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A Call to Focus on Strengthening Grid Resilience and Reliability: DOE Staff Report Offers Timely Insights on Fundamental Market Changes

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The U.S. Department of Energy ("DOE") recently released its highly-anticipated ***Staff Report to the Secretary on Electricity Markets and Reliability***. The report weighs heavily on the themes of focusing on grid resilience and reliability in light of recent fundamental changes in the sources of generation. The report is definitely worth reading for those working in the electric industry and is a data-driven analysis of the varied and complex factors that have led to today's structured electricity markets in which coal-fired generation has substantially diminished, gas-fired generation has increased and renewable sources of generation have achieved a solid foothold that continues to expand rapidly. The report provides a balanced assessment and sets forth thoughtful challenges, examining a wide array of stakeholders, with a forward-looking approach towards integrative research and policy improvements. Perhaps one of the most striking aspects of the report is its acknowledgement that, more and more, states and private entities are playing a significant role in shaping policy outcomes to fit their own priorities.

Understanding the changing generation mix, market trends and planning for the future are critical to strengthening grid resilience and ensuring reliability. Notably, rather than placing the totality of the blame for the declining economic viability and premature retirements of coal generating facilities (and other traditional baseload generation, including nuclear, natural gas steam generators, and hydroelectric generators) on the growing renewables industry or particular clean energy requirements, such as the Clean Power Plan, the report highlights a number of factors, including, primarily, the effect that low natural gas prices have had on the changing baseload generation mix, in addition to flattening electricity demand, increasing deployment of Variable Renewable Energy ("VRE") resources (specifically wind and solar), pure economic factors implicated by an aging generation fleet and the challenging economics of their continued operation, and regulatory burdens – which can be both costly and time-consuming. Despite the challenges facing traditional baseload generation, the report emphasized the importance of reevaluating wholesale markets in order to ensure the continual development of a diverse domestic energy portfolio that promotes and ensures both grid reliability and resilience. The policy recommendations include actions that would not only fall within the purview of DOE, but also that of other government agencies and private organizations. Without providing a comprehensive summary of the report, we highlight some of the notable findings and policy recommendations.

Changing Baseload Generation Mix

With steadily increasing capacity factors and declining starts since about 2010, natural gas-fired combined-cycle ("NGCC") units are increasingly being used in baseload-type operation. The report highlights the changing nature of baseload that PJM Interconnection, L.L.C. ("PJM") is experiencing – NGCCs being dispatched as baseload with coal units more often being cycled and dispatched in a "mid-merit" unit fashion. For the first time in history, last year natural gas replaced coal as the leading source of electricity generation in the U.S.

It's Time For a Critical Analysis of Our Traditional Wholesale Markets

Noting the significant changes since the traditional wholesale markets were designed with a primary goal of providing power at the lowest cost, the report advocates for a critical evaluation of the current markets with a focus on long-term reliability, resiliency, and cost-efficiency for consumers. A critical issue identified by the report is that current market designs may not be adequate in light of the challenges posed by policy decisions regarding energy preferences. Most notably, VRE resources, which are subsidized by the tax laws and are often prioritized in dispatch, have the effect of lowering the wholesale energy prices, separate from the current effects of low natural gas prices, thereby jeopardizing revenue streams for conventional generation facilities. Further, the report highlights the additional studies and reforms that are needed to address future services that are essential to grid reliability and resilience. The report advocates for system operators to continue to work towards recognizing, defining, and compensating resource attributes that enhance reliability and resilience. Further, the report highlights that stakeholders are increasingly valuing the various benefits certain nuclear baseload generators provide (including jobs, community economic development, low emissions, local tax payments, resilience, energy security, and national security). However, the report concludes that traditional markets are not adequately recognizing and compensating these attributes. Thus, out-of-market payments (particularly in the form of credits and subsidies) are increasingly shaping, and even dominating, market behavior.

Not Just the Usual Suspects – The Broad Effects of Regulatory Burdens

While the burdens and costs of regulation are often discussed with respect to coal-fired power plants, the report discusses the major environmental, siting, and other various regulatory burdens that affect a wide range of generation, and transmission alike. Coal, nuclear, natural gas and hydroelectric generation have all been effected by environmental regulations, including but not limited to the cost of complying with such requirements. Similarly, the report concludes that costly, time-intensive and complex siting, permitting and building processes pose significant hurdles for both hydroelectric generation and electric transmission.

Policy Recommendations

Below are a few highlights:

- The report recommends that the Federal Energy Regulatory Commission ("FERC") "expedite its efforts with states, RTO/ISOs, and other stakeholders to improve energy price formation in centrally-organized wholesale electricity markets," noting that "negative offers should be mitigated to the broadest extent possible."

- The report also urges FERC, in conjunction with DOE, to focus on efforts to require valuation of new and existing essential reliability services ("ERS") by creating fuel-neutral markets and/or regulatory mechanisms that compensate grid participants for services that are necessary to support reliability.

- The report recommends the North American Electric Reliability Corporation ("NERC") consider adding resilience components to its mission statement and work with member utilities to expand the ways in which they incorporate resilience.

- The report calls for the acceleration and reduction of costs for the licensing, relicensing, and permitting of grid infrastructure like nuclear, hydro, coal, advanced generation technologies and transmission.

- Finally, the report called upon utilities, states, FERC and DOE to support increased coordination between the electric and natural gas industries as a means of addressing potential reliability and resilience concerns.

There's More Work to be Done

The report concludes by highlighting a number of areas where further research is needed, including researching mechanisms for equitable, value-based remuneration for things like ERS, fuel availability, high resilience, low emissions, and flexibility -- all in both alternative market and non-market structures. The report also calls for continued evaluation of capacity market reforms. An important theme of the report and key question moving forward is: who has the most control over the processes we are looking to reform? It may be that more federal resources should have been allocated to these efforts over the last decade. At this point and increasingly, it may not be FERC or DOE, nor the Environmental Protection Agency ("EPA") that has the most control over the processes that need to be reformed; rather, it may be the states and their institutions working to control their destiny as they think it should be controlled. The risk, however, is that approach may not be in our collective best interest. Rather than a race to impose policy outcomes on our neighbors, the report advocates for a comprehensive and integrative approach that recognizes the changing dynamics within our energy marketplace and works to navigate those changes without neglecting any particular subset of interests or needs. The report also recommends regulatory research that will explore the costs and benefits of states applying cost-of-service regulation to specific at-risk plants that contribute to grid resilience. Focusing on resilience may require centrally-organized wholesale markets to reconsider regulation that prevents these resources from recouping all the costs of generating electricity – particularly capital investments that are necessary in order to ensure long-term viability.