Summary

Testimony of the Hon. Tony Clark

Before the

U.S. House Committee on Energy and Commerce

Subcommittee on Energy, Climate and Grid Security

June 4, 2024

One of the biggest, if not the biggest challenge facing the electric industry today is the confluence of: (1) unanticipated near-term rapid demand growth; (2) widespread announced generation capacity retirements; (3) a carbon constrained future; and (4) limited near-term viable options to replace retiring capacity with a commensurate amount of zero-carbon emitting resources. Accelerating these trends is the voracious appetite for energy now arising from AI driven computing.

Promoting American leadership and investment in domestic technology assets is a national security imperative that should garner bipartisan support. To be sure, new AI driven demand growth is an opportunity. At the same time, it is also a challenge that implicates sufficiency of supply to meet future demand reliably and affordably. The emergence of data center colocation at existing generation facilities is a business arrangement that raises questions that should be explored regarding issues of basic fairness for all customers on the grid. This testimony suggests several considerations for policymakers seeking to address the impacts of rapid demand growth. Among these are possible approaches to data center interconnection, FERC wholesale market reform initiatives, a clear-eyed assessment of the impact of generation capacity retirements, critical infrastructure permitting reform, and the importance of federal leadership in R&D, especially related to nuclear generation.

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Chairman Duncan, Ranking Member DeGette, and Members of the Committee, thank you for the invitation to be with you today. My name is Tony Clark. I am a Senior Advisor at the firm of Wilkinson Barker Knauer, LLP. I am a former Commissioner of the Federal Energy Regulatory Commission, and prior to that was a Commissioner and Chairman of the North Dakota Public Service Commission. Today I will be discussing my perspectives on several policy and regulatory issues that are arising out of dramatic changes in the electric industry.

One of the biggest, if not the biggest challenge facing the electric industry today is the confluence of: (1) unanticipated near-term rapid demand growth; (2) widespread announced generation capacity retirements; (3) a carbon constrained future; and (4) limited near-term viable options to replace retiring capacity with a commensurate amount of zero-carbon emitting resources. Accelerating these trends is the voracious appetite for energy now arising from AI driven computing.

It seems not a week passes without new evidence confirming the situation. Just a few days ago, the Electric Power Research Institute, released a report projecting that data centers could consume up to 9 percent of all electricity in the U.S. by 2030, more than doubling current

usage.[1] This load growth is in addition to increasing demand pressure owing to electrification of transportation, heating and manufacturing. Overall load forecasts vary by region, but the trendline is consistent. After a period of relatively modest growth, electricity demand is on the rise, and no matter the exact percentage of growth ultimately realized, it appears likely that it will be above what the country has experienced in recent history. Your focus on understanding the implications of AI and data-driven growth is commendable given what grid engineers, operators and planners are telling us about the troubling arithmetic of pairing expected demand with anticipated supply in succeeding years.

Today I will highlight an example of the sort of dilemma that can arise when changing technology runs headlong into existing regulatory and public policy structures in unanticipated ways. One of the more intriguing, and potentially meaningful developments stemming from the acceleration in data center growth is a business arrangement wherein new data centers seek to "colocate" at an existing generation facility. I recently co-authored a paper on this phenomenon which I have provided with my testimony.[2] These colocation arrangements have typically been in coordination with an existing nuclear unit, though there is no reason they could not happen with existing fossil units. Under such an arrangement, the data center is directly served by an existing generator, taking some portion of the unit's capacity out of the supply stack that was otherwise serving all customers in a regional grid.

While the paper casts no stones at data center developers and merchant generators that are entertaining these arrangements – after all they are simply responding to financial, regulatory

[1] https://www.epri.com/about/media-resources/press-release/q5vU86fr8TKxATfX8IHf1U48Vw4r1DZF

[2] https://wbklaw.wpenginepowered.com/wp-content/uploads/2024/04/What-Happens-When-a-Nuclear-Plant-and-a-Data-Center-Shack-Up-White-Paper-4.18.24.pdf

and policy incentives that have been laid before them – it also argues that regulators and policymakers must scrutinize how these deals will impact other customers and the public interest at-large.

As an initial matter, it should be noted that the colocation strategies are happening within the context of states that have fully unbundled their utilities and that are operating inside of RTOs. The arrangements are not happening with state regulated, vertically integrated utilities. There is a reason for that. For the sake of brevity, I won't repeat the entire thesis here, but suffice it to say that the nature of the unbundled merchant generator model facilitates these arrangements in ways that a retail regulated, vertically integrated utility would not.

