Gas/Electricity Interdependency Task Force
Recommendations to the NERC Planning Committee
March 2, 2004

The Gas/Electricity Interdependency Task Force (GEITF) was charged with the goal of determining the interdependency relationship between gas pipeline system operations and planning and electric system operations and planning. The GEITF was then charged with recommending possible measures to mitigate any negative reliability impacts for any such dependendency between the two industries. The following recommendations are the consensus of the GEITF, and will be presented to the Planning Committee for review, comment, and approval. GEITF Chairman Ken Wiley will provide the PC with the reasoning behind each recommendation, and each recommendation will be further documented in the GEITF's Phase I report to NERC.

Recommendation 1 – NERC Regions should include in their Regional Assessment Program a review of the impact of any fuel transportation infrastructure interruption that could adversely impact electric system reliability.

Recommendation 2 – NERC reliability coordinators, subject to appropriate treatment of commercially sensitive information, should develop regular, real-time communications with pipeline operators about disturbances that could adversely impact the reliability of either the electric system or the gas pipeline.

Recommendation 3 – For planning purposes, gas pipeline outages that could have an adverse impact on the reliability of the electric system must be coordinated with the electric industry so that plans to mitigate any impacts to the electric system may be developed.

Recommendation 4 – NERC should develop a reliability standard relating fuel infrastructure reliability to resource adequacy.

Recommendation 5 – NERC should include analysis of fuel infrastructure reliability contingencies that could adversely impact the reliability of the electric system in the NERC Planning Standards.

Recommendation 6 – NERC should establish a monitoring system that tracks fuel infrastructure contingencies that have, or could have, an adverse impact on electric system reliability.

Recommendation 7 – NERC should, in concert with other energy industry organizations, formalize communications between the electric industry and the gas transportation industry for the purposes of education, planning, and emergency response.

Gas/Electricity Interdependency Task Force
Preliminary Draft Phase I Report to the NERC Planning Committee
March 2, 2004

Introduction

In October 2002, the NERC Board of Trustees agreed with the Reliability Assessment Subcommittee that the electric industry's dependence upon natural gas could be a reliability issue. The Gas/Electricity Interdependency Task Force (GEITF), chaired by Ken Wiley, president and CEO of the Florida Reliability Coordinating Council, was formed by the NERC Planning Committee (PC) and the task force scope document was approved by the board at its February 2003 meeting.

The GEITF has a primary goal to determine the interdependency relationship between gas pipeline system operations and planning and electric system operations and planning. The task force is to recommend possible measures to mitigate any negative reliability impacts for any such interdependency between the two industries.

Executive Summary

(To be provided.)

Task Force Work Plan

The GEITF developed a work plan to guide its activity toward meeting the goals of the task force.

1. Develop a thorough understanding of the following:
   - Gas pipeline operating practices
   - Gas pipeline planning process, including criteria and standards
   - Gas pipeline tariffs
   - Regulatory approval process for FERC pertaining to gas pipelines
   - Relationship or comparison to practices in the electric industry
   - Electric and gas interconnectivity
   - Relationship between gas pipeline operation and planning, and electric generation operation and planning reliability

2. Gather information on specific problems that have occurred on the gas pipeline systems, including any consequences to the electrical systems.

3. Gather information and reports from existing studies that have examined the interaction of gas pipeline operation and planning, and electric generation operation and planning.

4. Prepare a summary report.

5. Based on Phase I results, prepare recommendations on what future work (if any) should be done by NERC to ensure that gas transportation issues do not adversely affect the reliability of the North American electric systems.

Task Force Activity

The GEITF held two formal meetings, and members of the task force also participated in other industry forums related to the task force goals.

The task force met on May 15, 2003 and had presentations on gas pipeline operations, and various industry studies:

- NERC Reliability Assessment Subcommittee discussion on the need to obtain guidelines for planning and operation for gas pipelines.
- Gas pipeline planning and how various FERC orders have impacted the gas business.
- Gas pipeline operations.
- Current electric/gas industry studies.
- A tour of the Tennessee Gas Pipeline/ANR Pipeline Gas Control Center.
- Began assembling a list of incidents in gas and electricity operations that could have impacts on each other's systems.

