

## **Introduction**

In September 2024, American Electric Power (AEP) submitted a request for adjustments to the PJM 2025 Load Forecast. The request was presented publicly to stakeholders at the PJM Load Analysis Subcommittee (LAS) meeting in October. This document serves as a summary of the request and public presentation. It includes an overview of the methodology for large load adjustments, a summary of the overall adjustment request for 2025, and insights into the future project pipeline at AEP.

## **Load Addition Criteria and Methodology at AEP**

AEP's forecasting methodology for load additions can be broken into two parts. Near-term, or up to 2029 in this instance, additions are based on contracts in place at the time the forecast is submitted. Within the first five years of the forecast, a project must, at a minimum, have a signed Letter of Agreement (LOA) and an Electric Service Agreement (ESA) in progress. Of the approximately 8.1 GW of adjustments submitted within the first 5 years of AEP's request, over 7 GW of the adjustments currently have a signed ESA in place, while the remainder have a signed LOA with ESAs currently being negotiated.

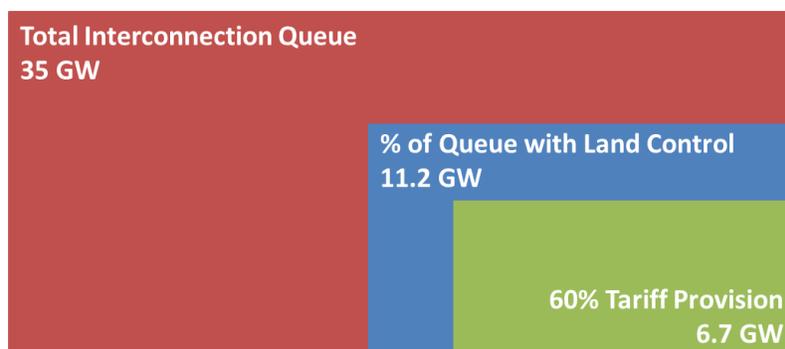
Both an LOA and ESA are legally binding contracts that include financial commitments from the customer. However, an ESA generally takes the form of a take-or-pay contract in which a customer is required to purchase a minimum amount of energy over several years. An LOA only covers the customer interconnect, including any engineering or infrastructure costs associated with connecting the customer to the system.

These arrangements serve to protect other customers from absorbing these costs if a project does not proceed as contracted. This approach helps to mitigate uncertainty around large loads, allowing AEP to align its capacity planning with actual expected demand in the near to intermediate term.

Beyond five years, 2030 and beyond in this instance, two AEP jurisdictions (AEP Ohio and Indiana & Michigan Power zones) have become capacity constrained despite substantial demand from customers awaiting sufficient transmission capacity for service. In these instances, capacity constraints have prevented AEP companies from signing agreements with customers, while the lack of signed agreements has prevented AEP from adding the necessary capacity to serve those customers. Including this unsigned load in the planning process allows AEP to end this circular reference, ultimately increasing the accuracy of the forecast and PJM's overall planning process.

As a way to conservatively and responsibly estimate this load, AEP started with actual customer demand via interconnection queues at its capacity constrained areas. At AEP Ohio alone, for example, the sum of customer requests looking to connect to the system is roughly 35 GW. AEP then narrowed those queues down further by looking only at those customers who possess land control and are prepared to sign interconnection agreements. Demand is then further reduced to reflect the current minimum tariff provisions in the affected states. In the cases of Ohio and Indiana, that is 60%.

Here's a visual example of the calculations done for AEP Ohio:



The lack of sufficient transmission capacity prevents these customers from a.) signing contracts and b.) being allocated to specific years in the adjustment request. To account for their immediate need for transmission capacity and readiness to sign agreements, AEP has assigned their loads to 2030. PJM staff then asked to further spread this load out over a three-year span to better replicate the potential pace of transmission build out.

Since the submission of this forecast, the interconnection queues across AEP’s PJM jurisdictions have grown even larger. The robust size of the overall queue and project pipeline in these jurisdictions provides protection against new loads not materializing as expected.

Regardless of the year, AEP uses the same criteria for its own internal financial forecasts. This means the additions submitted to PJM for use in this forecast are the same additions that are incorporated into the AEP internal financial forecast for budgeting purposes.

