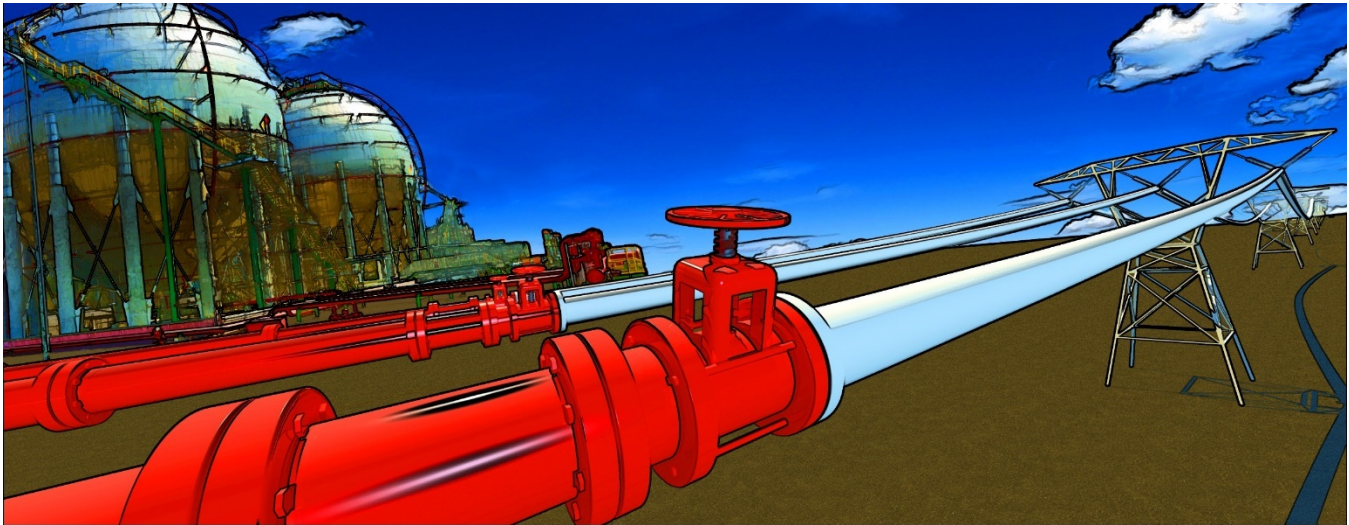


## First Person—The Quest for Coordination



### *Interview: Natural Gas and Electricity Sectors Have Made Strides Toward Harmonization, But Challenges Remain*

#### The Story in Brief

“We believe the key issue is reliability,” says Lori Traweek, chief operating officer of the [American Gas Association](#) (AGA). Traweek speaks with *EPRI Journal* about coordinating the natural gas and electric systems—progress to date, challenges ahead, and the importance of planning, infrastructure, and R&D.

#### **EJ: How have the electric and gas sectors become more interdependent?**

**Traweek:** Over the last decade, natural gas has become much more abundant and affordable. That, along with environmental regulations and the cleaner attributes of natural gas relative to coal, has driven a significant increase in the use of natural gas for electric generation. In May 2017, the [U.S. Energy Information Administration reported that natural gas has displaced coal](#) as the leading fuel source in the Northeast’s electric generation mix.

While natural-gas-fired generation is growing, it still represents only one-third of the total market for natural gas in the United States. The other two-thirds includes direct use of natural gas for space and water heating, cooking, and other uses in the residential, commercial, and industrial sectors. It is thus critically important that national policy considers the reliability of the natural gas and electric systems as interdependent, rather than address one system at the expense of the other. We must also consider regulatory requirements, safety, a clean environment, and affordability.



Lori Traweek

The direct use of natural gas and gas-to-power generation serve critical roles in the U.S. energy portfolio. Given this, we need to make sure that new processes or rules don't undermine what's already working well in these sectors.

