Summary of the North American Energy Standards Board Gas and Electric Interdependency Final Report to the Federal Energy Regulatory Commission in Docket No. RM05-28-000 "NAESB Report on the Efforts of the Gas-Electric Interdependency Committee"

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Section 1: Background

This document provides a summary of the recommendations made in the final status report of the North American Energy Standards Board (NAESB) Gas-Electric Interdependency Committee (GEIC), which was filed with the Federal Energy Regulatory Commission (FERC) on February 24, 2006.[1] It examines the background, scope, benefits and impact analysis of the recommendations made in the GEIC final report.

The GEIC report examined potential updates and additions to business practices that would improve the interaction between the gas and electric industries. NAESB, however, cannot proceed further to develop business practice standards until regulators address the findings in the report. It is therefore essential that the recommendation in the final report be presented in a manner that will allow regulators to gain an understanding of the background and benefit of each recommendation and the challenges involved in its implementation. The purpose of this document is to provide an overview of the key issues for regulators who may need to consider regulatory policies related to the GEIC recommendations.

The GEIC was created on September 16, 2004 to emphasize the importance of gas-electric coordination and address the substantial increase in interdependence between natural gas and electric generation. The mission of the committee is to review issues requiring gas-electric interdependency at an executive level and identify actions that may result in additional NAESB standards development, and thus improve the efficiency and reliability of the interaction between the two industries. In addition, the GEIC was tasked with addressing issues relating to three standards development requests, R04016, R04020 and R04021, which resulted from earlier work by the NAESB Gas-Electric Coordination Task Force (GECTF), a precursor of the GEIC.

The efforts of the NAESB at improving gas and electric coordination began in 2003 with the creation of the GECTF. The group filed interim and final reports with FERC on April 16, 2004 and November 30, 2004, respectively. These reports outlined a list of discussion points, which was the principal work product of the GECTF. The discussion points list represented areas of coordination between the gas and electric industries that the GECTF identified as potential items that could be further investigated by the appropriate organizations in order to enhance and improve operational coordination between the electric and gas industries.

The discussion points list was considered a starting point for industry stakeholders interested in submitting standards requests or pursuing resolution in forums other than NAESB to address gas and electric coordination. Standards requests resulting from the GECTF scoping effort included the three assigned to the GEIC:

- R04016: Request No. R04016 to develop a standard definition for Energy Day was submitted to NAESB on May 25, 2004 by KeySpan Utility Services and Duke Energy Gas Transmission and assigned jointly to the NAESB Wholesale Gas Quadrant (WGQ) and Wholesale Electric Quadrant (WEQ) for standards development. The request was for NAESB to develop a standard energy day that would apply to both the natural gas and electric industries. In particular, R04016 proposed standardizing the energy day as midnight to midnight central time. The expected benefits included the improvement of coordination of scheduling between the electric and natural gas industries and the ability of both industries to more closely match fuel deliveries to generation requirements;

[1] The North American Energy Standards Board (NAESB) serves as an industry forum for the development and promotion of standards which will lead to a seamless marketplace for wholesale and retail natural gas and electricity, as recognized by its customers, business community, participants, and regulatory entities.

- R04020: Request No. R04020 to establish business standards relating to electric transaction scheduling and timelines was submitted to NAESB on June 29, 2004 by Tennessee Valley Authority and assigned to the WEQ for standards development. The request was intended to standardize timelines for the day-ahead energy markets to improve coordination between the gas and electric markets; and
- R04021: Request No. R04021 was submitted by Natural Gas Pipeline Company of America, CrossCountry Energy and Salt River Project to address daily communications between pipelines and entities that control power generation facilities. The request was assigned to both quadrants. These communications standards would include anticipated power generation fuel requirements for the upcoming day as well as notification when plans changed. Likewise standards for pipeline communications for any operating problems that might hinder power plants from receiving required contractual quantities when needed would be developed.

