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July 18, 2024

The PJM Board of Managers
c/o Mark Takahashi, Chair
c/o Manu Asthana, PJM President and Chief Executive Officer
PJM Interconnection, LLC
2750 Monroe Blvd.
Audubon, PA 19403

RE: Robustness and Consistency of the PJM Long-Term Load Forecasts

Dear Chair Takahashi, President Asthana and the PJM Board of Managers:

We write to address an important, developing issue regarding PJM's load forecasting.[1]

PJM's recent and likely future long-term load forecasts include large amounts of potential future load growth that could trigger very large transmission and generation investments.

We are concerned that this anticipated enormous load growth:

1. Is based on 15-year projections provided to PJM by some of the PJM electric distribution companies ("EDCs"), who, evidence shows, are applying very different criteria in deciding what projected future load growth to request PJM add to its forecast through the Load Forecast Adjustment process; [2] and

2. Is based on potential future data center and other facilities behind these EDC projections that are not firm or committed at present, and some of the projected load growth may be quite speculative and actual growth could be far less, could develop slower than indicated in the forecasts, or could develop in other parts of the system than indicated in the forecasts.

[1] The Office of the Illinois Attorney General, the Illinois Citizens Utility Board, the Office of the Ohio Consumers' Counsel, the Public Staff of the North Carolina Utilities Commission and the Delaware Division of the Public Advocate have represented to the Maryland Office of People's Counsel that they join in support of this letter.
[2] PJM Manual 19: *Load Forecasting and Analysis*, Attachment B: Load Forecast Adjustment Guidelines.

The characteristics of this new load growth create two problems that should urgently be addressed in the current PJM forecast cycle that will result in the PJM 2025 Load Forecast Report:

1. There are inconsistencies in the EDC load growth projections: one EDC might choose to include all known potential projects plus a long-term forecast of additional strong growth, while another might choose to only include known, highly likely projects. These inconsistencies could result in a geographically distorted load forecast leading to inefficient, unbalanced transmission expansion focused on those EDCs who find it in their interest to provide PJM relatively large load growth numbers; and

2. The forecast of strong load growth based on many projects that are not firm or committed or even identified at this time creates a risk that if these new loads do not materialize in the anticipated magnitudes or locations or expected times, some of the large investments triggered by the load forecasts might not be used and useful, and under current rules some of the cost of this investment could be imposed on other customers in the zone where the additional load is forecasted and on customers in other zones as well.

In the current discussions in the industry about an unprecedented—and, many would argue, in part speculative—spike in electric load forecasts particularly for the longer term, primed by data center customer requests, PJM needs to clarify and make more rigorous its approach to the forecasting of these large loads.

Concerns about the investment risk associated with serving the uncertain future loads of very large new customers are mitigated when the large customers enter into long-term, "take-or-pay" type contracts more commensurate with the long time horizon of that investment (an approach Ohio Power Company ("AEP Ohio") in a proposal currently before the Public Utility Commission of Ohio ("PUCO") is pursuing both with respect to its planning and load forecasting practices[3]) or when the large customers plan their own, incremental, new generation.

[3] *Application for Approval of New Tariffs by Ohio Power Company*, Public Utilities Commission of Ohio Case No. 24-508-EL-ATA, available at https://dis.puc.state.oh.us/CaseRecord.aspx?CaseNo=24-0508. Ohio Power Company seeks to implement a Data Center Power Tariff that would entail 10-year "take-or-pay" provisions, and suggests (per the Direct Testimony of Ohio Power Company witness Kamran Ali in the same proceeding, p. 6) that the load forecast it will provide PJM for purposes of Large Load Adjustments will only include such "signed loads."