So why are data centers and merchant generating plants colocating? There appears to be several drivers. Among them:

1. Speed to market. The data center business is a competitive one. Understandably, competitors will seek to develop projects as quickly as possible. If a developer can avoid more time-consuming processes associated with connecting via retail utilities, it's naturally going to bypass them. But even if all interconnection timelines were equal, there are still financial incentives that would lead data center developers to pursue a colocation path. These include:
2. Suppressed wholesale prices in the RTO markets, which give merchant generators an incentive to seek revenues from outside the market. The price formation mechanisms in RTO markets are being stretched to the breaking point.[3] Subsidies and policies which

[3] https://wbklaw.wpenginepowered.com/wp-content/uploads/2021/07/Wholesale-Electricity-Markets-White-Paper-07.08.21.pdf

fight against the basic design elements of wholesale markets lead to depressed wholesale prices and give rise to compensating fixes that provide revenue to units needed for reliability or other attributes. These out-of-market fixes express themselves as things like reliability must run payments, uplift charges, and zero emissions credits, to name a few. The power purchase agreements struck by generators and colocating data centers can be considered one more symptom of wholesale energy markets which have struggled to adapt to a generation mix that is increasingly made up of subsidized resources that suppress wholesale prices and operate differently than dispatchable generation units.

3. Avoiding supposedly non-bypassable charges which are increasing and expected to climb even higher. An energy consumer that receives service from the interconnected grid pays numerous charges embedded in their retail bill that compensate for things like the fixed costs of transmission and distribution, state public policies that support selected resources, RTO administrative charges and charges tied to things like ancillary services, market uplift, blackstart service and conservative operation measures. These are also the parts of customer energy bills that are increasing the fastest. But a customer that can colocate with an existing generator and thereby defect from the grid itself, is able to avoid these charges altogether.

So if the colocation arrangement supports the retention of nuclear capacity and fuels data centers needed for American tech leadership, what's the problem? There are several questions that policymakers and regulators should be asking.

1. Do these arrangements result in inequitable cost shifts? As I noted, defecting customers can avoid supposedly non-bypassable grid charges. This is no insignificant matter. Take for example PJM, where transmission charges are now a larger portion of customer bills

than the capacity market itself. When a colocating data center defects, these RTO charges will largely remain. The costs will simply be spread over a smaller remaining pool of customers – effectively shifting costs from the colocating load onto the customers remaining on the system. In addition, taking large blocks of generating units out of the RTO capacity and energy markets during a time of rapidly increasing demand will likely lead to price increases in RTO markets – if not a price blowout. The customers who will be left paying these higher costs will be those still served by the interconnected grid. Indeed, Wall Street seems to be of the mind that such a scenario is plausible, if not likely. The stock prices of merchant generators are presently soaring, perhaps on investor expectations that colocation arrangements and tightening supply-demand conditions will soon lead to a revenue windfall. It raises the specter of non-colocating customers being left with the worst of all worlds: higher non-bypassable system charges *and* higher energy and capacity costs. It also incentivizes other industrial-scale energy buyers to seek their own colocation arrangements, further exacerbating the problem and potentially initiating a sort of large load defection "doom loop" in the RTO markets. Simply stated, policymakers should be asking if colocation shifts costs from the data center involved, to all other customers (including other data centers) who connect to the grid the old-fashioned way.

2. Do these arrangements raise reliability questions? There is no denying that large blocks of departing dispatchable generation capacity will result in the need for replacement power and grid modeling that assesses updated system power flow dynamics. Understanding these changes will be critical for grid operators, regulators and policymakers.

3. Do these arrangements promote a zero-emissions credit shell game? Colocation may allow data center owners to claim their operations have a favorable carbon footprint, but their action makes the carbon picture of the remaining customers on the system look worse, and the total system no better. And unless the capacity lost to the system from colocation is replaced with new 100 percent carbon free resources, an unlikely scenario given practical near-term realities, then colocation of the data campus has increased total carbon emissions.

Considerations for policymakers to address the emerging AI/data center demand growth opportunities and challenges:

1. First, it pays to recall that different regions of the country structure and regulate their utilities differently. For those states that still maintain the vertically integrated utility structure, the pathway for addressing the demand growth imperative seems relatively straightforward, though not necessarily easy. Large new load seeking service, whether a data center or any other customer, will interconnect via the regulated retail utility under existing tariffs or at negotiated terms and conditions overseen by state regulatory commissions. Integrated resource planning can provide a means of balancing long-term resource adequacy and anticipated demand with necessary supply. If done well, appropriate regulatory tools can be employed to balance the needs of data centers to have certainty of time to market, and utilities to have certainty of regulatory treatment regarding investments made to serve significant new load. The processes can also help ensure that cost shifts to other customers and subsidization are kept to a minimum, or at the very least accounted for in a transparent manner.

