Insight

DOE's Proposed Price Intervention: A Real Problem, Not the Best Solution

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Summary

- The DOE requested that FERC intervene in the valuation of electricity sources to improve grid reliability and resiliency by attributing a higher value to energy sources able to maintain a 90-day on-site supply.
- The rule hits upon a more complex question of price formation in regulated markets, and is consistent with recent studies that show governmental policies prioritizing certain energy sources (like renewables) have distorted electricity market choices.
- Despite hitting upon a very important issue, there is little in the proposed regulation that would lead to a higher valuation of reliability or resiliency; it is far more likely to lead to an arbitrarily higher value being placed on coal and nuclear power.

Introduction

On September 28th, the Department of Energy (DOE) issued a Notice of Proposed Rulemaking (NOPR) to the Federal Energy Regulatory Commission (FERC). In lay terms, the DOE requested that FERC use its authority under the Federal Power Act (1920) to intervene in the pricing of electricity to better compensate "resilient" energy sources, namely coal and nuclear power. The short, 19-page NOPR has been the source of significant confusion, even among many experts. This is due partly to the vagueness of the NOPR, but also because implementing the DOE's request would require FERC to go outside its typical scope of regulatory action (though nobody questions it is within FERC's authority). Whether this is a good or bad move depends entirely on the assumption of resilient electricity sources not being adequately compensated, and if the regulation would address that. While the issue seems simple, it drives at a more complex economic question of price formation in regulated markets.

How do Electricity Markets Work?

Typically, electricity consumers pay a private utility owner to service their demand for power. As part of a long-established idea that utilities are better managed as monopolies (instead of having overlapping infrastructure from competing companies that may not even still be in business), consumers likely have little choice in who their electric provider is. Monopolies obviously could take advantage of the lack of competition by charging a price above what a competitive market would dictate. So in the case of utilities, a governmental entity strictly regulates the prices a utility can charge —a relationship known as the "regulatory compact." This regulator, usually a "regional transmission organization" (RTO) or an "independent system operator" (ISO) determines the rate based on the available electricity supplies in a given location, and the expected demand given the conditions

(like weather). The rate is set so providers can adequately recover the cost of producing electricity, as well as the necessary investment for maintaining or improving electric infrastructure. In other cases, an RTO or ISO may seek to set rates by auctioning its expected need for electricity capacity, hoping to capture the greatest value at the lowest cost, and ensure portfolio goals (renewable targets, fuel diversity, resiliency, reliability, etc.) are met.

The RTOs, ISOs, or other state/regional electric authorities are overseen by FERC, which is primarily responsible for managing and approving interstate electric issues (like sales between utilities across regions). In rare cases, FERC can use its authority under the Federal Power Act to ensure that the rates being set are "just and reasonable." That is what is happening now, as the DOE's NOPR is requesting FERC's intervention.

The policy issue in question is whether the regulators have been correctly setting rates and sufficiently valuing resiliency and reliability. If not, the DOE needs to determine whether the economic benefit of protecting "reliable and resilient" sources exceeds the cost incurred from paying extra for them when they are uncompetitive during normal circumstances. The DOE attempts to make this case by highlighting power constraints during the 2014 polar vortex, but the NOPR does not offer a policy that would necessarily achieve those goals.

What is the DOE and FERC trying to do? Is it a good idea?

In its simplest explanation, FERC will publish a rule that will require any RTO/ISO to put a higher value on coal and nuclear power plants with a more than 90-day fuel supply on site when an RTO/ISO auctions its capacity. While this is not expressly outlined in FERC's document, it is implied because that is how FERC has similarly intervened when an RTO/ISO did not have specific capabilities in its fuel mix before (e.g. minimum pricing for power sources that can quickly respond to changing demand). Sixty days from publication, a majority of FERC's three commissioners (assuming the other two open seats remain unfilled) will have to decide whether to adopt the rule.

The economic challenge is that FERC's intervention is contrary to the ideology of competitive markets, and a clear attempt at picking winners and losers. Although prices are already regulated, FERC's proposed rule claims to address a failure of the RTO/ISOs to establish rates that accurately reflect what they would be in a competitive market sans regulation. This begs two questions: 1) is the DOE's request that FERC intervene in electricity rates justified? and 2) would an intervention from FERC lead to better price formation on reliability and resiliency than the current system?

Is the DOE request to FERC justifiable?

