

Grid Integration of EV Charging Infrastructure:

A Workshop to Share Knowledge between the Grid Industry and States | March 14, 2022

With the recent release of the National Electric Vehicle Infrastructure Formula Program Guidance, states have been tasked with developing plans for electric vehicle (EV) charging infrastructure deployment along major highway corridors. Given that the electric grid will serve as the backbone for EV charging infrastructure, it is important to bring transportation and electricity stakeholders together to collaborate. This workshop convened members from the GridWise Alliance (GWA), the National Association of State Energy Officials (NASEO), the American Association of State Highway and Transportation Officials (AASHTO), and the National Association of Regulatory Utility Commissioners (NARUC).

Over two hours, speakers explored electric grid considerations related to EV infrastructure investment and covered topics including near-term grid investment needs, innovative technology solutions, utility experiences, and policymaker perspectives. Speakers were asked to share insights and identify near-term challenge areas related to EV-grid integration. Overarching themes that emerged from the workshop are summarized below:

- Continued collaboration among multiple stakeholders, including state energy officials, utility regulators, transportation officials, and the grid industry supports the effective deployment of EV charging infrastructure. Coordination of these groups through such mechanisms as [REWest](#), the [DOE-DOT-NASEO-AASHTO MOU](#), and NASEO-NARUC coordination on comprehensive electricity system planning helps avoid duplication of efforts, streamlines planning processes, and maximizes the impact of Federal, state, and private dollars.
- Federal, regional, state, and local level actions are all critical to developing EV charging infrastructure. While ongoing efforts along these levels demonstrates great progress, especially in some regions and states, the continuation of multilateral efforts is important.
- EV charging infrastructure development and grid integration will occur on both near-term and long-term timelines. State transportation offices have until August to develop their highway corridor charging plans. Federal funding is scheduled for 5 years, and certain significant grid upgrades could take up to 10 years. Stakeholders should balance the near-term needs and funding with longer term planning considerations, and at the same time determine appropriate cost allocation over these varying time horizons.

Participants in the workshop have been involved in a variety of transportation electrification efforts and collaborations. Continued information sharing between the grid industry and policymakers around the following topics could be helpful:

- EV charger load forecasting and hosting capacity, especially related to data access and evaluating lower-cost locations for EV infrastructure development.
- The role of certain technologies in managing EV load and supporting grid operation, including energy storage, aggregation controls, and grid stability.
- EV-to-grid equipment upgrade processes, procurement schedules, and timelines.
- Interoperability and standards setting, especially as EV penetration increases and funding for an expanded charging network rolls out.
- Operations and maintenance requirements that outline recommended components, what they do, and example business models.
- Technologies supporting EV and broader system visibility for a range of scenarios ranging from residential EVs that operate as “ghost loads” to setting up structures that give utilities advance notice of fleet electrification or other larger-scale transportation electrification efforts.
- Customer engagement processes and determining ways to provide pricing signals and cost allocation through software systems and user interfaces.