2. For states that have restructured and unbundled their utilities such that supply is dependent on merchant generators that receive revenue from FERC regulated wholesale markets, the pathway to address the challenge is less direct. As stated in our recent colocation paper, "ideally, [FERC] would fix price formation in RTO markets to remove the incentives driving merchant nuclear owners toward colocation." I am also not naïve. This is a massive undertaking. Efforts to fix price formation date back close to a decade to when I was on the Commission, and there is still much work to be done. That work has become increasingly complicated by policies enacted at state and federal levels which provide powerful support and subsidy for zero-fuel cost resources that degrade RTO market price signals.
3. Regarding colocation specifically, even in an unbundled utility state, the purchase of power for consumption by a data center – even a colocated one – is still a retail sale of electricity, and therefore squarely within the justification of states under the provisions of the Federal Power Act. This means states can review the sale and presumably make determinations regarding conditions needed to protect the public interest. I anticipate this is an area ripe for state inquiry, especially if colocation deals continue to proliferate.
4. As stated in the colocation paper, state and federal governments may wish to assess whether they can effectively deter colocation by eliminating federal and state subsidies "for any portion of nuclear capacity dedicated to inside the fence load" since once the plant is serving a private need, rather than the grid as a whole, "the burden of paying for zero-emissions should shift from the public to the inside the fence customer." This change would also help preserve financial support mechanisms for new zero-emissions resources that do impact total sector carbon emissions.

5. For all state and federal policymakers, there needs to be a clear-eyed assessment of the risks posed by rapid retirements of still needed dispatchable and baseload generation capacity given the unanticipated demand growth now upon us. This means trusting what the engineers are telling us. Policymakers should take seriously the warnings issued by the nation's RTOs and experts at the North American Electric Reliability Corporation.[4]
6. Enact meaningful permitting reform for all critical infrastructure projects that support grid reliability. This means addressing permitting reform for electric transmission and interstate natural gas pipelines in tandem. As Committee Members are aware, major critical electric transmission projects can take more than a decade to come to fruition. Likewise, interstate natural gas pipeline development has become increasingly difficult and litigious in recent years. Given growing energy demands, this argues for reforms which streamline needed project approvals and improve their judicial durability. I would caution, however, against assuming that the problem is solved by merely federalizing the permitting process at the expense of state jurisdictional prerogatives. As an example, the underlying statutes that have been delaying federally sited interstate natural gas pipelines can just as effectively be used by litigants to delay and deny interstate electric transmission lines. If Congress is serious about permitting reform, it will need to address the underlying statutes that lead to long judicial delays and uncertainty for needed reliability projects of all manner. Furthermore, as a former state utility regulator and a former President of the National Association of Regulatory Utility Commissioners, I would be remiss if I did not mention that it is frequently not the states that are the hurdle to infrastructure development. As any Western U.S. state regulator can attest, it is the

[4] https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_Infographic_2023.pdf

interminable federal agency consultation and permitting processes which frequently act as roadblocks to sensible permitting of critical infrastructure on public lands.

7. Finally, the federal government can play an important role in speeding new technologies to market that can solve for the dilemma related to a lack of readily deployable carbon free dispatchable generation. Several technologies hold promise, and I wouldn't venture a guess as to which ones will eventually win out, but it seems to me that nowhere could the federal government play a more meaningful role than in leveraging its resources and expertise to make new nuclear a reality. Wholesale market revenues alone are insufficient to justify investment in new nuclear. And while there are probably dozens of utilities across the country eager to be the third or fourth company to successfully deploy new nuclear, there are few that have the risk appetite or balance sheet to be the first go it alone. The federal government, with its unique experience with nuclear research and operations, and its ability to support innovative financial risk mitigation tools is the one entity best positioned to make a nuclear renaissance possible.

Regulation should not be used to stymie new data center development. Promoting American leadership and investment in domestic technology assets is a national security imperative that should garner bipartisan support. To be sure, new AI driven demand growth is an opportunity. At the same time, it is also a challenge that raises questions about sufficiency of supply to meet demand reliably and affordably, and issues of basic fairness for all customers on the grid. As such, it is an entirely worthy subject for your attention and that of other policymakers and regulators at the state and federal levels. Mr. Chairman and Members of the Committee, that concludes my testimony. I would be happy to answer any questions you might have.