The list of discussion points and presentation material from the GECTF report were included as part of the reference material for the GEIC final report.[2] Following the presentation of the GECTF final report, the task of the GECTF was deemed complete and the Task Force was disbanded.

In line with its assigned tasks, the GEIC submitted a report to FERC that included communication standards between natural gas transmission service providers and power generators on June 27, 2005. These standards represented the final actions from NAESB related to Standards Request No. R04021, which was submitted as part of the GECTF scoping efforts.

Further, in the June 2005 report, GEIC identified thirteen issues relating to standards development that would improve the interaction between the gas and electric markets. GEIC categorized the issues based on the follow-up action required as part of the standards development effort. The categories included:

1. Indicating policy direction and decisions from federal, state or provincial regulatory agencies or other groups, including issues between contractual parties;
2. Appropriate for review for NAESB standards development;
3. Appropriate to be forwarded to the North American Electric Reliability Council for consideration for reliability standards development;
4. Appropriate for review as regional issues; and
5. A national infrastructure concern.

The outstanding standards requests, R04016 and R04020, were symptoms of many of the issues identified in the June 2005 report. Therefore the GEIC was charged with the preparation of a standards development request that would reflect the intent of both of these requests and included other aspects of gas-electric interdependency that were evident in the issues identified. This assignment culminated in the preparation of the GEIC final status report of February 24, 2006, on which this document is based.

As outlined in the GEIC final status report, GEIC identified six potential activities where existing standards should be reexamined to determine whether updates or new business practices could be written to further improve the interaction between the gas and electric industries.

However, NAESB will likely face challenges as it proceeds with standards development based on the GEIC recommendation. Before NAESB can move further in developing business

[2] The list of discussion points is outside the scope if this document, but is available in the GEIC final report issued on February 24, 2006.

practice standards to address the coordination of the two industries, policy direction and industry willingness for change is required, otherwise NAESB may be in the position of developing business practices and striving to achieve industry consensus for standards that the industry is not convinced are needed. Extraordinary coordination would be needed among regulators, the North American Electric Reliability Council (NERC), NAESB and industry participants of both the natural gas and electric wholesale markets.

As would be evident from a review of the six activities in the GEIC final status report, these activities have policy implications. Therefore, regulators may be required to intervene to help define the way forward. Further, some stakeholder groups may not be interested in working within NAESB to create the needed standards or business practices. For example, the GEIC report indicated that the organized electric markets, such as the ISOs, RTOs and their stakeholder groups may prefer regional solutions developed individually to a joint effort within NAESB. This shows the need for change from both gas and electric industries in order to find collaborative solutions. Finally, some issues will require the attention of an organization external to NAESB, such as NERC. For example, issues related to system reliability may need to be addressed by NERC to avoid duplication of efforts.

This document provides an overview of the key issues for regulators to enable them provide the policy direction required as NAESB proceeds with the standards development effort. In addition to providing background information on each of the GEIC recommendations, it also discusses the benefits of the recommendations and examines the challenges in implementation.

Section 2: Proposed Standards Development Activities

The six activities identified by the GEIC report as considerations for potential improvement in the interaction between the gas and electric industries are:

- 1: Develop standards to support Capacity Release pricing on an index for pipelines that have the FERC authority to enter into negotiated rates and discount capacity on an index basis.
- 2: Review the possibility of adding an additional intraday nomination cycle with bumping rights to provide more flexibility to shippers, including power generators, with firm transportation rights such that they can nominate for natural gas supporting their market clearing times.
- 3: Review the ability of pipelines to shift gas for primary firm transportation within a pipeline path without having to re-offer as secondary firm transportation service.
- 4: Review and modify the requirements for organized electric markets so that the markets clear in sufficient time to nominate within the existing gas nomination timelines.
- 5: Require generators that offer into the day-ahead market to have the appropriate commercial arrangements to fulfill the needed obligations.
- 6: Develop the appropriate supporting definitions for new business practices for the Wholesale Electric Quadrant, including but not limited to definitions for: alternate fuel capability, usable alternate fuel capability, firm transportation service, firm sales service, firm supply, and "must run" generator.

