



FEDERAL ENERGY REGULATORY COMMISSION

June 1, 2023

The Honorable Cathy McMorris Rodgers
Chair of Committee on Energy and Commerce
U.S. House of Representatives
Washington, D.C. 20515

The Honorable Jeff Duncan
Chair of Subcommittee on Energy, Climate, and Grid Security
Committee on Energy and Commerce
U.S. House of Representatives
Washington, D.C. 20515

Dear Chairs McMorris Rodgers and Duncan,

Thank you for the April 26, 2023 letter expressing your concern over the reliability of the Bulk Power System in regions overseen by a Regional Transmission Organization (RTO) or an Independent System Operator (ISO).¹

Below, please find my responses to your questions.

1. In your view, are the current RTOs/ISOs the best mechanism to provide reliable electricity? Please explain.

In my view, RTOs and ISOs are not the best mechanism to provide reliable electricity, and the blame rests largely with FERC.

RTOs and ISOs were originally conceived of as a means by which the ratepayer could reap the benefits of competition by designing a system that would ensure the dispatch of the least-cost generation to provide electricity. The markets were also designed to send price signals, typically through periodic auctions, to provide the economic incentives that would attract new, needed generation investments, ensure the retention of needed, existing generation (by providing sufficient ongoing revenues), and promote the orderly exit of

¹ Chairs McMorris Rodgers & Duncan April 26, 2023 Letter (Letter).



existing generating assets that had become economically unviable. That way, so the thinking went, there would always be sufficient generation available to meet peak demand, and customers would pay the lowest cost for electricity from the most efficient generators.

What has happened instead is that FERC has approved market designs that distort price signals and warp incentives, interfering with price formation and jeopardizing resource adequacy. When the markets fail to produce accurate price signals, they do not create the correct incentives to attract the entry of new, needed generation resources or to retain existing, needed generation resources. When incentives are not properly established by market mechanisms, the markets will fail to ensure that there is adequate generation to meet the system's peak demand requirements and the resilience of the system is thereby imperiled.

We have begun to see the effects of FERC's maladministration of several of the RTOs and ISOs as market prices are skewed by the entry of state-subsidized intermittent resources that can offer their capacity at suppressed prices, driving market clearing prices down and depriving non-subsidized, dispatchable generation of the revenue needed to remain solvent. Indeed, market operators in most of the RTOs and ISOs have been telling us that they are facing looming resource adequacy crises. As an example, PJM Interconnection, L.L.C. (PJM), the nation's largest wholesale market, and the one that serves Washington, D.C., has recently raised the alarm about impending shortfalls.² PJM CEO Manu Asthana repeated this concern, stating that "PJM needs to slow down the pace of generation retirements to avoid reliability problems by the end of the decade."³ To show just how poorly administrated PJM's market is, despite the fact that PJM has begun warning of the impending scarcity of generation, the prices in its most recent procurement auction went *down*.⁴ This reduction in auction prices at a time of impending scarcity is a self-evident market failure and it demonstrates the price warping effects of government subsidies.

² PJM, *Energy Transition in PJM: Resource Retirements, Replacements & Risks*, at 17 (Feb. 24, 2023), <https://www.pjm.com/-/media/library/reports-notice/special-reports/2023/energy-transition-in-pjm-resource-retirements-replacements-and-risks.ashx> ("For the first time in recent history, PJM could face decreasing reserve margins . . . should these trends – high load growth, increasing rates of generator retirements, and slower entry of new resources – continue.").

³ Rich Heidorn Jr., *PJM Chief: Retirements Need to Slow Down*, RTO INSIDER, Mar. 27, 2023, <https://www.rtoinsider.com/articles/31899-pjm-chief-retirements-need-to-slow-down#:~:text=Rich%20Heidorn%20Jr.,Power%20Supply%20Association%20last%20week.>

⁴ See PJM Interconnection, L.L.C., *PJM Capacity Auction Procures Adequate Resources*, at 1 (Feb. 27, 2023), <https://www.pjm.com/-/media/about-pjm/newsroom/2023->



