AMERICAN PUBLIC POWER ASSOCIATION
Powering Strong Communities

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Winter Storm Uri, Extreme Winter Events, And Natural Gas Reforms

Summary

The severe arctic weather event known as Winter Storm Uri resulted in the tragic loss of life and severe economic impacts on utilities and consumers in the Electric Reliability Council of Texas (ERCOT), the Southwest Power Pool (SPP), and Mid-continent Independent System Operator (MISO), plus several other regions during one week in February 2021. It also resulted in extremely high deregulated gas commodity prices that will cost electric utility customers billions of dollars and years to pay off. A November 2021 report on the events issued by the Federal Energy Regulatory Commission (FERC) and the North American Electric Reliability Corporation (NERC) recommends that Congress, state legislatures, and regulatory agencies with jurisdiction over natural gas infrastructure facilities require those natural gas infrastructure facilities to implement and maintain cold weather preparedness plans, including measures to prepare to operate when specific cold weather events are forecast. Congress is beginning to consider legislation that would attempt to increase natural gas supply reliability and limit untenable gas commodity price spikes. The American Public Power Association (APPA) strongly supports efforts to make natural gas supplies more reliable during extreme weather events. APPA also supports federal legislation that would cap, or otherwise limit, wholesale natural gas prices during periods of acute supply shortage.

Background

From February 13-17, 2021, a severe arctic weather event known as Winter Storm Uri, had widespread effects across the United States, Northern Mexico, and parts of Canada. The storm brought with it snow, freezing rain, and bitter cold temperatures; roughly half of the U.S. was placed under a winter weather alert of some sort. As a result, there was a massive decline in natural gas production with natural gas fuel supply struggling to meet both residential heating load and electric generating unit demand for natural gas. Additionally, electric generating units unprepared for cold weather failed in large numbers. Wholesale electricity prices skyrocketed in Texas and other regions. In addition to being the largest controlled firm load shed[1] event in U.S. history, the event was also the third largest in quantity of outaged megawatts (MW) of load after the August 2003 northeast blackout and the August 1996 Western Interconnection blackout. More than 4.5 million people in Texas alone lost power and some went without power for as long as four days.

Many of the adverse effects of Winter Storm Uri were attributable to the lack of availability of natural gas to gas-fired generators and the extremely high deregulated gas commodity prices that followed. Record-setting natural gas prices spiked to unimagined levels at a time of extremely high and unexpected overall monthly demand for natural gas for heating and imposed a severe economic burden on some public power utilities that had no choice but to purchase historically high-priced natural gas fuel for generators needed to keep the lights and heat on in their communities. These fuel prices contributed to soaring wholesale electricity costs in the markets administered by ERCOT, SPP, MISO, and other regions. These natural gas prices also created an enormous wealth transfer from consumers to gas sellers that were not taken offline by the cold weather.

Natural gas deliveries were interrupted for several days for a variety of reasons related to the cold weather—most of which had occurred before, specifically in 2011. Wellhead equipment froze (freeze offs), compressor equipment froze and broke down, gathering lines froze up in the field, and poor weather conditions increased repair times. In the ERCOT region, power was interrupted to natural gas facilities that had not been appropri-

1 Load shedding is the reduction of system demands by systematically and in a predetermined sequence interrupting the load flow to major customers and/or distribution circuits, normally in response to system or area capacity shortages or voltage control considerations.

ately identified as critical, hindering repairs and interfering with fuel availability for back-up power supply to critical gas supply regions that could have helped to stem at least some of the damage. Collectively, these circumstances created scarcity conditions and led to extremely high prices. Some gas-fired electric generation and industrial end users were curtailed, but residential natural gas service had few, if any, interruptions in the affected states. Additionally, market conditions were worsened because the peak of the storm happened during the long President's Day weekend. This forced many market participants to lock-in high-priced natural gas orders for four days over the holiday weekend (Saturday through Tuesday) instead of a typical three-day weekend scheduling period (Saturday through Monday).

Importantly, although natural gas is an essential fuel for home heating, electric generation, and other critical uses, the price of the natural gas commodity is fully deregulated, which allowed wholesale natural gas spot prices to skyrocket in some regions during Winter Storm Uri. Utilities, regulators, and other policymakers had limited tools to restrain these astronomical prices. Under the Natural Gas Policy Act of 1978 (NGPA), the President of the United States has limited emergency powers over the market, including the authority to declare a "natural gas supply emergency" and authorize certain natural gas sales during the emergency at prices the President may set. APPA asked President Biden to invoke these emergency powers in February 2021 in an effort to mitigate extreme natural gas charges. The precise authority to protect consumers from a severe natural gas price spike by restricting what natural gas sellers may charge, however, is not clearly specified in the NGPA or any other federal legislation.

