assigned by the EC
Ongoing Development and Maintenance of Definitions	Ongoing	Glossary

Provisional Activities

Joint Effort:

Modify TPA as necessary.

Review security standards as may be deemed necessary, such as Public Key Infrastructure (PKI).

Review existing body of model business practices for consistency and develop or modify model business practices as needed.

Retail Electric Quadrant Effort Only:

Retail Meter Data Validation, Editing & Estimating: Develop procedures for insuring the integrity and validity of retail customer metering data that is needed by utilities and suppliers for billing, etc. Issues related to unbundled or competitive metering are not to be considered.

Settlement Process: Reconcile energy schedules and energy delivered by suppliers within a given market. Note: will need to be coordinated with the WEQ for the REQ.

Develop business practice standards for cap and trade programs for green house gas (See action item 6h).

Retail Gas Quadrant Effort Only:

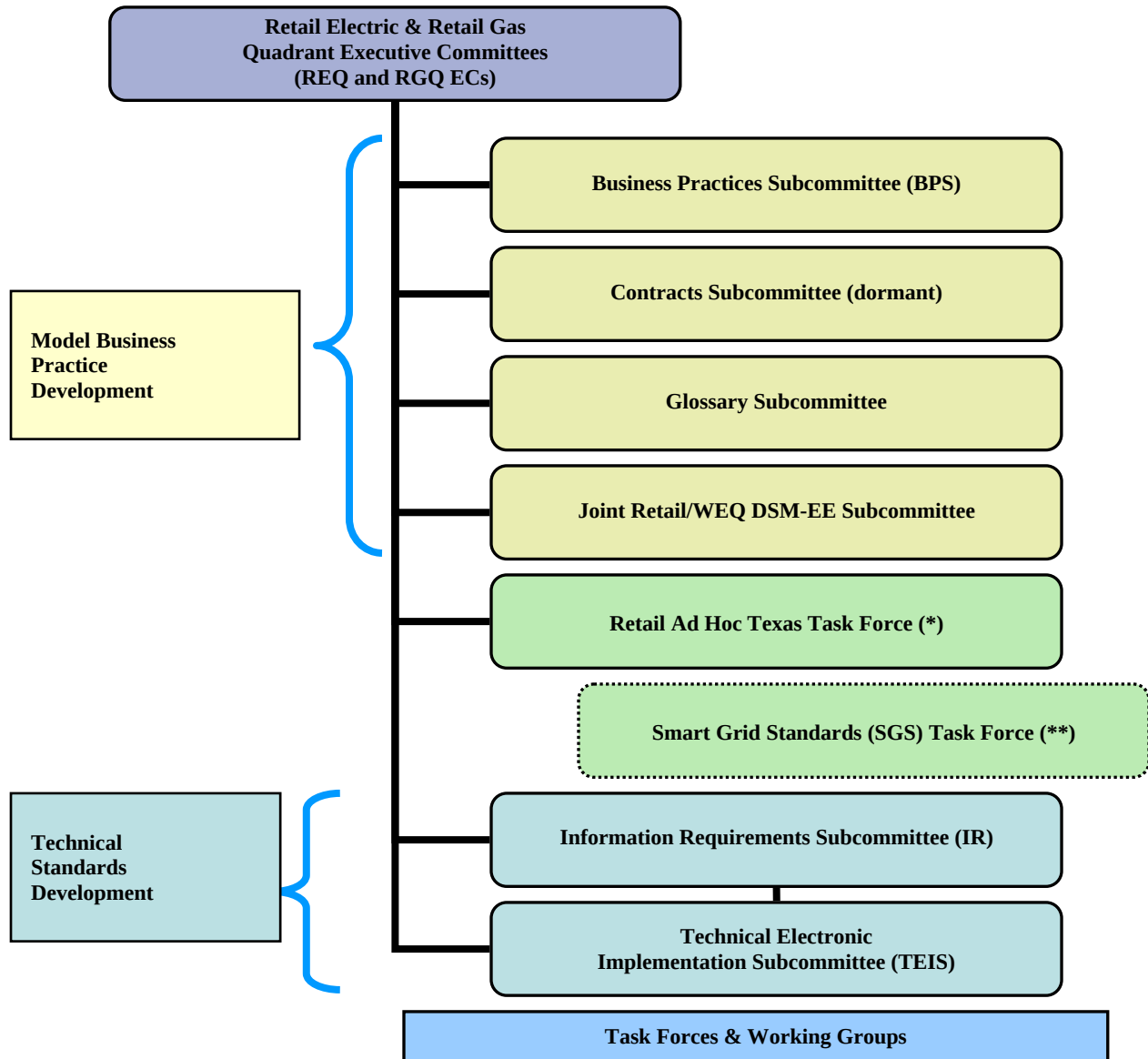
Examine Wholesale Gas Quadrant Non-EDM Standards for applicability to retail business practices.

Settlement Process: Reconcile energy schedules and energy delivered by suppliers within a given market.



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NAESB Retail Subcommittee Leadership: ⁷

Executive Committee: Mike Novak, Chair (RGQ), Phil Precht, Chair (REQ)
Business Practices Subcommittee: Phil Precht (RGQ), Dan Jones (REQ)
Information Requirements Subcommittee: Jennifer Teel (REQ)
Technical Electronic Implementation Subcommittee: TBD
Glossary Subcommittee: Patrick Eynon (REQ)
DSM-EE Subcommittee: Ruth Kiselewich, David Koogler (REQ), Roy True (WEQ), and Paul Wattles (WEQ)
Retail Ad Hoc Texas Task Force: Debbie McKeever (REQ) and Susan Munson (REQ)

(*) The Retail Ad Hoc Texas Task Force may draft MBPs, process flows, implementation guides and technical standards supportive of the Registration Agent. The group is chaired by Debbie McKeever and Susan Munson.

(**) The Smart Grid Task Force is a joint group of the retail electric and wholesale electric quadrants with other standards development groups such as OASIS, CalConnect, FIX and UCAIug, and includes other groups. Direction may be given from NIST, DoE or FERC and the group reports to the NAESB Board Smart Grid Strategic Steering Committee. The group is chaired by Brent Hodges, Wayne Longcore, Joe Zhou and Robert Burke.



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Retail 2010 Annual Plan End Notes:

¹ As outlined in the NAESB Bylaws, the REQ and RGQ will also address requests submitted by members and assigned to the REQ and RGQ through the Triage Process.

² Dates in the completion column are by end of the quarter for completion by the assigned committee. The dates do not necessarily mean that the standards are fully staffed to be implementable by the industry, and/or ratified by membership. If one item is completed earlier than planned, another item can begin earlier and possibly complete earlier than planned. There are no begin dates on the plan.

³ The assignments are abbreviated. The abbreviations and committee structure can be found at the end of the annual plan document.

⁴ The DSM-EE subcommittee is expected to be split into several separate subcommittees to support concurrent development of separate standards sets. The split is to take place at the end of May after which the assignments will be modified.

⁵ Energy efficiency may be a wholesale product, such as capacity. Energy efficiency in retail markets may be from individual energy efficiency measures at the project level or a portfolio of projects that make up an energy efficiency program.

⁶ This work is considered routine maintenance and thus the items are not separately numbered. The REQ and RGQ ECs will assign maintenance efforts on a request-by-request basis.

⁷ The ECs and the subcommittees can create task forces and working groups to support their development activities for development of model business practices and technical standards.



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April 28, 2010
Filed Electronically

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street N.E., Room 1A
Washington, D.C. 20585

RE: Time Error Correction Reliability Standard (Docket No. RM09-13-000)

Dear Ms. Bose:

The North American Energy Standards Board ("NAESB") herewith submits these comments in response to the Notice of Proposed Rulemaking on Time Error Correction Reliability Standard issued by the Federal Energy Regulatory Commission ("FERC" or "Commission") on March 18, 2010. The comments describe the related NAESB standards development for the NAESB standards for time error corrections (WEQ-006).

The report is being filed electronically in Microsoft® Word® 2003 and in Adobe Acrobat® Portable Document Format (.pdf). The report is also available on the NAESB web site (www.naesb.org). Please feel free to call me at (713) 356-0060 or refer to the NAESB website (www.naesb.org) should you have any questions or need additional information regarding NAESB work products.

Respectfully submitted,

Rae McQuade

Ms. Rae McQuade
President & COO, North American Energy Standards Board



NORTH AMERICAN ENERGY STANDARDS BOARD

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April 28, 2010

cc:

Chairman Jon Wellinghoff, Federal Energy Regulatory Commission
Commissioner Philip D. Moeller, Federal Energy Regulatory Commission
Commissioner John R. Norris, Federal Energy Regulatory Commission
Commissioner Marc Spitzer, Federal Energy Regulatory Commission

Mr. Thomas R. Sheets, General Counsel of the Commission, Federal Energy Regulatory Commission
Mr. Joseph McClelland, Director, Office of Electric Reliability, Federal Energy Regulatory Commission
Ms. Jamie L. Simler, Director, Office of Energy Policy and Innovation, Federal Energy Regulatory Commission

Mr. Michael Goldenberg, Senior Attorney, Office of General Counsel, Federal Energy Regulatory Commission
Mr. Mason Emnett, Senior Legal Advisor, Office of Energy Policy and Innovation, Federal Energy Regulatory Commission
Mr. William E. Murrell, Deputy Director, Division of Economic and Technical Analysis, Office of Energy Policy and Innovation, Federal Energy Regulatory Commission

Mr. Ralph Cleveland, Chairman and CEO, North American Energy Standards Board
Mr. William P. Boswell, General Counsel, North American Energy Standards Board

Mr. David Cook, General Counsel, North American Electric Reliability Corporation
Mr. Andrew Rodriguez, North American Electric Reliability Corporation

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Time Error Correction	)	Docket No. RM09-13-000
Reliability Standard	)	
	)	

COMMENTS OF THE NORTH AMERICAN ENERGY STANDARDS BOARD

The North American Energy Standards Board (“NAESB”) is pleased to provide these comments in response to the Federal Energy Regulatory Commission’s (“FERC” or the “Commission”) Notice of Proposed Rulemaking on Time Error Correction Reliability Standard (“NOPR”).¹ The North American Electric Reliability Corporation (“NERC”) time error correction reliability standard has a complementary set of NAESB business practices. The sets of standards were developed and coordinated across NERC and NAESB, both American National Standards Institute accredited standards development organizations, and these comments describe our efforts.

NAESB has developed standards (NAESB WEQ-006 standards) complementary to the NERC time error correction standards (BAL-004). The Version 001.0 WEQ-006 standards were incorporated by reference on July 21, 2008 in FERC Order No. 676-C, Docket No. RM05-5-005.² The Version 002.1 standards were incorporated by reference on November 24, 2009 in FERC Order No. 676-E, Docket No. RM05-5-013,³ omitting the incorporation of WEQ-006. For Version 001.0 and Version 002.1 of the NAESB time error correction standards, the development was fully coordinated to ensure that the business practices developed were supportive and complementary to the NERC reliability time error correction standards. For Version 002.1 of the NAESB standards, the Commission excluded action on WEQ-006 noting,

¹ The Time Error Correction Reliability Standard Notice of Proposed Rulemaking, 130 FERC ¶61,201 (March 18, 2010).

² FERC Order No. 676, 18 C.F.R. §38.2 (2008), *can be accessed from* <http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11754625>.

³ FERC Order No. 676, 18 C.F.R. §38.2 (2009), *can be accessed from* <http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12205059>.

“The Version 002.1 Standards also revise the Manual Time Error Correction Standards (WEQ-006) to maintain consistency with revised NERC Standard BAL-004, but we are not incorporating this standard by reference because the Commission’s consideration of the revised BAL-004 is still pending. Thus, the earlier version of WEQ-006 will remain in force.”

Appendix A shows the NAESB development for Version 002.1 of the NAESB standard WEQ-006, and is redlined against Version 001.0 to highlight the differences.

The effort to develop both the NERC and NAESB time error correction standards were coordinated and indeed, the two development groups shared many of the same participants. Should additional modifications to the standards be needed, NAESB will work with NERC to ensure that the NAESB work products are complementary and supportive of the NERC reliability standards. Regarding filing of the standards and to reinforce the coordination between both groups, NAESB will work with NERC to either prepare coordinated filings for the time error correction standards, or if filed on separate schedules, NAESB will clearly identify the time error correction standards affected and the work undertaken by NERC.

We appreciate the opportunity to provide these comments, to support the Commission’s directives, to collaborate with NERC, and to develop standards for time error corrections.

Respectfully submitted,

A handwritten signature in cursive script that reads "Rae McQuade".

Rae McQuade
President, North American Energy Standard Board

Version 001.0 WEQ-006 Standards, October 31, 2007 with redlines applied for Version 002.1

Below is an extract from the final action⁴ that modified Version 001.0 WEQ-006 Manual Time Error Correction Standards and is now present in Version 002.1.

Summary:

Revisions to the NERC the BAL-004 Standard remove inappropriate requirements on reliability coordinators who voluntarily agree to serve as Interconnection Time Monitors. NERC was concerned that if these changes are not made that "it is likely that one or more reliability coordinators may no longer voluntarily agree to perform the service."

The NAESB Standards Review Subcommittee requested that the NAESB Business Practice WEQ-006 (Manual Time Error Correction) be reviewed/revised so that the NAESB standard is in lock step with the NERC standard. Under the current NAESB requirements, a Reliability Coordinator voluntarily acting as the Interconnection Time Monitor is required to meet the NAESB requirements and is subject to FERC sanctions if found to be in violation of their tariff for not meeting the NAESB requirements. A similar case can be made for the NAESB Interconnection Time Monitor requirements as was made on the NERC side. It is likely that one or more Reliability Coordinators still will not voluntarily agree to act as the Interconnection Time Monitor if they are subject to financial penalties for performing a voluntary function.

In reviewing the Business Practice we also identified references to National Bureau of Standards which should be changed to National Institute of Standards and Technology (NIST). The National Bureau of Standards name was changed to NIST in 1988 as a part of the Omnibus Trade and Competitiveness Act.

Below is the NAESB Version 001.0 WEQ-006 Manual Time Error Correction standards with redlines to show the modifications that resulted in Version 002.1. If there are no redlines, then Version 001.0 and Version 002.1 text is identical.

WEQ-006 Manual Time Error Correction

Purpose-Introduction

Interconnection frequency is normally scheduled at 60.00 Hz and controlled to that value. The control is imperfect and over time the frequency will average slightly above or below 60.00 Hz resulting in mechanical electric clocks developing an error relative to true time. This Standard specifies the procedure to be used for reducing the error to within acceptable limits of true time.

Applicability

Balancing Authorities, Interconnection Time Monitor

Definition of Terms

- 006-0.1 Balancing Authority (BA) – The entity responsible for integrating resource plans ahead of time, maintaining load-interchange-generation balance within a Balancing Authority Area, and supporting Interconnection frequency in real time.
- 006-0.2 Balancing Authority Area (BAA) - An electrical system bounded by interconnection (tie-line) metering and telemetry, where the Balancing Authority controls (either directly or by contract) generation to maintain its Interchange Schedule with other Balancing Authority Areas and contributes to frequency regulation of the Interconnection.
- 006-0.3 Frequency Bias Setting - A value, in MW/0.1 Hz, set into a Balancing Authority's AGC equipment to represent a Balancing Authority's response to a frequency deviation.

⁴ The complete final action can be accessed from:
http://naesb.org/member_login_form.asp?doc=fa_2008_weq_api_6a_r07019.doc.

- 006-0.4 Interchange Schedule - The planned energy exchange between two adjacent Balancing Authorities.
- 006-0.5 Interconnection – Any one of the three major electric system networks in North America: Eastern, Western, and ERCOT.
- 006-0.6 Interconnection Time Monitor – An entity that monitors Time Error and initiates and terminates Time Error Corrections.
- 006-0.7 Leap Second - A Leap Second is a second of time added to Coordinated Universal Time to make it agree with astronomical time to within 0.9 seconds. Historically, Leap Seconds are implemented as needed on June 30th or December 31st. (National Institute of Standards and Technology)
- 006-0.8 Time Error – Accumulated time difference between time based on Interconnection frequency and the National Bureau of Standards ~~time~~ and Technology Time.
- 006-0.9 Time Error Correction - An offset to the Interconnection's scheduled frequency to correct for accumulated Time Error.
- 006-0.10 WECCNet – A messaging system used by the Western Electric Coordinating Council (WECC) for use by participating utility's dispatchers and network administrators.

Business Practice Requirements

- 006-1 Each Balancing Authority shall participate in Time Error Correction unless it is operating asynchronously to its Interconnection.
- 006-1.1 Balancing Authorities operating asynchronously who establish their own time error control bands, shall notify the Interconnection Time Monitor of the bands being utilized, and shall also provide notification if they are changed.
- 006-2 An Interconnection Time Monitor shall exist for each Interconnection.
- 006-3 The Interconnection Time Monitor shall calibrate its time error device at least annually against the ~~National Bureau of Standards time~~ National Institute of Standards and Technology Time.

006-4 TIME ERROR INITIATION

Time error corrections ~~shall~~ should start and end on the hour or half-hour, and notice ~~shall~~ should be given at least one hour before the time error correction is to start or stop. Time Error corrections shall last at least one hour, unless terminated by a Reliability Coordinator. Time Error corrections for fast time shall not be initiated between 0400-1100 Central Time except for in the Western Interconnection. All Balancing Authorities within an Interconnection shall make all Time Error corrections directed by the Interconnection Time Monitor for its Interconnection. All Balancing Authorities within an Interconnection shall make Time Error Corrections at the same rate.

006-5 INTERCONNECTION TIME MONITORING

Each Interconnection Time Monitor shall monitor time error and ~~shall~~ make a reasonable effort to initiate or terminate corrective action orders according to the following table:

Time Seconds	Initiation		Termination	
	East	West	East	West
Slow	-10	-5	-6	±0.5
Fast	+10	+5	+6	±0.5

006-6 TIME ERROR CORRECTION LABELING

Time error correction notifications shall be labeled alphabetically on a monthly basis (A-Z, AA-AZ, BA-BZ,...).

NAESB Version 002.1 Action on WEQ-006 Time Error Correction Standards

006-7 TIME CORRECTION OFFSET

Each Balancing Authority, when requested, shall participate in a Time Error Correction by one of the following two methods:

006-7.1 FREQUENCY OFFSET

The Balancing Authority may offset its frequency schedule in accordance to the directives of the Interconnection Time Monitor, leaving the Frequency Bias Setting normal.

006-7.2 SCHEDULE OFFSET

If the frequency schedule cannot be offset as directed by the Interconnection Time Monitor, the Balancing Authority may offset its net Interchange Schedule (MW) by an amount equal to the computed bias contribution during an equivalent frequency deviation`.

006-8 INTERCONNECTION TIME ERROR NOTIFICATION

On the first day of each month, the Interconnection Time Monitor shall issue a notification of time error accurate to within 0.01 second to all Reliability Coordinators within the Interconnection to assure uniform calibration of time standards.

006-9 WESTERN INTERCONNECTION TIME ERROR NOTIFICATION

Within the Western Interconnection, the Interconnection Time Monitor shall provide the accumulated time error (accurate to within 0.001 second) to all Balancing Authorities on a daily basis at 1400 PDT/PST using the WECCNet. The alphabetic designator shall accompany time error notification if a time error correction is in progress.

006-10 After the premature termination of a manual time correction, a slow time correction can be reinstated after the frequency has returned to 60.00 Hz or above for a period of ten minutes. A fast time correction can be reinitiated after the frequency has returned to 60.00 Hz or lower for a period of ten minutes. At least one hour shall elapse between the termination and re-initiation notices.

006-11 TIME CORRECTION ON RECONNECTION

When one or more Balancing Authorities have been separated from the Interconnection, upon reconnection, they shall adjust their time error devices to coincide with the time error of the Interconnection Time Monitor. The Balancing Authorities shall notify the Interconnection Time Monitor they are ready to receive the necessary adjustment to time error as soon as possible after reconnection.

006-12 LEAP SECONDS

Balancing Authorities using time error devices that are not capable of automatically adjusting for Leap Seconds shall arrange to receive advance notice of the Leap Second and make the necessary manual adjustment in a manner that will not introduce an improper Interchange Schedule into their control system.

131 FERC ¶ 61,022
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

18 CFR Part 38

[Docket No. RM05-5-017; Order No. 676-F]

Standards for Business Practices and
Communication Protocols for Public Utilities

(Issued April 15, 2010)

AGENCY: Federal Energy Regulatory Commission.

ACTION: Final Rule

SUMMARY: The Federal Energy Regulatory Commission (Commission) is amending its regulations at 18 CFR 38.2 to incorporate by reference business practice standards adopted by the Wholesale Electric Quadrant of the North American Energy Standards Board (NAESB) to categorize various demand response products and services and to support the measurement and verification of these products and services in wholesale electric energy markets. This rule ensures that participants in wholesale energy markets where demand response products are administered receive standardized access to information that will enable them to participate in those markets and addresses performance evaluation methods appropriate to use for demand response products. This rule facilitates the ability of demand response providers to participate in electricity markets, reducing transaction costs and providing an opportunity for more customers to participate in these programs, especially customers that operate in more than one

Docket No. RM05-5-017

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organized market. It also provides a foundation for further business practice standardization efforts, and participants in the NAESB process can use these standards to identify those elements for which standardization would be beneficial. Further, adoption of measurement and verification standards will improve the methods and procedures for measuring accurately the performance of demand response resources and assist in monitoring demand response services for potential manipulation.

EFFECTIVE DATE: This rule will become effective [insert date 30 days after publication in the **FEDERAL REGISTER**]. Dates for implementation of the standards are provided in the Final Rule. This incorporation by reference of certain publications in the rule is approved by the Director of the Federal Register as of [insert date 30 days after publication in the **FEDERAL REGISTER**].

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SUPPLEMENTARY INFORMATION:

Docket No. RM05-5-017

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UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Standards for Business Practices and
Communication Protocols for Public Utilities

Docket No. RM05-5-017

ORDER NO. 676-F

FINAL RULE

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131 FERC ¶ 61,022
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Jon Wellinghoff, Chairman;
Marc Spitzer, Philip D. Moeller,
and John R. Norris.

Standards for Business Practices and
Communication Protocols for Public Utilities

Docket No. RM05-5-017

ORDER NO. 676-F

FINAL RULE

(Issued April 15, 2010)

1. The Federal Energy Regulatory Commission (Commission) is amending its regulations at 18 CFR 38.2(a) (which establish standards for business practices and electronic communications for public utilities)¹ to incorporate by reference business practice standards adopted by the Wholesale Electric Quadrant (WEQ) of the North American Energy Standards Board (NAESB) to categorize various demand response products and services and to support the measurement and verification of these products and services in wholesale electric energy markets. We also take this opportunity to update 18 CFR 38.2(b) to reflect NAESB's new address.
2. These standards identify operational information about demand response products that system operators need to make available to participants in markets where such products are offered and address performance evaluation methods appropriate to use for

¹ 18 CFR 38.2(a).

demand response products. They also facilitate the ability of demand response providers to participate in electricity markets, reducing transaction costs and providing an opportunity for more customers to participate in these programs, especially customers that operate in more than one organized market. In addition, these standards provide a foundation for further business practice standardization efforts, which participants in NAESB's WEQ process can use to identify those elements for which standardization would be beneficial. Further, adoption of measurement and verification standards will improve the methods and procedures for measuring accurately the performance of demand response resources and assist in monitoring demand response services for potential manipulation.

I. Background

3. NAESB is a private consensus standards developer that divides its activities among four quadrants, each of which is composed of members from all segments of its respective industry.² NAESB is an accredited standards organization under the auspices of the American National Standards Institute (ANSI). NAESB's procedures are designed to ensure that all industry members can have input into the development of a standard, whether or not they are members of NAESB, and each wholesale electric standard that NAESB's WEQ adopts is supported by a consensus of the seven industry segments: End

² The four quadrants are the wholesale and retail electric quadrants and the wholesale and retail natural gas quadrants.

Users, Distribution/Load Serving Entities, Transmission, Generation, Marketers/Brokers, Independent Grid Operators/Planners and Technology/Services. Under the WEQ process, for a standard to be approved, it must receive a super-majority vote of 67 percent of the members of the WEQ's Executive Committee with support from at least 40 percent of each of the seven industry segments.³ For final approval, 67 percent of the WEQ's general membership must ratify the standards.⁴ NAESB's standards are voluntary. However, the Commission has made compliance with these standards mandatory in those instances where it has incorporated such standards by reference into its regulations.

4. In 2006, the Commission adopted Order No. 676, a Final Rule that incorporated by reference business practice standards adopted by NAESB applicable to public utilities.⁵ Since 2006, the NAESB consensus industry stakeholder process has reviewed the NAESB business practice standards for public utilities with a view to creating a more efficient marketplace and it has adopted revisions that, in a number of instances, the

³ Under NAESB's procedures, interested persons may attend and participate in NAESB committee meetings, and phone conferences, even if they are not NAESB members.