### **EJ: What progress has been made in natural gas–electric coordination?**

**Traweek:** Discussions about gas-electric coordination have been taking place for about six years, and great strides have been made. AGA has participated in these discussions and has provided detailed input to the Federal Energy Regulatory Commission (FERC) on various inquiries, conferences, and proposed rules on the natural gas side.

In 2012, FERC held a series of technical conferences to discuss natural gas–electric coordination in the different regions of the United States. In 2013, FERC issued Order No. 787, which authorizes interstate natural gas pipelines and electric transmission operators to share non-public, operational information to support the reliability of their systems. The order includes additional protections to ensure that shared information remains confidential. Some interstate pipeline operators are providing electric transmission operators with protocols for sharing non-public information.

**“With today’s abundant supply of natural gas, we are at record levels of gas in storage. In some regions, new storage may not be needed. Rather, the solution may involve providing the incentives and cost recovery mechanisms so that electric generators can contract for existing storage services.”**

At a 2013 conference convened by FERC, natural gas and electric stakeholders identified several challenges related to different scheduling practices in the two industries. This prompted a rulemaking that led FERC in 2015 to issue Order No. 809 to help harmonize scheduling. The order extended the day-ahead deadline for scheduling natural gas transportation by an hour and a half and added another scheduling opportunity during the gas market’s operating day.

In FERC electric dockets, grid operators have made certain tariff modifications to coordinate their day-ahead markets with the changes on the natural gas side.

In 2016, at FERC’s request, the North American Energy Standards Board convened a natural gas–electric harmonization forum to explore the potential for faster, computerized scheduling for gas transportation, which includes nominations and confirmations.

Grid operators, such as PJM and ISO New England, are looking at ways to incent electric generators to procure firm natural gas services needed for reliability. For example, under [PJM’s “pay for performance” model](#), customers pay an additional cost to generators that commit to delivering power during weather extremes and other high demand periods. Generators must pay penalties if commitments are not met.

Enhanced natural gas pipeline services are available to generators, and new services are under development. For example, some interstate pipelines and natural gas utilities offer services that allow a generator to have natural gas transported with little or no advance notice. Natural gas transportation providers can be quite creative in designing these services and are happy to sit down with electric generators to customize them. However, we haven’t seen a lot of interest from generators yet, possibly because they are unable to obtain cost recovery for such services.

Another area of natural gas and electric industry collaboration is cyber security—how to prevent and respond to cyber attacks. AGA has been working closely with the Edison Electric Institute in government-facilitated drills to enable exchange of information on cyber events.

**“During the January 2014 ‘Polar Vortex’ weather event, the natural gas industry honored firm fuel supply and transportation contracts. Natural-gas-fired generation units that experienced supply interruptions were not using firm services.”**

#### **EJ: What is needed to improve coordination further?**

**Traweek:** For the discussions to be constructive moving forward, it is important to first identify the issue that needs to be addressed. We believe the key issue is reliability for natural gas utilities and other pipeline shippers, such as gas-fired power generators. For reliability, electric generators may need to sign up for firm natural gas services, and pipeline systems may need to expand their infrastructure to provide these services. Organized electric markets should provide the appropriate incentives for electric generators to pay for the firm services. As I’ve mentioned, some grid operators are already working on this. In some regions, more natural gas infrastructure may not be necessary, and other approaches such as dual fuel requirements may offer a solution.

When generators sign up for interruptible natural gas transportation service, they must understand that this is a lower priority service and may not always be provided when capacity is needed for higher priority, firm customers. During the January 2014 “Polar Vortex” weather event, the natural gas industry honored firm fuel supply and transportation contracts. Natural-gas-fired generation units that experienced supply interruptions were not using firm services. If generators decide not to sign up for firm services or if such services are not available without a system expansion, they need to have backup fuel supplies or other alternative resources.

#### **EJ: How can the two industries learn more about each other?**

**Traweek:** Conferences are one way. Outreach is another, and the industry associations can help with that. Regulatory agencies such as FERC and the U.S. Department of Energy play important roles through proceedings and technical workshops. Some grid operators report that they have hired people who “speak gas” to help them better understand the details of natural gas operations. Most large utilities today provide both natural gas and electric services to retail customers, and that too has enabled a more holistic conversation.