FERC-NERC Report

In November 2021, FERC and NERC staff issued a report on "The February 2021 Cold Weather Outages in Texas and the South Central United States." The report finds that a total of 1,045 individual generating units—58 percent natural gas-fired, 27 percent wind, six percent coal, two percent solar, seven percent other fuels, and less than one percent nuclear—experienced 4,124 outages, derates, or failures to start. Of those outages, derates, and failures to start, 75 percent were caused by either freezing issues (44.2 percent) or fuel issues (31.4 percent). In turn, nearly 87 percent of fuel issues were related to natural gas supply. Finally, the report finds the natural gas supply issues began "at the wellhead" with natural gas processing declining by as much as 80 percent on February 15.

As a result, the report recommends a number of new or revised mandatory NERC standards, including rules that would enhance winterization requirements for electric generation facilities. Additionally, the report recommends that natural gas infrastructure facilities implement measures to protect against freezing and other cold-related limitations, which can affect the production, gathering, and processing of natural gas. It also recommends that Congress, state legislatures, and regulatory agencies with jurisdiction over natural gas infrastructure facilities that are not jurisdictional to FERC/NERC take steps to require those natural gas infrastructure facilities to implement and maintain cold weather preparedness plans, including measures to prepare to operate when specific cold weather events are forecast.

Because the FERC-NERC Report is limited to the grid reliability impacts of Winter Storm Uri, it does not address the storm's severe economic consequences, such as extreme natural gas spikes and the related increases in wholesale electric costs.

Congressional Action

Lawmakers in Washington held numerous hearings in the immediate aftermath of the storm, but no substantive remedial action has followed. In part this is because policymakers at the key committees of jurisdiction, the House Energy & Commerce and Senate Energy & Natural Resources Committees, had been awaiting the findings from the FERC/NERC report before deciding what next steps to take. Additionally, once the report was released, much of Congress' attention was focused elsewhere—primarily with completing action on other measures.

That said, two bills directly resulting from the impacts of Winter Storm Uri have been introduced. On October 27, 2021, Representative Joaquin Castro (D-TX) introduced H.R. 5749, the Gas Consumer Emergency Market Protection Act. The bill would give the Commodities Futures Trading Commission (CFTC) authority to find during an emergency that natural gas had been sold, or attempted to be sold, in the spot or day-ahead market above a CFTC-determined baseline price. In turn, a person found to have sold, or attempted to sell, natural gas above that price would be subject to a civil penalty of up to $1 million per day.

Additionally, on November 11, 2021, Representative Bobby Rush (D-IL), Chairman of the House Energy Subcommittee, introduced H.R. 6084, the Energy Product Reliability Act. The bill would create an Energy Product Reliability Organization

(ERPO) that would establish and enforce energy standards for the reliable pipeline delivery of natural gas, hydrogen, petroleum, and petroleum products. A hearing was held on the bill in January.

APPA Position

APPA is working with policymakers, including the committees of jurisdiction and the office of Representative Castro, as they consider legislative responses to extreme weather events, such as Winter Storm Uri. In addition, working with its members, APPA has identified possible legislative and regulatory responses focused on natural gas concerns. These would include:

- Require winterization of natural gas production facilities in all regions of the U.S.
- Require winterization of federally regulated natural gas transportation facilities.
- Allow the President or his or her delegate to place a temporary emergency price cap on natural gas prices during a declared emergency.
- To the extent possible, limit electric utilities from curtailing service to natural gas production facilities during controlled outages. This would require that natural gas production facilities be ineligible for "interruptible" electric rates or demand response programs.

APPA also supports the recommendations included in the November 2021 FERC/NERC report on the protection of natural gas production and delivery infrastructure against extreme cold weather. Namely, APPA supports Congress, state legislatures, and regulators with jurisdiction over natural gas production, gathering, processing, and transportation facilities requiring those facilities to have cold weather preparedness plans. The association also believes that natural gas production, gathering, and processing facilities should consider implementing measures to protect against freezing and other cold-related limitations.

Finally, APPA has also pledged to work with NERC, FERC, and other industry stakeholders as they explore potential mandatory NERC reliability standards that: (1) include reasonable processes for identifying and protecting critical natural gas infrastructure loads from firm load shedding and/or restricting such loads from participation in demand response programs; and (2) reasonable enhancements to winterization requirements for electric generation facilities.

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The American Public Power Association is the voice of not-for-profit, community-owned utilities that power 2,000 towns and cities nationwide. We represent public power before the federal government to protect the interests of the more than 49 million people that public power utilities serve, and the 96,000 people they employ. Our association advocates and advises on electricity policy, technology, trends, training, and operations. Our members strengthen their communities by providing superior service, engaging citizens, and instilling pride in community-owned power.