⁴ See Standards for Business Practices and Communication Protocols for Public Utilities, Order No. 676, FERC Stats. & Regs. ¶ 31,216, n.5 (2006), reh'g denied, Order No. 676-A, 116 FERC ¶ 61,255 (2006).

⁵ Id.

Commission has made mandatory by incorporating the standards by reference into the Commission's regulations.⁶

5. NAESB began work on the development of business practice standards pertaining to the measurement and verification of demand response products and services in July 2007, when the NAESB WEQ Demand Side Management - Energy Efficiency (DSM) subcommittee began work on this issue. This effort led to the adoption and ratification by NAESB of measurement and verification standards early in 2009. Key to obtaining consensus on the initial set of standards was the agreement to proceed with further work on more detailed technical standards for the measurement and verification of demand response resources.

6. On April 17, 2009, NAESB filed a report informing the Commission that it had adopted an initial set of business practice standards to categorize various demand response products and services and to support the measurement and verification of these products and services in wholesale electric energy markets. The NAESB report recognized that these standards would need to be followed by the development of more detailed technical standards for the measurement and verification of demand response

⁶ Standards for Business Practices and Communication Protocols for Public Utilities, Order No. 676-E, Final Rule, 74 FR 63288 (Dec. 3, 2009), FERC Stats. & Regs. ¶ 31,299 (2009), Order No. 676-D, order granting clarification and denying reh'g, 124 FERC ¶ 61,317 (2008), Order No. 676-C, Final Rule, FERC Stats. & Regs. ¶ 31,274 (2008), Order No. 676-B, Final Rule, FERC Stats. & Regs. ¶ 31,246 (2007).

products and services in independent system operator/regional transmission organization (ISO/RTO) footprint areas.

7. After a review of NAESB's April 2009 Report, the Commission issued a notice of proposed rulemaking on September 17, 2009 that proposed to amend the Commission's regulations at 18 CFR 38.2 to incorporate by reference the consensus standards adopted by NAESB's WEQ on March 16, 2009 (NAESB Phase I M&V Standards).⁷ NAESB has initiated specific plans to improve and adopt additional technical standards (Phase II M&V Standards).⁸ In the Phase I M&V NOPR, the Commission specifically requested

⁷ Standards for Business Practices and Communication Protocols for Public Utilities, Notice of Proposed Rulemaking, 74 FR 48173 (Sep. 22, 2009), FERC Stats. & Regs. ¶ 32,646 (2009) (Phase I M&V NOPR).

⁸ Item 4a of NAESB's 2010 Annual Plan calls for the WEQ to review the NAESB Business Practices for Measurement and Verification of Wholesale Electricity Demand Response (WEQ-015) in conjunction with the Demand Response Matrix developed by the ISO/RTO Council and to identify business practice requirements that could be improved or made clearer through the addition of specific technical detail. The ISO/RTO Council's 2009 "North American Wholesale Electricity Demand Response Program Comparison" may be viewed at the ISO/RTO Council's website at "www.isorto.org." The Annual Plan provides that wholesale and retail demand response work groups and the Smart Grid task force should actively and timely communicate and coordinate work products to ensure consistency among the three work groups. The Annual Plan further provides that each work group should take into account the work products developed by the other groups.

Item 4b of NAESB's 2010 Annual Plan calls for the WEQ, using the ISO/RTO Council's matrix as a starting point, to review each performance evaluation type/service type combination identified in WEQ-015 to assess and determine what standards or guidelines, if any, should be developed to aid all participants in the use of measurement and verification methods for demand response programs in organized wholesale electric
(continued...)

comments on whether the Commission should establish a deadline for the development of these remaining critical standards and, if so, what that deadline should be.

8. In response to the Phase I M&V NOPR, comments were filed by 19 entities.⁹

II. Discussion

A. Overview

9. In this Final Rule, the Commission is revising its regulations at 18 CFR 38.2 to incorporate by reference the NAESB Phase I M&V Standards. The new standards will facilitate development of standardized business practices for measuring and verifying demand resource products and services for the wholesale electric market. In addition, they will help create a framework for a more seamless electronic marketplace by providing consistent terms and definitions that can be used in electronic protocols across both the wholesale and retail electric markets. Further, adoption of measurement and

markets. If the determination is made that standards or guidelines will be developed, those items will be added as sub-items to 4(b).

Item 4c of NAESB's 2010 Annual Plan calls for the WEQ to develop a glossary of terms used in demand response business practice standards.

Item 4d of NAESB's 2010 Annual Plan calls for the WEQ to develop business practice standards to measure and verify energy reductions that are made to comply with a Renewable Portfolio Standard that includes energy efficiency or a stand-alone Energy Efficiency Portfolio Standard as part of an overall effort to measure and verify reductions in energy and demand from energy efficiency in wholesale and retail markets.

⁹ The entities that filed comments and the abbreviations used in this Final Rule to identify these entities are listed in Appendix A.

verification standards will improve the methods and procedures for measuring accurately the performance of demand response resources and assist in monitoring demand response services for potential manipulation.

10. The NAESB Phase I M&V Standards were approved by the WEQ and ratified by the NAESB membership under NAESB's consensus procedures.¹⁰ As the Commission found in Order No. 587,¹¹ adoption of consensus standards is appropriate because the consensus process helps ensure the reasonableness of the standards by requiring that the standards draw support from a broad spectrum of industry participants representing all segments of the industry. Moreover, since the industry itself has to conduct business under these standards, the Commission's regulations should reflect those standards that have the widest possible support. In section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTT&AA), Congress affirmatively requires federal agencies to use technical standards developed by voluntary consensus standards organizations, like NAESB, as a means to carry out policy objectives or activities

¹⁰ This process first requires a super-majority vote of 67 percent of the members of the WEQ's Executive Committee with support from at least 40 percent of each of the seven industry segments, which are enumerated in P 3, supra. For final approval, 67 percent of the WEQ's general membership voting must ratify the standards.

¹¹ Standards for Business Practices of Interstate Natural Gas Pipelines, Order No. 587, 61 FR 39053 (July 26, 1996), FERC Stats. & Regs., ¶ 31,038 (1996).

determined by the agencies unless use of such standards would be inconsistent with applicable law or otherwise impractical.¹²

11. The specific NAESB standards that we are incorporating by reference in this Final Rule are business practices for Measurement and Verification of Wholesale Electricity Demand Response. The standards have three sections; the first section (Introduction and Definition of Terms) contains an overview of the standards and definitions, the second section (Standards 015-1.0 through 015-1.15) contains standards on Provision of Wholesale Electric Demand Response Energy, Capacity, Reserve and Regulation Products, and the third section (Standards 015-1.16 through 015-1.30) contains standards on the five performance evaluation methodologies: (1) Maximum Base Load; (2) Meter Before / Meter After; (3) Baseline Type-I (Interval Meter); (4) Baseline Type-II (Non-Interval Meter); and (5) Metering Generator Output.

12. The NAESB Phase I M&V Standards also provide a foundation for further business practice standardization efforts, and participants in the WEQ process can use these standards to identify those elements for which standardization would be beneficial. We believe that development of the Phase II M&V Standards to which NAESB has committed will help improve the methods and procedures for measuring accurately the performance of demand responders. Such standards also will facilitate the ability of

¹² Pub. L. No. 104-113, § 12(d), 110 Stat. 775 (1996), 15 U.S.C. § 272 note (1997). This requirement is further discussed at P 48, infra.

demand response providers to participate in electricity markets, in particular customers and aggregators that may participate in multiple markets. Standards for measuring and verifying demand response can help these customers reduce the transaction costs of participating in these markets.

13. Because of the importance of moving forward on the development and adoption of the Phase II M&V Standards, we urge NAESB to complete its development of these standards within one year, as discussed below. If NAESB is unable to meet this goal, we request that it file with the Commission within one year, a report of the progress it has made, as well as the areas in which consensus has not been reached.

14. We address below the issues raised by the commenters.

B. NAESB Phase I M&V Standards

1. Adoption of NAESB Phase I M&V Standards

a. Comments

15. Nearly all the commenters support the proposal to incorporate the NAESB Phase I M&V Standards by reference. California Commission, Comverge, EEI, EnerNOC, EPSA, Indiana Commission, ISO/RTO Council, NARUC, NRECA, Public Interest Orgs, SDG&E, TVA and Westar all express support for the proposal. For example, EnerNOC asserts the NAESB Phase I M&V Standards address a need within the industry to develop consistent measurement and verification (M&V) practices across the country. While NRECA and Indiana Commission raised concerns about the costs of obtaining NAESB

standards, addressed below, they did not oppose the incorporation by reference of the NAESB Phase I M&V Standards.

b. Commission Determination

16. The Commission is revising its regulations at 18 CFR 38.2 to incorporate by reference the NAESB Phase I M&V Standards. The new standards define terms and definitions that can be used to facilitate communications and provide standards for measurement and verification methodologies for demand resources in wholesale electric markets.

2. Clarification of Jurisdictional Concerns

17. As we explained in the Phase I M&V NOPR, the NAESB Phase I M&V Standards will enhance transparency and consistency in the methodology used to measure and verify demand response products in wholesale markets administered by the ISOs and RTOs.¹³

a. Comments

18. FirstEnergy, the California Commission and NARUC all caution that these standards are only applicable in the wholesale energy market and that the states have jurisdiction over retail demand response programs, meters and infrastructure.

19. FirstEnergy argues that the Commission's involvement in demand response activities must continue to acknowledge that the states have jurisdiction in retail markets.

¹³ Phase I M&V NOPR at P 10.

Similarly, NARUC states that the Commission should continue to work closely with the states to outline jurisdictional boundaries with respect to the standards being proposed in the NAESB process.

b. Commission Determination

20. We agree with the commenters that the NAESB Phase I M&V Standards that we are incorporating by reference in this Final Rule are applicable to wholesale energy markets under the Commission's jurisdiction and nothing in this Final Rule is intended to interfere with the states' jurisdiction over retail demand response programs.

3. Nomenclature

21. The NAESB Phase I M&V Standards include 40 definitions. These definitions "identify basic product categories, i.e., energy service, capacity service, reserve service and regulation service. They identify the measurement and verification characteristics of demand response products and services offered in organized wholesale electricity markets, such as reduction deadlines, advance notification instructions, telemetry accuracy, and communication protocols."¹⁴

a. Comments

22. ELCON suggests in several instances that the definition included in the NAESB Phase I M&V Standards should be revised to add more specificity. For example, it would add further operating characteristics to the definitions of Normal Operations,

¹⁴ Id. at P 6.

Recovery Period and Demand Resource Availability Measurement.¹⁵ Additionally, ELCON suggests several edits and clarifications to these same terms and to the definition of Triggering Events and Telemetry.¹⁶ EPSA, likewise, asserts the standards in their current form do not provide enough detail to ensure demand response resources receive comparable treatment to those of other resources.¹⁷

b. Commission Determination

23. We find the definitions included in the NAESB Phase I M&V Standards adequate for the purposes of Phase I and we will incorporate them by reference as proposed in the Phase I M&V NOPR. Also, as we noted above, item 4c of the WGQ 2010 Action Plan is devoted to the formulation of a glossary of demand response terminology. ELCON and EPSA may pursue their concerns about the need for greater specificity in the definition of demand response terms by continuing their participation in the NAESB process.

¹⁵ ELCON Comments at 4-7.

¹⁶ Id. at 5.

¹⁷ EPSA Comments at 4.

C. Phase II M&V Standards

1. Proper Organization(s) to Develop Phase II M&V Standards

a. Comments

24. Nearly all the comments support NAESB as the proper organization to develop the Phase II M&V Standards.¹⁸ For example, ISO/RTO Council asserts the NAESB process has been an effective way to bring demand response organizations together to create the NAESB Phase I M&V Standards. Comverge commends the efforts of NAESB to develop this initial set of standards. EPSA also supports the NAESB process and notes the ANSI-certified consensus-based approach is an effective means to craft standards. Comverge expresses appreciation to NAESB for its efforts and is supportive of its efforts that ensure increased demand response participation.

25. By contrast, Duke is the sole commenter raising an objection to the continuing role of NAESB in developing the Phase II M&V Standards. Duke contends that the ISOs and RTOs are in a better position to develop these standards, due to regional differences.

¹⁸ See supporting comments on this subject by Comverge, Curtailment Specialists, EEI, EPSA, ISO/RTO Council, NARUC and Westar. FirstEnergy also supports these efforts, although it cautions that we need to keep jurisdictional concerns in mind. See discussion at P 18-19, supra. TVA also stresses the need for the proper coordination of efforts. See P 39, infra. The objections of Industrial Coalitions on its preference for the Commission developing all standards are discussed in P 42, infra.

b. Commission Determination

26. In our view, NAESB is best suited to develop these common Phase II M&V Standards. The NAESB DSM subcommittee has the membership and participation of demand response providers, ISOs, RTOs, public utilities and trade groups.

27. The continued cooperation and efforts of all these participants in the NAESB Phase II M&V Standards process will create an environment conducive to creating transparent and consistent standards for the measurement and verification of demand response resources offered into wholesale electricity markets. Furthermore, the efforts of a single group sponsored by NAESB will allow for more efficient participation in the standards development process and will help provide greater consistency than might be possible from the individual efforts sponsored by six separate regional organizations.

28. Improvement in measurement and verification standards will work to ensure that the performance of demand response resources can be accurately quantified.

Standardization of measurement and verification methods also will help to reduce costs for customers participating in multiple markets. Without consistent standards, customers and demand response providers that participate in more than one RTO or ISO would then have to incur the costs of developing different business processes to adapt to the differing RTO/ISO requirements, increasing the cost and complexity of their business.

Furthermore, the Phase II M&V Standards should help achieve greater efficiency in the operation and evaluation of the performance of demand response products and services.

2. Guidance on the Scope of the Phase II M&V Standards

a. Comments

29. Many of the commenters find that NAESB's development of Phase II M&V Standards and the Commission's incorporation by reference of such standards will have the benefit of creating additional consistency and standardization across markets. These same commenters also noted the benefits to adoption of a common terminology for M&V methods. For example, Public Interest Orgs supports the standardization of M&V business rules and asserts that such standardization will increase participation, eliminate gaming opportunities and enable aggregators to overcome varying business practices. EPSA also finds benefit in the Commission acting to reduce needless and costly disparities among the ISOs and RTOs, but is concerned that the standards provide too much deference to ISO/RTO policies and that this will hinder efforts to standardize demand response rules. ELCON does not object to the role of NAESB in developing the Phase II M&V Standards, but finds that the process needs improvement in Phase II so that the concerns of demand response providers are given more consideration and the views of ISOs and RTOs are given less deference.¹⁹

30. SDG&E supports the adoption of standards that promote transparency and consistency across markets. SDG&E further states that adopting consistent standards

¹⁹ ELCON Comments at 3.

across ISOs and RTOs could reduce barriers to demand response providers who operate in multiple markets. Industrial Coalitions states the standardization of demand response practices across power markets will improve their business objectives.²⁰ Comverge supports Phase II M&V Standards that would simplify baseline approaches and expand the deployment of demand response. ISO/RTO Council notes approvingly that the use of common terminology has accelerated the development of retail standards as well as supported development of other demand response initiatives. TVA states that NAESB's Phase II M&V Standards efforts should concentrate on the measurement and verification of demand response.

31. Both Duke and FirstEnergy request guidance as to the content of the Phase II M&V Standards and what information is needed to facilitate and promote demand response in markets.

b. Commission Determination

32. While NAESB's Phase I M&V Standards represent a good first step, additional substantive standards would appear beneficial in creating transparent and consistent measurement and verification of demand response products and services in wholesale

²⁰ Industrial Coalitions members include: Coalition of Midwest Transmission Customers; NEPOOL Industrial Customer Coalition; and PJM Industrial Customer Coalition.

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electric markets. The measurement and verification standards needed to accomplish this goal should be a focus of NAESB's Phase II M&V Standards development efforts.

33. While the development of the Phase II M&V Standards should be an industry-driven consensus-seeking process, we agree with commenters that more detailed measurement and verification standards will reduce costs for customers and market participants, particularly those participating in multiple markets. As discussed earlier, demand response providers that participate in more than one RTO or ISO should not have to incur the costs of developing different business processes to adapt to the differing RTO/ISO requirements, increasing the cost and complexity of their business.

34. In response to Duke's and FirstEnergy's requests for additional guidance as to the content of the Phase II M&V Standards, we agree with NAESB's plan to start the process by reviewing the elements of the performance evaluation methods detailed in the ISO/RTO Council's demand response program matrix. While we do not expect NAESB to develop a single performance evaluation method, we reiterate that greater standardization of the performance evaluation methods will improve the accuracy of measuring and verifying demand response performance and may reduce costs. ELCON expresses concern that the views of RTOs and ISOs will be given greater consideration than those of other participants in the NAESB process. As discussed earlier, the NAESB process requires consensus agreement from all seven segments of the industry and no segment, therefore, can dominate the development of a standard. We expect the

participants in the NAESB process actively to consider and be open to proposals and concerns from any source and to try to reconcile differences so that the standards promote accurate measurement and verification of the performance of demand resources.

3. Suggested Improvements to Standards

35. In the Phase I M&V NOPR, the Commission stated that these standards represent a starting place to develop a more comprehensive set of standards, with the development of more detailed technical standards for the measurement and verification of demand response resources, to take place in the Phase II M&V Standards development process.

36. A few of the commenters have raised some specific concerns that they would like addressed in the Phase II M&V Standards development process. For example, ELCON complains that the NAESB process gives too much weight to the views of ISOs and RTOs and argues that the standards place specific requirements on demand response providers while not spelling out the complementary obligations of system operators. ELCON would like this corrected in the Phase II M&V Standards process.²¹ Water Project stresses that the Phase II M&V Standards should be designed to accurately verify the performance of demand response resources according to the specific service they are providing. Curtailment Specialists suggests the DSM subcommittee concentrate its

²¹ ELCON Comments at 3.

efforts on developing the five baseline types; Baseline Type-I and Type-II, Meter Before / Meter After, Maximum Base Load and Metering Generator Output.

a. Commission Determination

37. As discussed above, the NAESB process provides for a reasonable balance of interests so that no one sector, RTOs or any other sector, can dominate the process. We agree that the process needs to consider the issues and views of the participants. We expect the NAESB process to develop Phase II M&V standards which incorporate the interests of all stakeholders in the process of developing consensus standards. In response to Curtailment Specialists, we expect Phase II will address issues related to baseline development, but we do not believe that Phase II should be limited to baseline development issues alone.

4. Deadline for Phase II M&V Standards Development

38. In the Phase I M&V NOPR, the Commission invited comment on whether the Commission should establish a deadline to complete the Phase II M&V Standards. The comments we received were split on this issue.

a. Comments

39. ELCON strongly supports a deadline for the development of the Phase II M&V Standards.²² EPSA and TVA support a deadline that should take into consideration efforts underway at the North American Electric Reliability Corporation (NERC) and the

²² ELCON Comments at 3.

National Institute for Standards and Technology (NIST) for both demand response and Smart Grid activities. Similarly, FirstEnergy recommends that the Commission coordinate its efforts with those of NERC, NIST and the Electric Power Research Institute. EPSA also supports prompt action and notes that NERC is in the process of developing demand response measurement standards through its Demand Response Availability Data System (DADS). EPSA expresses concern that a long delay in the Phase II M&V Standards development process may hinder NERC's demand response registration processes. Likewise, Comverge and EnerNOC also both support an aggressive deadline for the timely completion of the Phase II M&V Standards development process.

40. By contrast, ISO/RTO Council, FirstEnergy, EEI, SDG&E, NRECA and the Indiana Commission all oppose a deadline. They all argue that setting a deadline would be premature and contend that the NAESB process should be allowed to run its course. Many of these commenters, however, agree that, absent a deadline, it would be appropriate for NAESB to provide the Commission with regular status reports on the progress made in the development of the Phase II M&V Standards.²³

²³ See comments by FirstEnergy, EEI, Indiana Commission and ISO/RTO Council.

b. Commission Determination

41. We request that NAESB seek to conclude its Phase II M&V Standards development within one year from the effective date of this order. In light of the importance of measuring and verifying demand response products, as well as the utility of these standards to the NIST and NERC initiatives, the Phase II M&V Standards should be developed as soon as possible. Prompt action in developing the Phase II M&V Standards is essential, in light of the importance of these standards in ensuring that the performance of demand response resources can be accurately quantified. A year for development of such standards is reasonable. Due to the importance of these standards, if NAESB is unable to fully develop standards within the one-year period, we request that it file a report with the Commission indicating the progress it has made, including the standards it has considered and the issues on which it has been unable to reach consensus. The Commission can then build upon the information developed during the NAESB process to propose standards or establish procedures for the development of such standards.

D. Incorporation by Reference

42. A number of organizations (Industrial Coalitions, NRECA, and the Indiana Commission) filed comments objecting to the incorporation by reference of the NAESB standards, maintaining they should not have to pay to obtain copies of the copyrighted

standards. We addressed this issue at length in Order No. 676-E²⁴ in November of 2009, concluding that the NAESB process is the most efficient and cost-effective method of developing these standards, incorporation by reference is the appropriate method for the Commission to adopt the regulations, and the Commission must respect NAESB's copyright.²⁵ As we pointed out in that order, obtaining these standards is not cost prohibitive. NAESB, in fact, makes the standards available for free for three consecutive business days for those who want to view the standards in order to make comments with the Commission.²⁶ Even for those non-members seeking to purchase a copy, the standards are available for \$900, which is not prohibitive, given the costs of otherwise participating in a notice and comment rulemaking proceeding, including the hiring of legal counsel.

III. Implementation Dates and Procedures

43. The Commission is requiring, consistent with our regulation at 18 CFR 35.28(c)(vi), each ISO and RTO to revise its OATT to include the NAESB Phase I M&V Standards we are incorporating by reference herein. For standards that do not require implementing tariff provisions, the Commission will allow the ISO or RTO to incorporate the WEQ standard by reference in its OATT. Compliance with the standards

²⁴ Order No. 676-E, FERC Stats. & Regs. ¶ 31,299 at P 115-121.

²⁵ Id.

²⁶ http://www.naesb.org/misc/NAESB_Nonmember_Evaluation_LockLizard.pdf.

incorporated in this Final Rule will be required beginning on the same date that the rule becomes effective (i.e., thirty days after publication in the Federal Register), even if this precedes the filing of a revised OATT reflecting these new requirements.

44. However, as we proposed in the Phase I M&V NOPR, to lighten the burden associated with an immediate, stand-alone filing of a revised tariff reflecting the standards incorporated by reference in this Final Rule, we are giving ISOs and RTOs the option of including these changes as part of an unrelated tariff filing, even though compliance with the revised standards is required beginning on the effective date of this Final Rule.²⁷

45. If adoption of these standards does not require any changes or revisions to existing OATT provisions, ISOs and RTOs may comply with this rule by adding a provision to their OATTs that incorporates the standards adopted in this rule by reference, including the standard number used to identify the standard. To incorporate this standard into their OATTs, ISOs and RTOs must use the following language in their OATTs: Measurement and Verification of Wholesale Electricity Demand Response (WEQ-015, 2008 Annual Plan Item 5(a), March 16, 2009).

²⁷ See Order No. 676, P 100 (2006). If the ISO or RTO makes no unrelated tariff filing by December 31, 2010, it must make a separate tariff filing incorporating these standards by that date.

46. If an ISO or RTO requests waiver of a standard, it will not be required to comply with the standard until the Commission acts on its waiver request. Therefore, if an ISO or RTO has obtained a waiver or has a pending request for a waiver, its proposed revision to its OATT should not include the standard number associated with the standard for which it has obtained or seeks a waiver. Instead, the ISO or RTO's OATT should specify those standards for which the ISO or RTO has obtained a waiver or has pending a request for waiver. Once a waiver request is denied, the ISO or RTO will be required to include in its OATT the standard(s) for which waiver was denied.

IV. Notice of Use of Voluntary Consensus Standards

47. In section 12(d) of NTT&AA, Congress affirmatively requires federal agencies to use technical standards developed by voluntary consensus standards organizations, like NAESB, as the means to carry out policy objectives or activities determined by the agencies unless use of such standards would be inconsistent with applicable law or otherwise impractical.²⁸ NAESB approved the standards under its consensus procedures. Office of Management and Budget Circular A-119 (§ 11) (February 10, 1998) provides that federal agencies should publish a request for comment in a NOPR when the agency is seeking to issue or revise a regulation proposing to adopt a voluntary consensus

²⁸ See n.12 supra.

standard or a government-unique standard. The Commission published a request for comment in the Phase I M&V NOPR.

V. Information Collection Statement

48. The Office of Management and Budget's (OMB) regulations in 5 CFR 1320.11 require that it approve certain reporting and recordkeeping requirements (collections of information) imposed by an agency. Upon approval of collections of information, OMB is expected to assign new expiration dates to FERC-516 (OMB Control Number 1902-0096) and FERC-717 (OMB Control Number 1902-0173). The OMB Control Numbers will not be displayed in the NAESB standards; an explanation will be included in the clearance package submitted to OMB. The Commission will not enforce the requirements of this rule until OMB approval is obtained.

