The Secretary of Energy
Washington, DC 20585

September 28, 2017

Neil Chatterjee, Chairman
Cheryl A. LaFleur, Commissioner
Robert F. Powelson, Commissioner
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: *Secretary of Energy's Direction that the Federal Energy Regulatory Commission Issue Grid Resiliency Rules Pursuant to the Secretary's Authority Under Section 403 of the Department of Energy Organization Act*

Dear Mr. Chairman and Commissioners:

America's greatness depends on a reliable, resilient electric grid powered by an "all of the above" mix of generation resources. This diverse mix of resources must include traditional baseload generation with on-site fuel storage that can withstand major fuel supply disruptions caused by natural and man-made disasters. But the resiliency of the electric grid is threatened by the premature retirements of these fuel-secure traditional baseload resources.

As the agency responsible for regulation of the organized power markets operated by the Commission-approved regional transmission organizations (RTOs) and independent system operators (ISOs), it is time for the Federal Energy Regulatory Commission ("Commission" or "FERC") to issue rules to protect the American people from the threat of energy outages that could result from the loss of traditional baseload capacity. In the wake of the devastation wrought by the Polar Vortex, Superstorm Sandy, and Hurricanes Harvey, Irma, and Maria, much more work needs to be done to preserve these fuel-secure generation resources that have the essential reliability and resiliency attributes needed to keep the lights on for all Americans in times of crisis—including on-site fuel supplies and the ability to provide voltage support, frequency services, operating reserves, and reactive power. As a first step, it is especially urgent to prevent premature retirements of the resources that have these critical attributes.

To this end, pursuant to section 403 of the Department of Energy Organization Act, I am making the enclosed rulemaking proposal for consideration and final action by the Commission pursuant to its authority under sections 205 and 206 of the Federal Power Act. Distorted price signals in the Commission-approved organized markets have resulted in under-valuation of grid reliability and resiliency benefits provided by traditional baseload resources, such as coal and nuclear. The rule will ensure that each eligible reliability and resiliency resource will recover its fully allocated costs and thereby continue to provide the energy security on which our nation relies. The Commission is required to take final action on this proposal in an expeditious manner in accordance with the reasonable time limits specified in the enclosed Notice of Proposed Rulemaking (NOPR).

The Resiliency of the Electric Grid—and Our National Security—is In Jeopardy

Ensuring that American families and their businesses have access to reliable, resilient and affordable electricity is vital to the economy, national security and quality of life. From heating homes in the winter to cooling them in the summer, providing lighted streets so people can walk safely at night, powering machines and technology that create jobs, and connecting us through smart phones and the internet—electricity is a key driver of America's economic prosperity and the basic necessities of life. Our economy, government and national defense all depend on electricity. Therefore, ensuring a reliable and resilient electric supply and corresponding supply chain are vital to national security.

There Have Been Significant Retirements of Traditional Baseload Generation

Market changes are resulting in a significant loss of traditional baseload generation. According to the Department of Energy's January 2017 *Quadrennial Energy Review* (January 2017 QER):

> Currently, the changing electricity sector is causing the closure of many coal and nuclear plants in a shift from recent trends. From 2000 through 2009, power plant retirements were dominated by natural gas steam turbines. Over the past 6 years (2010–2015), power plant retirements were dominated by coal plants (37 GW), which accounted for over 52 percent of recently retired power plant capacity. Over the next 5 years (between 2016 and 2020), 34.4 GW of summer capacity is planned to be retired, and 79 percent of this planned retirement capacity are coal and natural gas plants (49 percent and 30 percent, respectively). The next largest set of planned retirements are nuclear plants (15 percent).[1]

The Department of Energy's *Staff Report to the Secretary on Electricity Markets and Reliability* (DOE Staff Report)[2] also discusses the large number of traditional baseload units that have retired or are scheduled to retire:

- Between 2002 and 2016, 531 coal generating units representing approximately 59,000 MW of generation capacity retired from the U.S. generation fleet.[3]
- EIA reported that coal-fired power plants made up more than 80 percent of the 18,000 MW of electric generating capacity that retired in 2015.[4]
- It is anticipated that approximately 12,700 MW of coal will retire through 2020.[5]

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[1] *Transforming the Nation's Electricity System: the Second Installment of the Quadrennial Energy Review*, January 6, 2017 (2017 QER), at 3-73.

[2] U.S. Department of Energy, *Staff Report to the Secretary on Electricity Markets and Reliability*, August 2017 (DOE *Staff Report*).