The ISOs and RTOs are not the only ones concerned about impending resource scarcity. The North American Electric Reliability Corporation (NERC), the entity responsible for promulgating the mandatory standards designed to ensure the reliability of the bulk electric system, has issued similarly bleak warnings. In its *2022 Long-Term Reliability Assessment*, NERC designated the Midcontinent Independent System Operator, Inc. (MISO) region and the California region within the Western Electricity Coordinating Council as “high risk” for “failing to meet the established resource adequacy target or requirement. . . . High risk areas have a probability of load shed greater than the requirement/target. Simply said, high risk areas do not meet resource adequacy requirements.”⁵ Moreover, NERC’s recently published *2023 Summer Reliability Assessment* shows that much of North America may experience potential shortfalls in “above-normal conditions.”⁶ NERC’s Director of Reliability Assessment and Performance Analysis, John Moura, stated that “[g]oing back at least five years, the reliability assessments have noted a steady deterioration in the risk profile of the grid” and now, “[w]inter and summer

releases/20230227-pjm-capacity-auction-procures-adequate-resources.ashx (“The auction produced a price of \$28.92 MW-day for much of the PJM footprint, compared to \$34.13/MW-day for the 2023/2024 auction in May 2022 . . .”).

⁵ NERC, *2022 Long-Term Reliability Assessment*, at 5 & n.7 (Dec. 2022), https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2022.pdf; *see also id.* at 26 (“MISO is facing resource shortfalls across this entire assessment period [(that is, 2023-2032)]. . . . More additions from the planning queue are not likely to be completed in sufficient quantity to make up for the capacity shortfall.”); *id.* at 27 (“MISO is projecting a decrease from last year’s reserve margins with planned reserves falling below reference margin levels beginning in 2023. The reserve decline is driven mainly by lower capacity contribution from weather dependent new generation additions that are replacing retiring units with higher contributions.”); MISO, *2022 Regional Resource Assessment: A Reliability Imperative Report*, at 20 (Nov. 2022), <https://cdn.misoenergy.org/2022%20Regional%20Resource%20Assessment%20Report627163.pdf> (“Members may need to build more than 100 GW of new installed capacity within the next 10 years, an unprecedented volume for the MISO region.”).

⁶ NERC, *2023 Summer Reliability Assessment*, at 6 (May 2023), https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SRA_2023.pdf.



assessments show ‘the system is close to its edge.’”⁷ He reportedly attributed these risks to “conventional generation retirements, increased demand due to electrification and an increase in the threat of widespread heat.”⁸

2. Do current market rules allow dispatchable, on-demand generation resources the opportunity to recover sufficient revenues to continue to operate in the RTOs/ISOs? If so, which rules? If not, would you recommend FERC direct RTOs/ISOs to implement such rules?

No. By and large, current market rules fail to ensure that dispatchable, on-demand generation assets are afforded the opportunity to recover sufficient revenues to ensure continued operation. The primary issue is that the combination of energy markets subjected to price caps and the lack of workable capacity markets in most RTOs/ISOs leaves insufficient revenues for most of the existing dispatchable, on-demand resources. In the regions with capacity markets, the lack of effective buyer-side market power mitigation allows new state-sponsored, renewable resources to manipulate the markets by offering their capacity below cost thereby suppressing the prices paid to existing resources.⁹ Other problems include the inability of many generation resources to offer their electricity and capacity at prices reflective of their own assessment of costs and risks. In PJM, for example, the “Independent Market Monitor” is entitled to substitute his own judgment of costs and risks (which always reduces prices) for those of the power producers offering the commodity into the market.¹⁰ This is not how markets work. A host of other RTO/ISO technical rules—which vary by region—tend to suppress prices paid to existing resources and prematurely drive them into retirement to be replaced by new renewable resources.

⁷ Naureen S. Malik, *Summer Blackout Risks Extend to US Southeast for First Time*, BLOOMBERG, May 17, 2023, <https://news.bloomberglaw.com/environment-and-energy/summer-blackout-risks-extend-into-us-southeast-for-first-time>.