49. This Final Rule upgrades the Commission's current business practice and communication standards to include NAESB's Phase I M&V Standards. The implementation of these standards is necessary to increase the efficiency of demand response in wholesale electric energy markets. In addition, requiring such information ensures a common means of communication and ensures common business practices that provide participants engaged in transactions with demand response programs with timely information and consistent business procedures across multiple markets. The implementation of these data requirements will help the Commission carry out its responsibilities under the Federal Power Act.

50. The Commission sought comments on its estimate provided in the NOPR of the burden associated with adoption of the NOPR proposals. In response to the NOPR, no comments were filed that addressed the reporting burden imposed by these requirements. Therefore the Commission will use these same estimates in this Final Rule.

Data Collection	No. of Respondents	No. of Responses Per Respondent	Hours Per Response	Total No. of Hours
FERC-516 ²⁹	6	1	6	36
FERC-717 ³⁰	6	1	12	72
Totals				108

Total Annual Hours for Collection

(Reporting and Recordkeeping, if appropriate) = 108 hours

Information Collection Costs: The Commission seeks comments on the costs to comply with these requirements. The Commission projects the average annualized cost for all respondents as follows:³¹

²⁹ “FERC-516” is the Commission’s identifier that corresponds to OMB control no. 1902-0096 which identifies the information collection associated with Electric Rate Schedules and Tariff Filings.

³⁰ “FERC-717” is the Commission’s identifier that corresponds to OMB control no. 1902-0173 which identifies the information collection associated with Standards for Business Practices and Communication Protocols for Public Utilities.

³¹ The total annualized costs for the information collection is \$39,960. This number is reached by multiplying the total hours to prepare responses (108) by an hourly

(continued...)

	FERC-516	FERC-717
Annualized Capital/Startup Costs	\$13,320	\$26,640
Annualized Costs (Operations & Maintenance)	N/A	
Total Annualized Costs	\$13,320	\$26,640 ³²

51. OMB regulations³³ require OMB to approve certain information collection requirements imposed by agency rule. The Commission is submitting this Final Rule to OMB. These information collections are mandatory requirements.

Title: Standards for Business Practices and Communication Protocols for Public Utilities (formerly Open Access Same Time Information System) (FERC-717); Electric Rate Schedule Filings (FERC-516).

Action: Information collection.

OMB Control No.: 1902-0096 (FERC-516); 1902-0173 (FERC-717).

Respondents: Business or other for profit (Public Utilities - Not applicable to small businesses).

wage estimate of \$370 (a composite estimate that includes legal, technical and support staff rates, \$250+\$95+\$25=\$370), 108 hours x \$370/hour= \$39,960.

³² We note that 36 hours at \$370/hour= \$13,320 and 72 hours at \$370/hour=\$26,640. Together, \$13,320+\$26,640=\$39,960 as shown in note 32, supra.

³³ 5 CFR 1320.11.

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Frequency of Responses: One-time implementation (business procedures, capital/start-up).

52. Necessity of Information: The Commission's regulations adopted in this rule upgrade the Commission's current business practices and communication standards by standardizing the definitions used by ISOs and RTOs to identify their various demand response products and to measure and verify the results obtained by these products.

Moreover, the implementation of these data requirements will help ensure consistency among the ISOs/RTOs with respect to the measurement and verification of demand response performance in their wholesale electricity markets.

53. Interested persons may obtain information on the reporting requirements by contacting: Federal Energy Regulatory Commission, Attn: Ellen Brown, Office of the Executive Director, 888 First Street, NE, Washington, DC 20426 Tel: (202) 502-8663, fax: (202) 273-0873, email: DataClearance@ferc.gov or by contacting: Office of Management and Budget, Office of Information and Regulatory Affairs, Washington, DC 20503 [Attention: Desk Officer for the Federal Energy Regulatory Commission, email: oir_submission@omb.eop.gov; Tel: (202) 395-4638, fax: (202) 395-7285]. Comments to OMB should include the appropriate OMB Control Number(s) and collection number(s) (OMB Control No. 1902-0096 for FERC-516, and/or OMB Control No. 1902-0173 for FERC-717) as a point of reference.

VI. Environmental Analysis

54. The Commission is required to prepare an Environmental Assessment or an Environmental Impact Statement for any action that may have a significant adverse effect on the human environment.³⁴ The Commission has categorically excluded certain actions from these requirements as not having a significant effect on the human environment.³⁵ The actions adopted here fall within categorical exclusions in the Commission's regulations for rules that are clarifying, corrective, or procedural, for information gathering analysis, and dissemination, and for sales, exchange, and transportation of natural gas and electric power that requires no construction of facilities. Therefore, an environmental assessment is unnecessary and has not been prepared in this Final Rule.

VII. Regulatory Flexibility Act

55. The Regulatory Flexibility Act of 1980 (RFA)³⁶ generally requires a description and analysis of final rules that will have significant economic impact on a substantial number of small entities. In drafting a rule an agency is required to: (1) assess the effect that its regulation will have on small entities; (2) analyze effective alternatives that may

³⁴ Order No. 486, Regulations Implementing the National Environmental Policy Act, 52 FR 47897 (Dec. 17, 1987), FERC Stats. & Regs. Preambles 1986-1990 ¶ 30,783 (1987).

³⁵ 18 CFR 380.4.

³⁶ 5 U.S.C. 601-612.

minimize a regulation's impact; and (3) make the analysis available for public comment.³⁷

56. The regulations we are adopting in this Final Rule impose filing requirements only on ISOs and RTOs, none of which is a small business. Moreover, these requirements are designed to benefit all customers, including small businesses. As noted above, adoption of consensus standards helps ensure the reasonableness of the standards by requiring that the standards draw support from a broad spectrum of industry participants representing all segments of the industry. Because of that representation and the fact that industry conducts business under these standards, the Commission's regulations should reflect those standards that have the widest possible support.

57. Accordingly, pursuant to section 605(b) of the RFA, the Commission hereby certifies that the regulations adopted herein will not have a significant adverse impact on a substantial number of small entities.

VIII. Document Availability

58. In addition to publishing the full text of this document in the Federal Register, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the Internet through FERC's Home Page (<http://www.ferc.gov>) and in FERC's Public Reference Room during normal business

³⁷ 5 U.S.C. 601-604.

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hours (8:30 a.m. to 5:00 p.m. Eastern time) at 888 First Street, NE, Room 2A, Washington, DC 20426.

59. From FERC's Home Page on the Internet, this information is available on eLibrary. The full text of this document is available on eLibrary in PDF and Microsoft Word format for viewing, printing, and/or downloading. To access this document in eLibrary, type the docket number excluding the last three digits of this document in the docket number field.

60. User assistance is available for eLibrary and the FERC's website during normal business hours from FERC Online Support at 202-502-6652 (toll free at 1-866-208-3676) or email at ferconlinesupport@ferc.gov, or the Public Reference Room at (202) 502-8371, TTY (202)502-8659. email the Public Reference Room at public.referenceroom@ferc.gov.

IX. Effective Date and Congressional Notification

61. These regulations are effective [insert date 30 days from publication in **FEDERAL REGISTER**]. The Commission has determined (with the concurrence of the Administrator of the Office of Information and Regulatory Affairs of OMB) that this rule is not a "major rule" as defined in section 351 of the Small Business Regulatory Enforcement Fairness Act of 1996.

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List of subjects in 18 CFR Part 38

Conflict of interests, Electric power plants, Electric utilities, Incorporation by reference,
Reporting and recordkeeping requirements.

By the Commission.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.

In consideration of the foregoing, the Commission amends part 38, Chapter I, Title 18, Code of Federal Regulations, as follows.

PART 38 – BUSINESS PRACTICE STANDARDS AND COMMUNICATION
PROTOCOLS FOR PUBLIC UTILITIES

1. The authority citation for part 38 continues to read as follows:

Authority: 16 U.S.C. 791-825r, 2601-2645; 31 U.S.C. 9701; 42 U.S.C. 7101-7352.

2. In § 38.2, paragraphs (a)(10), (a)(11), and (b) are revised and paragraph (a)(12) is added to read as follows:

§ 38.2 Incorporation by Reference of North American Energy Standards Board Wholesale Electric Quadrant standards.

(a) * * * * *

(10) Public Key Infrastructure (PKI) (WEQ-012, Version 002.1, March 11, 2009, with minor corrections applied on May 29, 2009 and September 8, 2009);

(11) Open Access Same-Time Information Systems (OASIS) Implementation Guide, Version 1.5 (WEQ-013, Version 002.1, March 11, 2009, with minor corrections applied on May 29, 2009 and September 8, 2009); and

(12) Measurement and Verification of Wholesale Electricity Demand Response (WEQ-015, 2008 Annual Plan Item 5(a), March 16, 2009).

(b) This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of these standards may be obtained from the North American Energy Standards Board,

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801 Travis Street, Suite 1675, Houston, TX 77002, Tel: (713) 356-0060. NAESB's website is at <http://www.naesb.org/>. Copies may be inspected at the Federal Energy Regulatory Commission, Public Reference and Files Maintenance Branch, 888 First Street, NE, Washington, DC 20426, Tel: (202) 502-8371, www.ferc.gov, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:

http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html

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Note: The following Appendix will not appear in the Code of Federal Regulations.

Appendix A

List of Commenters³⁸

California Department of Water Resources State Water Project (Water Project)

California Public Utilities Commission (California Commission) (with notice of intervention)

Comverge, Inc. (Comverge)

Duke Energy Corporation (Duke)

Edison Electric Institute (EEI)

FirstEnergy Service Company (FirstEnergy)

Electric Power Supply Association (EPSA)

Electricity Consumers Resource Council (ELCON)

Energy Curtailment Specialists, Inc. (Curtailment Specialists) (also filed motion to intervene)

EnerNOC, Inc. (EnerNOC) (also filed motion to intervene)

Indiana Utility Regulatory Commission (Indiana Commission) (with notice of intervention)

Industrial Coalitions³⁹

³⁸ The abbreviations used to identify these commenters in this Final Rule are shown parenthetically.

³⁹ Filed on behalf of Coalition of Midwest Transmission Customers, NEPOOL Industrial Customer Coalition, and PJM Industrial Customer Coalition.

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List of Commenters

ISO/RTO Council⁴⁰

National Association of Regulatory Utility Commissioners (NARUC)

National Rural Electric Cooperative Association (NRECA)

Public Interest Organizations (Public Interest Orgs)⁴¹

San Diego Gas & Electric Company (SDG&E)

Tennessee Valley Authority (TVA) (with motion to intervene)

Westar Energy, Inc. (Westar) (with motion to intervene)

⁴⁰ ISO/RTO Council includes the Independent System Operators operating as the Alberta Electric System Operator, the California Independent System Operator, Electric Reliability Council of Texas, the Independent Electricity System Operator of Ontario, Inc., ISO New England, Inc., Midwest Independent Transmission System Operator, Inc., New York Independent System Operator, Inc., PJM Interconnection, L.L.C., Southwest Power Pool, Inc., and New Brunswick System Operator.

⁴¹ Jointly filed on behalf of Project for Sustainable FERC Energy Policy, Natural Resources Defense Council, the Pace Energy and Climate Center and Conservation Law Foundation.



NORTH AMERICAN ENERGY STANDARDS BOARD

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email: naesb@naesb.org • **Web Site Address:** www.naesb.org

April 8, 2010
Filed Electronically

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street N.E., Room 1A
Washington, D.C. 20585

RE: "Draft National Action Plan on Demand Response" (Docket No. AD09-10-000)

Dear Ms. Bose:

The North American Energy Standards Board ("NAESB") herewith submits these comments in response to "Draft National Action Plan on Demand Response" issued by the Federal Energy Regulatory Commission ("FERC" or "Commission") on March 11, 2010. The comments are supportive of the discussion draft and describe the NAESB standards development related to demand response programs.

The report is being filed electronically in Microsoft® Word® 2003 and in Adobe Acrobat® Portable Document Format (.pdf). The report is also available on the NAESB web site (www.naesb.org). Please feel free to call me at (713) 356-0060 or refer to the NAESB website (www.naesb.org) should you have any questions or need additional information regarding NAESB work products.

Respectfully submitted,

Rae McQuade

Ms. Rae McQuade
President & COO, North American Energy Standards Board



NORTH AMERICAN ENERGY STANDARDS BOARD

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April 8, 2010

cc:

Chairman Jon Wellinghoff, Federal Energy Regulatory Commission
Commissioner Philip D. Moeller, Federal Energy Regulatory Commission
Commissioner John R. Norris, Federal Energy Regulatory Commission
Commissioner Marc Spitzer, Federal Energy Regulatory Commission

Mr. Thomas R. Sheets, General Counsel of the Commission, Federal Energy Regulatory Commission
Mr. Joseph McClelland, Director, Office of Electric Reliability, Federal Energy Regulatory Commission
Ms. Jamie L. Simler, Director, Office of Energy Policy and Innovation, Federal Energy Regulatory Commission

Mr. Michael Goldenberg, Senior Attorney, Office of General Counsel, Federal Energy Regulatory Commission
Mr. Mason Emnett, Senior Legal Advisor, Office of Energy Policy and Innovation, Federal Energy Regulatory Commission
Dr. David Kathan, Economist, Office of Energy Policy and Innovation, Federal Energy Regulatory Commission

Mr. Ralph Cleveland, Chairman and CEO, North American Energy Standards Board
Mr. William P. Boswell, General Counsel, North American Energy Standards Board

Mr. David Cook, General Counsel, North American Electric Reliability Corporation
Mr. Andrew Rodriguez, North American Electric Reliability Corporation

**UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION**

National Action Plan on Demand	)	Docket No. AD09-10-000
Response	)	
	)	

COMMENTS OF THE NORTH AMERICAN ENERGY STANDARDS BOARD

The North American Energy Standards Board (“NAESB”) is pleased to provide these comments in response to the Federal Energy Regulatory Commission’s (“FERC” or the “Commission”) Notice Announcing Release of Draft National Action Plan on Demand Response.¹

NAESB appreciates the acknowledgement of its work given in the report:

- “In addition, the North American Energy Standards Board (NAESB) and NERC have already undertaken standard and protocol efforts for the smart grid.”
- “Efforts to standardize measurement and verification are already underway. NAESB is currently leading an effort that has produced a document describing model business practices for the measurement and verification of demand response. NAESB is also working with NERC to ensure that NERC’s demand response data collection effort conforms to a consistent measurement and verification standard.”

As you have noted, NAESB is active in both the smart grid efforts managed by the National Institute of Standards and Technology (“NIST”), and in the development of business practices standards as described in our 2009 and 2010 annual plans for both retail electric² and

¹ The notice and the draft national action plan are *available at* <http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12290434>, and <http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12290602>

² The 2009 and 2010 Retail Electric Annual Plans are *available at* http://www.naesb.org/pdf4/draft_retail_2009_annual_plan.doc;

wholesale electric³ markets. NAESB and the North American Electric Reliability Corporation (“NERC”) work closely together to ensure that the work products and terminology used are consistent. Where needed, the standards follow the joint development process supported by both NERC and NAESB⁴. Below is a synopsis of the work done to date for both smart grid related efforts and demand response related efforts.

Status of the Smart Grid related NAESB efforts

NAESB has been actively involved in the development of both wholesale and retail electric market business practice standards to support three NIST/Smart Grid Interoperability Panel priority action plans (PAP): PAP03 – common price communication model, PAP04 – common scheduling mechanism, and PAP09 – standard demand response signals. These assignments were made during NIST meetings in September 2009. As a result of these assignments, NAESB formed a NAESB Smart Grid Standards task force. The NAESB Smart Grid Standards task force has drafted and recently approved four recommendations for NAESB business practices containing smart grid-related use case and data requirement standards. Consistent with the NAESB business practices/standard setting process, the recommendations are now out for industry comment⁵ and will be the subject of consideration by both the NAESB retail and wholesale electric quadrant executive committees. As part of phase two of the smart grid effort, the NAESB task force is refining, extending and providing additional granularity for the data requirements. The membership in the task force is open, and any interested party is welcome to join the development activities.⁶ Phase 2 will be done expediently and in coordination with the other groups such as Organization for the Advancement of Structured Information Standards (“OASIS”) and Zigbee Alliance, who have been tasked by NIST to provide the schemas and technical standards based on the NAESB-developed use case and data requirement standards.

http://www.naesb.org/pdf4/retail_2010_annual_plan.doc.

³ The 2009 and 2010 Wholesale Electric Annual Plans are available at

http://www.naesb.org/pdf4/draft_weq_2009_annual_plan.doc,

http://www.naesb.org/pdf4/weq_2010_annual_plan.doc

⁴ The joint development process used by NERC and NAESB is described and available at:

http://www.naesb.org/pdf3/nerc_naesb_joint_development_process.pdf

⁵ The request for comments and the recommendations are available at

http://www.naesb.org/pdf4/weq_030910_reqcom.doc, http://www.naesb.org/pdf4/req_030910_reqcom.doc. The comment period concludes on April 9, 2010.

⁶ To join the NAESB Smart Grid Standards task force, please contact Denise Rager (drager@naesb.org).

NAESB is also active in PAP10 - standard energy usage information, and the NAESB task force is developing a survey of current practices of energy usage communications between energy suppliers and consumers, including providers of intermediary services. Once the survey is drafted and distributed, NAESB will consolidate the use cases and requirements for existing and planned energy communications. The task force's role in PAP10 is different as compared to NAESB's role in PAPs 3, 4, and 9 in that the NAESB task force will be acting as a facilitator and gatherer of information, rather than as a standards developer. The NAESB task force is on schedule to have the survey developed and ready for distribution to NAESB membership and other groups on April 9, 2010. The NAESB task force will gather the results and plans to have reports responding to the tasks completed in the May-June 2010 time frame.

Status of the Demand Response related NAESB efforts

NAESB continues to pursue the development of both wholesale and retail electric market standards to support demand response programs. The standards development related to demand response is assigned to the NAESB Demand Side Management- Energy Efficiency (DSM-EE) subcommittee, a joint group of both wholesale and retail electric market interests. The NAESB subcommittee has completed its first phase of work, and NAESB filed standards with the Commission on April 17, 2009⁷ The standards addressed the measurement and verification characteristics of demand response products and services to be used in the wholesale electricity market, and were intended to provide a common framework for transparency, accountability and consistency. The standards were composed of 31 business practice standards and 40 definitions that focused on four product and service categories—energy service, capacity service, reserve service and regulation service—and established criteria for the use of equipment, technology and procedures to quantify the demand reduction value delivered. Further, these definitions play an integral role in the NERC demand response data collection efforts, known as the Demand Response Availability Data System (DADS). The definitions offer a basis for the industry to provide consistent reporting of historical demand response performance data. The Commission issued a notice of proposed rulemaking on the NAESB standards on September 17, 2009.⁸ The retail electric standards that were developed in coordination with the wholesale standards were

⁷ The NAESB report to the FERC is available at http://www.naesb.org/pdf4/ferc041709_dsm_filing.pdf

⁸ The Notice of Proposed Rulemaking is available at <http://www.ferc.gov/whats-new/comm-meet/2009/091709/E-1.pdf>

ratified by NAESB membership on November 16, 2009, subsequently published as part of the NAESB retail electric market standards Version 1.2⁹ on December 31, 2009, and were provided to the National Association of Regulatory Utility Commissioners.

For a second phase of standards development, NAESB is now developing the more detailed technical standards for the measurement and verification of demand response products and services for the wholesale electric market. The wholesale electric standards development for the second phase is directed to glossary, performance evaluation methodology and the existing business practices. The retail electric market efforts are proceeding in tandem with wholesale efforts to support coordination. The retail electric standards development for the second phase is directed to glossary and to the comments received on August 28, 2009 that extend the existing business practices.¹⁰ It is planned that the NAESB subcommittee will complete its work for the second phase in June 2010. The DSM-EE subcommittee and task force membership is open, and any interested party is welcome to join the development activities.¹¹

Most recently, NAESB has also received a request R10002¹² that is under consideration by the two Executive Committees for assignment. The request addresses standards development for the creation of common interfaces and data structures necessary for enrolling demand response sites into a demand response program. In a related effort, the DSM-EE subcommittee is also developing standards for energy efficiency based from work of the National Action Plan for Energy Efficiency,¹³ with an expected completion date by yearend 2010.

Conclusion

With both the standards development in support of smart grid activities and the standards development for demand response activities, coordination among various groups is crucial. NAESB has a longstanding relationship with NERC that provides the basis for strong coordination and joint development of standards. Similarly, the NAESB activities that cross

⁹ The retail electric market standards for Version 1.2 is available at http://www.naesb.org/req/req_final.asp

¹⁰ A matrix of the summary of retail electric market comments on the retail DR standards is available at http://naesb.org/pdf4/dsmee_group2_021810a3.doc

¹¹ To join the NAESB DSM-EE Subcommittee or its task forces, please contact Denise Rager (drager@naesb.org).

¹² The request and the pending assignments is available at <http://www.naesb.org/pdf4/tr040210agenda.doc>

¹³ The National Action Plan for Energy Efficiency Model Energy Efficiency Program Impact Evaluation Guide (November 2007) is available at http://www.naesb.org/pdf3/napee_evaluation_guide.pdf and the National Action Plan for Energy Efficiency Vision for 2025 (November 2008) is available at <http://www.epa.gov/cleanenergy/documents/vision.pdf>

both wholesale and retail electric markets are coordinated, and in many cases jointly developed. With the development underway for energy efficiency standards, NAESB is fortunate to have many groups participate, lend their expertise and identify foundational documents from which the standards will be developed.

Collaboration and coordination among standards and industry groups is at the forefront of smart grid development. NAESB is working with several groups to ensure that the work products of the various standards development organizations are consistent and supportive. Financial Information eXchange Protocol (FIX Protocol), CalConnect, Utility Communications Architecture International Users Group (UCAIug) and OASIS have been very active in the development of the NAESB smart grid business practice standards. FIX Protocol and UCAIug have contributed task force leadership and foundational work products to the NAESB efforts. Most notably, NAESB and OASIS are collaborating on a procedure that will ensure that we can build off each other's work products, thus providing a more comprehensive set of standards to support not only the smart grid standards development, but we are hopeful that our alliance will extend into other development efforts as well. To further our collaboration, both NAESB and OASIS are now members of each other's organizations.

We appreciate the opportunity to provide these comments, and to develop industry standards for the wholesale and retail market implementation of smart grid and demand response programs.

Respectfully submitted,

Rae McQuade

Rae McQuade
President, North American Energy Standard Board



NORTH AMERICAN ENERGY STANDARDS BOARD

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March 26, 2010
Filed Electronically

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street N.E., Room 1A
Washington, D.C. 20585

RE: Transmission Loading Relief Reliability Standard and Curtailment Priorities (Docket No. RM10-9-000)

Dear Ms. Bose:

The North American Energy Standards Board ("NAESB") herewith submits these comments in response to the Federal Energy Regulatory Commission Notice of Inquiry. The comments describe NAESB standards development underway for parallel flow visualization, related to the transmission loading relief reliability standard and curtailment priorities.

The report is being filed electronically in Microsoft® Word® 2003 and in Adobe Acrobat® Portable Document Format (.pdf). The report is also available on the NAESB web site (www.naesb.org). Please feel free to call me at (713) 356-0060 or refer to the NAESB website (www.naesb.org) should you have any questions or need additional information regarding NAESB work products.

Respectfully submitted,

Rae McQuade

Ms. Rae McQuade
President & COO, North American Energy Standards Board



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March 26, 2010

cc:

Chairman Jon Wellinghoff, Federal Energy Regulatory Commission
Commissioner Philip D. Moeller, Federal Energy Regulatory Commission
Commissioner John R. Norris, Federal Energy Regulatory Commission
Commissioner Marc Spitzer, Federal Energy Regulatory Commission

Mr. Thomas R. Sheets, General Counsel of the Commission, Federal Energy Regulatory Commission

Mr. Joseph McClelland, Director, Office of Electric Reliability, Federal Energy Regulatory Commission

Ms. Jamie L. Simler, Director, Office of Energy Policy and Innovation, Federal Energy Regulatory Commission

Mr. Michael Goldenberg, Senior Attorney, Office of General Counsel, Federal Energy Regulatory Commission

Mr. Mason Emnett, Senior Legal Advisor, Office of Energy Policy and Innovation, Federal Energy Regulatory Commission

Mr. Ralph Cleveland, Chairman and CEO, North American Energy Standards Board

Mr. William P. Boswell, General Counsel, North American Energy Standards Board

Mr. David Cook, General Counsel, North American Electric Reliability Corporation

Mr. Andrew Rodriguez, North American Electric Reliability Corporation

**UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION**

Transmission Loading Relief	)	Docket No. RM 10-9-000
Reliability Standard and	)	
Curtailement Priorities	)	

**COMMENTS OF THE NORTH AMERICAN ENERGY STANDARDS BOARD
IN RESPONSE TO THE NOTICE OF INQUIRY**

The North American Energy Standards Board (“NAESB”) is pleased to provide these comments in response to the Federal Energy Regulatory Commission’s (“FERC” or the “Commission”) Notice of Inquiry regarding the Transmission Loading Relief (“TLR”) Reliability Standard and Curtailement Priorities.