[3] DOE *Staff Report* at 22.

[4] DOE *Staff Report* at 22, citing U.S. Energy Information Administration, *Today in Energy*, March 8, 2016. More recent EIA data shows an overall larger amount of 2015 generation capacity retirements (25,400 MW), of which coal-fired power plants made up 72%. EIA, *Monthly Update to the Annual Electric Generator Report*, Form EIA-860m, March 2017.

[5] U.S. Energy Information Administration (EIA), *Monthly Update to the Annual Electric Generator Report*, Form EIA-860m, June 2017, https://www.eia.gov/electricity/data/eia860m/.

- Between 2002 and 2016, 4,666 MW of nuclear generating capacity was announced for retirement, or approximately 4.7 percent of the U.S. total.[6]
- Eight reactors representing 7,167 MW of nuclear capacity (7.2 percent of U.S. nuclear capacity and 0.6 percent of total U.S. generating capacity) have announced retirement plans since 2016. This does not include seven reactors that averted early retirement through state action.[7]

The 2014 Polar Vortex Exposed Problems With the Resiliency of the Electric Grid

In early 2014, the Polar Vortex (a band of very cold weather spread across much of the eastern United States) created record-high winter peak electric demand for heating and equally high demand for natural gas for residential heating. During the Polar Vortex, PJM Interconnection ("PJM")[8] struggled to meet demand for electricity because a significant amount of generation was not available to run. The loss of generation capacity could have been catastrophic, but a number of coal plants that were scheduled for retirement were dispatched to meet the need for electricity:

> American Electric Power reported that it deployed 89 percent of its coal units scheduled for retirement in 2014 to meet demand during the Polar Vortex, and Southern Company reported using 75 percent of its coal units scheduled for closure. Using these retiring units enabled utilities to meet customer demand during a period when already limited natural gas resources were diverted from electricity production to meet residential heating needs. Once retired, however, these units will not be available for the next unseasonably cold winter.[9]

Likewise, nuclear power plants "performed extremely well during the Polar Vortex, with an average capacity factor of 95 percent."[10]

Sixty-five million people within the PJM footprint could have been affected if these traditional baseload units were not available. The 2014 Polar Vortex was a warning that the current and scheduled retirements of these fuel-secure units could threaten the reliability and resiliency of the electric grid.[11]

Regulated Wholesale Power Markets Are Not Adequately Pricing Resiliency Attributes of Baseload Power

There is a growing recognition that Commission-approved organized markets do not necessarily pay generators for all the attributes that they provide to the grid, including resiliency. Because wholesale pricing in those markets does not adequately consider or accurately value those benefits, generation units that provide the benefits are often not fully compensated for them.

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[6] DOE *Staff Report* at 29.
[7] DOE *Staff Report* at 30.
[8] PJM Interconnection is the regional transmission organization ("RTO") serving thirteen states and the District of Columbia.
[9] DOE *Staff Report* at 98 (internal citations omitted).
[10] DOE *Staff Report* at 95 (internal citations omitted).
[11] DOE *Staff Report* at 98-99, 118.

The January 2017 QER summarizes the problem of how Commission-approved wholesale markets are not adequately pricing resiliency attributes of traditional baseload generation:

> Reliability investments are typically incorporated into ratemaking processes for all electric utilities. Supplementary investments for recovery from outage events also are handled through established ratemaking processes. Resilience requirements tend to be valued as contributions to reliability and incorporated as part of ratemaking processes. These processes are more easily executed in structures that are traditional end-to-end, vertically integrated electricity delivery services; other market structures complicate reliability and resilience investment decision-making. Short-run markets may not provide adequate price signals to ensure long-term investments in appropriately configured capacity. Also, resource valuations tend not to incorporate superordinate network and/or social values such as enhancing resilience into resource or . . . investment decision making. The increased importance of system resilience to overall grid reliability may require adjustments to market mechanisms that enable better valuation.[12]

A recent study by IHS Markit amplifies the same point: "the increasing cost of ensuring power system resilience is exposing the problem that some current wholesale market price formation rules do not fully compensate generating resources for providing the desired power system supply resiliency."[13]

Yet adequately compensating generating resources for ensuring a resilient grid and our national security does not mean that the costs of maintaining our grid will necessarily increase. In fact, as the IHS Markit study also concludes, preservation of traditional baseload resources benefits consumers: "The current diversified US electric supply portfolio lowers the cost of electricity production by about $114 billion per year and lowers the average retail price of electricity by 27%" compared with a "less efficient diversity case" involving "no meaningful contributions from coal or nuclear resources."[14] Thus, this rule will ensure both a resilient grid and affordable electricity to drive economic prosperity.