These six items are discussed in more detail below.

1: Develop standards to support Capacity Release pricing on an index for pipelines that have the FERC authority to enter into negotiated rates and discount capacity on an index basis.[3]

- Issue Background: The release of previously contracted gas pipeline capacity is governed by NAESB standards, as incorporated by reference in pipeline tariffs, and by FERC policy. The NAESB guidelines and FERC policy allow the release of capacity subject to certain bidding rules and tariff rate limits. However, the NAESB standards are more restrictive than FERC policy in that NAESB (WGQ Standard 5.3.19) requires re-releases of capacity to be on the same terms as the primary release, whereas FERC leaves this commercial decision to the releasing and replacement shipper. Under current NAESB standards neither the pipeline nor the releaser of capacity is allowed to charge short-term rates that would match the instantaneous market value of the released capacity to a peak-demand market. Conversely, under FERC policy releasing shippers can offer the same type of pricing arrangement that the pipeline offers, which often is at discounted rates where the effective rate was tied to a published price index.

- Proposed Resolution: NAESB standards should be modified to enable a firm shipper to propose a short-term release rate based on a published electric price index. This rate could fluctuate each day between a releasing shipper specified floor and the maximum tariff rate. In theory, this would create an economic incentive to provide more short-term capacity to the market when needed, as the potentially higher

[3] Consistent with the 2/27/04 Order in Docket No. RP04-151-0007 and the Policy Statement in Docket No. PL02-6 issued on 1/19/06,

release value would enable releasing shippers to explore replacement capacity alternatives that otherwise might not be cost-effective.

A related issue is the removal of the pricing cap on capacity releases in order to make it more attractive for firm capacity holders to release capacity. However, such a revision of rules would require regulatory policy changes, and it is not included in the scope of business practice updates and additions discussed in this report.

- Challenges: The ability of nomination cycles, capacity-release procedures and other pipeline tariff terms to accommodate the recommended proposal currently vary in their flexibility, and the impact on market participants needs to be evaluated.

Item 2: Review the possibility of adding an additional intraday nomination cycle with bumping rights to provide more flexibility to shippers, including power generators, with firm transportation rights such that they can nominate for natural gas supporting their market clearing times.[4]

- Issue Background: The gas industry follows a cyclic timeline in nominating gas supplies and transportation services in order to facilitate efficient coordination in meeting market demand. The four-stage nomination cycle (the "Gas Day") runs from 9 a.m. Central Clock Time (CCT) the day before the gas is to flow, and ends at 9 a.m. CCT the next day when the last of the two "Intraday" nomination cycles is completed. In general, the earlier in the nomination cycle that gas is nominated to flow, the firmer are the shippers' rights to assure delivery to market. However, the Gas Day commences well in advance of the time when power markets are cleared (i.e., generator dispatch orders are firmed up) via the nomination process followed by the electric industry. Participants in the electricity market either nominate gas supply and transportation in the earliest cycles of the Gas Day and risk not having their dispatch bids subsequently clear the power market (e.g., they are stuck with excess supply and transportation), or they may wait for their bid to clear the power market and risk relying upon one or both of the two Intraday nomination cycles, which offer less reliability that adequate transportation capacity will be available when needed. Sometimes a generator needing to run takes gas despite not having the appropriate service nominated, and this can create problems in maintaining pipeline system operational integrity, which could harm other gas consumers.