The task force met on September 10 and 11, 2003 and received several presentations related to the work of the group:

- FERC Regulation of Pipeline Rates described the various pipeline rate structures and the process for construction of new transportation capacity.
- Combined Cycle Delivery Requirements described fuel quality and delivery requirements for the modern generation of combustion turbines.
- The impact of the August 14 blackout on pipeline operations and how the blackout affected their ability to supply gas to generating units.
- A discussion of how CAISO interacts with the California pipelines and a comprehensive tour of the CAISO facility.

The task force is supplying a representative to the INGAA/AGA steering group associated with its Department of Energy funded pipeline transportation study.

The task force has supplied a representative to the Multi-Regional Assessment of the Adequacy of the Northeast Natural Gas Infrastructure to Serve the Electric Power Generating Sector study, sponsored by several RTO/ISOs.

Members of the task force also are participating in the NAESB Gas Electric Coordination Task Force.

Discussion

[To be added. These discussion items are summaries of the information presented to the GEITF during its meetings, and are the basis for the conclusions below.]

- How do pipelines work? How do they plan, operate and expand?
- How are pipelines regulated?
- How are gas pipeline tariffs designed?
- How does pipeline reliability impact electric reliability, and vice versa
- What recent major pipeline events impacted, or had the potential to impact, electric reliability?
- CAISO as an example of good communications between electric operations and pipeline operations.
- What are the fuel quality and delivery requirements for modern combustion turbines?

Conclusions

- Gas pipeline reliability can substantially impact electric generation.
- Electric system reliability can have an impact on gas pipeline operations.
- In general, pipeline and electric system operators do not understand each other's business very well.
- Pipeline planning and expansion is substantially different from the electric equivalent.
- Communications between pipeline operators and electric reliability coordinators is generally weak.
- Pipeline tariffs are not compatible with peaking generation economics.
- Modern combustion turbines have stringent fuel delivery and fuel quality requirements.

Recommendations

[Each Recommendation will have a discussion associated with it to provide the rational behind the recommendation, and the expected impact on electric system reliability. It will also suggest an entity within NERC that should be primarily responsible for the implementation of the recommendation and a schedule for implementation.]

1. NERC Regions should include in their Regional Assessment Program a review of the impact of any fuel transportation infrastructure interruption that could adversely impact electric system reliability.
2. NERC Reliability coordinators, subject to appropriate treatment of commercially sensitive information, should develop regular, real-time communications with pipeline operators about disturbances that could

adversely impact the reliability of either the electric system or the gas pipeline.

3. For planning purposes, gas pipeline outages that could have an adverse impact on the reliability of the electric system must be coordinated with the electric industry so that plans to mitigate any impacts to the electric system may be developed.
4. NERC should develop a reliability standard relating fuel infrastructure reliability to resource adequacy.
5. NERC should include analysis of fuel infrastructure reliability contingencies that could adversely impact the reliability of the electric grid in the NERC planning standards.
6. NERC should, establish a monitoring system that tracks fuel infrastructure contingencies that have, or could have, and adverse impact on electric system reliability
7. NERC should, in concert with other energy industry organizations, formalize communications between the electric industry and the gas transportation industry for the purposes of education, planning, and emergency response.

Schedule

- Phase I draft report distributed to the PC for comment at the March 2004 PC meeting.
- GEITF recommendations presented to the PC for approval at the March 2004 PC meeting.
- PC approved GEITF recommendations presented to board in June 2004
- White papers to improve industry understanding prepared the remainder of 2004

Appendix

- GEITF Roster
- Select Presentations

NERC
GAS/ELECTRICITY INTERDEPENDENCY TASK FORCE

REVIEW OF INTERDEPENDENCY BETWEEN GAS TRANSPORTATION AND ELECTRIC GENERATION

SCOPE

PURPOSE

The purpose of the review is to determine the interdependency relationship between gas pipeline operation and planning, and electric generation operation and planning reliability over the next 10 years. If, in fact, negative reliability impacts are found, it is anticipated that additional industry effort will be established to perform any detailed analysis or studies to determine precise mitigation measures. The review will identify and recommend possible measures to mitigate any negative reliability impacts.

It is not the purpose of this task force to make an assessment of the adequacy of gas supplies to meet the needs of gas-fired electrical generation. This is an important topic but it is outside the scope of this task force review.