NERC Warns That Premature Retirements Of Fuel-Secure Generation Threaten the Reliability and Resiliency of the Bulk Power System

The North American Electric Reliability Corporation (NERC) (the FERC-designated Electric Reliability Organization), whose mission is to assure the reliability and security of the bulk power system in North America, states:

> The North American electric power system is undergoing a rapid and significant transformation with ongoing retirements of fossil-fired and nuclear capacity, as

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[12] 2017 *QER*, at 4-41 (emphasis added).
[13] IHS Markit, *Ensuring Resilient and Efficient Electricity Generation: The Value of the Current Diverse US power Supply Portfolio*, at 8.
[14] Id. at 4-5.

> well as growth in natural gas, wind, and solar resources. This shift is caused by several drivers, such as federal, state, and provincial policies, low natural gas prices, electricity market forces, and integration of both distributed and utility-scale renewable resources. The changing resource mix is altering the operating characteristics of the bulk power system (BPS). These changing characteristics must be well understood and properly managed in order to assure continued reliability and ensure resiliency.[15]

Specifically, NERC explains, "Coal-fired and nuclear generation have the added benefits of high availability rate, low forced outages, and secured on-site fuel. Many months of on-site fuel allow these units to operate in a manner independent of supply chain disruptions."[16]

As a consequence, NERC warns, "Premature retirements of fuel secure baseload generating stations reduces resilience to fuel supply disruptions."[17]

The DOE Staff Report Made Clear the Challenges to the Grid and That Resiliency Must Be Addressed

The DOE Staff Report confirms these observations and exposes the potential challenges and threats to the reliability and resiliency of the electric grid, as well as the economic hardship faced by some of the most resilient types of generation. Among other things, the DOE Staff Report warns that premature retirements of fuel-secure resources impose serious risks:

> Ultimately, the continued closure of traditional baseload power plants calls for a comprehensive strategy for long-term reliability and resilience. States and regions are accepting *increased risks* that could affect the future reliability and resilience of electricity delivery for consumers in their regions. Hydropower, nuclear, coal, and natural gas power plants provide ERS ["essential reliability services"] and fuel assurance critical to system resilience. A continual comprehensive regional and national review is needed to determine how a portfolio of domestic energy resources can be developed to ensure grid reliability and resilience.[18]

The DOE Staff Report also recognizes that "system fuel supply chain disruptions can impact many generators during a single widespread fuel shortage event," and that "[n]uclear and coal plants typically have advantages associated with onsite fuel storage...."[19] In light of these facts, the DOE Staff Report calls for prompt action:

> Markets need further study and reform to address future services essential to grid reliability and resilience. System operators are working toward recognizing,

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[15] NERC Letter to Secretary of Energy Rick Perry, May 9, 2017, Attachment "Synopsis of NERC Reliability Assessments" (Synopsis) at 1 (emphasis added).
[16] NERC, Synopsis at 2.
[17] NERC, Synopsis at 3.
[18] DOE *Staff Report* at 14 (emphasis added).
[19] DOE *Staff Report*, at 91. For example, "coal plants . . . maintain onsite coal stockpiles to accommodate both normal variance in deliveries and the possibility of a major supply disruption. Coal stockpiles have recently been slightly smaller than historical averages, while days of burn have increased slightly relative to historic averages from the 70-80 range to the 85-100-day range." *Id.*, at 95.

> defining, and compensating for resource attributes that enhance reliability and resilience (on both the supply and demand side). However, further efforts should reflect the *urgent* need for clear definitions of reliability- and resilience-enhancing attributes and should *quickly establish* the market means to value or the regulatory means to provide them.[20]

One of the DOE Staff Report's chief policy recommendations to protect the resiliency of the electric grid is to correct distortions in price formation in the organized markets:

> FERC should expedite its efforts with states, RTO/ISOs, and other stakeholders to improve energy price formation in centrally-organized wholesale electricity markets. After several years of fact finding and technical conferences, the record now supports energy price formation reform, such as the proposals laid out by PJM and others.[21]

FERC is Aware Of the Problem and Must Take Action

As is well known, over the past several years, the Commission has developed an extensive record on price formation in the Commission-approved ISOs and RTOs. The Commission has recognized that there are deficiencies in the way the regulated wholesale power markets price power (i.e., energy, capacity, and ancillary services) and that these deficiencies are undermining reliability and resiliency.

