

Accelerating the Electric Vehicle Market

Potential Roles of Electric Utilities in the Mid-Atlantic and Northeast States



Quick Take

The transition to plug-in electric vehicles (PEVs) promises numerous economic and environmental benefits to consumers and society at large.¹ Despite these broadly shared advantages, however, consumers continued to be discouraged from PEV purchases by insufficient consumer education and awareness, suboptimal charging rate design, and inadequate charging infrastructure. As the PEV market continues to develop and policymakers increasingly view PEVs as a critical way to reduce regional emissions, this M.J. Bradley & Associates (MJB&A) paper can be a resource for Northeast and Mid-Atlantic policymakers and stakeholders on the status of the PEV market, market barriers, and the potential role of electric utilities in transportation electrification programs.

“Utilities are ideal partners for states in transportation electrification efforts. They are a trusted and reliable provider of electricity, have access to capital, and have unmatched expertise in electricity infrastructure, grid operation, and management.” Brian Jones, MJB&A

Regional Statistics

Population: 63 million people

Total EV Sales through 2016: ~60,000

No. of Public Charging Stations: ~2,600

2025 combined ZEV goal ~1.6 million

Electric utilities are well-positioned to help transform the electric vehicle market through the development of transportation electrification programs. State policymakers have leveraged the scale and scope of utilities to advance public policy goals and can once again to achieve near-term Zero Emission Vehicle (ZEV) targets as well as medium and long-term economy-wide climate goals.² Utilities have been successful in transforming markets in the past by harnessing existing customer relationships and forging new partnerships. For example, direct utility outreach to customers, together



¹ M.J. Bradley & Associates. Mid-Atlantic and Northeast Plug-in Electric Vehicle Cost-Benefit Analysis. December 2016. Available at <http://www.mjbradley.com/reports/mjba-analyzes-state-wide-costs-and-benefits-plug-vehicles-five-northeast-and-mid-atlantic>.

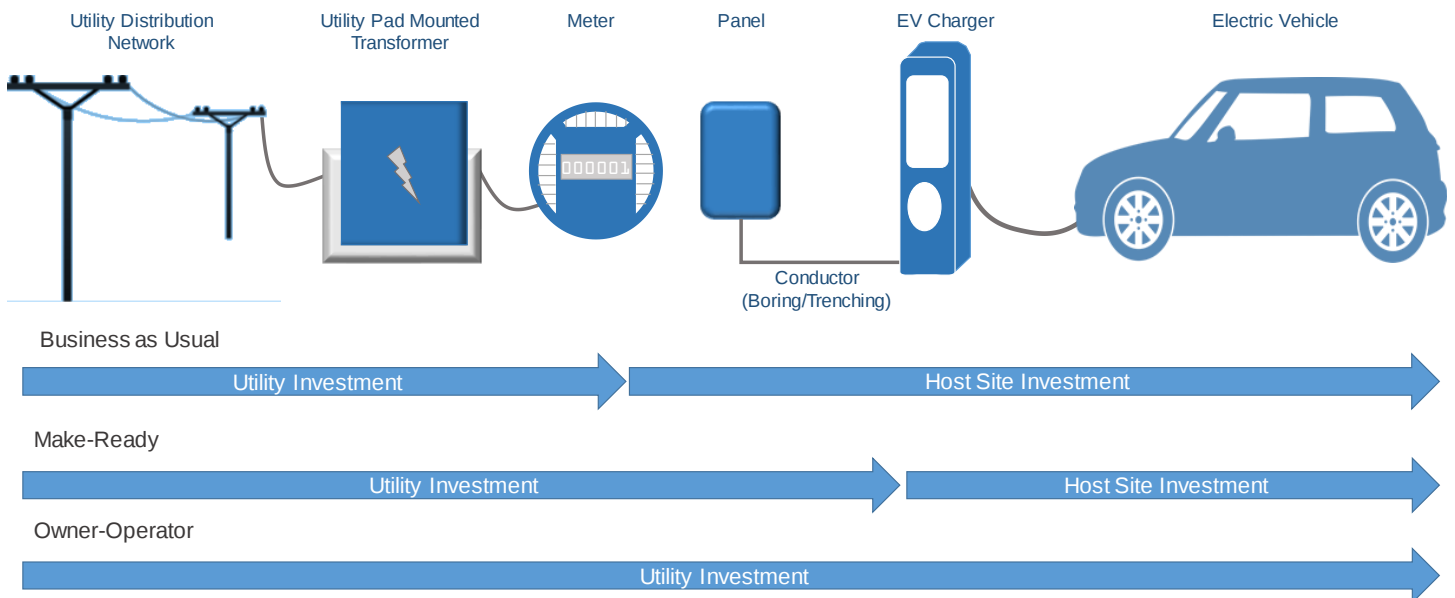
² Mid-Atlantic and Northeast ZEV states include: Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Rhode Island and Vermont.

