



Analysis of the Implications of Disruption to Natural Gas Delivery

NASEO 2004 Annual Meeting

Presented by

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Gas Technology Institute

- > Independent Not-for-Profit R&D Organization
- > Energy & Environmental Topics
- > Natural Gas and Hydrogen Focus



Exploration & Production



Pipeline Infrastructure, Operations, & Materials



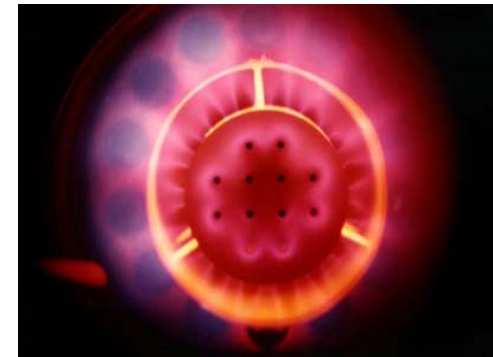
Fuel Cells



Distributed Generation



Gasification



Combustion

Major Lines of work

- > Perform contract research, development and demonstration projects
- > Manage technology development programs for others (e.g., energy industry, state agencies)
- > Provide technical services for clients (performance and materials testing, technology and market assessment)
- > Provide education and training (technical, institutional and business)
- > Commercialize new energy related technologies through a variety of business arrangements

NEW PROGRAM AREA

Cyber and Physical Security and Third Party Integrator

- > Partnerships in Energy Reliability, Security and Integrity
- > Cyber and Information Security: SCADA encryption; standards development; physical/cyber risk assessment
- > Training & Education: Attack Simulator/Trainer Prototype
- > Technology Evaluation and Development: Security products; Distributed Generation
- > “Regional Studies Project”: Analysis of the Implications of Disruption to Natural Gas Deliverability

“Regional Studies” Project

- Department of Energy/Office of Energy Assurance (DOE/OEA) sponsored project with GTI to assess the regional capabilities of the nation’s natural gas delivery infrastructure to withstand disruption in natural gas deliverability, and examine the range of implications in the event of any disruption.
- The project “develops information and analyses to allow federal and state agencies and interests to develop effective policies and action plans to assure natural gas deliveries in the face of potential disruptions.”

Background

Northeast Study

Project builds on the “Northeast Study”, sponsored by the AGA and INGAA, issued in February 2003, and conducted by the Energy and Environmental Analysis (EEA).

EEA Methodology

Determines the ability of regional natural gas markets to absorb facility losses and efficiently reallocate gas supplies during a significant pipeline disruption.

Description of Phase I

1. Establish and manage a public/private sector Steering Council
2. Study three additional regions using the Northeast Study methodology. EEA is the sub-contractor for this task.
3. Conduct an invitation-only Stakeholders Meeting

Steering Council

- Provides structure and guidance for the project, and interface among federal and State government, industry and consumers, in their responsibilities.
- Members: Council comprised of federal and state government officials and natural gas industry and consumer/electric representatives.

Three Additional Regional Studies Completed in Phase I

- **Southeast:** Except for Florida
- **Upper Midwest:** Wisconsin and Minnesota
- **Pacific Northwest:** Oregon and Washington

Natural Gas Stakeholders Meeting (February 2004)

- Begin communication/coordination among stakeholders to identify and reduce adverse results from a disruption to natural gas deliverability.
- Begin to explore and understand the interdependencies of natural gas with other critical infrastructures, such as electricity. Argonne simulation with natural gas, electric generation, telecommunications and water.
- Assist in identifying priorities in additional tasks.
- Produce the most useful information to the broad set of private sector stakeholders and the multiple federal and state interests.

Stakeholders Meeting and Steering Council Recommendations

- Study other regions of the country using EEA model
 - Sequence: CA, FL, Midwest (including Chicago)
 - Develop and implement methodology for producing regions
- Use existing models or develop model for natural gas interdependency with electricity
- OPS Integrity Management Rule: Coordination is needed on the impact of the IM Rule with respect to disruption of deliverability of natural gas. Coordination with DOJ & FTC re antitrust; NARUC, other State Organizations re awareness for non-natural gas industry stakeholders

Stakeholders/Steering Council Recommendations (continued)

- Communications/awareness among stakeholders is needed, especially between natural gas and electric generators
- Regional coordination is needed in addition to local & State
- Greater need by federal agencies to understand ongoing modeling activities
- Consider “granular” study of one metropolitan area
- Tariff flexibility is needed in periods of critical emergencies: firm vs. interruptible
- Develop method to share sensitive information with those who need it, and retain information protection needed

Status

Phase II project will be announced this week

- Study California and surrounding States, then Florida
- Develop Production Area Methodology and Study Rocky Mountain Region
- Study Current Models and Work with NERC on Cost-Effective Natural Gas-Electricity Interdependency Methodology
- Improve Communications and Coordination Among Stakeholders: IM Rule; Information Availability and Sharing; Awareness/Education