

DOE GRID STUDY: IN ITS OWN WORDS

On August 23, 2017, the U.S. Department of Energy released a balanced and well-researched report entitled *Staff Report to the Secretary on Electric Markets and Reliability*. EPSA commends Secretary Perry for asking for the report and the Department's staff for capturing the many issues and challenges facing the power sector as the nation's electricity resource mix undergoes rapid changes in supply and demand. EPSA greatly appreciates that the final recommendations are fuel neutral and recognize that reliability rests on a range of fuels and technologies, including the growing importance of flexible generation. Attempts to "spin" the DOE report to favor certain fuels over others in a market in which all compete to benefit consumers are misguided. The full DOE report speaks for itself as examples from the report reprinted below amply demonstrate.

➤ ***PRICE FORMATION REFORMS FOR ALL, NOT JUST FOR SOME, ARE NEEDED***

"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. Further, negative offers should be mitigated to the broadest extent possible." (p. 126)

➤ ***ESSENTIAL RELIABILITY SERVICES SHOULD BE VALUED FOR ON A FUEL-NEUTRAL BASIS***

"Where feasible and within its statutory authority, FERC should study and make recommendations regarding efforts to require valuation of new and existing ERS by creating fuel-neutral markets and/or regulatory mechanisms that compensate grid participants for services that are necessary to support reliable grid operations. Pricing mechanisms or regulations should be fuel and technology neutral and centered on the reliability services provided. DOE should provide technical and policy support that strengthen and accelerate these efforts." (p. 126)

➤ ***MARKETS ARE FUNCTIONING AS THEY WERE DESIGNED***

"While markets have evolved since their introduction, they are currently functioning as designed -- to ensure reliability and minimize the short-term costs of wholesale electricity -- despite pressures from flat demand growth, Federal and state policy interventions, and the massive economic shift in the relative economics of natural gas compared to other fuels." (p. 10)

➤ ***OUT-OF-MARKET SUBSIDIES ARE HARMFUL TO MARKET VIABILITY***

Quoting Roy Shanker, independent consultant: "It is difficult to identify any element in the wholesale electric market (energy, capacity, ancillary services and transmission) that is not being directly and materially impacted by discriminatory mandates driven by state policy actions. Price taking energy and capacity offers linked to these mandates directly impact price formation. The intermittent nature of virtually all RPS resources requires material modification of dispatch and significant increases in flexible resources and associated ancillary services."

Quoting Professor William Hogan, Harvard University: "The increasing impact of Federal and state policies to support particular technologies, raises questions about the viability of wholesale power markets." (p. 116)

➤ ***COMPETITIVE MARKETS ARE PROVIDING RELIABLE SERVICE***

"Presently, BPS reliability is adequate despite the retirement of a portion of baseload capacity and unique regional hurdles posed by the changing resource mix." (p. 11)

➤ ***MARKETS ARE SIGNALING A NEED FOR FLEXIBLE RESOURCES***

Quoting 2016 DOE Rules to Enable Reliable Operation: “The level of demand changes throughout the day and from season to season. This, and the addition of variable generation such as wind and solar, places a premium on having flexible generation capacity that can change its level of output to account for changes in demand and the amount of generation from variable resources (such as when the wind stops blowing or the sun goes down).” (p. 67)

➤ ***POWER SYSTEMS THAT EMBRACE FLEXIBILITY WILL BE BETTER OFF***

Citing LBNL Research on power systems with growing variable resources: “[W]ill benefit if the rest of the electricity system is flexible – able to respond to shifts in demand and VRE availability. VRE impacts and system costs will be driven lower as power systems transform to manage the unique characteristics that VRE resources introduce. Power systems that resist change as VRE penetrations increase will experience greater challenges in maintaining reliability and managing costs.” (p. 79)

➤ ***INCREASED DIVERSITY DOES NOT NECESSARILY MEAN INCREASED RELIABILITY***

Quoting PJM Portfolio Assessment: “More diverse portfolios are not necessarily more reliable; rather, there are resource blends between the most diverse and least diverse portfolios which provide the most generator reliability attributes.” (p. 99)

➤ ***ACTIONS TO ADDRESS RELIABILITY AND RESILIENCE SHOULD BE TECHNOLOGY-NEUTRAL***

“Any successful strategy to address BPS reliability and resilience going forward should include developing portfolios of resources that deliver both resource adequacy and ERS [Essential Reliability Services] to advance reliable grid operations. Resource portfolios could be complemented with wholesale market and product designs that recognize and complement resource diversity by compensating providers for the value of ERS on a technology-neutral basis.” (p.100)

