

*Summary of Opening Statement  
of Mark C. Christie  
Commissioner  
Federal Energy Regulatory Commission (FERC)  
House Committee on Energy and Commerce  
Subcommittee on Energy, Climate and Grid Security  
July 24, 2024*

The United States is heading for potentially catastrophic consequences in terms of the reliability of our electric power system. Extended loss of electrical power during extreme cold or heat can literally cause loss of life. There are also severe economic consequences from widespread outages of electrical power.

The core threat is two-edged: On the power *supply* side, dispatchable generating resources, even with many years of useful life remaining, are retiring far too quickly and in quantities that threaten our ability to keep the lights on. Intermittent resources simply do not provide a one-for-one capacity value replacement. On the *demand* side, we are simultaneously facing steep increases in demand for power largely driven by “hyperscale” users such as data centers, especially using Artificial Intelligence (AI), and cryptocurrency miners.

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Chairman Duncan, Ranking Member DeGette, Members of the Subcommittee.

Thank you for the privilege to appear before you with my colleagues from FERC.

As I have been warning for the past three years as a member of FERC, the United States is heading for potentially catastrophic consequences in terms of the reliability of our electric power system. I am not trying to be melodramatic in using a term such as “catastrophic,” but because it is accurate to describe a rapidly growing threat of extensive and regular power outages as potentially catastrophic. Loss of electrical power during extreme cold or heat can literally cause loss of life, as was demonstrated by the tragic consequences during Winter Storm Uri in Texas in 2021. There are also severe and very real economic consequences from widespread outages of electrical power.

The core threat is two-fold: On the power *supply* side, dispatchable generating resources, even with many years of useful life remaining, are retiring far too quickly and in quantities that threaten our ability to keep the lights on. The supply problem is not the *addition* of intermittent resources such as wind and solar, but the far too rapid *subtraction* of dispatchable resources, especially coal and gas. Further, the nation’s largest regional grid operators have made crystal clear that the Environmental Protection Agency (EPA) power-plant regulations, which have now been finalized, will make this already dire situation much worse by forcibly accelerating the retirement of the vast majority of the remaining coal fleet and making it extremely difficult, if not virtually impossible, to build the new combined-cycle natural gas generation units that will be

essential as baseload generation resources to meet the rising demand for power.<sup>1</sup>

That's on the supply side. The threat on the *demand* side is that after two decades of generally flat to mild load growth, we are now seeing unprecedented forecasts for demand increases, driven by huge users of power, such as data centers, including Artificial Intelligence (AI), and cryptocurrency miners.

To cite just one example of the threat that is typical among grid operators: PJM – the largest grid operator in the country in terms of consumers served (load) – warned last year that PJM faced the likelihood of losing 40 gigawatts or more of generation capacity by 2030 through early retirements of generating units.<sup>2</sup> The vast majority of this retiring capacity is dispatchable generation, primarily coal and gas. Meanwhile PJM faces unprecedented load growth due to the proliferation of data centers, for example, in my own home state of Virginia, home of “Data Center Alley.” The PJM interconnection queue, however, largely consists of intermittent generation, primarily wind and solar.<sup>3</sup>

Let me emphasize that wind and solar are valuable *energy* resources, because their marginal

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<sup>1</sup> See JOINT COMMENTS OF ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.; MIDCONTINENT INDEPENDENT SYSTEM OPERATOR, INC.; PJM INTERCONNECTION, L.L.C.; AND SOUTHWEST POWER POOL, INC., [commenting on the EPA proposed power-plant regulation], EPA Docket: EPA-HQ-OAR-2023-0072 (“[T]he Joint ISOs/RTOs are concerned that the substance of the Proposed Rule as presently configured, as well as its timing, have the potential to *materially and adversely impact electric reliability*. Moreover, the Proposed Rule, when combined with other EPA rules and other policy actions, could well *exacerbate the disturbing trend and growing risk wherein the pace of retirements of generation with attributes needed to ensure grid reliability is rapidly exceeding the commercialization of new resources capable of providing those reliability attributes.*” (emphases added)).