NAESB and the North American Electric Reliability Corporation (“NERC”) have a long-standing and successful joint development process, which has been used for many standards that have a reliability component and a complementary market or business practices component. Standards to support transmission loading relief have been the subject of such joint development.

In our current development efforts, NAESB and NERC are jointly working to enhance parallel flow visualization. The parallel flow visualization transmission loading relief (PFV – TLR) project addresses three issues: (1) the use of static data in Native and Network Load calculation, (2) Reliability Coordinators in Eastern Interconnection lack visualization as to the source and magnitude of parallel flows when they experience congestion, and (3) priorities of generation to load impacts during firm curtailement.

It is expected that the NAESB business practices standards developed from the PFV-TLR project will support a more accurate and efficient means of curtailing electricity using parallel flow visualization to identify how much and what services should be curtailed. In today’s environment for the Eastern Interconnection, the IDC (Interchange Distribution Calculator) uses

static data that may not provide as accurate a picture of the electricity flows depending on how much the data has changed since it was processed in the calculator. The data, resident in System Data Exchange (SDX) files, may be refreshed as often as every 20 minutes, or where it is not expected that the data will change, as infrequently as once a day.

This project is a collaboration of NERC and NAESB activities, including:

- NERC – developing modifications to the IDC, including the upload of data on a more frequent basis, targeting every 15 minutes, and
- NAESB – developing standards to support curtailment activities in the event of system congestion based on (1) classification of generator usage, (2) allocation rules for curtailing, and (3) the identification of firm and non-firm service.

In the NERC response to the Notice of Inquiry, they indicate that the parallel operations test of the Parallel Flow Visualization Project is to begin in November 2010. In order for the parallel operation test to provide meaningful results the following activities need to occur (1) NAESB identification of the generation-to-load flows priorities to be collected for the IDC, (2) NAESB working with NERC to have the IDC ready to accommodate the increased frequency of data collection and additional granularity of the data in the appropriate priorities – firm or non-firm service. The NERC parallel operations test is expected to last for 12-18 months. During that time, any fine tuning of the IDC and priority assignments by both NERC and NAESB resulting from the tests. It is planned that the IDC testing should begin in November 2010, and it is expected that NAESB will provide to NERC the suggested changes to the IDC in sufficient time to permit the testing to begin in the fourth quarter.

We appreciate the opportunity to provide these comments and support the ongoing work between NERC and NAESB to develop TLR standards and enhance the IDC.

Respectfully submitted,

Rae McQuade

Rae McQuade
President, North American Energy Standard Board

130 FERC ¶ 61,212
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

18 CFR Part 284

[Docket Nos. RM96-1-030 and RM96-1-036; Order No. 587-U]

Standards for Business Practices for Interstate Natural Gas Pipelines

(Issued March 24, 2010)

AGENCY: Federal Energy Regulatory Commission.

ACTION: Final Rule.

SUMMARY: The Federal Energy Regulatory Commission (Commission) is amending its regulations that establish standards for interstate natural gas pipeline business practices and electronic communications to incorporate by reference into its regulations the most recent version of the standards, Version 1.9, adopted by the Wholesale Gas Quadrant (WGQ) of the North American Energy Standards Board (NAESB) applicable to natural gas pipelines, with certain enumerated exceptions. This rule upgrades the Commission's current business practice and communication standards to include standards governing Index-Based Capacity Release and Flexible Delivery and Receipt Points and to reflect the Commission's findings in Order Nos. 698, 712, 717, and 682. This rule will increase the efficiency of the pipeline grid and make pipelines' electronic communications more secure.

EFFECTIVE DATE: This rule will become effective [Insert date 30 days after publication in the **FEDERAL REGISTER**]. Natural gas pipelines are required to file

Docket Nos. RM96-1-030 and RM96-1-036

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tariff sheets to reflect the changed standards on September 1, 2010, to take effect on November 1, 2010. Implementation of these standards is required on and after November 1, 2010. The incorporation by reference of certain publications in this rule is approved by the Director of the Federal Register as of [INSERT DATE 30 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER].

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION:

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Standards for Business Practices for Interstate Natural
Gas Pipelines

Docket Nos. RM96-1-030
RM96-1-036

ORDER NO. 587-U

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130 FERC ¶ 61,212
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Jon Wellinghoff, Chairman;
Marc Spitzer, Philip D. Moeller,
and John R. Norris.

Standards for Business Practices for Interstate Natural
Gas Pipelines

Docket Nos. RM96-1-030
RM96-1-036

ORDER NO. 587-U

FINAL RULE

(Issued March 24, 2010)

1. The Federal Energy Regulatory Commission (Commission) is amending § 284.12 of its regulations (which establishes standards for natural gas pipeline business practices and electronic communications)¹ to incorporate by reference the most recent version (Version 1.9) of the standards promulgated by the Wholesale Gas Quadrant (WGQ) of the North American Energy Standards Board (NAESB). This rule upgrades the Commission's current business practice and communication standards to include

¹ 18 CFR 284.12.

Docket Nos. RM96-1-030 and RM96-1-036

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standards governing Index-Based Capacity Release and Flexible Delivery and Receipt Points and to reflect the Commission's findings in Order Nos. 698, 712, 717, and 682.²

I. Background

2. Since 1996, in the Order No. 587 series,³ the Commission has adopted regulations to standardize the business practices and communication methodologies of interstate pipelines in order to create a more integrated and efficient pipeline grid. In this series of orders, the Commission incorporated by reference consensus standards developed by NAESB (formerly the Gas Industry Standards Board or GISB), a private consensus standards developer composed of members from all segments of the natural gas industry. NAESB is an accredited standards organization under the auspices of the American National Standards Institute (ANSI).

² Standards for Business Practices for Interstate Natural Gas Pipelines, Order No. 698, FERC Stats. & Regs. ¶ 31,251 (2007), order on clarification and reh'g, Order No. 698-A, 121 FERC ¶ 61,264 (2007); Promotion of a More Efficient Capacity Release Market, Order No. 712, FERC Stats. & Regs. ¶ 31,271 (2008), order on reh'g, Order No. 712-A, FERC Stats. & Regs. ¶ 31,284 (2008); Standards of Conduct for Transmission Providers, Order No. 717, FERC Stats. & Regs. ¶ 31,280 (2008), Revision of Regulations to Require Reporting of Damage to Natural Gas Pipeline Facilities, Order No. 682, FERC Stats. & Regs. ¶ 31,227 (2006). We also take this opportunity to update § 284.12(a)(2) to reflect NAESB's new address.

³ Standards for Business Practices of Interstate Natural Gas Pipelines, Order No. 587, 61 FR 39053 (Jul. 26, 1996), FERC Stats. & Regs. ¶ 31,038 (1996).

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3. A cold snap in January 2004 in New England highlighted the need for better coordination and communication between the gas and electric industries as coincident peaks occurred in both industries making the acquisition of gas and transportation by power plant operators more difficult. In response to this need, in early 2004, NAESB established a Gas-Electric Coordination Task Force to examine issues related to the interrelationship of the gas and electric industries and identify potential areas for improved coordination through standardization. NAESB developed a number of standards to enhance the coordination of scheduling and other business practices between the gas and electric industries.

4. On June 27, 2005, NAESB filed these standards with the Commission and requested clarification regarding a number of additional proposals that it was considering, including capacity release indexed pricing, the use of flexible receipt and delivery points upstream of a constraint, and changes to the intra-day nomination cycle. The 2005 NAESB report highlighted several issues relating to Commission policy that were inhibiting the development of additional standards and requested Commission guidance and clarification on these issues.

5. In Order No. 698, the Commission incorporated by reference certain NAESB business practices standards for interstate natural gas pipelines designed to improve coordination and communication between the gas and electric industries. The order also provided clarification and guidance on three issues on which NAESB had been unable to

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reach a consensus: (1) uses of gas indices for pricing capacity release transactions; (2) flexibility in the use of receipt and delivery points; and (3) changes to the intraday nomination schedule to increase the number of scheduling opportunities for firm shippers.⁴

6. On September 3, 2008, NAESB submitted a report to the Commission on these three issues. NAESB reports that its membership conducted thirteen subcommittee meetings, many of which were multi-day meetings, held between June 2007 and July 2008. While the standards discussed related only to gas issues, NAESB states that all interested parties, including the Wholesale Electric Quadrant membership, were invited to participate and share their perspectives. Two hundred people, including many from the electric industry, participated in these meetings.

7. NAESB's September 2008 report also states that the WGQ has adopted business practice standards for (1) increasing the flexibility of gas receipt and delivery points and (2) index-based pricing for capacity releases. In addition, despite holding 12 meetings with respect to modifying the intra-day nomination schedule, NAESB reports that none of the proposed standards for revised intra-day nominations achieved a sufficient consensus for adoption.

⁴ See Order No. 698, FERC Stats. & Regs. ¶ 31,251 at P 1, 55-57, 63-64, 69.

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8. On July 16, 2009, after a review of the new and revised standards referenced in NAESB's September 2008 Report, the Commission issued a notice of proposed rulemaking that proposed to amend the Commission's regulations at 18 CFR § 284.12 to incorporate by reference the consensus standards adopted by NAESB's WGQ that (1) permit the use of indices to price capacity release transactions and (2) afford greater flexibility on the receipt and delivery points for redirects of scheduled gas quantities.⁵ The Commission also noted that the industry was unable to reach consensus on increasing opportunities for intra-day nominations. Seven entities filed comments in response to the July 2009 NOPR.⁶

9. On September 30, 2009, NAESB filed a report informing the Commission that it had adopted and ratified Version 1.9 of its business practice standards applicable to natural gas pipelines.⁷ The Version 1.9 standards are the result of a continuing effort by NAESB's WGQ and the gas industry to add additional specificity and functionality to gas standards. For example, the Version 1.9 Business Practice Standards now include

⁵ Standards for Business Practices for Interstate Natural Gas Pipelines, Notice of Proposed Rulemaking, 74 FR 36633 (Jul. 24, 2009), FERC Stats. & Regs. ¶ 32,645 (2009) (July 2009 NOPR).

⁶ The entities that filed comments and the abbreviations used in this Final Rule to identify these entities are listed in Appendix A.

⁷ The business practice standards addressed in the July 2009 NOPR are included as part of the Version 1.9 Standards.

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communication standards and protocols concerning the use of index-based pricing for capacity releases, which the Commission proposed to adopt in the July 2009 NOPR, and new standards adopted in response to Order Nos. 698, 712, 717, and 682. In addition, these new and modified standards now support the ability of pipelines to redirect gas around constraints, provide additional gas quality and transactional reporting, and add new information posting requirements for web sites and browsers.

10. On November 19, 2009, the Commission issued a notice of proposed rulemaking that proposed to amend the Commission's regulations at 18 CFR 284.12 to incorporate by reference the latest version (Version 1.9) of consensus business practice standards adopted by NAESB's WGQ applicable to natural gas pipelines.⁸ Three entities filed comments in response to the November 2009 NOPR.⁹

II. Discussion

A. Incorporation of the NAESB Standards by Reference

11. After a review of the comments filed in response to the two NOPRs, the Commission will amend part 284 of its regulations to incorporate by reference Version 1.9 of the NAESB WGQ's consensus standards, with the two exceptions noted in the

⁸ Standards for Business Practices for Interstate Natural Gas Pipelines, Notice of Proposed Rulemaking, 74 FR 62261 (Nov. 27, 2009), FERC Stats. & Regs. ¶ 32,649 (2009) (November 2009 NOPR).

⁹ See supra n.6.

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November 2009 NOPR.¹⁰ The Version 1.9 Standards include communication standards and protocols related to the business practice standards dealing with index-based capacity release, which the Commission proposed to adopt in the July 2009 NOPR, and new standards adopted in response to Order Nos. 698, 712, 717, and 682. These new and modified standards provide additional flexibility to shippers. The standards create a uniform method that will enable releasing and replacement shippers to use third-party rate indices to create rate formulas for capacity releases that will better reflect the value of capacity. These standards also reflect a reasonable compromise for dealing with copyright issues that arise in using copyrighted gas indices to set prices, ensuring that shippers have a reasonable choice of available indices to use while equitably spreading the costs entailed by the use of such indices among the pipelines and shippers. The standard for the use of flexible receipt and delivery points will enable all shippers to quickly and efficiently redirect gas when such gas may be needed by gas generators or other shippers. In addition, the standards will provide for more uniform reporting for gas quality and new information posting requirements for web sites and browsers. Adoption

¹⁰ As proposed in the November 2009 NOPR, the Commission is continuing its past practice and is not incorporating by reference Standards 4.3.4 and 10.3.2, because they are inconsistent with the Commission's record retention requirement in 18 CFR 284.12(b)(3)(v). In addition, the Commission is not incorporating by reference the WEQ/WGQ eTariff Related Standards because the Commission has already adopted standards and protocols for electronic tariff filings based on the NAESB Standards. See Electronic Tariff Filings, FERC Stats. & Regs. ¶ 31,276 (2008).

Docket Nos. RM96-1-030 and RM96-1-036

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of the Version 1.9 Standards will continue the process of updating and improving NAESB's business practice standards for the wholesale gas market.

12. To implement these standards, natural gas pipelines will be required to file tariff sheets to reflect the changed standards on September 1, 2010, to take effect on November 1, 2010, and will be required to implement these standards on and after November 1, 2010.

13. NAESB approved the Version 1.9 Standards under NAESB's consensus procedures.¹¹ As the Commission found in Order No. 587, adoption of consensus standards is appropriate because the consensus process helps ensure the reasonableness of the standards by requiring that the standards draw support from a broad spectrum of industry participants representing all segments of the industry. Moreover, since the industry itself has to conduct business under these standards, the Commission's regulations should reflect those standards that have the widest possible support. In section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTT&AA), Congress affirmatively requires federal agencies to use technical standards developed by voluntary consensus standards organizations, like NAESB, as means to

¹¹ This process first requires a super-majority vote of 17 out of 25 members of the WGQ's Executive Committee with support from at least two members from each of the five industry segments – Distributors, End Users, Pipelines, Producers, and Services (including marketers and computer service providers). For final approval, 67 percent of the WGQ's general membership voting must ratify the standards.

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carry out policy objectives or activities determined by the agencies unless use of such standards would be inconsistent with applicable law or otherwise impractical.¹²

14. The comments on both NOPRs generally supported the adoption of the standards.

We will address below the few issues raised in the comments.

B. Issues Raised by Commenters

1. Waivers of the Index-Based Capacity Release Pricing Standards
Comments

15. Carolina does not object to incorporation of the capacity release index-based standards, but states that “substantial costs and administrative burdens would be imposed on Carolina unnecessarily if it was required to fulfill all of the requirements of the standards adopted by NAESB to address index-based capacity releases.”¹³ Furthermore, Carolina states that in almost three years of operation as an interstate pipeline, no shipper has requested index-based pricing for a capacity release on Carolina’s system, and Carolina itself has not sold capacity on its system using index prices. In addition, Carolina stated that because of its small staff, the time and cost of implementing the standards would far exceed the estimates of the NOPR.¹⁴

¹² Pub. L. No. 104-113, § 12(d), 110 Stat. 775 (1996), 15 U.S.C. 272 note (1997).

¹³ Carolina Comments (Docket No. RM96-1-030) at 2.

¹⁴ Id. at 3.

16. Carolina concludes by stating that as long as a pipeline supports index based capacity releases in a manner adequate to its circumstances and the needs of its shippers, the Commission's policies would be fulfilled. Alternatively, the Commission, in its final rule, should indicate its willingness to grant waivers of the capacity release standards to pipelines operating under the circumstances and needs of its shippers.¹⁵

17. AGA supports Carolina's argument on the availability of waivers, and argues that, to the extent the particular circumstances of an individual pipeline warrants additional time to implement these standards, the pipeline should seek a waiver of the regulations. In this regard, AGA believes the Commission should consider Carolina's concerns described in their comments regarding their specific circumstances in an individual proceeding on a request for waiver as opposed to revising the Final Rule to address potential implementation issues.¹⁶

Commission Finding

18. Determining whether a waiver or extension of time, or whether a non-standard process may be appropriate for an individual pipeline based on their particular circumstances cannot be determined generically in a final rule. Carolina needs to raise

¹⁵ Id. at 5.

¹⁶ AGA Reply Comments (Docket No. RM96-1-030) at 5.

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such issues in its compliance filing or in a request for waiver, so that its shippers will have an opportunity to intervene and raise any concerns with Carolina's proposals.¹⁷

2. Issues On Which Consensus Could Not Be Reached

a. Intra-Day Nominations

Background

19. In the July 2009 NOPR,¹⁸ the Commission determined not to propose regulations to resolve a disputed issue relating to revising the schedule for intra-day nominations. The Commission's regulations provide that nominations by shippers with firm transportation service have priority over nominations by shippers with interruptible service.¹⁹ In Order No. 587-G,²⁰ issued in 1998, the Commission, however, followed the Gas Industry Standards Board²¹ consensus and permitted pipelines with three intra-day nomination opportunities to exempt the last intra-day opportunity from bumping. The Commission found that the consensus created a fair balance between firm shippers, who

¹⁷ See, e.g., WestGas InterState, Inc., 130 FERC ¶ 61,165, at P 4 (2010).

¹⁸ July 2009 NOPR at P 6, 19-20.

¹⁹ 18 CFR 284.12 (b)(1)(i).

²⁰ Standards for Business Practices of Interstate Natural Gas Pipelines, Order No. 587-G, 63 FR 20072 (Apr. 23, 1998), FERC Stats. & Regs. ¶ 31,062, at 30,672 (1998).

²¹ At that time, NAESB was the Gas Industry Standards Board and had not yet expanded to include the electric industry or the retail gas and electric segments.

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will have had two opportunities to reschedule their gas, and interruptible shippers and will provide some necessary stability in the nomination system, so that shippers can be confident by mid-afternoon that they will receive their scheduled flows.

20. The NAESB standards currently provide shippers four nomination opportunities: the Timely Nomination Period (11:30 a.m. CCT²² the day prior to gas flow), the Evening Nomination Cycle (6 p.m. CCT the day before gas flow); Intra-Day 1 (10 a.m. CCT the day of gas flow); and Intra-Day 2 (5 p.m. CCT the day of gas flow). A firm nomination for the first three nomination cycles has priority over (can bump) an already scheduled interruptible (IT) nomination. But at the Intra-Day 2 cycle, a firm nomination will not bump already scheduled interruptible service.

Cycle	Nomination Time (CCT)	Nomination Effective	Bumping IT	Bumping Notice	Schedule Confirmed
Timely	11:30 a.m.	Day-Ahead	Yes	4:30 p.m.	4:30 p.m.
Evening	6 p.m.	Day-Ahead	Yes	10 p.m.	10 p.m.
Intra-Day 1	10 a.m.	Day of	Yes	2 p.m.	2 p.m.
Intra-Day 2	5 p.m.	Day of	No	NA	9 p.m.

21. A number of parties urged NAESB to consider revising these timelines to better coordinate scheduling for the gas and electric industries. The NAESB committee held 12 meetings and considered a wide variety of possible revisions to the nomination schedule adopted in 1998. These included complete revisions of the timeline, including

²² Central clock time.

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changing the gas day; adding intra-day nomination opportunities within the existing framework; changing the Intra-Day 2 to a bump nomination while adding an additional no-bump nomination period, and merely changing the Intra-Day 2 cycle to a bumpable nomination. None of these proposals achieved a sufficient consensus at the subcommittee level.

22. In the July NOPR, we did not propose to resolve the dispute, finding that “a simple, one-size fits-all solution does not exist that will solve the complex issue of coordinating between the electric and gas industries, [because] the diversity within the electric industry (e.g., differing timelines, system peaks times, generation mixes, and prevalence of firm gas service), in particular, does not suggest that revising gas scheduling procedures is the most effective means to improve coordination.”²³ Based on the extensive NAESB record that we reviewed, we were not convinced that we have a sufficient basis for finding that any of the proposed revisions create a superior balance of interests compared with the original consensus.²⁴

²³ July 16 NOPR at P 21 (citing NAESB September 3, 2008 filing at 26, Comments of Interested LDCs, http://www.naesb.org/pdf3/wgq_060308ldc.pdf).

²⁴ For example, we do not know the costs to the pipelines and practical implications to shippers or others of creating more numerous intra-day nomination opportunities or adding a late nomination period well after normal business hours.

Comments

23. NGSA supports the Commission's proposal to not impose a generic change to the intra-day nomination timeline of all pipelines.²⁵ NJN/PSEG also supports the Commission's decision to not adopt any changes to its current regulations and policies regarding intra-day nominations. These commenters note that the lack of consensus among NAESB participants only underscores the concerns the gas industry has with proposed changes to the current NAESB gas nomination timeline.²⁶

24. By contrast, TVA disagrees with the Commission's proposal to maintain the status quo regarding intra day nomination regulations. TVA states that, due to an ever increasing amount of renewable resources and their intermittent nature, it is crucial for the electric and gas industry to coincide their scheduled loads in order to maintain both flexibility and reliability.²⁷ TVA urges the Commission to postpone this ruling until more information is gathered on this issue²⁸ and requests that a technical conference be convened to on this matter.²⁹

²⁵ NGSA Comments (Docket No. RM96-1-030) at 3.

²⁶ NJN/PSEG Comments (Docket No. RM96-1-030) at 8-9.

²⁷ TVA Comments (Docket No. RM96-1-030) at 2.

²⁸ Id. at 1.

²⁹ TVA at 2.

25. APS also states that maintaining the status quo is not an option, and that the NAESB gas nomination timeline must be modified. It further states that the only proposal that currently accomplishes objectives such as pipeline infrastructure development, greater access to firm capacity, enhanced reliability, and reduced risk for shippers is the APS/TVA proposal. It states that absent approval of the APS/TVA proposal, NAESB cannot make further progress without policy guidance from the Commission on the issues of: 1) whether the no bump rule, in its entirety, should be eliminated; and/or 2) if the no bump rule is maintained, what is the minimum amount of hours that interruptible service should be guaranteed to flow, and does the minimum amount of flow have to be as a result of the last cycle of the day.³⁰

26. NGSA urges the Commission to deny the request of TVA and others to schedule a technical conference on the issue of intraday pipeline nomination schedules. In this regard, NGSA asserts that NAESB had an extensive and open process to consider the various proposed modifications to the timelines. In the end, no consensus approach was approved. However, despite the significant NAESB efforts, parties are now asking for a technical conference. In NGSA's view, such a conference would be unnecessary and redundant,³¹ and the Commission should adhere to its proposal. NGSA concludes that no

³⁰ APS Comments (Docket No. RM96-1-030) at 7.

³¹ NGSA Comments (Docket No. RM96-1-030) at 5.

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compelling reason has been shown why the Commission should not accept the comprehensive NAESB process.

Commission Determination

27. The comments on this issue reveal the same kinds of disagreements that surfaced in the NAESB process, and we still do not see that any nationwide scheduling solution is superior to the balance between firm and interruptible service created by the existing standards. Having a last No-bump nomination opportunity provides necessary stability to the nomination system by ensuring that interruptible shippers can be bumped only at the Intra-Day I nomination cycle during the business day and so will have an opportunity to reschedule their gas. Furthermore, some electric generators rely on interruptible transportation of natural gas to supply fuel; changing the intra-day nomination rules would not constitute an improvement in gas-electric coordination. Moreover, because these nationwide standards cover four time zones, and already extends to 10 p.m. East Coast time, we do not believe that extending the No-bump cycle even later in the night is a reasonable alternative. As we stated in the NOPR, individual pipelines may be able to offer special services or increased nomination opportunities that will better fit the profile of gas fired generation. Given the extensive comments during the NAESB process, and those filed here, we see little benefit from holding a technical conference on this issue.

b. Gas Quality Posting**Background**

28. NAESB modified Gas Quality Standards Nos. 4.3.90 and 4.3.92 and also added a new gas quality standard. However, NAESB reported that two proposed gas quality standards failed to pass as a result of a single segment failing to approve the standard. One of the blocked standards would have required a pipeline that currently does not post a Wobbe number³² to post gas quality information on its web site and to calculate and post a Wobbe number when notified by a Service Requestor of its desire to begin discussing the interchangeability of gas supplies. The other blocked standard would have added to an existing requirement that pipelines post and permit downloads of three months of historical gas quality data by requiring that the pipelines permit the download of gas quality information for a date range specified by the party seeking to download the information. The Commission proposed to take no action on these blocked standards.

³² The Wobbe number or Wobbe index is named after Goffredo Wobbe, an Italian physicist who developed a formula to compare the characteristics of two gasses. The Wobbe index is a measure of the physical combustion characteristics of natural gas used in the natural gas industry to ensure that natural gas from different sources is compatible with gas-burning equipment in a particular service area. See Williams, Technical Background and Issues of Gas Interchangeability, 27 (AGA Staff Paper, 2006) (<http://www.aga.org/NR/rdonlyres/C9D9FB1D-E244-4B9D-9C67-5FA74C24A8E0/0/0604GASINTERCHANGEABILITYSTAFFPAPER.pdf>).