➤ ***ADMINISTRATIVE ATTEMPTS TO ADJUST FOR FUEL DIVERSITY ARE DIFFICULT AND COSTLY***

Quoting Devin Hartman of The R Street Institute: “For regulators, attempts to achieve fuel diversity in market designs explicitly would likely result in inefficient and potentially discriminatory practices that are inconsistent with the Federal Power Act. The reliable performance of power generators varies across and within fuel types and changes with fluctuating conditions. This renders any attempt to value fuel diversity very complex. It would require extensive administrative judgment, expanding the potential for government failure. Ultimately, the central aim of market design should remain to procure specific reliability attributes at the least cost.” (p. 91)

➤ ***FUEL NEUTRALITY IS ESSENTIAL IN MANAGING RISK***

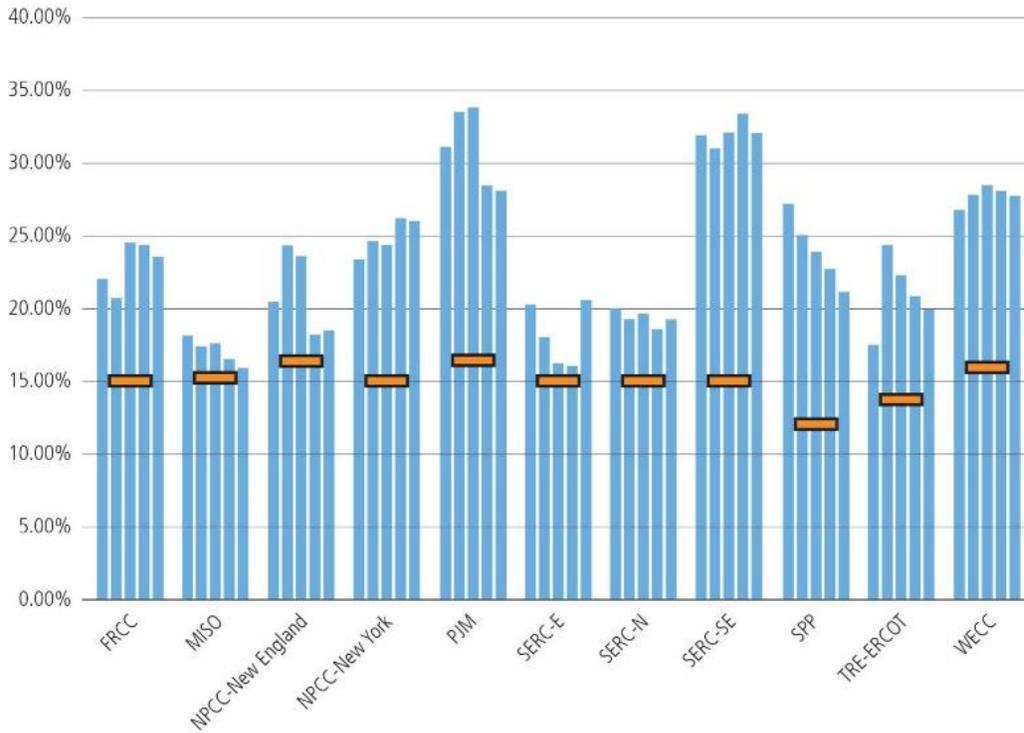
Quoting Devin Hartman of The R Street Institute: “Fuel neutrality is essential for both monopoly-utility resource planning and competitive markets to manage risk and achieve reliability efficiently. Interventions to promote specific fuel types—such as bailouts for coal and nuclear or mandates and subsidies for renewables— skew investment risk and can undermine incentives for reliability-enhancing behavior (e.g., a public intervention to finance pipeline expansion removes incentives for the private sector to invest in fuel security). Fuel-specific subsidies and mandates replace individual choice with collective choice. This one-size-fits-all approach to risk mitigation ignores variances in individuals’ risk tolerances, results in high-cost risk mitigation, and creates perverse incentives for market participants by transferring risk and costs from the private to the public sector.” (pp. 90-91)

➤ ***MARKETS ARE DURABLE, BUT REVENUE ISSUES MUST BE ADDRESSED QUICKLY***

“[T]he debates surrounding wholesale markets are complex and multifaceted, but the institutions and the grid itself have historically proven flexible, strong, and able to adapt. Questions about revenue sufficiency and resilience must be addressed quickly, before the fast-moving evolution of our power system outpaces our ability to understand and manage it responsibly.” (p. 118)

➤ **ALL REGIONS HAVE RESERVE MARGINS ABOVE RESOURCE ADEQUACY TARGETS**

Five-Year Average Reserve Margins across Different Regions (2018–2022) (Figure 4.2 p. 66)



➤ **THE POWER GRID WAS MORE DIVERSE IN 2016 THAN IN 2002**

(Figure 4.27 on p. 90) Changes in U.S. Capacity (Top) and Generation (Bottom) Mix over Time (Left to Right: 2002, 2009, 2016)

