Interstate Natural Gas Association of America

The United States Needs Additional Natural Gas Pipeline Capacity to Maintain Electric Reliability

What is natural gas' role in maintaining electric grid reliability?

Natural gas is the largest source of electricity in the United States, accounting for nearly 40% of the kilowatt hours of electricity produced in the U.S. in 2022. Some power plants use natural gas to power steam boilers, combustion turbines, or both, which then generate the electricity which is carried through the power grid long distances to residential and commercial buildings and industrial facilities. The United States currently has 2,077 natural gas-fired power plants. However, the Energy Information Administration (EIA) expects that the U.S. will add 10 natural gas-fired power plants with 1.8 GW of capacity in 2024. These additional plants are critical; as the North American Electric Reliability Corporation (NERC) explained, "natural gas is the reliability fuel that keeps the lights on, and natural gas policy must reflect this reality."

These critical power plants need interstate natural gas pipelines to deliver gas to their facilities. Interstate pipelines do not sell natural gas, but they are the carriers that transport natural gas safely and reliably to power plants. Pipelines will become more important as the U.S. electrifies and adds more wind and solar generation. Greater end-use electrification will increase power demand and the need for natural gas to serve as a reliable backup to the intermittent renewables. NERC determined that "additional pipeline infrastructure is needed to reliably serve electric load." PJM and MISO—electric grid operators overseeing all or part of 24 states—likewise concluded that "a robust gas pipeline infrastructure will be critical to helping support that industry transition in an efficient and reliable manner."

Pipelines reliably deliver to their customers, but many plants' delivery arrangements and obstacles to building pipelines threaten electric reliability.

How do power plants arrange for delivery of natural gas?

Power plants must purchase natural gas from a producer or marketer and separately arrange for transportation of the gas with the pipeline operator. Some power plants—particularly in the West and the South—purchase "firm" transportation, which guarantees delivery without interruption (except in extraordinary circumstances) at the plant's primary delivery point. A survey of interstate pipelines found pipelines delivered 99.79% of firm commitments to customers at the primary delivery points.

Other plants choose to rely on "interruptible" transportation (IT). IT is less expensive than firm and does not offer a guarantee that gas will transported when desired by the customer. Pipelines may suspend, reduce, or not schedule IT based on how firm customers use their "capacity"—their space on the pipeline—and tariff terms.

Finally, plants may rely on capacity "released" by other firm customers onto a secondary market. Plants that obtain released capacity hold the same "firmness" and priority rights as the original firm customer that chooses to release that capacity.

Pipelines can and do offer services tailored to meet power plants' needs, including services that allow for the transportation of large quantities of gas with no notice. These services are more expensive, however, because they require expanded facilities or access to storage, and very few power plants subscribe to no-notice service. Plants operating in competitive electric markets cannot count on cost recovery and might incur losses due to these higher costs.

How does this affect electric reliability? How can we address these issues?

Historically, demand from firm customers like local gas companies peaks during the winter while demand from power plants peaks during the summer. Different peaks generally allowed plants to rely on IT or pipeline capacity released by firm customers (often local gas companies) that did not need it in summer. Plants are losing this ability for two reasons:

- **Pipelines cannot expand to meet the increased demand for transportation.** Demand for natural gas from homes, power plants, and the industrial base has grown, and now traditional firm customers and power plants often experience peak demand simultaneously, especially in winter. But unnecessary regulatory and legal hurdles prevent companies from building new pipelines or expanding existing pipelines to meet this demand. 2022 saw the smallest increase in pipeline capacity on record.

- **Electric markets' compensation model deters plants from purchasing firm service.** Because the U.S. cannot keep pace with the demand for pipeline capacity, customers increasingly must compete for firm capacity on existing pipelines. But wholesale electric market design gives plants little incentive or ability to compete with other customers for firm capacity.

To address these challenges, the U.S. must reform (1) permitting to remove the barriers to construction of additional pipeline facilities and (2) electric markets to ensure that the plants keeping the lights on are appropriately compensated.