Comments

29. AGA notes that, in the November 2009 NOPR, the Commission did not propose to require the incorporation of standards regarding the posting of gas quality information.

AGA urges the Commission to reconsider, and argues that, when there is strong support within four industry segments for a proposed NAESB standard, but a single segment blocks the initiative, such a proposal cannot be fairly characterized as lacking support.³³

AGA also argues that the Commission should take a closer look at the standards and make a determination on the merits as to whether the benefits achieved by the transparency of gas quality information and the efficiency associated with the standardized practices as to posting the information would outweigh the burden of the incorporation of such standards.³⁴

30. AGA maintains that the standard requiring pipelines to calculate the Wobbe number is consistent with the Commission's reliance on the Natural Gas Council's White Paper on Natural Gas Interchangeability and Non-Combustion End Uses.³⁵ AGA

³³ AGA Comments (Docket No. RM96-1-036) at 6.

³⁴ Id. at 6-7.

³⁵ The White Paper on Gas Interchangeability was developed by a consortium of parties, including pipelines, LNG suppliers, utilities, power generators, and other end users of natural gas, and discusses issues and makes recommendations with respect to natural gas quality and interchangeability. <http://www.ferc.gov/industries/lng/indus-act/issues/gas-qual/natural-gas-inter.pdf>.

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contends that the White Paper concluded that “the Wobbe Number provides the most efficient and robust single index and measure of gas interchangeability,” and AGA argues shippers have a critical need for the Wobbe number. AGA also argues that the blocked posting standard would allow shippers to obtain information based on a given date range which will allow shippers to compare gas quality information over different periods of time.

31. AGA also recommends that the Commission consider the merits of posting historical gas quality information based on a given date range so that shippers could compare gas quality information over different periods rather than the NAESB standard which require information by location for a three month period.³⁶

Commission Determination

32. In the past, the Commission has resolved disputes at NAESB, and adopted our own standards, when we find that the standards are sufficiently important to warrant such

On June 15, 2006, the Commission issued a Policy Statement relating to natural gas quality. Natural Gas Interchangeability, 115 FERC ¶ 61,325 (2006), reh'g denied, 126 FERC ¶ 61,210 (2009).

³⁶ Id. at 8-9.

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intervention.³⁷ We have examined the substance of these gas quality standards, as we noted in the NOPR, and we have reached the conclusion that these particular standards do not warrant such intervention. AGA has not provided convincing reasons that these standards are as important to the operation of the pipeline grid as the standards on which the Commission intervened in the past or that the benefits of these standards outweigh the burdens.

33. The Commission does not currently require pipelines to use the Wobbe number in calculating gas quality. It is not clear, and AGA has not demonstrated, that a widespread need to compare gas quality across pipelines exists, that all pipelines actually collect information that permit them to calculate a Wobbe number, that the best or only way to make such a comparison is using the Wobbe number, or that the few shippers with a need for such a comparison cannot reasonably make comparisons based on existing information. We therefore see insufficient justification for imposing a burden on pipelines to calculate a Wobbe number when the Wobbe number has no significance to their systems.

³⁷ See Order No. 587-G, 63 FR 20072 (Apr. 23, 1998), FERC Stats. & Regs. ¶ 31,062 (adopting Commission regulations regarding priority between firm and interruptible service, operational balancing agreements, and imbalance netting and trading).

34. With respect to the blocked standard regarding downloading, the existing NAESB standards, 4.3.90, 4.3.91, and 4.3.92, already require pipelines to provide a downloadable file, with a standardized file format, of gas quality information for each identified location for a three month period. Since the data are available, we see no need for Commission intervention to determine a download functionality that is more efficient for all pipelines, particularly given the large disparities in the quantity of data provided by different pipelines. Moreover, because pipelines' gas quality requirements differ markedly, some issues regarding gas quality, including the use of the Wobbe number and individual posting requirements keyed to the specific gas quality conditions on a pipeline can be better addressed in individual Commission proceedings involving gas quality when relevant.

III. Implementation Schedule and Procedures

35. In their comments on the July NOPR, AGA, NJN/PSEG, and NGSA support prompt implementation of the index based capacity release standard and the standards providing greater flexibility for using alternate receipt and delivery points so that shippers can benefit from the enhanced flexibility and improved efficiency that the standards provide.³⁸ INGAA urges the Commission to defer requiring implementation of the index

³⁸ AGA Comments (Docket No. RM96-1-030) at 2-3, Reply Comments at 1-7; NJN/PSEG Comments (Docket No. RM96-1-030) at n.2; NGSA Comments (Docket No. RM96-1-030) at 3.

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based capacity release standards and receipt and delivery point standards until after the Commission completes its consideration of NAESB WGQ Standards Version 1.9, so that pipelines can implement these standards once.³⁹ El Paso urges the Commission to implement the index-based capacity release and flexible delivery and receipt point standards six months after the effective date of the Version 1.9 Standards.⁴⁰ TVA also argues that the Commission should postpone deciding on the proposals in the July 2009 NOPR due to the fact that NAESB will file the WGQ Version 1.9 Standards in the near future.

Commission Determination

36. We have sought reasonably to balance the interests of the parties by acting quickly on the November 2009 NOPR and adopting Version 1.9 of the standards. This will ensure that shippers can utilize the flexibility provided by the index based releases and the improved point right authority, but at the same time resolves the pipelines' concerns by minimizing their costs through a single implementation. In addition, we are directing the filing of tariff sheets at a time that coordinates with the filing by natural gas pipelines and processing by the Commission of the pipelines' electronic tariff filings.

³⁹ INGAA Comments (Docket No. RM96-1-030) at 1, Answer at 2-3.

⁴⁰ El Paso Comments (Docket No. RM96-1-036) at 1.

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37. Thus, we will require natural gas pipelines to file tariff sheets to reflect the changed standards on September 1, 2010, to take effect on November 1, 2010, and will require implementation of these standards by November 1, 2010. Pipelines incorporating the Version 1.9 standards into their tariffs must include the standard number and Version 1.9 designation.⁴¹

38. In addition, we have noticed that pipelines propose to incorporate the NAESB standards in a variety of non-standard ways. For example, pipelines often file to renew requests for waivers or extensions of time with respect to particular standards without providing a citation to the order or notice in which the initial waiver or extension was granted. As a result, both Commission staff and the public have difficulty reviewing the compliance filings.

39. To ease the burden of compliance review, we therefore will specify certain format requirements applicable to the compliance filings. Pipelines must include in their transmittal letter a table of all the NAESB standards incorporated by reference and a cross-reference to the tariff provision (whether revised or not) in which that standard is contained. For standards that are not incorporated by reference, the pipelines also should

⁴¹ Please see the attached Appendix B, which shows the preferred and recommended format for submitting tariff sheets that would incorporate the NAESB Version 1.9 gas standards by reference.

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identify the tariff provision that complies with that standard.⁴² Where applicable, pipelines shall also include a table of prior standards for which waivers or extensions of time were granted along with citations to the relevant orders or notices granting those waivers or extensions of time. In addition, we have included as Appendix B an example of a recommended tariff provision for incorporation of the NAESB standards by reference.

IV. Notice of Use of Voluntary Consensus Standards

40. In section 12(d) of NTT&AA, Congress affirmatively requires federal agencies to use technical standards developed by voluntary consensus standards organizations, like NAESB, as the means to carry out policy objectives or activities determined by the agencies unless use of such standards would be inconsistent with applicable law or otherwise impractical.⁴³ NAESB approved the standards under its consensus procedures. Office of Management and Budget Circular A-119 (§ 11) (February 10, 1998) provides that federal agencies should publish a request for comment in a NOPR when the agency is seeking to issue or revise a regulation proposing to adopt a voluntary consensus standard or a government-unique standard. On July 16, 2009, the Commission issued a

⁴² We note that Standards 1.3.2 and 5.3.2 should be included in the pipelines' tariffs.

⁴³ See supra, n.12.

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NOPR proposing to incorporate by reference NAESB's standards governing Index-Based Capacity Release and Flexible Delivery and Receipt Points and on November 19, 2009, the Commission issued a NOPR that proposed to incorporate by reference NAESB's Version 1.9 Standards, which included the standards on Index-Based Capacity Release and Flexible Delivery and Receipt Points. The Commission took the comments on these two NOPRs into account in fashioning this Final Rule.

V. Information Collection Statement

41. The Office of Management and Budget's (OMB) regulations in 5 CFR 1320.11 require that it approve certain reporting and recordkeeping requirements (collections of information) imposed by an agency. Upon approval of a collection of information, OMB will assign an OMB control number and an expiration date. Respondents subject to the filing requirements of this Final Rule will not be penalized for failing to respond to these collections of information unless the collections of information display a valid OMB control number.

42. This Final Rule upgrades the Commission's current business practice and communication standards to the latest edition approved by the NAESB WGQ (i.e., the Version 1.9 Standards).

43. The implementation of these standards is necessary to increase the efficiency of the pipeline grid, make pipelines' electronic communications more secure, and is consistent with the mandate that agencies provide for electronic disclosure of

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information. Requiring such information ensures a common means of communication and ensures common business practices that provide participants engaged in transactions with interstate pipelines with timely information and uniform business procedures across multiple pipelines.

44. The following burden estimates include the costs to implement the WGQ's revised business practice standards and communication protocols for interstate natural gas pipelines. The implementation of these data requirements will help the Commission carry out its responsibilities under the Natural Gas Act of promoting the efficiency and reliability of the natural gas industry's operations. In addition, the Commission's Office of Energy Market Regulation will use the data for general industry oversight.

45. The Commission sought comments on the Commission's estimate provided in the NOPR of the burden associated with adoption of the NOPR proposals. In response to the NOPR, no comments were filed that addressed the reporting burden imposed by these requirements. Therefore the Commission will use these same estimates in this Final Rule, with the sole exception that, based on more recent information, we are updating our estimate of the number of respondents (from 168 to 130).

Data Collection	No. of Respondents	No. of Responses Per Respondent	Hours Per Response	Total No. of Hours
FERC-549C	130	1	22	2,860
Totals				2,860

Total Annual Hours for Collection

(Reporting and Recordkeeping, (if appropriate)) = 2,860

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46. Information Collection Costs: The Commission sought comments on the costs to comply with these requirements. It has projected the average annualized cost for all respondents to be the following:⁴⁴

	FERC-549C
Annualized Capital/Startup Costs	\$ 429,000
Annualized Costs (Operations & Maintenance)	N/A
Total Annualized Costs	\$ 429,000

47. OMB regulations⁴⁵ require OMB to approve certain information collection requirements imposed by agency rule. The Commission is submitting notification of this Final Rule to OMB. These information collections are mandatory requirements.

Title: FERC-549C, Standards for Business Practices of Interstate Natural Gas Pipelines.

Action: Information collection.

OMB Control No.: 1902-0174.

Respondents: Business or other for profit, (Interstate natural gas pipelines (Not applicable to small business)).

⁴⁴ The total annualized cost for the information collection is \$ 429,000. This number is reached by multiplying the total hours to prepare a response (hours) by an hourly wage estimate of \$150 (a composite estimate that includes legal, technical, and support staff rates). \$ 429,000= \$150 x 2,860.

⁴⁵ 5 CFR 1320.11.

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Frequency of Responses: One-time implementation (business procedures, capital/start-up).

Necessity of Information: The Commission's regulations adopted in this rule upgrade the Commission's current business practices and communication standards in response to the Commission's determinations in Order Nos. 682, 698, 698-A, 712, and 717, and would: revise standards allowing index-based pricing for capacity release transactions and allow for increased receipt and delivery point flexibility through the use of redirects of scheduled quantities; create information posting requirements for web sites and browsers; require the posting of gas quality information including posting and format requirements; report hydrocarbon liquid drop out measurements; and create standards to reflect changes in the use of software used on the Internet.

48. The implementation of these data requirements will increase the efficiency of the capacity release market and the ability to schedule gas around constraints, will be reported directly to the industry users and will provide additional transparency to informational posting web sites. It also will improve gas quality measurements and will improve communication standards. The implementation of these standards and regulations will promote the additional efficiency and reliability of the gas industries' operations thereby helping the Commission to carry out its responsibilities under the Natural Gas Act of promoting the efficiency and reliability of the gas industries' operations. In addition, the Commission's Office of Energy Market and Regulation will

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use the data in rate proceedings to review rate and tariff changes by natural gas companies for the transportation of gas, for general industry oversight, and to supplement the documentation used during the Commission's audit process.

49. Internal Review: The Commission has reviewed the requirements pertaining to business practices and electronic communication with interstate natural gas pipelines and has made a determination that these revisions are necessary to establish a more efficient and integrated pipeline grid. These requirements conform to the Commission's plan for efficient information collection, communication, and management within the natural gas industry. The Commission has assured itself, by means of its internal review, that there is specific, objective support for the burden estimates associated with the information requirements.

50. Interested persons may obtain information on the reporting requirements by contacting: Federal Energy Regulatory Commission, Attn: Michael Miller, Office of the Executive Director, 888 First Street, NE, Washington, DC 20426 Tel: (202) 502-8415, Fax: (202) 273-0873, Email: michael.miller@ferc.gov or by contacting: Office of Management and Budget, Office of Information and Regulatory Affairs, Washington, DC 20503 [Attention: Desk Officer for the Federal Energy Regulatory Commission, (202) 395-4638, fax: (202) 395-7285].

VI. Environmental Analysis

51. The Commission is required to prepare an Environmental Assessment or an Environmental Impact Statement for any action that may have a significant adverse effect on the human environment.⁴⁶ The Commission has categorically excluded certain actions from these requirements as not having a significant effect on the human environment.⁴⁷ The actions adopted here fall within categorical exclusions in the Commission's regulations for rules that are clarifying, corrective, or procedural, for information gathering analysis, and dissemination, and for sales, exchange, and transportation of natural gas and electric power that requires no construction of facilities. Therefore, an environmental assessment is unnecessary and has not been prepared in this Final Rule.

VII. Regulatory Flexibility Act

52. The Regulatory Flexibility Act of 1980 (RFA)⁴⁸ generally requires a description and analysis of final rules that will have significant economic impact on a substantial number of small entities. In drafting a rule an agency is required to: (1) assess the effect that its regulation will have on small entities; (2) analyze effective alternatives that may

⁴⁶ Order No. 486, Regulation Implementing the National Environmental Policy Act, 52 FR 47897 (Dec. 17, 1987), FERC Stats. & Regs., Regulations Preambles 1986-1990 ¶ 30,783 (1987).

⁴⁷ 18 CFR 380.4.

⁴⁸ 5 U.S.C. 601-612.

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minimize a regulation's impact; and (3) make the analysis available for public comment.⁴⁹

53. The regulations we are adopting in this Final Rule impose requirements only on interstate pipelines, the majority of which are not small businesses. In this regard, we note that, under the industry standards used for the RFA, a natural gas pipeline company qualifies as a "small entity" if it had annual receipts of less than \$ 7 million.⁵⁰ Most companies regulated by the Commission do not fall within the RFA's definition of a small entity. Approximately 130 entities would be potential respondents subject to data collection FERC-549C reporting requirements. Nearly all of these entities are large entities. For the year 2007 (the most recent year for which information is available), only four companies not affiliated with larger companies had annual revenues of less than \$ 7 million, which is about three percent of the total universe of potential respondents.

⁴⁹ 5 U.S.C. 601-604.

⁵⁰ See U.S. Small Business Administration, Table of Small Business Size Standards, http://www.sba.gov/idc/groups/public/documents/sba_homepage/serv_sstd_tablepdf.pdf (effective July 31, 2006).⁵⁰ 5 U.S.C. 601(3), citing section 3 of the Small Business Act, 15 U.S.C. 623. Section 3 of the SBA defines a "small business concern" as a business which is independently owned and operated and which is not dominant in its field of operation. The Small Business Size Standards component of the North American Industry Classification System defines a small natural gas pipeline company as one that transports natural gas and whose annual receipts (total income plus cost of goods sold) less than \$ 7 million for the previous year.

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Moreover, these requirements are designed to benefit all customers, including small businesses. As noted above, adoption of consensus standards helps ensure the reasonableness of the standards by requiring that the standards draw support from a broad spectrum of industry participants representing all segments of the industry. Because of that representation and the fact that industry conducts business under these standards, the Commission's regulations should reflect those standards that have the widest possible support.⁵¹

54. Accordingly, pursuant to section 605(b) of the RFA, the Commission hereby certifies that the regulations adopted herein will not have a significant adverse impact on a substantial number of small entities.

VIII. Document Availability

55. In addition to publishing the full text of this document in the Federal Register, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the Internet through FERC's Home Page (<http://www.ferc.gov>) and in FERC's Public Reference Room during normal business

⁵¹ As we stated in Standards for Business Practices of Interstate Natural Gas Pipelines, Order No. 587-C, FERC Stats. & Regs. ¶ 31,050, at 30,588 (1997), pipelines may file requests seeking waiver or extension of the requirements of this rule, but must file such requests within 30 days of the issuance of this rule.

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hours (8:30 a.m. to 5:00 p.m. Eastern time) at 888 First Street, NE, Room 2A, Washington, DC 20426.

56. From FERC's Home Page on the Internet, this information is available on eLibrary. The full text of this document is available on eLibrary in PDF and Microsoft Word format for viewing, printing, and/or downloading. To access this document in eLibrary, type the docket number excluding the last three digits of this document in the docket number field.

57. User assistance is available for eLibrary and the FERC's web site during normal business hours from FERC Online Support at 202-502-6652 (toll free at 1-866-208-3676) or email at ferconlinesupport@ferc.gov, or the Public Reference Room at (202) 502-8371, TTY (202)502-8659. E-mail the Public Reference Room at public.referenceroom@ferc.gov.

IX. Effective Date and Congressional Notification

58. These regulations are effective [insert date 30 days from publication in **FEDERAL REGISTER**]. The Commission has determined, with the concurrence of the Administrator of the Office of Information and Regulatory Affairs of OMB, that this rule is not a "major rule" as defined in section 351 of the Small Business Regulatory Enforcement Fairness Act of 1996.

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List of subjects in 18 CFR part 284

Continental shelf, Incorporation by reference, Natural gas, Reporting and recordkeeping requirements.

By the Commission.

(S E A L)

Kimberly D. Bose,
Secretary.

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In consideration of the foregoing, the Commission amends part 284, Chapter I, Title 18, Code of Federal Regulations, as follows.

**PART 284 – CERTAIN SALES AND TRANSPORTATION OF NATURAL GAS
UNDER THE NATURAL GAS POLICY ACT OF 1978 AND RELATED
AUTHORITIES**

1. The authority citation for part 284 continues to read as follows:

Authority: 15 U.S.C. 717-717w, 3301-3432; 42 U.S.C. 7101-7352; 43 U.S.C. 1331-1356.

2. Section 284.12 is amended by revising paragraphs (a)(1) and (a) (2) to read as follows:

§ 284.12 Standards for pipeline business operations and communications.

(a) * * *

(1) * * *

(i) Additional Standards (General Standards, Creditworthiness Standards and Gas/Electric Operational Communications Standards)
(Version 1.9, September 30, 2009);

(ii) Nominations Related Standards (Version 1.9, September 30, 2009);

(iii) Flowing Gas Related Standards (Version 1.9, September 30, 2009);

(iv) Invoicing Related Standards (Version 1.9, September 30, 2009);

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(v) Quadrant Electronic Delivery Mechanism Related Standards

(Version 1.9, September 30, 2009) with the exception of Standard 4.3.4;

(vi) Capacity Release Related Standards (Version 1.9, September 30, 2009); and

(vii) Internet Electronic Transport Related Standards (Version 1.9, September 30, 2009) with the exception of Standard 10.3.2.

(2) This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of these standards may be obtained from the North American Energy Standards Board, 801 Travis Street, Suite 1675, Houston, TX 77002, Phone: (713) 356-0060. NAESB's website is at <http://www.naesb.org/>. Copies may be inspected at the Federal Energy Regulatory Commission, Public Reference and Files Maintenance Branch, 888 First Street, NE., Washington, DC 20426, Phone: (202) 502-8371, www.ferc.gov, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:

<http://www.archives.gov/federal--register/code--of--federal--regulations/ibr--locations.html>.

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Appendix A

Note: The following Appendix will not appear in the Code of Federal Regulations.

List of Commenters⁵²

American Gas Association (AGA) filed comments in Docket Nos. RM96-1-030 and RM96-1-036 and reply comments in Docket No. RM96-1-030.

Arizona Public Service Company (APS) filed comments in Docket No. RM96-1-030.

Carolina Gas Transmission Company (Carolina) filed comments in Docket Nos. RM96-1-030 and RM96-1-036.

El Paso Corporation (El Paso) filed comments in Docket No. RM96-1-036.

Interstate Natural Gas Association of America (INGAA) filed comments and an answer in Docket No. RM96-1-030.

Natural Gas Supply Association (NGSA) filed comments in Docket No. RM96-1-030 (late filed).

New Jersey Natural Gas Company & PSEG Energy Resources & Trade LLC (NJN/PSEG) filed comments in Docket No. RM96-1-030.

Tennessee Valley Authority (TVA) filed comments in Docket No. RM96-1-030.

⁵² The abbreviations used to refer to these commenters in this Final Rule are shown parenthetically.

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Appendix B

Note: The following Appendix will not appear in the Code of Federal Regulations.

Recommended Tariff Provision

GENERAL TERMS AND CONDITIONS

Compliance with 18 CFR, Section 284.12

Transporter has adopted all of the Business Practices and Electronic Communications Standards which are required by the Commission in 18 CFR, Section 284.12 (a), as amended from time to time, in accordance with Order No. 587, et al. In addition to the NAESB WGQ Standards referenced elsewhere in the Tariff, Transporter specifically incorporates by reference the following NAESB WGQ Version 1.9 Standards, Definitions, and Data Sets, by reference:

Additional Standards:

General:

Principles (Optional):

0.1.1, 0.1.2, 0.1.3

Standards:

0.3.1, 0.3.2, 0.3.16, 0.3.17

Creditworthiness:

Standards:

0.3.3, 0.3.4, 0.3.5, 0.3.6, 0.3.7, 0.3.8, 0.3.9, 0.3.10

Gas/Electric Operational Communications:

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North American Energy Standards Board

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February 22, 2010

TO: NAESB Members, Related Energy Associations and Organizations and Posting
CC: Lynn Costantini, NERC
RE: Request for Proposals on Electric Industry Registry Administrator
DATE: February 22, 2010

The leadership of the North American Energy Standards Board ("NAESB") and the North American Electric Reliability Corporation ("NERC") have determined that the Electric Industry Registry ("EIR") would be more appropriately maintained by the NAESB organization. The organizations are in the process of transferring the EIR from NERC to NAESB, and as part of that process, NAESB is issuing the attached Request for Proposal ("RFP") for an Electric Industry Registry Administrator. After reading the RFP, we hope that you consider this request and submit a proposal to perform this valuable and highly visible industry role. If you intend to submit an RFP, please notify the NAESB office as soon as possible and provide your contact information. Please prepare your proposals and return them to the NAESB office by May 21, 2010.

Should you choose to submit a proposal, your proposal should address the following:

- The proposed fee structure or funding alternatives
- Timeline for implementation

The NAESB office in consultation with NERC, should reach a decision regarding the submitted proposals no later than June 30, 2010.

Very Truly Yours,

Rae McQuade

Rae McQuade
President, NAESB

Cc: NAESB Managing Committee
Cory Galik Cummings
Lynn Constantini



North American Energy Standards Board

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North American Energy Standards Board

Request for Proposal

Electric Industry Registry Administrator

February 22, 2010



North American Energy Standards Board

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Request for Proposal Electric Industry Registry Administrator

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4. Exhibit A
 - 4.1. EIR System Requirements Document



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1. Preface

1.1. Background and Request

The Electric Industry Registry (EIR) serves as a central repository of information that is required for commercial interactions. The North American Electric Reliability Corporation (NERC) and the North American Energy Standards Board (NAESB) leadership determined that NAESB, as owner and maintainer of several technical standards, including OASIS Standards & Communications Protocol, will maintain the EIR. NAESB represents its members in the wholesale electric industry in setting both business practice and electronic commerce standards.

NAESB is requesting proposals from industry participants who wish to act as administrator for the EIR. The administrator will maintain and update the EIR, maintain backups and archives of the EIR including maintenance of a disaster recovery plan, and will ensure industry access to the EIR as noted in Exhibit A.

Once the proposal timeframe concludes, the NAESB and NERC staff leadership will review the proposals and by June 30, 2010 will determine a response and reply to all submitters.

1.2. Bidding Instructions

1.2.1. General

NAESB is proposing the following project. Interested parties and several consulting and service companies have been invited to submit bid proposals for this project. Those who desire to make a bid must first make their own estimates of maintaining the Electric Industry Registry including personnel required and difficulties associated with the performance of the proposed Contract, including contingencies to ensure full operations. Those desiring to bid shall exercise special care in studying the functional and technical personnel within their organizations to ensure that the products and services offered are accurately represented, and, if a decision is made to submit a proposal, these instructions should be followed.