As AEP Ohio has indicated in support of its long-term contract approach, applicable specifically to the large and discrete customer loads entailed by the current data center "boom":

> [It] is designed to mitigate the risk that transmission infrastructure will be built for speculative data center projects, and when it comes time to serve, the data center projects either will be cancelled or be using significantly less power than they had planned. If this happens, more of the costs of the transmission buildout will be borne by retail customers in the PJM region including AEP Ohio's other customers…. AEP Ohio's proposed data center tariffs will require data centers to make long-term financial commitments – *to have more skin in the game* – to mitigate the risk that transmission infrastructure will be built for data centers but not needed….
>
> *It is appropriate and prudent to seek commitments from data centers to address the unique challenges that data centers themselves are creating….*
>
> *The newness of data centers also suggests a cautious, careful approach to this class of customer…* [T]he more recent explosion in data center load growth is driven primarily by recent developments in artificial intelligence ("AI"). Even technology professionals struggle to predict what AI technology will be used for and how it will evolve over time. Moreover, …. data center efficiency is constantly improving, so the incredibly large loads data centers are projecting today may be diminished in the future by efficiency gains. Because of this newness and uncertainty, AEP Ohio believes it would be prudent to recognize that data centers are a unique customer class presenting unique issues and risks that have not been seen before, and it would mitigate those risks to require potential data center customers to make greater commitments to follow through with their planned load growth.[4]

While our concerns have been discussed in recent Load Analysis Subcommittee and other PJM stakeholder meetings, PJM staff are apparently following a "business as usual" approach, which does not in any way attempt to distinguish highly likely future load growth from highly uncertain and speculative components. The PJM Load Analysis Team has just recently sent out its annual invitation to the EDCs to voluntarily submit "Large Load Adjustment Requests" for the current forecasting cycle.[5] While PJM

[4] PUCO Case No. 24-508-EL-ATA, AEP Ohio McKensie Testimony, pp. 4, 7-8 (emphasis supplied).
[5] July 1, 2024 email from the Load Analysis Team, subject: *[Action Required] Large Load Adjustment Requests* . PJM solicits input from electric distribution companies about possible large load additions that will not be fully captured by PJM's econometric modeling that projects based on historical loads. PJM reviews this information, identifies the portions that may already be captured by the forecasting

staff review the EDC projections and may reject some of these requests, the invitation email, associated template, and PJM manual guidance[6] do not require or even request the type of information that would be needed to evaluate how robust or likely the projections are or whether there are major inconsistencies in the various EDCs' requests.

In light of these concerns, we request that the Board take the following actions in a timely manner, to allow discussion of these matters at the Load Analysis Subcommittee meeting scheduled for July 29, 2024, and actions to be reflected in the 2025 Load Forecast Report:

1. Direct PJM staff to strongly encourage *all* PJM EDCs to provide submissions describing and documenting in detail their anticipated load growth beyond the organic growth of existing customer demand (ultimately, as long as PJM is relying on such submissions, they should be mandatory for all EDCs);

2. Direct PJM staff to provide more specific guidance to the EDCs regarding how both the near-term (five-year) and longer-term (15-year) load adjustment requests should be prepared and documented; and

3. Direct PJM staff to also develop criteria and guidance for the EDCs to distinguish that portion of their projected load growth that is considered quite likely to occur (based on historical projections, customer plans, firm commitments, and potentially other considerations) from the amounts that are based on customer requests or utility projections that at this time do not have such support and are much more uncertain. Distinguishing these two categories of large load adjustments would allow PJM to include this additional information in future load forecast reports.

4. Encourage PJM staff to engage an outside consultant to assist in the development of long-term load growth scenarios.

The first two requests would go a long way toward providing PJM staff the information needed to mitigate the potential geographic inconsistencies in the EDC projections that could flow through to the PJM load forecast and transmission and generation planning processes (our first concern from above). The third request would lead to additional information about the load forecast that could inform analysis of future transmission and generation needs, and could also lead to important conversations, and

methodology, and includes the remainder as an addition to the forecast shown in Table B-9 of each load forecast report.

[6] PJM Manual 19: *Load Forecasting and Analysis*, Attachment B: Load Forecast Adjustment Guidelines.

potentially changed relationships, regarding what parties bear the risk associated with large investments driven by projected load growth. The final request would help address both concerns.