Beginning in 2013, the Commission recognized the changing mix of generation resources, determined that the existing capacity markets were not providing a sufficiently reliable supply of electricity, predicted the loss of traditional baseload generation, and sought input from the public through proceedings on price formation in the organized markets. In a 2013 technical conference, FERC explained:

> The purpose of the technical conference is to consider how current centralized capacity market rules and structures are supporting the procurement and retention of resources necessary to meet future reliability and operational needs. Since their establishment, centralized capacity markets have continued to evolve. Meanwhile, the mix of resources is also evolving in response to changing market conditions, including low natural gas prices, state and federal policies encouraging the entry of renewable resources and other specific technologies, and the retirement of aging generation resources. This changing resource mix may result in future reliability and operational needs that are different than those of the past.[22]

Nevertheless, the fundamental challenge of maintaining a resilient electric grid has not been sufficiently addressed by the Commission or the Commission-approved ISOs and RTOs, and the lack of a quorum at the Commission has undoubtedly thwarted the issuance of rules. But the continued loss of baseload generation with on-site fuel supplies, such as coal and nuclear,

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[20] *Id.*, at 10 (emphasis added).
[21] *Id.*, at 126 (internal citations omitted).
[22] FERC, *Centralized Capacity Markets in Regional Transmission Organizations and Independent System Operators*, Docket No. AD13-7-000, at 1.

must be stopped. These generation resources are necessary to maintain the resiliency of the electric grid. As FERC already regulates the organized wholesale power markets, it must adopt rules requiring the Commission-approved ISOs and RTOs to reduce the chronic distortion of those markets threatening the resilience of the nation's electricity system.

In light of these threats to grid reliability and resilience, it is the Commission's immediate responsibility to take action to ensure that the reliability and resiliency attributes of generation with on-site fuel supplies are fully valued and in particular to exercise its authority to develop new market rules that will achieve this urgent objective.

Failure to act expeditiously would be unjust, unreasonable, and contrary to the public interest.

Proposed Rule To Protect the Resiliency Of the Electric Grid

Therefore, pursuant to my authority under section 403 of the Department of Energy Organization Act to propose rules for adoption by the Commission, I am proposing the enclosed rule, which will be published in the Federal Register.

The proposed rule requires the Commission-approved organized markets to develop and implement market rules that accurately price generation resources necessary to maintain the reliability and resiliency of our Nation's electric grid. Specifically, the rule allows for the recovery of costs of fuel-secure generation units that make our grid reliable and resilient. Such resources provide reliable capacity, resilient generation, frequency and voltage support, on-site fuel inventory—in addition to providing power for our basic needs, quality of life, and robust economy. The rule allows the full recovery of costs of certain eligible units physically located within the Commission-approved organized markets. Eligible units must also be able to provide essential energy and ancillary reliability services and have a 90-day fuel supply on site in the event of supply disruptions caused by emergencies, extreme weather, or natural or man-made disasters. These resources must be compliant with all applicable environmental regulations and are not subject to cost-of-service rate regulation by any State or local authority. The rule requires the organized markets to establish just and reasonable rate tariffs for the full recovery of costs and a fair rate of return.

Now that a quorum has been restored at the Commission, I am confident that the Commission will act in an expeditious manner to address this urgent issue. To that end, in the enclosed NOPR, I direct the Commission to consider and complete final action on the rule proposed therein within 60 days from the date of the publication of the NOPR in the Federal Register. As an alternative, I urge the Commission to issue the proposed rule as an interim final rule, effective immediately, with provision for later modifications after consideration of public comments. Further, I am directing that any final rule adopting this proposal take effect within 30 days of publication of such final rule in the Federal Register, and I am proposing that each Commission-approved RTO and ISO submit a compliance filing within 15 days of the effective date of the rule.

Conclusion

It is the policy of this Administration to support an "all of the above" approach to energy development and use. We need to properly recognize the value of each resource, being mindful of its role in our national defense, economic security, and pursuit of environmental outcomes. In particular, we must account for the value of on-site fuel storage capability. Moreover, because of the long lead time to secure and maintain these resources, we must also ensure that the technical expertise and materials are readily available. If, for example, we lose our educated workforce or no longer have the ability to build and operate our baseload plants because of short-sighted policies, it will not only weaken our workforce, but will threaten our energy dominance and national security.

On behalf of the American people, I look forward to your immediate action on the pressing issue of protecting the resiliency of the electric grid.

Sincerely,

Rick Perry

Rick Perry