TASK FORCE COMPOSITION

FERC
DOE
EPRI
NARUC
National Energy Board of Canada
Provincial Regulatory Agencies
Canadian Electricity Association
Canadian Gas Association
Gas Pipeline Associations
Individual Pipeline Owners
Electric System Planners and Operators
Gas Supply Organizations
Gas Local Distribution Companies
Generator Organizations
Individual Generator Owners
Large Customers
Regions, or subregions which have a high dependency on natural gas
ISOs/RTOs
National Petroleum Council

TASK FORCE REPORTING RELATIONSHIP

The task force shall report to the NERC Planning Committee. Status reports shall be given to the Planning Committee, Operating Committee, Market Interface Committee, and the Board of Trustees.

TASK FORCE ACTIVITIES

PHASE I:

(1) Establish a work plan to develop a thorough understanding of the following:

- (a) Gas pipeline operating practices
- (b) Gas pipeline planning process, including criteria and standards
- (c) Gas pipeline tariffs
- (d) Regulatory approval process for FERC, NEB, individual states and provinces pertaining to gas pipelines
- (e) Relationship or comparison to practices in the electric industry
- (f) Electric and gas interconnectivity
- (g) Relationship between gas pipeline operation and planning, and electric generation operation and planning reliability over the next 10 years.

(2) Gather information on specific problems that have occurred on the gas pipeline systems, including any consequences to the electrical systems.

- (a) All events within the last 36 months
- (b) Major events older than 36 months but less than 8 years old
- (c) Major pipeline events that affected deliverability but did not affect electric generation (near-miss events) within the last 36 months

(3) Gather information and reports from existing studies that have examined the interaction of gas pipeline operation and planning, and electric generation operation and planning.

(4) Prepare a Summary Report on gas pipelines and their interrelationship with, and potential impact on, the reliability of electric generation operation and planning.

(5) Based on Phase I results, prepare recommendations on what future work (if any) should be done by NERC to ensure that gas transportation issues, such as those listed below, do not adversely affect the reliability of the North American electric systems.

- a. Existing routes
- b. Pipeline capacity
- c. Current utilization
- d. Projected needs
- e. Planned expansions with assessment of probability of completion and key dates
- f. Issues identified in Phase I

SCHEDULE

Phase I is anticipated to be completed within 9 months.

Approved by the NERC Planning Committee: January 28, 2003
Approved by the NERC Board of Trustees: February 11, 2003

The task force is to complete its draft report by April 23 for further review and comment by the PC by May 7, 2004. The PC will be requested to approve this report prior to its submittal to the NERC board for approval in June 2004.

Gas/Electricity Interdependency Task Force — With minor modifications to items 2 and 4, the PC approved the task force's recommendations. Any additional comments on the recommendations or preliminary report are to be provided to the task force within the next two weeks.

The task force's complete draft report should be available for PC review and comment by the end of April. Following this review and any necessary updates, the PC will be requested to approve the report in early May prior to its submittal to the NERC board for approval in June 2004.

Operating Policies 5, 6, and 9 — The PC approved sending revised Operating Policies 5, 6, and 9 to ballot in mid April 2004 as immediate action items under the "Transitional Process for Revising Existing NERC Operating Policies and Planning Standards."

WECC's Bus-Section Breaker Failure Study — After much discussion and review of WECC's bus-section breaker failure study results, the PC denied the requested waiver to WECC while it pursues a permanent solution on the Category C.2 and C.9 planning standards through the new reliability standards process.

Alliant West TLR Task Force — The PC approved the task force's short-term recommendations for implementation over the June 1 to September 30, 2004 period. It also encouraged the task force to continue with its long-term recommendations and prioritization of the issues. The level of PC support will be determined at a later date following receipt of a request from the Market Committee, the lead standing committee on this effort.

Reliability Standards — To reduce the number of parallel standard development activities and associated manpower resources, the PC was strongly in favor of the proposed "Version O" standards concept. It also looks forward to seeing the detailed plan for developing Version O standards.

Next Meeting — The next meeting of the PC is scheduled for July 20–21, 2004 in Vancouver, British Columbia. Agenda materials for this meeting are due to the NERC office by June 25, 2004.