### Summary of Request by Year and Zone

In total, AEP requested 8,122 MW of load additions by 2029 and 17,890 MW by 2030. These represent values for the month of September to reflect expectations for the summer peak. These details can be found in the documents submitted to PJM in September, which are publicly available on the PJM LAS website.

As mentioned in the methodology section, the large jump in 2030 is concentrated at AEP Ohio and I&M and reflects very strong interest in customers wanting to sign contracts to connect, but currently cannot due to capacity constraints.

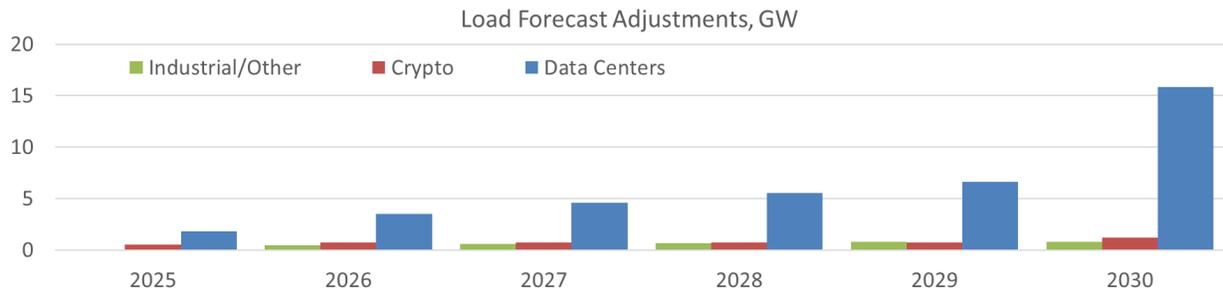
*Table 1: AEP Cumulative Summer Load Addition Request by Zone*

Cumulative Additions (MW)	2025	2026	2027	2028	2029	2030
Appalachian Power	41	421	421	421	421	421
Indiana & Michigan Power	721	1,489	2,076	2,565	3,265	6,045
Kentucky Power	3	3	3	3	3	3
AEP Ohio	1,509	2,726	3,423	3,969	4,443	11,421
<b>Total AEP</b>	<b>2,274</b>	<b>4,639</b>	<b>5,924</b>	<b>6,958</b>	<b>8,122</b>	<b>17,890</b>

### Summary of Request by Customer Type

The overall adjustment request reflects a mixture of customer types but is largely driven by data centers. This is particularly true at AEP Ohio and I&M which have contracts with several data center customers, most of which are large hyperscalers. AEP Ohio also has industrial additions, totaling over 300 MW by the end of the request period. Appalachian Power (APCo) and Kentucky Power additions are almost entirely industrial, primarily by primary metal manufacturing additions in APCo. Figure 1 below summarizes the additions by customer type.

Figure 1: AEP Forecast Adjustments by Customer Type



### Summary of Request by Agreement Type

For load additions through 2029, all projects across the AEP system have some type of signed customer agreement in place. Furthermore, over 7 GW of the 8.1 GW of load additions have a signed Electric Service Agreement (ESA) in place alongside an LOA.

For load additions in 2030 and beyond, AEP has a mix of signed agreements and planned agreements once capacity should become available. Specifically, in Ohio, 6.7 GW are planned additions with land control but are awaiting transmission capacity to enable AEP Ohio to enter into agreements. In Indiana, 1.8 GW are planned load additions with land control awaiting capacity.

### Load Behavior

AEP works closely with its customers to obtain the most accurate load ramp specifications for each project, which are typically provided once the customer agreement with financial commitments is signed. This collaborative approach ensures that AEP's adjustment requests align with the needs and expectations of our customers.

Once fully ramped, customer behavior is generally differentiated by type. However, similar to load ramps, AEP works closely with individual customers to estimate future load factors based on the type of customer and ultimate end usage. As such, there can be variability across projects.

Data centers typically run at the highest load factors. We have historical usage data showing them running at load factors of more than 80% on average, with large hyperscale data centers running as high as 95%.

Industrial customers typically run at lower load factors than data centers, though some can run as high as 80% depending on the underlying industry. Most industrial customers are expected to run at roughly 60% based on historical usage patterns.

## **Conclusion**

AEP has a great deal of confidence in its load adjustment submission for the 2025 PJM Forecast due to its reliance on signed customer financial commitments. This reliance on actual customer demand, combined with AEP's robust demand pipeline across multiple load zones helps reinforce these projections as a reasonable, and responsible basis for future planning.