1.2.2. Qualifications

The submitting party should have experience in the following areas:

- NAESB standards
- The current TSIN Registry 1.7.03
- Open Access Same-Time Information System (OASIS)
- e-Tag Version 1.8.1

The submitting party should provide a summary of qualifications in the proposal submitted.

1.2.3. Bid Proposal Preparation

A response is requested for all sections and issues identified in this document. Proposals not addressing each issue will not receive the same consideration compared to those proposals that are complete. The proposals should be signed by the person authorized to act for the submitting party. The proposal should indicate the time period for which it is valid. For clarifications of any question, please forward questions by email to Veronica Thomason at naesb@naesb.org before 4:00 p.m. CST each day through May 20, 2010. The responses will be provided to all submitting parties without disclosing the authorship of the questions. Unless advised otherwise, the submitting party should submit one copy of its proposal in electronic format to the NAESB office no later than May 21, 2010.



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1.2.4. Award or Rejection of Bids

The contract will be awarded to one service company or consulting firm, provided that the proposal is deemed to be reasonable and in the interest of NAESB to accept. The submitting party to whom the award is made will be notified at the earliest practical date, no later than June 30, 2010. NAESB reserves the right to reject any and all proposals and to waive any formality in proposals received, whenever NAESB deems such rejection or waiver to be in the best interest of NAESB.

1.2.5. Implementation Schedule

The target date for accepting responsibility as the EIR Administrator is as soon as possible after acceptance of the proposal by NAESB. The proposal should include a testing for transition from NERC to the EIR Administrator and an implementation timeline.

1.2.6. System Verification and Testing

The EIR Administrator will work with NAESB and NERC to ensure that all data is accurately transferred from NERC to the EIR Administrator. The transfer of functions from NERC to the EIR Administrator will take place only after all three organizations agree that the data has transferred and that the functions as described in Exhibit A are operational.

1.2.7. Industry Training

The proposal should address an industry training program to effect a transition from NERC to the EIR Administrator. The training program and development of any needed materials should be reflected in the implementation timeline.

2. System Description

2.1. General Overview

The EIR Administrator must incorporate existing functionality provided by the current TSIN Registry 1.7.03 and accommodate new industry requirements to support OASIS, e-Tag and other applications, as shown in e-Tag version 1.8.1. Data residing in the Registry will be authenticated as part of system implementation and testing before being published for use.

2.2. Operating Environment

The NAESB WEQ PKI Certificate Policy and Authorized Certification Authority Accreditation and Certification Program will identify those certification authority service providers that are authorized to issue certificates under the NAESB policy.

These certification authority service providers would be registered as an entity with the appropriate role of PKI CA. The EIR Administrator would be required to approve/certify these registrations. The following additional information will be registered for each authorized certification authority:

- Certificate Issuer(s)

The certificate issuers identify attributes that can be embedded in the certificates issued by this authorized certification authority.

2.3. Definitions

2.3.1. EIR Administrator - The submitting party who has been selected by NAESB to be the sole administrator and whom in turn has agreed to be the administrator. The administrator will maintain and provide to EIR users the information contained within the Registry.

2.3.2. Data Provider - Any party supplying information to the Registry.



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2.3.3. EIR user - Any party who utilizes the Registry.

3. Functional Requirements

3.1. EIR Administrator

The EIR Administrator will initially maintain the existing TSIN Registry in the e-Tag application with data changes in parallel with the new EIR for a period of 6 months after EIR implementation. The Registry design must also consider providing a general mechanism to audit Registry changes and reconstruct the Registry at a given point in time. The EIR Administrator will maintain necessary data base information. The Administrator is responsible for periodic publication of the full Registry and potentially selected subsets of that registry. Should the Administrator determine that it no longer will perform the role, 12 months notice to NAESB is required in order to effect an orderly transition to a new administrator.

4. Security Requirements

- 4.1 Install and maintain a firewall configuration to protect the EIR.
- 4.2 Do not use vendor-supplied defaults for system passwords and other security parameters.
- 4.3 Protect stored data in the EIR.
- 4.4 Encrypt transmission of EIR data across open, public networks.
- 4.5 Use and regularly update anti-virus software or programs to protect against viruses, Trojans, malware, and other software attacks that might compromise data.
- 4.6 Develop and maintain secure systems and applications.
- 4.7 Restrict access to EIR data as described in Exhibit A.
- 4.8 Assign a unique ID to each person with computer access.
- 4.9 Restrict physical access to EIR data as described in Exhibit A.
- 4.10 Track and monitor all access to network resources and the EIR.
- 4.11 Regularly test security systems and processes.
- 4.12 Maintain a policy that addresses information security for employees and contractors.
- 4.13 Shared hosting providers must protect the EIR environment, (all users, and sub-contractor and partners have to have the same level of security because security is only as strong as its weakest component).

5. Exhibit A

5.1. EIR System Requirements Document (following)

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System Requirements Document

Electric Industry Registry (EIR)

Version 1.1
March 19, 2008



North American Energy Standards Board

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February 13, 2006	0.4	Addition of Glossary	JISWG
May 25, 2006	1.0	Changes to address Industry Comment	JISWG
November 16, 2007	1.1	Updated for NAESB RFP	JISWG
March 19, 2008	1.1	Updated in response to comments received	JISWG



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1. Introduction

This System Requirements Document describes the content and requirements for a central repository (or Registry) of information for various electric industry needs addressing both reliability and commercial interaction. The Registry must incorporate existing functionality provided by the current TSIN Registry 1.7 and accommodate new industry requirements to support OASIS, e-Tag, functional model registration, and other applications. Data residing in the Registry will be authenticated before being published for use. The Joint Interchange Scheduling Working Group (JISWG), in cooperation with NERC and NAESB staff, will oversee the development and implementation of the Registry.

In creating this specification, the JISWG was aware of the fact that roles and responsibilities for NERC and NAESB have yet to be finalized. Where it was undecided which entity(ies) would have responsibility for a specific function, the term "NAESB/NERC" was used.

1.1. Requirements Overview

The following is a brief summary of the existing regulatory and industry application requirements for information to be made available through a central registry NAESB Business Practices Standards; Order 638

- Entity Code
- Entity DUNS
- Transmission service attributes
- Ancillary service attributes
- Points of Receipt and Delivery (PORs/PODs)
- NAESB Standards and Communications Protocols for Open Access Same Time Information Systems (OASIS); Order 889-B, Order 605
 - OASIS Node Location (URL)
 - OTHER_CURTAILMENT_PRIORITY
 - PROCEDURE_NAME
 - PROCEDURE_LEVEL
 - REQUEST_TYPE
 - SECURITY_TYPE
 - SYSTEM_ATTRIBUTE
- NERC Reliability Standards and the e-Tag specification:
 - Tag Service Location (Agent/Authority/Approval/Forwarding URLs)
 - PSE Code
 - CA Code
 - TSP Code
 - SC Code
 - PORs/PODs
 - Sources/Sinks
 - Product codes

The current TSIN Registry 1.7 definition accommodates most of these requirements.



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The following are various Industry initiatives that could benefit from an expanded central registry of information:

- NAESB Wholesale Electric Quadrant (WEQ) Public Key Infrastructure (PKI)
 - Authorized Certification Authorities (CA)
 - Qualified CA Object Identifiers (OIDs)
 - CA Root Certificate Public Key
- e-tag Transaction Path Validation
 - TSP POR/POD Path and Scheduling Entity Association
 - TSP Path Adjacency
 - Source to TSP POR Adjacency
 - TSP POD to Sink Adjacency
- Seams Coordination and IDC Granularity
 - Book of Flowgates
 - AFC coordination data
 - Source/sink zones

These current and future Registry requirements are summarized in the following subsections according to the general functionality that will be required to be supported.

1.1.1. Registry Identifier

The Registry must include identifying information related to its publication, format, and applicability. Such information might include:

- Schema version
- Publication date/time
- Activation date/time

Schema version would reference an agreed to enumeration of revisions to the Registry, or might reference a specific XSD, if the Registry is published in an XML format. Publication date would be when this version of the Registry was created and made available. Activation date would be when this specific version of the Registry was to take effect.

Additional information may be included to provide assurance that the Registry is authentic and has not been altered. This information might include a “digest” of the Registry, digitally signed by the registry administrator, such that any corruption or modification of Registry information could be detected. This mechanism will be determined during the detailed design phase of the Registry project. Entities (Companies)



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Entity (Company) registration is one of the key functions of the current Registry and will be extended in the new Registry. Key attributes that are required for entity registration and integration with existing applications include:

- Entity Name
- Entity Location(s)
- Entity Contact(s)
- Entity Identifier(s)
- Entity Code(s)
- Entity-to-Entity Relationship(s)
- Entity Role(s) (Functions)
- Entity Certification(s)

The Registry must support the registration of the full business entity name and primary place of business. Entity registration must provide for the entry of effective start and end date/times. These dates may be in the future to take effect on, but not before, the specified start date/time.

The ability to support a one-to-many relationship between a given registered entity and each of the attributes for location, contact information, identifiers, codes, affiliations and roles must be provided.

Entity location information will consist of a street address for the entity. Contact information will be classified by the contact type. Contact types will be defined in the Registry by the registry administrator. For example, there may be administrative contacts, technical support contacts, emergency (24x7) contacts, etc. Contact types will be associated with the specific entity roles. The registry administrator may require that certain contact types be populated. The Registry implementation should enforce this requirement as part of automated data validation and constraint verification. Entity identifier would minimally support the registration of the entity's DUNS number required by the OASIS application. Various other industry recognized standard identifiers may be used in the future. The system design should anticipate the need to accommodate additional identifiers.

Entity code information is important to both the OASIS and the e-tag specifications. OASIS codes are the entity code itself. E-tag codes are the registered tag PSE codes currently consisting of the entity code with an appended tag desk code. Current requirements must be supported, but other restrictions should be relaxed with the only requirement that entity code must be unique at any given point in time, and once assigned should have limited ability to be re-used by another entity, e.g., only in the case of an acquisition/merger or divestiture. The ability to require and enforce an authorized third party (i.e. Registry administrator or designee)¹ approval of registered entity codes must be included in the Registry.

Entity-to-entity relationships must be supported to provide a trace of entity acquisitions/mergers and or divestitures, as well as inter-entity affiliations. Entity affiliations are required by the OASIS application to identify the merchant affiliates of each transmission provider.

Entity roles or functions must be extended from the limited set supported by the current TSIN Registry 1.7 to support the registration of entities performing the various functions defined by the NERC Functional Model. Registration of an entity role/function should provide the ability for third party (i.e. Registry administrator or designee) approval or "certification" that the entity has

¹ Note that "third party" identification depends on the type of information being registered.



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in fact been qualified to perform that function. The ability to enable or disable the requirement for third party approval of a registered entity role is required. (Flag: "or information" will be added where appropriate.) The EIR must include the capability for registering all functional model roles. Only certain functional model roles are required to register however, it must be possible for any entity to register as performing a defined role if allowed by the Registry administrator. The following are the initial set of entity roles to be considered in the Registry:

- Current O/SE (Operations) associated entity roles
 - RC — Reliability Coordinator
 - BA — Balancing Authority
 - MO — Market Operator
 - TO — Transmission Operator
 - TSP — Transmission Service Provider
 - IA — Interchange Authority
 - GO — Generator Operator
- Current TC/PSE (Merchant) associated entity roles
 - TC — Transmission Customer (i.e., OASIS customer code)
 - PSE — Purchasing Selling Entity (i.e., Tagging desk code)
 - LSE — Load Serving Entity (implies PSE)
 - GPE — Generation Providing Entity (implies PSE)
 - Generator Owner
- Additional Entity Roles
 - Registry Administrator
 - ASP — Application Service Provider
 - PKICA — PKI Certification Authority
 - ERO — Electric Reliability Organization
 - RRO — Regional Reliability Organization
 - IMM — Independent Market Monitor
 - Compliance Monitor
 - Distribution Provider
 - Planning Coordinator
 - Resource Planner
 - Standards Developer
 - Transmission Owner
 - Transmission Planner

The key registration requirement is that an entity may register one or more entity codes. Each of those entity codes may be associated with one or more entity roles. The combination of entity code and entity role determines the context within certain actions that may be performed or granted. For example, in e-tagging, the entity code allowed to appear in association with a source must be designated as having the entity role of GPE to be valid in the context of that tag.



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1.1.2. Clients (Users)

The Registry must support at least a rudimentary set of client/user registration functions to minimally identify who is able to access and update the Registry itself. There will also be requirements that certain applications will require the Registry to provide client authentication credentials.

Typical information that would be registered for a client would include:

- User's entity
- User name
- User credential(s)

User credentials may include different types of credentials, but would minimally support the x.509 certificate information for one or more certificates issued to that client. The Registry must support a one-to-many relationship between a client and their credentials. Certificate credentials require information from the certificate subject field and certificate issuer field for uniqueness.

1.1.3. Security

The NAESB WEQ PKI Certificate Policy and Authorized Certification Authority Accreditation and Certification program will identify those certification authority service providers that are authorized to issue certificates under the NAESB policy.

These certification authority service providers would be registered as an entity with the appropriate role of PKICA. A NAESB representative would be required to approve/certify these registrations. The following additional information will be registered for each authorized certification authority:

- Certificate Issuer(s)

The certificate issuers identify attributes that can be embedded in the certificates issued by this authorized certification authority.

1.1.4. Applications

The Registry must support the registration of specific applications and will require the registration of specific "enumerated" data types or attributes. This requirement is particularly true for OASIS. FERC and NAESB Business Practice Standards enumerate specific transmission and ancillary service attributes and additional data elements that may be "registered" by a transmission provider.

Applications may also require the identification or location of the server/service provided for the application. OASIS requires the registration of the OASIS node location (URL) for each transmission provider; e-tag requires the registration of the location (URL) for each of the tag services required to be provided by TSPs, CAs, and PSEs.

Each application that requires registration of specific information would appear in the Registry. Application "registration" is envisioned to be part of the base data established by the registry administrator. The specific application attributes would then be registered by either the industry at-large, or specific entities.



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1.1.4.1. Application Services

The Registry currently supports registration of various application services by the Uniform Resource Locator (URL) that is used to access that service/application. This includes:

- OASIS Nodes
- Tag Agent Services
- Tag Authority Services
- Tag Approval Services
- Tag Forwarding Services

It is expected that additional services may be registered in the future. Such information might include locations for web services related service URLs, XML schema, WSDL, or UDDI locators.

Application services are envisioned to be registered and maintained by those entities that support/provide the service (e.g., entity type of ASP). Contact information should be provided for each service (e.g., twenty-four hour support, administrative, etc.). Many potential entities could subscribe or use these services. The Registry must support an entity's registration as a user/subscriber to a specific registered service. The Registry will need to support a many-to-many relationship between services and entities. The Registry must support a many-to-many relationship between services and client certificates (certificate credentials).

The Registry must support mapping between application services and the applications they support. The exact nature of this association must recognize, but not limited to, the following types of existing relationships:

- Application = e-tag
 - Service = Tag Agent URL
 - Service = Tag Authority URL
 - Service = Tag Approval URL
 - Service = Tag Forwarder URL
- Application = OASIS
 - Service = OASIS URL
- Application = IDC
 - Service = IDC URL

1.1.4.2. Application Attributes

Each application appearing in the Registry may require the definition of unique registered attributes. OASIS requires such information for the transmission service attributes for data elements TS_CLASS, TS_TYPE, SERVICE_INCREMENT, etc. The e-tag application also requires definition of product codes and curtailment priorities.

Capabilities must be provided for a Registry administrator or designee to review and "approve" registration of attributes.



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The basic information that is required to be captured related to application attributes would include:

- Application (name or identifier)
- Application Attribute (e.g., TS_CLASS, etc.)
- Application Attribute Value (e.g., FIRM, etc.)
- Registering Entity
- Approval Entity

1.1.5. Topology

The Registry must support the registration and association between physical, commercial, and reliability topology information for use in a variety of applications.

These applications would include:

- Definition of metered areas (balancing areas) controlled by registered balancing authorities (BAs)
- Definition of the metered areas (balancing areas) overseen by registered reliability coordinators (RC) (reliability coordinator areas)
- Definition of metered areas participating in a centralized market overseen by a registered market operator (MO) (market areas)
- Contract path or e-tag path adjacencies between transmission providers (TSPs), and scheduling entities (SEs)
- Location of commercial service points (PORs, PODs, sources, or sinks) with respect to commercial markets and with respect to reliability related areas (BAs/RCs)
- Mapping of commercial service points to reliability or network modeled elements recognized by reliability applications (e.g., OASIS POR/PODs mapped to IDC flowgates or MMWG elements)

OASIS and e-tag currently require the registration of PORs, PODs, sources, and sinks and the association of Control Areas to Reliability Coordinators. This functionality must be retained and updated to reflect the NERC Functional Model. Registry administrator or designee (e.g., MO, TSP, or BA) approval of registered topology information must be supported. The approval (authentication) of data will vary by data element. Any element must be able to be mapped to any registered entity as the “approval entity.” Many of the data elements included in the EIR will be under the control solely of the user authorized to enter data into the Registry and will require no approval. The JISWG will work with the vendor to provide a mapping between 1) data elements requiring authentication and 2) the authenticating party.

The most significant immediate extension needed by the industry is a means to validate tag path information through the Registry. The requirements for this extension are discussed in the following subsections along with some of the simpler topological relationships that may be represented in the Registry.

1.1.5.1. Interconnection

The Registry must provide for a hierarchical model of inter-relationships to represent the different topologies, physical, commercial, and/or political that is needed by the industry. Definition of the three major synchronous Interconnections, Western, Eastern, and ERCOT, must be included in the Registry as a foundational element.



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Creation and maintenance of Interconnection registration may be the responsibility of the registry administrator.

1.1.5.2. Electric Reliability Organization

The registry must allow the registration of the Electric Reliability Organization (ERO). The ERO will have a role in authorizing certain data elements (such as RROs and RCs).

1.1.5.3. Regional Reliability Organization

Regional Reliability Organizations (RROs) may be included in the Registry to identify the overseeing RRO that has responsibility for a reliability area and/or balancing area.

RROs must be registered and associated with a single entity/entity code acting as that RRO. Registration of reliability areas and/or balancing areas as being associated with a given RRO must be supported. The possibility of a given reliability area being associated with more than one RRO must be supported.

1.1.5.4. Reliability Area

Reliability authorities/coordinators must have the ability to define their specific areas of influence. It is assumed that a reliability area would not cross an Interconnection. It may be related to one or more Regional Reliability Organizations and, it would include one or more balancing areas.

Reliability areas must be registered and associated with a single entity/entity code acting as Reliability Coordinator. The registry administrator may take on the responsibility for creating and maintaining registration of reliability areas.

1.1.5.5. Market Area

The boundaries of centrally administered markets may be registered. This information may be used by applications such as e-tagging to limit market operator re-dispatch of tagged transactions to only those balancing areas over which they have such authority. It is assumed that a market area can span one or more reliability areas, one or more Regional Reliability Organizations, but will contain, in its entirety, one or more balancing areas. The Registry must support market area registration. Market Operator adjustments would depend on this information.

Market areas must be registered and associated with a single entity/entity code acting as market operator. The registry administrator may take on the responsibility for creating and maintaining registration of market areas.

1.1.5.6. Balancing Area

The balancing area represents a named metered area overseen by a single certified balancing authority. It is assumed that a BA will be within one and only one Interconnection and one and only one market area (if any) and one and only one reliability area. The BA may span one or more Regional Reliability Organizations.

Balancing areas must be registered and associated with a single entity/entity code certified to act as a BA. The registry administrator may take on the responsibility for creating and maintaining registration of balancing areas.



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1.1.5.7. Control Zone (or Little Balancing Area/LBA)

The Registry must be able to support the concept of control zones that represent subsets of a balancing area. This supports the potential for increased granularity for system reliability tools when identifying the impact of certain transactions on network elements. By default, the BA is the control zone. At least one control zone must be registered for each balancing area. Where increased model granularity must be recognized, the ability to associate multiple control zones within a single balancing area must be supported (e.g., PJM as balancing area has control zones of CE, AEP, DPL, etc.).

Control zones may be registered by the single entity/entity code certified to act as the BA that contains that control zone. Definition of control zones must be coordinated by those responsible for wide-area network modeling and maintenance of reliability tools that rely on those models. The registry administrator may take on the responsibility for creating and maintaining registration of control zones.

1.1.5.8. Service Points

The current Registry provides for transmission service provider definition of the commercial PORs and PODs used in OASIS. The Registry also provides for PSEs to define e-tag sources (for GPEs) and sinks (for LSEs). This functionality must be retained. However, a more rigorous process for Registry administrator or designee validation of these service point registrations should be instituted.

When registered, the relationship of each commercial service point to the entity making the registration (e.g., TSP for PORs/PODs), and the various “areas” in which the point is located (e.g., Interconnection, reliability area, market area, balancing areas, etc.) such that all the operational entities that may be involved with commercial or reliability issues associated with that point may be identified.

The Registry must provide for the association of a given source or sink with one and only one control zone. The Registry must also provide for the association of which registered entity/entity code of type GPE may reference a given source and the association of which registered entity/entity code of type LSE may reference a given sink.

Currently, GPEs/LSEs are allowed to submit registrations of sources and/or sinks with approval granted to the referenced BA and/or MO. Since this information is so integrally tied into market and reliability processes and systems, the industry may elect to change the registration procedure to be controlled by operational entities rather than merchant entities. The Registry implementation must be flexible to allow control over source/sink registration by PSEs with approval of a balancing authority or market operator or limit registration to only be submitted and maintained by the BA/MO.

1.1.5.9. Paths

The Registry must support the definition of commercial transmission paths by each entity/entity code registered as a TSP. A path is defined as a valid POR and POD pair that may be scheduled with a designated scheduling entity (SE). There must be no restriction that a given named path may be associated with multiple POR/POD pairs, or that a given POR/POD pair may be associated with multiple paths. The combination of TSP, POR, POD, Scheduling Entity, and path name must be unique. Registration of



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paths and their associated POR/POD pair and Scheduling Entity must support the OASIS S&CP path naming convention.

For TSPs that have many Interconnections, physical and/or contractual, with other TSPs, the number of unique POR/POD pairs that represent valid commercial paths within their systems can be voluminous. The Registry implementation must provide for the ability to define paths using wildcard designations or other user interface or application programming interface structures to provide for an efficient mechanism to manage this large volume of information. The internal representation of path information in the Registry, however, may be very explicit to simplify programmatic use of the information.

That is, a TSP that has ten POR/PODs, and all possible pair-wise combinations of POR and POD are legitimate scheduling paths with a given Scheduling Entity, must be able to register and manage this information in an efficient manner even though the actual Registry may contain the explicit definition of the paths that result from those ten POR/PODs.

1.1.5.10. Path Adjacency

The Registry must support the ability to identify adjacencies between TSPs and Scheduling Entities'. This information is intended to be used specifically for e-tag scheduling path validations. Many constructs could be used to register and identify these adjacencies. The most direct method would be to identify which specific TSP registered paths (POR, POD, Scheduling Entity, Path combination) are adjacent to both any upstream TSP (i.e., TSP POR adjacent to upstream POD) and downstream TSP (i.e., TSP POD adjacent to downstream POR).

The Registry must recognize the many permutations of physical and contractual adjacencies that must be supported in order to accurately represent valid scheduling paths between TSPs and controlled by Scheduling Entities'. As with path definitions, this data can be voluminous and shorthand, efficient methods to enter and maintain the necessary associations must be implemented.

1.1.5.11. Source-POR Adjacency

The current source and POR registration must be extended to provide a mechanism to register the commercial relationship between a source resource and the TSP PORs over-which transmission service must be secured to schedule energy. Alternatively, source to path adjacency could be used to define this relationship more explicitly.

1.1.5.12. POD-Sink Adjacency

The current sink and POD registration must be extended to provide a mechanism to register the commercial relationship between a sink resource and the TSP PODs over-which transmission service must be secured to schedule energy. Alternatively, source to path adjacency could be used to define this relationship more explicitly.

1.1.6. Reference Documents

The following reference documents provide additional information on the various functional requirements that must be met by the TSIN Registry 1.7. The latest version of the following documents (where applicable):



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- Standards and Communication Protocols for Open Access Same Time Information System (OASIS), FERC Docket No. RM95-9-014.
- Standards for Business Practices and Communication Protocols for Public Utilities Docket No. RM05-5-003; Order No. 676-B
- Master Registry Definition Document, Version 1.7, NERC.
- Electronic Tagging — Functional Specifications, Version 1.8, NERC.
- Electronic Tagging — Registry Definition, Version 1.7.04, NERC.
- Registry Technical Specification, Version 2.0.3, NERC.
- NAESB WEQ-001 Business Practices for Open Access Same-Time Information Systems (OASIS)
- NAESB WEQ-002 Open Access Same-Time Information Systems (OASIS) Standards and Communications Protocols
- NAESB WEQ-003 Open Access Same-Time Information Systems (OASIS) Data Dictionary
- NAESB WEQ 012 Public Key Infrastructure (PKI) Standards
- NAESB WEQ 013 OASIS Implementation Guide
- NERC Functional Model version 4

1.2. Glossary

Any definitions not contained herein may be found in the NERC Glossary of Terms Used in Reliability Standards, the NAESB WEQ Standards, or FERC Glossary.