- Proposed Resolution: Adding another Intraday nomination cycle and modifying the order of prioritizing levels of transportation service reliability (i.e., firm versus interruptible) that is defined within each nomination cycle of the Gas day may mitigate potential mismatches between gas services nominated and gas demand in the power sector

- Challenges: Although the appropriate technology exists to implement this proposed solution, the impact of an additional cycle on the timing of the existing nomination cycles and on current market participants could be problematic and needs further evaluation. Also, gas industry participants are less inclined to undertake the

[4] "Firm shippers are paying reservation charges for priority rights and those rights should include the right to have a nomination become effective as early as possible on the gas day following the nomination. Interruptible shippers…should not be able to prevent firm shippers from having their nominations take effect at the earliest possible time." FERC Docket No. RM96-1-007, Order No. 587-G, (April 16, 1998). See also FERC Docket No. RM96-1 and FERC Docket No. RM96-1 Order Nos. 587-F, 636, and 637.

proposed changes to their established Gas Day nomination process unless participants in the electric industry undertake corresponding changes in their process and timing of clearing power markets – a suggestion that is discussed in more detail under Item 4 below.

Item 3: Review the ability of pipelines to shift gas for primary firm transportation within a pipeline path without having to re-offer as secondary firm transportation service.[5]

- Issue Background: Within an operating day, gas pipeline customers have the ability to divert gas to markets other than those originally scheduled for that day during prior nomination cycles for a given Gas day. This provides customers with the flexibility to adjust their schedules with changing market conditions. Current market rules, however, restrict this ability, in that Intraday schedule changes have to be treated as new nominations specified in the context of the Intraday nomination cycles. This rule restricts the customers' flexibility to adjust schedules, and also could result in a customer losing their original transportation priority (i.e., their designated volumes assigned firm capacity, rights, for example). Current rules also create potential equity issues that pipelines face if they attempt to switch nomination schedules. For example, depending on capacity availability, some customers may not be scheduled originally because they did not contract for firm transportation. If capacity is switched intra-day, it introduces the possibility that other customers who also did not originally contract for firm transportation may be recipients of the available capacity

- Proposed resolution: A revision of the rules to allow for greater flexibility for shippers to reschedule gas deliveries would provide greater flexibility, benefiting pipeline customers and the market as a whole.

- Challenges: Modifications to the manner in which transportation services are provided should ensure that pipelines are operationally indifferent and that the final rules are non-discriminatory. It is also important to ensure that scheduled service for other customers is not affected by changes to intra-day nomination procedures. Therefore any rule revisions should incorporate at least two conditions:

    - The intra-day nomination should have the same scheduling priority that is being scheduled and could be allowed to flow on the same Gas Day as the intra-day nomination through a posted point of system-capacity constraint, even if subject only partially to the constrained capacity point; and
    - The nomination should not result in a net increase in the total volume scheduled under the contract though the posted constraint point.

Item 4: Review and modify the requirements for organized electric markets so that the markets clear in sufficient time to nominate within the existing gas nomination timelines.

- Issue Background: Although gas and power markets are highly interdependent, their operational (gas nominations and electric dispatch) timelines are not synchronized. (Appendix 1 provides a graphical representation of the differences in operating timelines of the gas and electric markets.) As discussed in Item 2 above, initial gas nominations for a given Gas Day, which offer the highest degree of reliability of delivery compared to subsequent nomination cycles occur before the electricity-dispatch markets have cleared and successful bidders are

[5] Consistent with the 11/22/05 Order in Docket Nos. RP06-69-000 and RP06-70-000

notified[6]. Participants in the electricity market therefore have to either purchase and nominate gas transportation during the initial nomination cycles and risk not having their bids in the power market subsequently clear the market, or wait for their bids to clear the power market and risk relying upon the Intraday gas transportation nominations that offer a relatively lesser degree of reliability of firm service. Depending on prior reservations, nominations at later cycles may even fail to be scheduled regardless of reservation priority. Therefore, on the one hand transmission participants could incur additional costs if they contract for capacity that they subsequently cannot use because their bids in the electricity market did not clear, and on the other they could be cleared for the electricity generation with insufficient fuel reservation to fill the generation requirements.