⁸ Kate Winston, *NERC: Much of US at risk this summer in extreme conditions*, THE ENERGY DAILY, May 18, 2023, <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/electric-power/051723-much-of-north-america-risks-summer-power-shortfalls-in-extreme-conditions-nerc>.

⁹ See Statement of Commissioner James P. Danly, Docket No. ER21-2582-000 (Oct. 27, 2021) (opposing the evisceration of the Minimum Offer Price Rule).

¹⁰ See *Indep. Mkt. Monitor for PJM v. PJM Interconnection, L.L.C.*, 176 FERC ¶ 61,137 (2021) (Danly, Comm’r, dissenting), *reh’g*, 178 FERC ¶ 61,121 (2022) (Danly, Comm’r, dissenting) (opposing unit-specific mitigation review of all seller capacity offers).



I support immediate Commission action under section 206 of the Federal Power Act (FPA) to require RTOs/ISOs to show cause as to how their existing market structures are just and reasonable given existing price distortions and growing reliability concerns, and to impose replacement rates in those markets where the current rates are found to be unjust and unreasonable.

3. How do RTOs/ISOs compare to traditionally regulated regions in terms of electric reliability? Please provide specific data.

The electric reliability performance of the RTOs and ISOs are not easily compared to that of traditionally regulated regions. The Bulk Power System is interconnected across RTO and non-RTO regions and available data makes an apples-to-apples comparison difficult.

At my request, and in support of my response to this question, the staff of FERC's Office of Electric Reliability performed a state-by-state comparison of two publicly available datasets: *first*, the system average interruption duration index (SAIDI) which measures "the total time an average customer experiences a non-momentary power interruption in a one year-period,"¹¹ and *second*, the U.S. Department of Energy's (DOE) Electric Emergency Incident and Disturbance Report (DOE OE-417) which "collects information on electric incidents and emergencies."¹² Commission staff identified several limitations for using both datasets to compare electric reliability performance between RTOs/ISOs and traditionally regulated regions, including that SAIDI predominantly captures distribution system outages which are outside an RTO's/ISO's control¹³ and that DOE OE-417 provides DOE with an

¹¹ U.S. Energy Information Administration, *U.S. power customers experienced an average of nearly five hours of interruptions in 2019* (Nov. 6, 2020), <https://www.eia.gov/todayinenergy/detail.php?id=45796>.

¹² U.S. Dep't of Energy, Office of Cybersecurity, Energy Security, & Emergency Response, *Electric Disturbance Events (DOE-417)*, <https://www.oe.netl.doe.gov/oe417.aspx>.

¹³ See Joseph H. Eto, *et al.*, Energy Analysis & Environmental Impacts Division of Lawrence Berkeley National Laboratory, *Distribution system versus bulk power system: identifying the source of electric interruptions in the US*, 13 THE INSTITUTION OF ENG'R & TECH J 717, 722 (2019), <https://emp.lbl.gov/publications/distribution-system-versus-bulk-power> ("Based on our analysis, when reliability is measured using SAIDI (the average minutes of interruptions



initial report of event details that can be inaccurate. Commission staff also made several assumptions, including mapping states to RTO/ISO areas according to whether most of the state was within an RTO or not, normalizing the results based on the number of total customers in the RTO/ISO and non-RTO/ISO areas, and for the DOE OE-417 analysis, dividing an event’s contribution equally to each state that reported outages. The results of the analysis conducted by Commission staff are shown in the tables below.

Region Type	SAIDI – Major Events Included (minutes)	SAIDI – Major Events Excluded (minutes)
Non RTO/ISO states	404.65	104.44
RTO/ISO states	369.73	120.40

Table 1: Comparison of SAIDI for RTO/ISO and non-RTO/ISO regions from 2016-2021

Event Type	Region Type	Normalized Customer Outage Duration (customer-hours/population)	Normalized Customer Outages (customer outages/population)
Non-weather initiated	Non RTO/ISO states	0.15	0.051
	RTO/ISO states	0.16	0.017
Weather initiated	Non RTO/ISO states	8.77	0.300
	RTO/ISO states	14.74	0.253

Table 2: Comparison of DOE OE-417 event data for RTO/ISO and non-RTO/ISO regions from 2016-2021