- 1.2.1. Application Programming Interface (API)** – A language and message format used by an application program to communicate with the operating system or some other control program such as a database management system (DBMS) or communications protocol.
- 1.2.2. Application Service Provider (ASP)** – An **ASP** is a business that provides computer-based services to customers over a network. The most limited sense of this business is that of providing access to a particular application program (such as medical billing) using a standard protocol such as HTTP.
- 1.2.3. Balancing Authority (BA)** – The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time.
- 1.2.4. Certification Authority (CA)** – The organization that issues and manages certificates.
- 1.2.5. Certificate issuer** – The Certification Authority
- 1.2.6. Certificate OID** – Each certificate policy is uniquely represented by an "object identifier" (OID) which is a numeric string that is contained in a field of each certificate that is issued according to a given certificate policy. In order to ensure interoperability and uniqueness of each OID, these are registered with recognized international bodies according to a structure defined in X.208 from the International Telecommunications Union (ITU) (the structure can be examined at <http://www.alvestrand.no/objectid/top.html>).
- 1.2.7. Client certificate** – X.509 Digital Certificate received (by a "client") from a Certification Authority.



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- 1.2.8. Digital certificate** – The digital equivalent of an ID card used in conjunction with a public key encryption system. Also called "digital IDs," digital certificates are issued by a trusted third party known as a "certification authority" (CA) such as VeriSign (www.verisign.com) and Thawte (www.thawte.com). The CA verifies that a public key belongs to a specific company or individual (the "subject"), and the validation process it goes through to determine if the subject is who it claims to be depends on the level of certification and the CA itself.
- 1.2.9. Data Universal Numbering System® (DUNS)** – The **Data Universal Numbering System®**, abbreviated as **D-U-N-S®**, is a system developed and regulated by Dun & Bradstreet (D&B) which assigns a unique numeric identifier to a single business entity. This numeric identifier is commonly referred to as a D-U-N-S number.
- 1.2.10. Electric Reliability Organization** – Responsible organization authorized under the Federal Power Act to develop and enforce Reliability Standards that provide for an adequate level of reliability of the Bulk-Power System.
- 1.2.11. Entity affiliate** – An organization that is associated with another organization as a subordinate, subsidiary, or member.
- 1.2.12. Entity predecessor** – The organization that preceded the current organization. This typically follows a reorganization, merger, acquisition, or divestiture.
- 1.2.13. Extensible Markup Language (XML)** – A metalanguage written in SGML that allows one to design a markup language, used to allow for the easy interchange of documents on the World Wide Web.
- 1.2.14. Generation Providing Entity (GPE)** – Merchant selling energy from owned, affiliated, or contractually bound generation.
- 1.2.15. Global attribute** – Industry defined attributes such as TS_CLASS FIRM.
- 1.2.16. Independent market monitor** – An organization that is not affiliated with any electric industry Market Participant, Market Operator, or Transmission Service Provider that is responsible for monitoring market activities.
- 1.2.17. Load-Serving Entity (LSE)** – Secures energy and transmission service (and related Interconnected Operations Services) to serve the electrical demand and energy requirements of its end-use customers.
- 1.2.18. Local attribute** – An attribute defined by the TSP such as SERVICE_INCREMENT SEASONAL.
- 1.2.19. Local Balancing Authority (LBA)** - control zone that represents a subset of a Balancing Authority Area.
- 1.2.20. Market Operator (MO)** – Entities registered as market operators and serving as either source or sink for a TRANSACTION may exercise such functions in order to indicate correct flow based on market clearing.
- 1.2.21. PKI certification authority (PKICA)** – In cryptography, a certificate authority or certification authority (CA) is an entity which issues digital certificates for use by other parties. It is an example of a trusted third party. CA's are characteristic of many public key infrastructure (PKI) schemes.



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- 1.2.22. **Point Of Delivery (POD)** – A location that the Transmission Service Provider specifies on its transmission system where an Interchange Transaction leaves or a Load-Serving Entity receives its energy.
- 1.2.23. **Point Of A Receipt (POR)** – A location that the Transmission Service Provider specifies on its transmission system where an Interchange Transaction enters or a Generator delivers its output.
- 1.2.24. **Purchasing Selling Entity** – The entity that purchases or sells, or takes title to, energy, capacity, and Interconnected Operations Services. Purchasing-Selling Entities may be affiliated or unaffiliated merchants and may or may not be own generating facilities.
- 1.2.25. **Reliability Coordinator(RC)** – The entity that is the highest level of authority who is responsible for the reliable operation of the Bulk Electric System, has the Wide Area view of the Bulk Electric System, and has the operating tools, processes and procedures, including the authority to prevent or mitigate emergency operating situations in both next-day analysis and real-time operations. The Reliability Coordinator has the purview that is broad enough to enable the calculation of Interconnection Reliability Operating Limits, which may be based on the operating parameters of transmission systems beyond any Transmission Operator's vision.
- 1.2.25. **Root CA identifier** – Unique OID of the Root CA.
- 1.2.26. **Root CA Public key** – The public key of the Root Certificate Authority X.509 digital certificate that is provided to the Root CA's subordinate Certificate Authorities.
- 1.2.27. **Root Certificate** – In cryptography and computer security, a **Root Certificate** is an unsigned public key certificate, or a self-signed certificate, and is part of a public key infrastructure scheme. The most common commercial variety is based on the ISO X.509 standard. Normally an X.509 certificate includes a digital signature from a certification authority (CA) which vouches for correctness of the data contained in a certificate.
- 1.2.28. **Scheduling Entity (SE)** – An entity responsible for approving and implementing Interchange Schedules.
- 1.2.29. **Transmission Operator (TO)** – The entity responsible for the reliability of its "local" transmission system, and that operates or directs the operations of the transmission facilities.
- 1.2.30. **Transmission Service Provider (TSP)** – The entity that administers the transmission tariff and provides Transmission Service to Transmission Customers under applicable transmission service agreements.
- 1.2.31. **Unaffiliated entity** – Any of two or more organizations that are not associated with each other as a subordinate, subsidiary, or member.
- 1.2.32. **Uniform Resource Locator (URL)** – The address that defines the route to a file on an Internet server (Web server, FTP server, mail server, etc.). URLs are typed into a Web browser to access Web pages and files, and URLs are embedded within the pages themselves as hypertext links.



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2. Registry Processes and Procedures

2.1. General Concepts

Due to the industry's heavy reliance on the existing TSIN Registry 1.7 in the e-tag application, the existing TSIN will need to continue to be populated with data changes in parallel with the new EIR for a period of 6 months after EIR implementation. Every Registry entry must also support tracking of the following key information:

- Creation Date – date/time the entry was first inserted into the Registry
- Activation Date – date/time the entry becomes active or in use
- Deactivation Date – date/time the entry is no longer to be used
- Last Update – date/time the registry was last updated
- Modified By – identifying information for the person or software application that created/modified the Registry entry

The registry design must also consider providing a general mechanism to audit Registry changes and reconstruct the Registry at a given point in time. Consideration should be given to a uniform database table update process whereby the record to be updated is marked as 'deactivated' and the updated data inserted as a new record with a corresponding 'activation' date/time.

2.2. Registry Administrator Procedures

2.2.1. Administrator Base Data

Certain base data information will need to be established and maintained by the registry administrator. Such information might include:

- Entity Identifier Types — DUNS, etc.
- Entity Role Types — BA, LSE, ASP, etc.
- Client Role Types — Entity Admin, Registry Admin, etc.
- Contact Types — Administrative, 24-Hour, Technical Support, etc.
- Applications — OASIS, e-tag, etc.
- Application Service (Server) Types — OASIS, Tag Agent, etc.
- Application Attributes — TS_CLASS, SECURITY_TYPE, etc.
- Interconnections — Eastern, Western, ERCOT
- Regions — MAAC, WECC, etc.
- Service Point Role Types — Source, POD, etc.

Additions, updates, and deletions (deactivation) of records within these tables will be restricted to the registry administrator only at the direction of an authorized entity (NAESB, NERC, DOE, etc). The user interface will allow the registry administrator to view, add, and modify records in these tables as necessary. General access to these tables by all other users will be restricted to read only access. Addition of new information in these tables may be initiated by industry participants through an off-line administrative procedure with appropriate "checks and balances" as established by the registry administrator.

The registry administrator, under the direction of a NAESB representative, will assume responsibility for maintaining the content of the following Cyber-Security related base data:



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- Certificate Root – Authorized Certification Authority (CA) Root Certificate
- Certificate Policy – Authorized CA OID(s) for certificates issued
- Certificate Issuer – Distinguished name of Authorized CA Issuing Authority(ies)

2.2.2. Full Registry Publication

The registry administrator is responsible for the periodic publication of the full Registry and potentially selected subsets of that registry. This could conceivably be an automated process. The publication of the registry requires taking a snapshot of the Registry at the time indicated in the Registry Version and Publication Date field. The Registry will then be made available for download in the following formats:

- XML via defined web services using SOAP encapsulation and XML schema(s)

The current publication frequency is:

- Registry published daily at midnight.
- Published Registry's activation date set for midnight twenty-four hours after publication.

The new Registry may be published more or less frequently than the current TSIN Registry. This publication schedule may change in the future dependent on how frequently Registry data is modified.

The Registry may be cleaned of all spurious data corrections made between publications due to mistakes, typos, etc., made during the registration process. The registry administrator may archive all records whose creation date AND deactivation date is greater than the last publication date but less than the publication date (i.e., records that never became active in the Registry).

Rather than periodic publication of the Registry on a fixed schedule, the registry administrator may elect to only publish a new Registry when information has changed since it was last published. The ability for any registered entity/entity code to subscribe for notification of the availability of a new Registry must be provided. This notification must include support for unsolicited XML (SOAP Method) documents sent to the entity who registered for notification indicating that the EIR has been modified and a new one is available for download.

It must be possible for an entity to request the “changes since <date>” for the EIR. This would include any updates or additions. (Updates include any changes to deactivation date).

2.3. Entity — Initial Registration

The following information must be collected as part of the initial registration process for a new entity:

- User — information regarding the individual submitting the initial entity registration; this information will populate an initial client associated with the entity and assigned the role of "Entity Administrator" (See Client – Initial Registration);
- Entity — information including official/legal entity name, business address, etc.;
- Entity Code — one or more short acronyms to be associated with the entity with one or more entity role(s) can be assigned to each entity code;
- Entity Identifier — one or more industry recognized legal entity identifiers (e.g., DUNS) if any entity code assigned the role of TSP (transmission service provider), or TC (transmission customer). Additional validations/requirements may depend on other roles assigned to the entity ;(Determined at a later date.)



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- Entity Affiliates — zero or more identifications of any active, registered entities to which the new entity is affiliated;
- Entity Predecessor — zero or more associations to existing registered entities, which gave rise to formation of the new entity (e.g., merger, acquisition, divestiture, etc.).

The following subsections describe specific requirements relative to the validation and processing of the entity's initial registration.

2.3.1. Entity

Desired "activation date" will default to the Registry Version Activation Date unless an alternative date in the future is supplied by the user (activation date in the past must be flagged as an error).

The activation date will apply to all entity related information records inserted into the Registry during initial registration.

Prior to insertion into the database, a unique master registry identifier must be assigned to the entity being registered. This identifier should be used as the reference identifier in all data registered by that entity. Changes in information such as entity address, etc., should not constitute registration of a new entity. Mechanisms must be supported that allow the transfer of all existing registered information associated with one entity to another through a user request.

2.3.2. Entity Identifier

Entity identifier information submitted must supply both the value for the identifier (e.g., DUNS number) along with the "type" of identifier represented by that value (e.g., "DUNS"). Entity identifier information submitted must be verified for uniqueness. If the entity has attempted to register an entity code with entity role of TSP or TC, the registration information must contain a DUNS number as at least one of their entity identifiers to comply with OASIS registration requirements.

2.3.3. Entity Affiliate

Entity affiliate information, if any, must verify that the affiliated entity is still a valid/active entity. Entities and affiliates must mutually approve the establishment of the relationship.

2.3.4. Entity Predecessor

Entity predecessor information, if any, must verify the validity of the preceding entity registration(s). This information would most likely be presented and submitted from the UI when the user seeks to change an existing registered entity to reflect merger, divestiture, etc. If an existing entity is being replaced, both the predecessor and the successor must agree to this relationship. Predecessor entities do not necessarily have to be active to be associated with a new entity registration.

Along with identifying any predecessor entity, the reason for the change in entity registration must be identified from a set of enumerated reasons including:

- Merger
- Acquisition
- Divestiture
- Reorganization



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- Other

2.3.5. Entity Code and Entity Role

At least one entity code must be provided and associated with at least one entity role. The entity role of "unaffiliated entity" (or any of its specific associated roles) must be the only entity role selected and be associated with only a single entity code, i.e., unaffiliated entities are limited to one registered entity code and only the role of "unaffiliated entity".

There is no restriction on a given entity registering separate entity codes as both an "O/SE" and "TC/PSE". If not explicitly supplied, the O/SE and/or TC/PSE role will be assumed by default for the first entity code registered that has one or more of the specific O/SE or TC/PSE roles defined as shown below. In addition, the role of PSE will be assumed if either GPE or LSE is selected.

The EIR will need to allow entities to register for any role identified in the NERC Functional Model. This document is subject to change and the EIR must be flexible enough to accommodate changes to the NERC Functional Model.

- Current O/SE (Operations) associated entity roles
 - RC — Reliability Coordinator (formerly Security Coordinator)
 - BA — Balancing Authority (formerly Control Area)
 - MO — Market Operator
 - TO — Transmission Operator
 - TSP — Transmission Service Provider
 - IA — Interchange Authority
 - GO — Generator Operator
- Current TC/PSE (Merchant) associated entity roles
 - TC — Transmission Customer (i.e., OASIS customer code)
 - PSE — Purchasing Selling Entity (i.e., Tagging desk code)
 - LSE — Load Serving Entity (implies PSE)
 - GPE — Generation Providing Entity (implies PSE)
 - Generator Owner
- Additional Entity Roles
 - Registry Administrator
 - ASP — Application Service Provider
 - PKICA — PKI Certification Authority
 - ERO — Electric Reliability Organization
 - RRO — Regional Reliability Organization
 - IMM — Independent Market Monitor
 - Compliance Monitor
 - Distribution Provider
 - Planning Coordinator
 - Resource Planner
 - Standards Developer



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- Transmission Owner
- Transmission Planner
- Compliance Monitor
- Distribution Provider
- Generator Operator
- Generator Owner
- Interchange Authority
- Planning Coordinator
- Resource Planner
- Standards Developer
- Transmission Owner
- Reliability Coordinator

Certain restrictions may be required that would make some combinations of entity roles mutually exclusive, i.e., registration of an entity code as both a TSP and PSE may be invalid. All submitted entity codes must be verified for uniqueness. Prior to insertion into the Registry, a unique master registry identifier may be assigned to each of the Entity Codes being registered.

The capability to designate an entity with registration approval rights over the registered entity code/entity role must be provided unless the entity code is registered with any of the entity role of "other". These entities may represent regulatory agencies, universities, consulting groups, etc., that do not have an active merchant or operations role in the electric industry. These entity registrations may be required to designate a Sponsoring Entity (i.e., one with merchant or operations role) that will serve as the registrant's approval entity. Alternatively, the registry administrator may take on this approval role.

Following submission of the registration of an entity code table, as a triggered event or controlled by a batch script procedure, e-mail notifications must be generated to the administrative contact for the entity identified as having approval rights over the entity code registration. Similarly, once an entity code registration has been approved, an e-mail notification must be sent to that entity's administrative contact.

2.3.6. Entity Contact and Entity Code Contact

Registration of contact information must be provided at both the entity level and at the entity code/role level. User information identifying the registrant will be used to create an initial client record associated with the new entity registration. By default, entity contact and entity code contact information create a mapping of this client to the "Administrative" contact for the entity as a whole and for each supplied entity code. The administrative contact will then be responsible for adding additional client records in association with the various contacts, which may be associated with the entity and/or entity code(s) after the initial registration (e.g., 24 hour, Technical Support, etc.).

The following enumerated contact types must be supported:

- Administrative
- Technical
- 24 hour
- Operations — Real-time



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- Operations — Day-ahead/pre-schedule
- Customer relations

Not all contact types are required or applicable to each of the various entity roles. Certain contact types may be required by industry standards and practices in association with specific entity roles, and such requirements must be modeled in the Registry.

2.4. Entity — Updates

2.4.1. Entity

Authorized "Entity Administrators" may update information associated with their entity registration. These updates would be to legal business entity name and/or location. Update operation is effected by deactivating the current record and inserting a new record with the updated information activated coincident with the deactivation of the original record. Entity relationships within the various registered objects must key to unique identifiers assigned to the entity and maintained across updates to that entity's registered information and not to specific table record identifiers. This ensures that the Registry contains both current and all historic records associated with the entity. Similar constructs must be applied to all registered objects.

2.4.2. Entity Identifier

New entity identifiers may be registered by authorized entity administrators. Entity identifiers may be updated to reflect corrections or changes in the value of any registered identifier by first deactivating the current registered information and then inserting the updated information into the entity identifier table.

2.4.3. Entity Affiliate

New entity affiliate associations may be inserted by authorized entity administrators. New information will be verified in the same manner as performed for the initial entity registration. Termination of entity affiliate relationship records is accomplished by updating the deactivation date field to reflect when the affiliation was terminated, and may occur at any time without restriction. There is no information that may be updated with respect to entity affiliation.

2.4.4. Entity Predecessor

New entity predecessor associations may be inserted by authorized entity administrators. New information will be verified in the same manner as performed for the initial entity registration. Entity predecessor information is restricted to being registered by the succeeding entity only. Modification of existing information will be accomplished by deactivating the current information and inserting the updated/corrected information.

Deletion of entity predecessor records is accomplished by updating the deactivation date field to reflect when the association between the entities was terminated; this is assumed to mainly be the result of correcting an error on registration.

2.4.5. Entity Code and Entity Role

Updates to entity code information are restricted to the addition or deactivation of entity role information. The entity code itself may only be altered if it has not been approved, and is subject to all uniqueness checks as described for initial entity registration.



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New entity code and entity role associations may be submitted for an existing entity. Entity code and entity role information will be validated to insure it passes all validations as described for a new entity registration.

Entity code and entity role associations must support the ability to track approval of that code/role by an authorized third party, i.e., NERC would have approval of entities registering with the balancing authority role as part of their certification program.

See discussion below for restriction on deactivation of entity code or entity role information.

2.4.6. Entity Contact and Entity Code Contact

Contact information associating entity or entity code/role with a client may be added, updated or deactivated. Updating an entity contact or entity code/role contact record to reference a new client must result in deactivation of the existing record and insertion of a new record. Deactivation of an entity contact or entity code contact record may occur at any time without restriction. Insertion of new entity contact or entity code contact records requires only that the associate client record is currently active.

2.4.7. Entity Code Service

Certain entity codes must be mapped to appropriate application services (servers), e.g., PSEs mapped to TagAgent Server, TSP mapped to OASIS Server, etc. The entity administrator may insert, update or deactivate entity code service registrations at anytime without restriction. Update of entity code service associations is accomplished by deactivating the current record and inserting a new entity code service association. Note that the actual service registrations are performed by the entity providing that service.

2.5. Entity – Deactivation

The following subsections describe specific constraints or requirements for deactivation of Entity and related Registry information.

2.5.1. Entity

Deactivation of an entity requires the simultaneous deactivation of all associated records containing the following information/associations:

- Entity affiliate associations
- Entity codes
- Entity contacts
- Entity identifiers
- Clients

Each of these may have further constraints or requirements for deactivation of associated records.

Presence of active records associated with the entity to be deactivated for the following information will block deactivation of the entity. The user/administrator must deactivate these records prior to attempting to deactivate the entity.

- Services (for ASP entities)
- Certificate root (for PKICA entities)
- Certificate issuer (for PKICA entities)



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2.5.2. Deactivation of an Entity Code

Entity code requires the simultaneous deactivation of all the following associated registry information:

- Entity roles
- Entity code contacts
- Entity code services
- Entity code service points (for TSP, GPE and LSE entities)
- Entity code paths (for TSP entities)
- All topology related mappings to entity code

Each of these may have further constraints or requirements for deactivation of associated records.

2.5.3. Entity Role

Deactivation of an entity role associated with a given entity code is subject to the following constraints:

- If the entity role to be deactivated is an entity role type of RC, there must be no active reliability coordinator area registrations associated with the entity code
- If the entity role to be deactivated is an entity role type of BA or CA, there must be no active balancing area registrations associated with the entity code
- If the entity role to be deactivated is an entity role type of MO, there must be no active market area registrations associated with the entity code
- If the entity role to be deactivated is an entity role type of TSP, there must be no active POR/POD, path or path adjacency registrations associated with the entity code
- If the entity role to be deactivated is an entity role type of PSE, there should be no active source/ sink associated with the entity code
- If the entity role to be deactivated is entity role type of ASP, there must be no active application service registrations associated with the entity code

Any such active registrations referencing an entity role to be deactivated must first be deactivated or assigned to another entity code prior to deactivation of the entity role record.

2.6. Client — Initial Registration

Submission of client information is subject to uniqueness and validation checks. Initial registration of an entity always must result in insertion of an active client record associated with the role of entity administrator. At a minimum, client registration information will be used for Registry Access Control.

Submission of client information may be performed by clients associated with active, approved, registered entities where the client has been assigned the role of user administrator. All information is subject to uniqueness and validation checks. Information required for registration of a client includes designation of name and contact information. Additional information may be submitted to define associated:

- Client certificates (or more generic client credentials)
- Client roles

Contact information associated with entities, entity codes, or services may be modeled as registered clients and mapped to entity, entity code, or service and contact type information, or maintained separately from the client registration.



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Prior to insertion into the database, a unique master registry identifier must be assigned to the client being registered.

2.7. Client — Updates

2.7.1. Client Role

Association/disassociation of roles to an active client may occur at anytime without restriction. Now, the only roles envisioned are those required to implement Registry Access Control, including but not limited to:

- Entity administrator
- User administrator

2.8. Client — Deactivation

Deactivation of a client record is subject to the following constraints and/or requirements:

- All active client role records associated with the client to be deactivated must be deactivated simultaneously

If client registrations are used to identify contacts, the following additional constraints are required:

- All active entity contact registrations associated with the client to be deactivated must be deactivated simultaneously
- All active entity code contact records associated with the client to be deactivated must be deactivated simultaneously
- All active service contact records associated with the client to be deactivated must be deactivated simultaneously

2.9. Application — Initial Registration

The only application related registration information accepted from external entities is registered Application Services and Application Attribute Values. All other application related registry information is maintained by the registry administrator. This includes the identification of the registered applications and associated application service types (e.g., e-tag Tag Agent Service).

2.9.1. Application Services

Submission of service registration information may be performed by clients of an active, approved registered entity with at least one entity code assigned the role of ASP. All information is subject to uniqueness and validation checks.

Information required for registration of a service includes designation of the service type, URI, and a description. Additional information may be submitted to identify one or more service contact information (e.g., technical support, etc.).

Prior to insertion into the database, a unique master registry identifier must be assigned to the service being registered.

2.9.2. Application Attribute Value

Submission of application attribute value information includes the name of the application as defined in the application base data and the particular data element whose value is being registered as defined in the application attribute name base data.



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Currently, submissions of application attribute values are only allowed for the OASIS application and may only be submitted by clients whose parent entity contains an active, approved entity code designated with the entity role of TSP.

The application attribute base data defines whether the application attribute value is subject to approval by another entity and which entity is granted approval rights. If approval is not required, the registry administrator will be the approval entity and the registered value will be automatically approved on insertion into the database.

If approval is required, an e-mail notification must be sent to the administrative contact(s) associated with the approval entity. Once that entity updates the record to indicate approval (or disapproval), an e-mail notification will be sent to the registering entity's administrative contact.

Attributes that require approval must be considered 'global' attributes that any TSP may reference or use (e.g. TS_CLASS). Attributes not requiring approval must be considered 'local' and apply only to the entity that registered that attribute value.

2.10. Application — Updates

2.10.1. Application Service

Authorized ASP entity administrators may update information associated with their service registrations. These updates would be to service URL or description. Update operation is effected by deactivating the current registration and inserting a new record with the updated information.

2.10.2. Entity Code Service

Addition, update or deactivation of registered entity code service associations are controlled by the entity owning that entity code. Activation of new records or deactivation of existing records may occur at any time without restriction. Update of existing records, i.e., changing service association, must be accomplished by deactivating the current record and inserting a new record with the updated information.

2.10.3. Application Service Contact

Contact information associated with a service may be added, updated or deactivated. Updating a service contact registration will result in deactivation of the existing record and insertion of a new record. Deactivation of a registered service contact may occur at any time without restriction.