- Proposed resolution: Procedures for nominating gas transportation services and determining the electric-dispatch order should be synchronized so that electricity markets clear ahead of the gas markets. Market synchronization would allow participants in the electricity market to determine the outcome to their bidding process and then purchase and schedule gas transportation only if they are cleared to operate during the next operating period. This would enhance the ability of power producers to meet their delivery obligations in a cost-effective manner.

- Challenges: Consensus will have to be sought from the electric industry in order to implement market changes, and there is disagreement regarding how to accomplish this fairly across electric markets, which, unlike the gas transportation industry, operate regionally. However, these changes must be made in order for the gas industry to accept corresponding changes to its nomination procedures as described in item 2 above. Likewise, the gas industry is less likely to implement changes in its market rules if the electric industry does not reciprocate.

Item 5: Require generators that offer into the day-ahead market to have the appropriate commercial arrangements to fulfill the needed obligations.

- The power markets often rely on gas-fired generators, especially new market entrants, that may not have the appropriate contracts in place to ensure that adequate fuel supplies will be available when called upon. Some power markets allow generators to bid to dispatch power on a firm basis even though the bid is supported only by interruptible gas transportation arrangements. In addition to being considered more economical for the generators, relying on lower cost interruptible gas arrangements represented a reduced risk given that gas-fired plants were expected to serve load in contra-seasonal peaks (which has not developed as anticipated).

- Proposed Resolution: Power generators that offer firm service bids in the day-ahead market should be required to have corresponding firm gas supply and transportation arrangements in place. This would not only assure that generators would be able to fulfill their firm power obligations, but it also would

[6] Note that although interruptible capacity may be bumped by a firm reservation at a later cycle, lower priority firm reservation, once scheduled, supersedes a relatively higher firm priority reservation at a later cycle. For example once a Secondary Firm reservation is scheduled at the Timely Cycle, it cannot be bumped by a Primary Firm reservation at the Evening Cycle.

minimize the problem of gas-fired generation units coming online despite not having sufficient (or any) previously nominated gas service and take unauthorized gas out of the system and jeopardizing integrity of the pipeline system and the rights of other customers.

- Challenges: There is the potential that requiring generators to maintain firm gas supply and transportation arrangements could interfere with the risk management strategies of market participants. Also, any aspects relating to power system reliability need to be addressed by the NERC, as they are outside the authority of the NAESB.

Item 6: Develop the appropriate supporting definitions for new business practices for the Wholesale Electric Quadrant, including but not limited to definitions for: alternate fuel capability, usable alternate fuel capability, firm transportation service, firm sales service, firm supply, and "must run" generator.

- Issue Background: Given the highly interdependent nature of the gas and electric industries, the ongoing lack of common agreement regarding definitions of industry business terms and practices creates potential inefficiencies in market operation.

- Proposed Resolution: Developing an inter-industry consensus regarding definitions of business terms and practices would minimize inefficiencies in the gas and electric market sectors.

- Challenges: In previous attempts, the Wholesale Electric Quadrant was unable to reach consensus on definitions of similar terms as those accepted by the gas industry. In addition, although these definitions will apply to Wholesale Electric Quadrant, the definitions should be developed with the appropriate input from the Wholesale Gas Quadrant to ensure consistency with gas products.

Section 3: Summary and Next Steps

To accomplish the standards development efforts, extraordinary coordination will be required of industry participants of both the natural gas and electric wholesale markets. Items 1-3 (all gas related) have previously cited policies or statements in individual pipeline tariffs that may support the standards development but may benefit from direction provided by the FERC to support the much needed consensus building. Items 4-6 do not have specific policies in place today, and would require direction from FERC if consensus within the two industries would be achievable. Since the lack of industry support poses sufficient roadblocks to development, regulatory policy guidance will be required before further efforts can be undertaken.

With the Board approval of the GEIC final status report, the submitters of R04016 and R04020 have withdrawn their requests. The GEIC efforts are considered complete with the submittal of the final report as endorsed by the Board of Directors to FERC.

Appendix 1: Gas-Electric Timeline