Note that we are not asking for changes to the current procedures or methodologies by which PJM staff prepares the load forecast or plans transmission. Our requests only address additional guidance provided by PJM staff to the EDCs (which would also be used by PJM staff in reviewing the load growth submissions), additional information that could be included in PJM's 2025 load forecast, and additional assistance by an outside consultant.

As noted in EPRI's recent report on data centers,[7] data centers create a new paradigm for electric utility planning.[8]

> Shifting the data center-grid relationship from the current "passive load" model to a collaborative 'shared energy economy'— with grid resources powering data centers and data center backup resources contributing to grid reliability and flexibility— could not only help electric companies contend with the explosive growth of AI but also contribute to affordability and reliability for all electricity users… Under this model, data centers move from being a burden on the grid—acting as passive loads demanding specific power levels within defined timeframes and at affordable rates— to becoming partners in a sustainable future, serving as a grid reliability resource.[9]

We agree with EPRI on the need to move away from the "passive load" model with respect to very large new loads. However, any reliability or stability program designed for these large facilities should be carefully structured and monitored to ensure it delivers reliability benefits without exploitation of other consumers. Our requests leave for a later time directly addressing this needed change.

We also are not proposing here to address another inconsistency in PJM's planning approaches: the load forecasts may include anticipated loads whose reliability will be

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[7] EPRI, *Powering Intelligence: Analyzing Artificial Intelligence and Data Center Energy Consumption*, May 2024, p. 22, available at https://www.epri.com/research/products/3002028905

[8] Among the factors underpinning this change in paradigm, many of which are adverted to in the EPRI report, are: the large size of individual loads, the potential for duplicative customer capacity requests due to industry concentration and fragmentation at different levels of the industry ultimately settling out at lower levels of need in particular locations, the proven and continuing potential for rapid technological change (particularly with respect to the electric requirements for computation activity), the potentially large scope for flexibility in the geographic and time dispersion of activity due to the advance of "cloud" type operations, etc).

[9] *Id.*

provided by incremental behind the meter or contracted generation or demand response, but the offsetting generation or demand response may be ignored for planning purposes until years later, when it appears and is committed through the Reliability Pricing Model. This inconsistency is another concern that should be addressed at some point.

Forecasts of data center and other large new loads are increasing rapidly at this time; however, where and when large new loads will appear is, and will remain, highly uncertain. Even an existing data center may need to substantially reduce demand due to business, market or other circumstances, as Amazon Data Services, one of the largest developers of data centers, has recently stated.[10] Thus, the uncertainties and risks associated with forecasting these loads, and planning to serve them, are real. At this time we only request the additional guidance to the EDCs described above, and including the additional information received on the large load adjustments in future load forecasts. Whether and how the additional information might be considered in PJM's transmission planning or generation resource adequacy planning approaches, and further steps to move away from the passive load model, should be topics for future discussions among PJM and stakeholders.

Thank you for considering this request.

Sincerely yours,

/electronic signature/
David S. Lapp
People's Counsel of the State of Maryland

cc: Susan L. Satter, Chief, Public Utilities Bureau, Office of Illinois Attorney General
Kimberly Janas, Office of the Illinois Attorney General
Sarah Moskowitz, Executive Director, Illinois Citizens Utility Board
Clara Summers, Illinois Citizens Utility Board
Maureen Willis, Ohio Consumers' Counsel
Christopher J. Ayers, Executive Director, Public Staff of the North Carolina Utilities Commission
Ruth Ann Price, Acting Public Advocate for the Delaware Division of the Public Advocate
William Fields, Deputy People's Counsel, Maryland Office of People's Counsel
Philip Sussler, Maryland Office of People's Counsel

[10] *Initial* Comments *of Amazon Data Services, Inc*., June 25, 2024 in Public Utilities Commission of Ohio Case No. 24-508-EL-ATA, p. 5 (referring to "a customer that needs to exit the service contract due to business, market, or operational changes.")