2.10.4. Application Attribute Values

Once registered, OASIS application attribute value registrations may only be deactivated by the entity that approved the registration. The registering entity may update the value and associated description fields prior to approval of the registration only, i.e., for correction of errors or on the advice of the approval entity. Once approved, no updates will be allowed except for deactivation by the approval entity. Transmission and ancillary service attributes are examples of OASIS attributes, which require oversight and approval. Once these attributes are registered by one TSP, they must be re-useable by any other TSP. This would prevent unnecessary duplication of effort and eliminate a possible source of inconsistencies.

Certain OASIS application attributes are private to the TSP (local), such as REDUCTION_TYPE, SYSTEM_ATTRIBUTE, etc. No Registry administrator or designee approval is required for these attributes, and they may be updated by the entity that registered the attribute.



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2.11. Application — Deactivation

2.11.1. Application Service

Deactivation of a registered application service is subject to the following constraints and requirements:

- All application service contact records associated with the service to be deactivated must be deactivated simultaneously
- Any active entity code service associations to the service to be deactivated must block deactivation of the service

The Registry may support the registration of application services, which are 'voluntary' in nature. These services may be registered, updated and deactivated at will by the registering entity without affecting operations of any other services.

2.11.2. Application Attribute Value

Registered application attribute value records may be deactivated as described in the update process at any time. Global attributes must be deactivated by the entity that approved the registration; local attribute values may be deactivated by the registering entity.

2.12. Topology — Initial Registration

The following subsections outline the basic processes required for initial registration of topology information.

2.12.1. Interconnection

The registry administrator will assume responsibility for establishing the base definitions for the electrical system synchronous interconnections.

2.12.2. Regional Reliability Organization

The registry administrator will assume responsibility for establishing the base definitions for the Regional Reliability Organizations at the direction of NERC.

2.12.3. Reliability Coordinator Area

A registered and approved (by NERC) reliability coordinator must have the ability to register a reliability coordinator area. Key attributes are:

- Area name
- Association to the reliability coordinator
- Association to one or more Balancing Areas

The entity that approved the registration of the reliability coordinator must also have the rights to define the reliability coordinator area on the RCs behalf.

The registry administrator at the direction of NERC will establish the initial set of Reliability Coordinators and areas.

2.12.4. Market Area

A registered and approved market operator must have the ability to register a market area. Key attributes are:



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- Area name
- Association to the market operator
- Association to one or more balancing areas

The entity that approved the registration of the market operator must also have the rights to define the market area on the MOs behalf.

A validation rule must be enforced that a given balancing area may not appear in multiple market areas.

2.12.5. Balancing Area

A registered and approved (by NERC) balancing authority must have the ability to register a balancing area. Key attributes are:

- Area name
- Association to the balancing authority
- Association to one or more control zones
- Association to the market area (if any)
- Association to one reliability areas
- Association to one or more Regional Reliability Organization (optional)

The entity that approved the registration of the balancing authority must also have the rights to define the balancing area on the BAs behalf.

The registry administrator at the direction of NERC will most likely establish the initial set of balancing authorities and areas.

2.12.6. Control Zone/Local Balancing Authority Area

Control zones are subsets of balancing areas that allow reliability tools, such as IDC, to have increased granularity over transaction impacts than for the balancing area as a whole. Control zone definitions require coordination between NERC, network modeling groups, reliability tool developers, etc. A registered and approved (by NERC) balancing authority must have the ability to register a control zone. By default, each balancing area must have one control zone registered whose name is identical to the parent balancing area. Key attributes are:

- Zone name
- Association to the balancing area
- Association to one or more service points (sources/sinks)

The entity that approved the registration of the balancing authority must also have the rights to define the control zone on the BAs behalf.

The registry administrator, at the direction of NERC, will most likely establish the initial set of balancing areas and control zones.

2.12.7. Service Points

NAESB Business Practice Standards require registration of PORs and PODs by TSPs. Key attributes include:

- Point name



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- Role (POR and/or POD)
- Association to the transmission service provider

No approval should be required for an entity code with role of TSP to register PORs and PODs.

Registration of sources and sinks is currently handled by purchasing selling entities with approval granted by the balancing authority. Provisions must be made to allow sources and sinks to be registered directly by the balancing authority or market operator (for BAs within their market) in coordination with the PSE(s). Key attributes include:

- Point name
- Role (source and/or sink)
- Association to one or more purchasing selling entity
- Association to the control zone

PSEs associated with a source point must have the additional entity role of GPE; PSEs associated with a sink point must have the additional entity role of LSE.

No approval should be required for an entity code with role of TSP to register PORs and PODs.

2.12.8. Paths

To support tag path validation, TSPs will be required to register all valid commercial transmission service paths and their associated upstream and downstream adjacencies. Key elements of a registered path are:

- Path name
- POR
- POD
- Association to the transmission service provider
- Association to the scheduling entity

Paths are uniquely identified by the combination of all five attributes. Due to the large volume of data this represents for each TSP, the UI forms for registering paths must make efficient use of wildcards.

The OASIS S&CP identifies the following sub-attributes of a standardized path name:

- Region code
- Provider code
- Path code
- Optional code
- Spare code

2.12.9. Adjacencies

Path and source/sink adjacency information must be registered by the TSP. Path adjacency information would indicate:

- Association to upstream path
- Association to downstream path

Source adjacency information would indicate:



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- Association to source service point
- Association to downstream path

Sink adjacency information would indicate:

- Association to upstream path
- Association to sink service point

2.12.10. Balancing Authority Adjacencies

Balancing Authorities are adjacent at specific points of interconnection (POI). The EIR must contain BA Adjacency information by POI. Impacted parties would approve this data.

2.13. Topology — Updates

2.13.1. Interconnection

The registry administrator will assume responsibility for performing any updates on the definitions for the electrical system synchronous Interconnections.

2.13.2. Regional Reliability Organization

The registry administrator will assume responsibility for performing any updates on the definitions for the Regional Reliability Organizations at the direction of NERC.

2.13.3. Reliability Coordinator Area

The reliability coordinators or the entity that approved the RCs registration must be able to update the registration of the reliability coordinator area. This would be limited to changing the area name, the associations of balancing areas to the reliability coordinator area, and assignment of responsibility from the current owning reliability coordinator to another approved RC.

2.13.4. Market Area

The market operator must be able to update the registration of the market area. This would be limited to changing the area name, the associations of balancing areas to the market area, and assignment of responsibility from the current owning market operator to another approved MO.

2.13.5. Balancing Area

The balancing authorities or the entity that approved the BAs registration must be able to update the registration of the balancing area. This would be limited to changing the area name, the associations of control zone(s) to the balancing area, and assignment of responsibility from the current owning balancing authority to another approved BA.

2.13.6. Control Zone

The balancing authorities or the entity that approved the BAs registration must be able to update the registration of the control zone. This would be limited to updating the control zone's name, or adding/removing source sink points.

2.13.7. Service Points

TSPs must have the ability to update their POR/POD service point registrations.

BAs and or MOs whose balancing areas are under the control of the MO must have the ability to approve and/or update their source/sink service point registrations.



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2.13.8. Paths

TSPs must have the ability to update their path registrations.

2.13.9. Adjacencies

TSPs must have the ability to update the path adjacencies associated with any of the TSPs defined paths. Adjacency registration should be coordinated by the adjacent entities and responsibility delegated to one or the other parties to avoid conflicts.

TSPs must also have the ability to update the path to source/sink adjacencies in coordination with the source/sink balancing authority.

2.14. Topology — Deactivation

Deactivation of topology data at the request of any authorized entity shall be deferred for 30 days pending notice to all industry participants, unless an immediate change to the registry is requested by the entity through the Registry Administrator. Deactivation of topology data by the Registry Administrator shall typically be scheduled with 30 days notice to all industry participants, but may be scheduled for any appropriate time at the discretion of the registry administrator.

2.14.2. Interconnection

The registry administrator will assume responsibility for performing any deactivations of the definitions for the electrical system synchronous Interconnections.

2.14.2. Regional Reliability Organization

The registry administrator will assume responsibility for performing any deactivations of the definitions for the Regional Reliability Organizations at the direction of NERC.

Deactivation of a Regional Reliability Organization will simultaneously deactivate all associations of the RRO to balancing authorities (if any).

2.14.3. Reliability Area

The Reliability Coordinator or the entity approving the RC must have the ability to deactivate a reliability area.

Deactivation of a reliability area will simultaneously deactivate all associations of the RC to balancing authorities (if any).

2.14.4. Market Area

The market operator must have the ability to deactivate a market area.

Deactivation of a market area will simultaneously deactivate all associations of the MO to balancing authorities (if any).

2.14.5. Balancing Area

The balancing authorities or the entity that approved the BAs registration must be able to deactivate the registration of the balancing area. Deactivation of the balancing area must simultaneously deactivate the area's associations to registered RROs, reliability areas, and/or market areas. Deactivation must be blocked if there are any active control zones associated with the balancing area.



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2.14.6. Control Zone

The balancing authorities or the entity that approved the BAs registration must be able to deactivate the registration of the control zone. Deactivation of the control zone must simultaneously deactivate the zone's associations to register the balancing area. Deactivation must be blocked if there are any active service points associated with the control zone.

2.14.7. Service Points

TSPs must be allowed to deactivate service points. Deactivation of a POR/POD must be blocked if the service point is associated with an active path. . Deactivation of a source/sink must simultaneously deactivate that point's association with the control zone, and any of the point's path adjacencies.

2.14.8. Paths

TSPs must be allowed to deactivate paths. Deactivation of a path must simultaneously deactivate any path adjacencies referencing that path.

2.14.9. Adjacencies

TSPs must be allowed to deactivate path adjacencies at will.

2.14.10. Balancing Authority Adjacencies

BAs must be allowed to deactivate BA adjacencies at will. Impacted parties would approve this data.



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3. User and Registry Interaction

3.1. Browser Interface

The registry shall implement a web browser user interface, allowing users to access and manually register and enter data into the Registry without requiring any special software installations.

3.2. Encryption

The vendor shall require the user to use 128 bit SSL.

3.3. Data Access Rights

Users (including programmatic users via API) shall be allowed access to data based on their registered and approved data access rights. Registered users will be allowed only read access rights to data “belonging” to other entities (as described in section 2). Users may only modify, delete, or create data that “belongs” to them. NAESB and NERC may initiate deletion of invalid data according to the procedures described in section 2.

3.4. Data Validation at Entry

The system shall validate data content and format on data entry wherever possible providing meaningful error messages to the user that will allow the user to determine how to correct the data entry error.

3.5. Data Validation after Entry

The accuracy and validity of registry entries MUST be verified by automated and/or manual processes prior to use by industry participants. Prior to populating the “production” or “active” Registry, updates to the Registry must be confirmed with the appropriate stakeholders. The vendor will work with NERC to determine the appropriate data validation procedures and practices and then optimize the efficiency of this validation.

3.6. Display Consistency

Display formats and function must be consistent across all displays. NAESB staff will have final authority on determining if the vendor has met these requirements. If NAESB believes that the display is deficient in some manner, then they will provide the vendor with a specific description of what the vendor must change in order to achieve compliance with this requirement.

3.7. Color to Meaning Assignment

If the registry imparts information by color, then this color should be used to mean the same thing on all displays. For example, if the color RED is used to show a data format problem, it must not also be used to highlight data in an “accepted” state.

3.8. Application Programming Interface

The registry will provide the ability to upload data to and download data from the Registry using XML files defined by a published XML schema. Standards consistent with e-tag and WECC’s EIDE system shall be used including, SOAP and GMT for time representation. Any XML schemas used in the API must be provided to NAESB for public distribution. The XML API shall use 128 bit SSL.

The registry shall also provide registry data in a CSV file format that can be downloaded using https. The SSL required for this download is 128 bit.



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3.9. Filtering and Sorting

All user data displays must include filter and sort capability as appropriate.

Columns in displays shall all be able to be sorted in both ascending and descending order by any column (i.e. Source, Sink, POR, POD, etc.).

Displays shall all be able to be filtered based on the values in any meaningful column. Numeric columns shall be filterable based on both absolute and range values. Text columns must be filterable based on partial string matches and exact matches with negation. String filtering shall not be case sensitive. It shall be possible to enter up to 20 text strings for a single field that shall be logically "OR"d together.

Examples:

- PointID=6007,
- NERCID between 511 and 801,
- POR contains NYPD,
- PSE does not contain ENRN,
- POD = MALN OR CAPJ.



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4. Hardware and Software Standards

4.1. No Single Point of Failure

The Registry shall be designed so that there are no single points of failure that would result in the Registry being unavailable for greater than one hour. For example, the system could be fully redundant with hot standby/failover functions. This availability requirement extends to the Internet connections, which could also be redundant and through two, independent Internet service providers. All failover, including network failover, must be automatic.

The Registry shall be designed so that there is no single point of failure that would result in the loss of Registry data for greater than one hour. For example, disks could be mirrored and configured in an array with hot spares.

Internet and Registry system redundancy could be satisfied by replication between diverse sites.

4.2. Data Backup and Storage

The Registry data must be backed up at least daily, with data being moved offsite at least weekly. The data must be under the protection of access controls such that no single employee has access to the offsite data storage. EIR vendor management approval must be required to access the offsite data. There are no historical data storage requirements other than what is needed for disaster recovery.

4.3. Disaster Recovery

The Registry system must be capable of being restored entirely assuming the destruction of the entire registry system. Documentation and procedures must be available that provide for the complete re-installation/re-construction of the Registry hardware, software, and data. The EIR vendor must demonstrate that the documentation and procedures are accurate by having NAESB staff or their designees perform or witness the building of the system from scratch.

4.4. Structured and Coordinated Upgrades

Upgrades/modifications to any component of the Registry that would affect the users must be coordinated with NAESB staff and the Registry user community. Upgrades that would change an API must be implemented following a structured implementation plan. This plan must include reasonable periods of at least three weeks for the Registry users to have access to the revised XML schema or whatever else is necessary for the Registry users to implement and test changes in their automated systems. The three-week period must be followed by two weeks of testing with a near-continuous test Registry available for the users to test against. This system must be populated with either test, or actual data.

4.5. Sizing and Performance

The system must be sized and designed so that it provides robust performance for both current and expected usage.

- CPU utilization, averaged over one minute, must be below 20% 95% of the time.
- Disk space utilization at full expected size of the Registry must be 50% or less.
- RAM must be sized sufficiently on all systems (including database servers) so that disk swapping does not exceed 20 pages per minute.



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4.5.1. Moderate Activity State

Display call up times and API retrieval times shall be measured when the system is in a *moderate activity state*, carrying out normal functions, while 50 users simultaneously use the interface for normal activities and the API is being used by 50 systems to retrieve data.

Under this loading state:

- User displays call up and display change must not exceed five seconds (excluding internet latency and browser start up times).
- Response to SOAP method calls shall be within five seconds.

4.5.2. Heavy Activity State

Display call up times and API retrieval times shall be measured when the system is in a *heavy activity state*, carrying out *peak* normal functions, while 50 users simultaneously use the interface for normal activities and the API is being used by 150 systems to retrieve data.

Under this loading state:

- User displays call up and display change must not exceed ten seconds (excluding internet latency and browser start up times).
- Response to SOAP method calls shall be within ten seconds.

4.6. Availability

The Registry must be available 99.5% of the time measured over any rolling 30-day period.

4.7. Auditability

The database and registry systems must be auditable. While maintaining records with start/stop dates partially accomplishes this goal, other values need to be tracked for audit purposes. These at a minimum include the user requesting data modifications (inserts, updates, deletes), timestamp, and similar information for the approval/authorization process (NAESB staff member/timestamp for example). XML input documents must also be retained for a configurable number of days.

4.8. Data Integrity

Database and data integrity must be guaranteed. The registry can choose from a number of different tools and procedures to ensure this.

4.9. NERC Cyber Security

The Registry and related components are critical to both operational and commercial sectors of the power industry. As such, NAESB classifies the entire system as a Critical Cyber Asset and requires that the Registry and any subsequent entities maintaining the Registry comply with applicable NERC CIP standards.



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5. Testing

5.1. Structured Test Document

The vendor shall provide a structured test document that tests all functional and performance requirements of the Registry. Both NERC and NAESB members and staff will be given the opportunity to review the document and provide input and corrections which must be incorporated prior to the start of structured testing. The test document must contain numbered sections consistent with the system requirements document so that testers may easily reference required functionality and compare it to test results.

5.2. Problem Reporting

The vendor shall provide a structured method of reporting, classifying, and tracking problems.

5.2.1. Structured Problem Reporting

Each identified possible problem shall be assigned a unique number and assigned a classification.

5.2.2. Problem Classifications

Problems will be classified as:

- R — Required Functionality (In the System Requirements Document)
- E — Enhancement (Identified as necessary but not in the System Requirements Document)
- B — Bug (Software or Hardware Problem)
- D — Disputed (Agreement cannot be reached)

Problems will further be classified as:

- C — Critical (Required for system to be considered operational)
- H — High priority (Not required but very important)
- M — Medium priority
- L — Low priority

5.3. Factory Acceptance Testing

Factory Acceptance Testing (FAT) shall be conducted on-site. Certain client functions may be tested remotely at the client facilities.

The FAT will consist of both structured testing and unstructured testing. Structured testing will be conducted first.

Unstructured testing will include testing of any required functions in any order at any loading level.

FAT may be conducted several times. Passing FAT is defined as completion of structured and unstructured testing without finding any problems above those classified as low priority.

FAT testing will continue until the NAESB staffs or vendor staffs determine that system problems are so severe that no further testing should be done until the problems are corrected.

At completion of FAT testing, if FAT is not passed, the vendor shall correct all problems classified above low priority and another FAT shall be started. This will include re-testing of functions already tested since corrections of problems may cause problems elsewhere in the system.



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The vendor will perform a minimal set of FAT and provide results of that testing to NAESB before scheduling on site FAT. (Hopefully minimizes travel to on-site location)

5.4. Factory Performance Testing

Factory Performance Testing (FPT) shall be conducted on-site. Certain client functions may be tested remotely at the client facilities.

The FPT will consist of confirmation that the system meets sizing and performance requirements. The vendor will be responsible for loading the system to both the medium and heavy activity state. NAESB staff will have ultimate approval and confirmation rights that these activity states are met for the duration of the appropriate performance tests.

Either the vendor or the NAESB staff may devise mutually agreeable timing tests (including the use of a stopwatch, performance monitors, or software timers).

5.5. Site Acceptance Testing

Site Acceptance Testing (SAT) shall be conducted at the Registry host facility (ies). Client functions will be tested remotely at the participating client facilities.

SAT is a repeat of FAT with the exception that passing SAT is defined as completion of structured and unstructured testing without finding *any* problems. SAT testing will be open to any NAESB member.

5.6. Site Performance Testing

Site Performance Testing (SPT) shall be conducted at the Registry host facility (ies). Certain client functions may be tested remotely at the client facilities.

SPT is a repeat of FPT.

SPT *may be* waived by NAESB at their discretion.



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6. Documentation

The vendor will be responsible for providing hardware and software documentation. NAESB staff shall have approval rights over all documentation provided. The documentation requirements are not waived if the successful vendor provides the Registry service via an application service provider. For example, technical documentation, meeting the requirements described herein, will still be required to be provided to the vendor's own technical staff in this case.

NAESB must have the capability to modify and maintain the documentation described in this section or the vendor must maintain it. The intent is that the documentation be kept up to date as changes are made to the Registry system.

Frequently Asked Question (FAQ) documents must also be created and made available online. Provisions must be provided so that these may be maintained on an ongoing basis.

6.1. Technical Documentation

The vendor shall provide NAESB with technical documentation describing the hardware architecture and software architecture of the system. The intent of the technical documentation is to allow NAESB or their appointees to maintain the system. Since a number of methods are possible for describing the system, including UML, DFD's, etc, there will be no specific requirement in this document as to the form of this documentation. The only requirement is that the intent be met.

6.2. User Documentation

The vendor shall provide the Registry users with user documentation that describes how the client interface is used and all of its possible functions. NAESB staff will have approval rights over this documentation.

The documentation must be provided online at the Registry site. Documentation on user registration must be provided online at the NAESB Web site.

Documentation must include examples where appropriate.

6.3. Automated Interface Documentation

The vendor shall provide NAESB with API documentation that describes, in detail, how users may install and/or utilize the API to the Registry. Any related XML schemas shall be provided to the users so that they may implement their own XML processor independent of any specific vendor solution.

The documentation must be provided online at the Registry site.

Documentation must include examples where appropriate.



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7. Training

The vendor will be responsible for providing training courses. NAESB staff has approval rights over course content and quality. The vendor must provide courses that meet NAESB approval. Training must be presented both in person and online via webex.

These classes may need to be presented in a variety of locations over a number of different days in order to provide access to all Registry users. NAESB staff will coordinate training class locations and dates with NAESB members and ensure that all NAESB members are provided with access to training.

7.1. Technical Training

The vendor shall provide technical training to NAESB staff or their appointees in order to assure that they have sufficient knowledge to maintain the system (depending on the final roles) and interact with it (for data confirmation, deletion procedures, etc.).

7.2. User Training

The vendor shall provide training to the Registry users so that at the end of the course, the users are proficient at using the client interface and understand all of its functions.

7.3. API Training

The vendor shall provide technical training to Registry users on the use of the API so that the users, at the end of the course, have a thorough understanding of the interface and how to use it.

7.4. Refresher and ongoing Training

The vendor will provide updated training for system upgrades and changes so that ongoing training may be conducted and available.



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8. Post Implementation Requirements

The vendor will be responsible for providing a number of services after implementation of the Registry. All upgrades or modifications to software described in this section must be implemented following requirements outlined in previous sections 4.0, 5.0, 6.0 and 7.0 of this document.

8.1. Problem Reporting and Enhancement Requests

The vendor shall provide a mechanism for both NAESB staff and NAESB members to report and classify problems and enhancement requests. These will be assigned priority levels by NAESB members and staff as follows:

- C — Critical (Required for system to be considered operational)
- H — High priority (Not required but very important)
- M — Medium priority
- L — Low priority

They will also be assigned a classification as follows:

- E — Enhancement
- B — Bug (software or hardware problem)
- D — Disputed (Agreement cannot be reached)

The vendor will allocate resources to correct the identified problems consistent with the priority level assigned as follows:

- C = Immediate mitigation effort required and will be continuous until problem is resolved. Daily status updates from the vendor will be required.
- H = Mitigation efforts must start no later than the next working day and continue during normal working hours until complete. Daily status updates from the vendor will be required.
- M = Mitigation efforts must start within the next ten working days. Vendor will provide an estimate for completion acceptable to NAESB Staff. Staff and vendor will work together to prioritize “M” issues. Weekly status updates from the vendor will be required.
- L = Vendor will provide an estimate for completion acceptable to NAESB staff. Staff and vendor will work together to prioritize “L” issues. Weekly status updates from the vendor will be required.

8.2. System Upgrades

NAESB staff or the vendor, with agreement from NAESB staff, may initiate system hardware and/or software upgrades in order to remain current with external vendor support levels (such as the operating system, programming language, or database vendor) or improve performance or reliability.

Responsibilities for staff performing the upgrades need to be established with the vendor in the Registry contract or according to sections 4.0, 5.0, 6.0 and 7.0 of this document as a minimum.

8.3. System Patches

NAESB staff and the vendor must establish a method by which critical operating system patches, database system patches, and any other applicable patches required for ensuring system security, implementing bug fixes, and implementing enhancements will be applied. Patches that correct security issues must be applied as soon as possible. Patch application must conform to NERC Cyber Security standards.



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8.4. Virus Detection Updates

Virus detection software must be installed and continuously running on the Registry computer systems. NAESB staff and the vendor must establish a method by which virus detection software is updated. Updates must be downloaded and applied daily.



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December 10, 2009

TO: NAESB Executive Committee
FROM: Rae McQuade
RE: Schedule of 2010 Meetings

Below is the schedule of 2010 meetings for the Board of Directors, Advisory Council and Executive Committee.

2010 Calendar of Board and Advisory Council Meetings

Date	Meeting	Location
February 13	Advisory Council Meeting	Washington D.C. – Renaissance Washington Hotel (in conjunction with NARUC Winter Meeting)
March 25	Board of Directors	Houston – Marriott IAH
June 24	Board of Directors	Houston – Marriott IAH
September 23	Board of Directors, Meeting of the Members and Strategic Session	Houston – Marriott IAH
December 9	Board of Directors	Houston – Marriott IAH

2010 Calendar of Executive Committee Meetings

Date	Meeting	Location
February 2-4	Executive Committee (WEQ, Retail, WGQ)	Phoenix, AZ hosted by Salt River Project
May 4-6	Executive Committee (WEQ, Retail, WGQ)	Harrisburg, PA hosted by the Pennsylvania PUC
August 17-19	Executive Committee (WEQ, Retail, WGQ)	Colorado Springs, CO hosted El Paso Western Pipeline
October 26-28	Executive Committee (WEQ, Retail, WGQ)	Glen Allen, VA hosted by Dominion

The Retail Executive Committee meetings will be held by conference call and web cast unless otherwise determined by the retail leadership. The Wholesale Gas Executive committee meetings may be changed to only be held as a conference call/web cast dependent on the agenda items.