DOE and FERC's assertion that current regulated rates do not adequately value resiliency and reliability is almost certainly correct. Renewable portfolio standards established by states have caused political priorities to translate into market distortions, effectively requiring certain technologies to be preferenced above their normal market value. Reports from the DOE, North American Electric Reliability Corporation (NERC), and IHS Markit have highlighted concerns regarding reliability, and specifically point to the economic challenges in threats to baseload capacity and the impact of losing the reliability they provide. However, the reports should not be taken out of context, and may not adequately justify the rulemaking.

The studies that DOE and FERC cite have highlighted a problem, specifically that governmental policies may

be playing a role in threatening electricity reliability and/or resiliency. However, that does not mean that the studies found anything that determined a price intervention to rescue coal and nuclear power was justifiable. As an example, the IHS Markit report that is repeatedly cited by DOE in the NOPR and proposed rule estimated that,

> *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 percent.*

However, the report broadly assumed a counterfactual scenario with no coal or nuclear power, and 20-percent less hydropower. The selective criteria of the counterfactual are not reflective of real life projections from the Energy Information Administration (EIA), which even with expedited retirements of coal and nuclear plants continue to project around 50 percent of electricity generation coming from those sources for decades. The finding to be gleaned from IHS Markit's report is not that the United States is on a path towards a 27-percent increase in electricity costs, but rather that the current criteria for rate setting ensured enough reliable electricity sources in operation from 2014-2016 to avoid the report's estimated economic impact. In other words, an extreme loss of reliability sources results in a 27-percent increase in electricity prices overall, so the real price increase to be expected from reliability loss is between 0 and 27 percent, but much closer to the 0 percent end of the range than the 27 percent end that relies on unrealistic criteria.

Similarly, the reports from DOE and NERC highlights reliability concerns, but do so in the context of how renewable portfolio standards and other policy goals, as well as lower-than-expected electricity prices, are harming the capital recovery of existing baseload power plants. The content of these reports does not expressly point to the criteria in the DOE's NOPR, such as the 90-day on-site fuel supply requirement, as in need of increased valuation.

Would a regulation lead to better price formation?

The core concern that should dictate whether the regulation is implemented is whether the rule would result in prices that are closer to how reliability and resiliency would be valued in a competitive market. Unfortunately, the DOE's NOPR does not promote a policy that would necessarily achieve that outcome. The DOE has ostensibly attached an arbitrary method of valuing reliability and resiliency based on the on-site fuel availability. However, this requirement does not seem to be rooted in any conventional measure of reliability or resiliency.

The 90-day on-site fuel requirement can really only apply to two major energy sources: coal or nuclear power. However, why 90 days? The NOPR does not reference any empirical evidence to point to 90-days on-site fuel supply as a contributor to resiliency or reliability. The NERC findings from the 2014 Polar Vortex (an event that is highlighted in the DOE's NOPR) were that natural gas demand was higher than usual, not coal or nuclear (note that less than 15 percent of homes in the affected region even use electric powered heating, relying on oil or natural gas instead). Does having on-site fuel make the technology more reliable or resilient? Not always, since coal supplies can be inundated with water during hurricanes, and even during the polar vortex extreme cold caused coal piles to freeze and contribute to outages. Even as resilient as nuclear power is it still must power down during extreme weather events. There does not seem to be much good reason to select a 90-day requirement other than to specifically exclude energy sources that the DOE sees as threatening to incumbent baseload technologies.

The effect of the regulation, if it comes to pass, is merely to arbitrarily value nuclear and coal power above their

market rates, as well as create an artificial incentive for coal plants to maintain a 90+ day on-site supply (regardless of if it is economically efficient). The benefit to reliability or resiliency extends insofar only as it preserves the incumbents that have traditionally provided those benefits — not by valuing the actual criteria that are associated with reliability or resiliency.

Conclusion

The DOE and FERC are correct that reliability and resiliency in electricity markets have economic benefits that may be undervalued by regulators in the context of policies like renewable portfolio standards that capriciously value one energy source over another regardless of its ability to satisfy industry requirements. However, the NOPR in its current form does little to address that problem. Rather, the only effect of the NOPR is to set an arbitrary target of on-site fuel requirements that values coal or nuclear power, regardless of if those sources are able to provide resiliency and reliability at least cost.

The DOE and FERC are driving at a more complex question, though, which is the proper method of price formation in regulated markets. FERC has in the past intervened in the valuation of certain aspects of power plants, and it is certainly within FERC's purview to intervene if state policies threaten grid resiliency or reliability. However, the DOE and FERC have not yet made an adequate case that there is sufficient economic value at risk to justify an intervention in price formation, nor have they established criteria in the proposed regulation that correspond to the attributes they seek to protect. The economic effect of the rule is not to value resiliency or reliability, but to arbitrarily value coal or nuclear without allowing for the market to find the least cost solution for meeting the policy goal.