Although this is the best data I have immediately available, it is a rather simplistic means by which to assess reliability, is insufficiently granular, and does not take into account the many variables which lead to electric system failure. There is little to be gleaned here in general and it is impossible, based on this data, to arrive at a definitive conclusion comparing RTO/ISO vs. non-RTO/ISO states. Better and more detailed studies are needed. We can, however, make some predictions about what we might learn were we to conduct better

per year), we find that the distribution system is responsible for 94% or more of all minutes of interruption.”).



analysis, and we can base those predictions upon the means by which resource adequacy is achieved under each of the two regulatory models. By necessity, I will have to speak in broad brushstrokes—FERC has long permitted profound variations among the RTOs and ISOs. Some markets, like the California Independent System Operator Corporation (CAISO) lack capacity auctions, while others, like PJM and ISO New England, Inc. (ISO-NE), rely upon capacity markets to ensure resource adequacy, and yet others, like MISO, have capacity markets, but serve jurisdictions in which state public utility commissions exercise regulatory oversight over vertically integrated utilities.

First, in non-RTO/ISO regions, utilities are usually regulated along traditional models in which the utilities are primarily answerable to their state's public utility commission. In these jurisdictions, resource adequacy is typically achieved through a process in which a state's jurisdictional utilities develop an Integrated Resource Plan (IRP) which establishes forecasts of probable load requirements, capacity reserve margins (to ensure that there is a buffer of additional generation beyond load forecasts), and a plan to develop the necessary generation to meet those requirements. Subject to the oversight and, often, approval of the jurisdiction's public utility commission, the utility implements the IRP, and the utilities are afforded cost recovery for the investments made to ensure the availability of sufficient generation. Under this system, both the politically accountable public utility commission and the utility, which typically operates under a statutory duty to serve, are responsible for ensuring that the jurisdiction's resource adequacy goals are achieved. This provides clear lines of accountability within the system.

In stark contrast, markets like PJM and ISO-NE, which rely upon capacity auctions, have *only one* mechanism to ensure resource adequacy—the price signals sent by those markets. Since there is no regulatory authority charged with overseeing the utilities' system planning to ensure that, on a region-wide basis, there is sufficient generation to meet load, and because the states and the utilities appear to now rely on the RTOs and ISOs for resource adequacy, the sole mechanism that exists to create incentives for the retention of needed, existing generation or the entry of new generation to serve growing load requirements are the capacity market's price signals. Because responsibility for system stability is diffused among the states, the RTOs/ISOs, power producers, and FERC, there is no clear accountability for resource adequacy failures.

Since price signals are the only method of ensuring that sufficient generation is built or retained, if the price signals are distorted by external, price-suppressing subsidies, the capacity markets will be unable to send the accurate price signals needed to create incentives for a large enough quantity of new capacity to meet system demands. When, even worse, the external subsidies are designed to favor a particular category of resources (such as wind and solar) which do not have the reliability attributes necessary to ensure long-term system stability, the inevitable consequence is that the subsidized renewables will drive the



unsubsidized, dispatchable generation into insolvency. Over time, this creates capacity shortfalls and deprives the electric system of the attributes needed to keep the lights on.

Although FERC has historically ensured that such out-of-market subsidies would be unable to skew price signals through various market protection mechanisms like the Minimum Offer Price Rule, in the last two years we have abandoned our longstanding commitment to ensuring proper price formation and have allowed the markets to subject their auctions to the price-warping effects of subsidies.¹⁴ Although we have yet to see the full effects of these policy decisions, they will inevitably have real-world consequences as the markets experience ever greater scarcity and are unable to attract the investment in the generation assets required to ensure that the electric system remains stable. Reliability failures will ultimately result, which is why FERC must act now to ensure the integrity of our markets by protecting them from the effects of subsidies.

4. What policies, whether federal, state, or market rules, prevent sufficient resource adequacy in RTOs/ISOs necessary to power the grid 24/7/365 regardless of the weather?

Insufficient resource adequacy in RTOs and ISOs is, in part, being driven by current market constructs and FERC's evisceration of rules mitigating price suppression caused by subsidies designed to promote the deployment of non-dispatchable wind and solar assets.

