PROACTIVE GRID BUILD

FOR TRANSPORTATION ELECTRIFICATION

EXECUTIVE SUMMARY **JANUARY 2025**

AMERICAN PUBLIC POWER ASSOCIATION
Powering Strong Communities

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EXECUTIVE SUMMARY

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Electric utilities are projected to see significant load growth due to the transition to electrify the transportation and buildings sectors coupled with the rapid expansion of data centers and industrial facilities. This shift is happening after decades of minimal industry load growth and at a pace and scale that have gotten the attention of stakeholders ranging from the local utility staff to the federal government. "Proactive grid build" is the new industry term that represents the strategy of leveraging resources and tools to support the anticipated large-scale electric load growth and customer desire for quick service connection timelines. This concept also relates to the idea of futureproofing utility infrastructure deployment, as it is often cheaper in the long run to build with planned spare capacity than to need to return to a site for upgrades in a short time frame. Utilities and their respective governing bodies are faced with the challenge of balancing the desire for prudent investments and long-term grid expansion needs. The cost of infrastructure deployment and the appropriate cost recovery methods are other critical considerations for utilities.

This brief focuses on proactive grid build for transportation electrification (TE) specifically, though many of the key challenges and opportunities described also apply to proactive grid build more generally. Compared to traditional commercial-scale development, electric vehicle (EV) charging infrastructure, especially for commercial sites, can often be built more quickly than the grid upgrades necessary to serve it. This can lead to a mismatch between a utility's typical energization timeline and a customer's desired timeline for opening a charging station site. Another key aspect of TE in relation to proactive grid build is that EV charging load can be flexible and potentially used as a grid asset.

At the current time, proactive grid build to support TE can be categorized into four types of activities:

- Better project TE-related load growth to improve utility resource planning.
- Develop and use load management technology and programs to reduce the impacts of TE load growth.
- Deploy distributed energy resources to reduce grid impacts or provide temporary solutions while waiting for distribution system construction.
- Evaluate cost-recovery options, including electric rates and rules as well as funding opportunities for TE infrastructure deployment.

On the planning side, utilities face challenges such as obtaining access to detailed data on EV market growth at a high confidence level, understanding the complexity of EV charging loads, and incorporating forecasts that can quickly change based on new program or policy directions at the state and federal levels. From a policy perspective, utilities may be risk averse and hesitant to make investments if they do not feel certain that the load will materialize. Some utilities may have policy restrictions on how much they can build ahead of load. In addition, utilities must determine whether certain grid upgrades and proactive grid build investments can be attributed to a specific customer versus an entire customer class. The potential timing mismatch between utilities and customers can also lead to a policy risk of imposed energization timelines and planning requirements. Continuing supply chain constraints across the electric industry and the need for a skilled workforce to advance TE also pose challenges for utilities in pursuit of proactive grid build. Despite these obstacles, there are opportunities for utilities to prepare for and conduct proactive grid build. There are strategies for accessing detailed data to incorporate in grid planning, various ways to manage EV load growth, and multiple cost-recovery options.

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