**“While natural-gas-fired generation is growing, it still represents only one-third of the total market for natural gas in the United States.”**

#### **EJ: To what extent should gas infrastructure be expanded?**

**Traweek:** Many of the coordination efforts underway or implemented have been helpful. That said, there will still be regions—and New England is one example—where increased pipeline capacity may be required to reliably meet the needs of both electric generators and direct-use natural gas customers. Additional infrastructure may be necessary in areas where electric generators need firm transportation capacity for reliability but no such capacity is available. This is typically an issue that the pipeline customer would discuss with the pipeline operator.

### EJ: How can natural gas storage help?

**Traweek:** Natural gas storage is an important aspect of the reliability and resilience of the supply chain. It can provide vital operational flexibility when the pipeline and distribution network are constrained. Natural gas utilities conduct extensive planning so that they have enough gas to meet their obligations, and storage is often a key component of that. Electric generators may want to consider contracting for natural gas storage services to ensure reliability during peak demand. In organized electricity markets, generators may need to have the appropriate incentives to recover storage costs.

“With today’s abundant supply of natural gas, we are at record levels of gas in storage. In some regions, new storage may not be needed. Rather, the solution may involve providing the incentives and cost recovery mechanisms so that electric generators can contract for existing storage services.”

### EJ: What is AGA’s view about the potential development of organized wholesale natural gas markets, akin to the electricity sector’s independent system operators?

**Traweek:** We think that the natural gas market already functions efficiently and that there are a lot of innovative natural gas products and services available to help electric generators meet their needs. We’re not advocating for the creation of regional natural gas transmission organizations. Such a major restructuring may actually disrupt our ability to function effectively and affordably for our customers. There are regional differences in natural gas and electric operations, so we need to consider “one-size-fits-all” solutions carefully.

“For reliability, electric generators may need to sign up for firm natural gas services, and pipeline systems may need to expand their infrastructure to provide these services. Organized electric markets should provide the appropriate incentives for electric generators to pay for the firm services.”

### EJ: How will growth in liquid natural gas exports and industrial demand for gas impact long-term prices for gas purchased by electric companies?

**Traweek:** Because of the abundance of natural gas supplies, the Energy Information Administration predicts that natural gas prices are going to remain low for many years, that liquid natural gas exports will increase, and that we can accommodate power generation needs and still not see significant price increases. We’re not expecting the kind of volatility that we used to see with natural gas.

### EJ: EPRI is conducting R&D on electrification of end-use technologies as part of its Integrated Energy Network analysis. What is AGA’s perspective on these efforts, and how can the electric power and natural gas industries communicate better on this topic?

**Traweek:** I’ll say first that our industries already have great communication. The fact that we’re having this conversation is a tribute to EPRI and its efforts to connect stakeholders. Communication between EPRI and the Gas Technology Institute is as strong as ever, and communication between Edison Electric Institute and AGA is as strong as ever. We share board members and member companies, and there is a great synergy in that.

Our focus is on making sure that there’s a fact-based discussion of the issues, including natural gas–electric coordination. Consumers win when they have energy choices and a full understanding of the implications and trade-offs of those choices. If consumers prefer cooking with natural gas—and we believe that there are a lot of people who do—then they should have the opportunity to use natural gas. And, if they want an electric heat pump and understand the implications of installing one in their house, then that should be an available choice.

To that end, R&D to advance a broad range of electric and natural gas end-use technologies is critical. This supports customer choice as well as emissions reductions and efficiency gains.

**EJ: What other R&D can help improve natural gas–electric coordination?**

**Traweek:** Cyber security is at the top of the list. We need more real-time cyber information and information sharing. Information technology research can help with demand forecasts and exchange of the data needed for natural gas and electric planning. Research on deploying pipeline infrastructure in a more environmentally sensitive way is important. These efforts are underway.