<sup>2</sup> PJM, *Energy Transition in PJM: Resource Retirements, Replacements and Risks*, Feb. 24, 2023 (Energy Transition in PJM), <https://www.pjm.com/-/media/library/reports-notice/special-reports/2023/energy-transition-in-pjm-resource-retirements-replacements-and-risks.ashx>; see also Rich Heidorn Jr., *PJM Chief: Retirements Need to Slow Down*, RTO INSIDER, Mar. 27, 2023, at <https://www.rtoinsider.com/articles/31899-pjm-chief-retirements-need-to-slow-down>.

<sup>3</sup> Energy Transition in PJM at 1-2, 10.

price in energy markets, with no fuel costs and with heavy subsidies, is often at zero or even below, and they are emissions free. But *energy* and *capacity* are two very different types of resources and we must understand the difference to keep the lights on. In terms of *capacity* value – which is the amount of power that can dependably be supplied to the grid when needed at a future point in time – one nameplate megawatt of wind or solar is simply *not equal to* one nameplate megawatt of gas, coal or nuclear.<sup>4</sup> So even if every unit of intermittent generation waiting in the PJM and other regional interconnection queues were interconnected, that would not solve the reliability problem caused by too-rapid loss of dispatchable generation. The arithmetic just doesn't work.

The same problem of cascading retirements of dispatchable resources is also present in other large, regional RTOs. MISO, which serves the Midwest and parts of the South, has also been warning regularly about this coming reliability threat, as has SPP. And for the same reasons: retirements of dispatchable resources in the face of rapidly rising demand from so-called “hyperscale” users of power.

The nation's designated reliability experts at the North American Electric Reliability Corporation (NERC) have warned about this threat repeatedly.<sup>5</sup>

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<sup>4</sup> See, e.g., *id.* at 13 n. 22 (“Approximate nameplate needed to replace 1 MW of thermal generation: Solar – 5.2 MW; Onshore Wind – 14.0 MW; Offshore Wind – 3.9 MW. These are average values.”).

<sup>5</sup> See, e.g., Naureen Malik and David R Baker, *Vast Swath of US at Risk of Summer Blackouts, Regulator Warns*, BLOOMBERG, May 18, 2022 (“The pace of our grid transformation is out of sync’ with the physical realities of the existing power network, [NERC representative] Moura said.”), <https://www.bloomberg.com/news/articles/2022-05-18/vast-swath-of-us-is-at-risk-of-summer-blackouts-regulator-warns>; see also Peter Behr, *Coal plant closures setting stage for grid crash, Senate told*, ENERGYWIRE, June 2, 2023 (“Jim Robb, chief executive of [NERC], told lawmakers that ‘the pace of change is overtaking the reliability needs of the system. Unless reliability and resilience are appropriately prioritized, current trends indicate the potential for more frequent and more serious long duration reliability disruptions, including the possibility of national consequence events.”), <https://subscriber.politicopro.com/article/eenews/2023/06/02/coal-plant-closures-setting-stage-for-grid-crash-senate-told-00099809>.

What are the chief reasons for the disorderly retirements? In addition to the EPA regulations I mentioned above, I will focus on two more reasons:

First, market design in the RTO markets. These markets – which are not really markets at all but administrative constructs with some market characteristics – were designed almost a quarter century ago for a different era with far different challenges than we face today. This is especially true of the capacity markets used in PJM, the other eastern RTOs, and MISO. As I have written before,<sup>6</sup> the designs and pricing mechanisms of these markets and their impact specifically on the reliability threat we are facing needs to be re-evaluated.

Second, with regard to natural gas generation, the need for which has been growing rapidly as a dispatchable power resource, the national campaign of legal warfare being conducted against every single natural gas pipeline or related facility has delayed or prevented the construction of vitally needed natural gas transportation infrastructure.

Natural gas-powered generators need a steady and dependable supply of natural gas to generate and deliver power to the grid, and that takes the necessary pipeline infrastructure, but the construction of this infrastructure has been all-too-often blocked through legal warfare conducted in all agencies and in all courts.

So the lights are flashing red and there is no excuse to ignore them.

Thank you, Mr. Chairman, Ranking Member, and members of the Subcommittee. I am happy to answer your questions.

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<sup>6</sup> Mark C. Christie, *It's Time to Reconsider Single-Clearing Price Mechanisms in the U.S. Energy Markets*, ENERGY LAW JOURNAL, May 3, 2023, <https://www.eba-net.org/wp-content/uploads/2023/05/3-Commr-Christie1-30-1.pdf>.