As a general matter, when participating in RTO or ISO procurement auctions, the owner of an unsubsidized generation asset has an incentive to submit a capacity offer at a price close to its marginal cost. Otherwise, the owner would run the risk of receiving a capacity award at a clearing price below its marginal cost that would obligate the owner to operate its facility at a loss. By contrast, owners of subsidized generators are indifferent as to whether they receive a capacity award priced below their marginal costs because the subsidies can make up shortfalls in market revenues earned by the seller ensuring that they will not be obligated to operate at a loss. Subsidies can be so lucrative that sellers are able to offer at a price of zero instead of their actual cost. The market signal thereby created is that these new resources can be built for *free*, and thus the cost of power is also free. This, of course, is untrue, and the inevitable consequence has been the artificial and unreasonable suppression of prices which has resulted in an unduly preferential and discriminatory market.

¹⁴ See Statement of Commissioner James P. Danly, Docket No. ER21-2582-000 (Oct. 27, 2021) (opposing the evisceration of the Minimum Offer Price Rule).



FERC's failure to mitigate this price suppression means that the prices that result from those markets cannot be just and reasonable as required by the FPA.¹⁵ Prices are too low for the markets to retain the existing (or attract new) dispatchable generation that is necessary to ensure reliability.¹⁶ This will subject the electric system to even greater instability as the proportion of the generation fleet's intermittent resources continues to grow.

5. Gas power generators are not required to procure firm gas transportation in RTO/ISO markets. How will the Commission ensure that market design adequately compensates natural gas generators for the reliability benefits of firm natural gas transportation?

It is true that gas-fired generators operating in the RTOs and ISOs are not required to procure firm gas contracts, though it would probably be somewhat more accurate to say that gas-fired generators, by and large, are effectively *prohibited* from procuring their gas through firm fuel contracts. Market rules should be structured to compensate generators for the actual costs of providing power—including the cost of fuel. Thus, if natural gas burning generators are expected to have round-the-clock firm fuel contracts (if this is even possible, given pipeline constraints in some regions), the costs of such contracts should be recoverable in capacity offers. Assuming the gas-fired generators were permitted by the markets to offer their full costs, including the costs of their firm fuel contracts, it would be probable that, in the markets with capacity auctions, many (perhaps most) resources with round-the-clock firm fuel contracts would fail to clear the capacity auction because the competition from below-market renewables would price them out of the market. The inevitable consequence of failing to clear the capacity auction would be that those generators would be deprived of the revenue needed to remain profitable and would be forced into retirement, notwithstanding the reliability benefits they provide. Given the structure of our markets, rather than allow the generators to bid in the cost of firm fuel contracts, a more valuable avenue of inquiry would be to explore alternative mechanisms by which to ensure cost recovery for the acquisition of the total quantity of natural gas needed to maintain reliability.

Another potential market reform to consider would be to compensate generators only for the actual reliability benefits they provide. Accurate capacity accreditation ensures

¹⁵ 16 U.S.C. §§ 824d, 824e.

¹⁶ See *PJM's capacity-auction results signal continuation of troubling trends*, PJM Power Providers Group (June 22, 2022), <https://www.p3powergroup.com/siteFiles/News/C90C8C039CF428BB732F77623B2E98FE.pdf>.



that generators are not paid according to false reliability expectations. In simple terms, generation resources should only get capacity credit when they are actually able to be called upon to produce generation when needed. A wind generator can only produce electricity when the wind blows; solar resources can only produce electricity when the sun shines; natural gas fired generators only produce electricity when they have fuel. The capacity accreditation of these resources should be based on the *actual availability* of the resources when called upon to generate. Such a mechanism should be relatively straightforward to implement because the performance of each category of generator can be ascertained from historical data coupled with reasonable projections. The Commission should require reforms along these lines in all of our markets as soon as possible.

* * *

Thank you for the opportunity to share my thoughts. If I can be of any further assistance with these issues or any other Commission matter, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink that reads "James Danly". The signature is written in a cursive, flowing style.

James P. Danly
Commissioner