with coordinated energy efficiency campaigns, have proven to be instrumental for the adoption of energy efficiency and the development of the energy efficiency market itself. In the same way, utilities have the potential to accelerate market transformation and pave the way to widespread transportation electrification. They can use existing networks and relationships to help improve customer awareness of electric vehicle benefits, purchasing programs, and opportunities. Utilities could work cooperatively with auto manufacturers and dealerships to provide current information to consumers about vehicle purchase incentives and charging options. Electric utilities could also be instrumental in providing consumers with information about charging rates and programs that benefit the grid and provide energy cost savings.

Targeted investments by electric utilities can help to make charging infrastructure ubiquitous.

Increased availability of charging stations will make electric vehicle ownership more attractive to a broader population and accelerate uptake of the technology. Consumers may require convenient away-from-home charging options at workplaces, public shopping centers, and along high traffic corridors in order to consider a PEV purchase. Electric utilities could play a critical role in accelerating the development of vehicle charging networks in collaboration with charging station providers, automakers, private businesses, and other partners. Direct utility investment in charging infrastructure can vary from a “make-ready” approach to an “owner–operator” approach. Under the make-ready approach, the utility would invest in the electrical infrastructure and upgrades necessary at the site, while a separate site host would be responsible for the procurement, installation, and ownership of the charging station itself. Alternatively, under the utility owner–operator model, the utility would invest in all the make ready portions of the site as well as the station itself. Utilities could also provide host sites with financial incentives, such as rebates for the costs of the charging infrastructure and/or the make-ready infrastructure portion. The investment model appropriate for a given location is a function of multiple variables, including location (e.g., type, such as residential building or shopping mall, or distance from existing infrastructure), the state of the existing distribution system, the state of the local charging infrastructure market, and likely customer base (including income level).

Utility Investment in Electric Vehicle Charging Infrastructure



Utilities can manage electric vehicle charging loads and design rates that will lower energy bills for consumers.

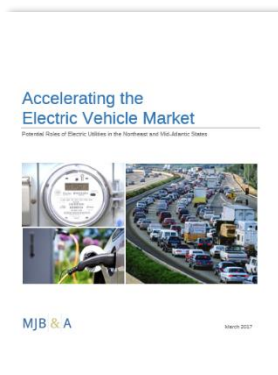
The market for electricity as a transportation fuel lacks clear and transparent charging rates and programs. Electric utilities can design and implement appropriate rates and pricing for electric vehicle charging that can benefit the grid and all utility customers. Currently, most electric vehicle charging occurs at home, but as electric vehicle ownership grows from early adopters to the broader market, workplace and public charging will become more important. Some utilities are already offering charging rate pilot programs, largely to residential customers, and evaluating how to best manage any possible distribution-level impacts associated with charging during different times of the day. Utilities can also provide pricing options and programs for public charging sites. Public charging locations will also need to determine customer-facing pricing systems. To offer these programs, utilities will need to determine who will set the rates and how rates will vary by host site and charging type (e.g., different energy capacities and charging rates).

In reviewing infrastructure proposals, utility commission cost-benefit analyses should consider benefits to the owner, all customers, and society as a whole.

Ultimately, in order for a utility to invest in charging infrastructure, its costs will need to be recovered while earning a fair return on the investment. It will be important that any cost-benefit analysis include all benefits of transportation electrification, including electric vehicle driver energy and maintenance cost savings and the societal value of greenhouse gas emission reductions. Cost-benefit analyses should also account for higher revenues associated with increased electricity sales from charging infrastructure, which will put downward pressure on electricity rates for all customers. Because this market is in the early stages of development and these benefits accrue to parties additional to the investing utility, regulators and stakeholders may want to consider cost benefit analyses that are more expansive than those typically used to assess utility infrastructure development.

For MJB&A's full report, "Accelerating the Electric Vehicle Market: Potential Roles of Electric Utilities in the Mid-Atlantic and Northeast States," click [here](#).

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