Updates
December 18, 2018

Two Electric Utility Approaches to Planning for Widespread Electric Vehicle Adoption

Electric utilities across the country are laying the groundwork—sometimes literally—to keep up with the growing popularity of electric vehicles (EVs). From installing charging infrastructure to gathering consumer data on charging habits, utilities are responding to the emergent consensus that, with sound planning, more EVs can contribute to a more reliable grid, less pollution, lower rates, and happy customers.

Recently, two utilities—Public Service Gas & Electric (PSG&E) in New Jersey and Duke Energy Progress and Duke Energy Carolinas in South Carolina—proposed EV infrastructure programs to their respective state regulators. The two proposals offer a case study on the different approaches taken by utilities to convince regulators that it makes economic sense to step into this new market.

Public Service Gas & Electric

In October 2018, PSG&E—with 2.2 million electric customers in New Jersey—filed a request with that state's Board of Public Utilities to recover the cost of its $261 million "Clean Energy Future – Electric Vehicle and Energy Storage Program." The program has four components:

1. **Residential smart-charging ($93 million).** PSG&E proposes to offer rebates for approximately 37,000 Level 2 charges to be installed at single-family residences or multi-unit dwellings in its service territory. PSG&E's also proposes a $0.02/kWh rebate for residential charging during off-peak periods.
2. **Level-2 mixed-use charging ($39 million).** PSG&E also proposes rebates for 20% to 80% of the upfront equipment and installation cost of approximately 2,200 Level 2 charging stations at 600 locations, including multi-family dwellings, workplaces and municipalities. PSG&E would own all electrical infrastructure "behind" the charging station (*e.*, the meter, wiring, and electrical equipment necessary to connect the charger to the grid), but a third party would own the charging station.
3. **Public direct-current (DC) fast charging ($62 million).** PSG&E proposes rebates for 40% to 80% of the cost of approximately 450 DC fast charging stations on major thoroughfares. The participant would own and operate the charging station, but if there is a lack of interest from third-parties, then PSG&E would own and operate those stations.
4. **Vehicle innovation ($45 million)**. This two-part subprogram would (1) provide grants of up to $300,000 to public school districts to cover the cost of purchasing electric school buses; and (2) establish a custom investment program that would provide charging and vehicle electrification for locations like ports, airports, transit authorities, or other locations with fleets of medium and heavy-duty vehicles.

As filed, PSG&E's program represents a substantial leap forward in EV infrastructure within its service territory, and one that appears to be consistent with a national trend of more expansive utility involvement in EV infrastructure development.

Duke Energy Progress and Duke Energy Carolinas

Also in October 2018, Duke Energy Progress and Duke Energy Carolinas each requested that the Public Service Commission of South Carolina approve EV pilot programs that support the installation of DC fast charging stations, public transit electrification, "managed charging", and energy storage.

Duke Energy Progress proposes a three-year, $5.3 million pilot that includes the following:

1. **EV school bus charging station program ($1.27 million).** Duke Energy Progress proposes rebates of $125,000 each for up to ten EV school buses on a first-come, first-serve basis to school districts. The program includes Vehicle-to-Grid ("V2G") power flow capabilities, allowing Duke Energy Progress to draw on the power stored in the new school buses while collecting data on charging behavior.
2. **EV transit bus charging station program ($570,000).** Duke Energy Progress proposes to provide rebates of up to $55,000 for up to ten electric transit bus charging stations on a first-come, first-serve basis. In exchange for the rebate, the customer must allow the utility to record vehicle charging data and test utility-managed charging capabilities.
3. **DC fast-charging station program ($1.3 million).** Finally, Duke Energy plans to install, own, and operate up to 10 DC fast charging stations across its service territory "to provide a foundational level of infrastructure and facilitate EV market growth." Stations could be located at truck stops, gas stations, restaurants, or other retail establishments, with the goal of facilitating intra- and inter-state electric vehicle travel.

Somewhat similar to Duke Energy Progress, Duke Energy Carolinas proposes a $7.1 million program that would involve the following components:

1. **Residential EV Charging Utility Management Program ($400,000).** This program would provide rebates for up to 400 Level 2 residential charging stations in support of a "managed charging" program in which Duke Energy Carolinas would provide quarterly participation payments for customers in exchange for allowing Duke Energy Carolinas to manage the EV charging at those residences during defined hours. If applied on a statewide scale, Duke Energy Carolinas says that this managed charging approach could produce up to $66 million in net customer benefits by 2050.
2. **EV School Bus Program ($2.54 million).** This program would provide rebates for up to 20 EV school buses on a first-come, first-served basis to school districts, with V2G capabilities, all helping to replace South Carolina's aging diesel school fleet and reduce emissions.
3. **EV Transit Bus Program ($1.14 million).** This program would provide rebates for up to 20 EV transit buses in exchange for allowing the company to collect charging data and test utility-managed charging capabilities. Duke Energy Carolinas states that transit agencies will save $1 million through deployment of 20 electric buses.
4. **DC Fast Charging Program ($2.61 million).** Duke Energy Carolinas proposes to own and operate 20 fee-based DC fast charging stations across its service territory at truck stops, gas stations, restaurants, and other retail establishments.

Comparing the PSG&E and Duke Energy Programs

While both proposals seek to advance EV adoption, differences between the PSG&E and Duke Energy programs abound.

First, the scope: PSG&E is proposing an investment that is almost 50 times larger than Duke Energy's program, and its EV program would last twice as long as Duke Energy's (six years versus three). PSG&E appears to be going "all in", while Duke Energy is continuing to take incremental steps into this new market by exploring

unique technologies that give the utility a central role in incorporating EVs into the grid.

Second, PSG&E doesn't necessarily plan to own any commercial charging stations, including DC fast chargers. By contrast, Duke Energy plans to install its own DC fast chargers at retail locations, again highlighting its role as an active participant in the EV market.

Third, PSG&E's residential EV program provides a credit to customers for off-peak charging, letting customers decide whether to take the credit. But Duke Energy-Carolinas goes further by planning to pay participating customers quarterly to allow *the utility* to control EV charging. The Duke Energy approach, seemingly small in scope now, could set the table for a larger-scale, utility-integrated deployment of EVs.

Fourth, the Duke Energy pilots include V2G technology with its school bus electrification rebates, allowing Duke Energy to control and draw on the power stored in the school buses for use on the grid. The jurisdictional status of those school buses aside (or issues of how the market and regulators should value that storage), V2G technology deployed on a wider scale could lead to significant amounts of energy storage available during times of peak demand.

To be sure, the proposals do share one common element: customers' permission to access data on charging events, times and duration to develop rate structures that incentivize the most efficient charging behavior. With the right security protocols, this data will help maintain the reliability of the grid as EVs become more popular.

Conclusion

PSG&E and Duke Energy both offer different proposals for how regulators should address the legal and policy issues surrounding a regulated utility's role in the EV market. PSG&E is letting the market drive EV adoption with the help of incentives. Duke Energy's programs, while smaller in scope, go further by owning charging stations and piloting technology that will allow for integration of EVs into the grid and to potentially serve as resources during peak periods. At the end of the day, the two proposals highlight the pace and diversity of regulatory issues in the EV space. EV-minded electric utilities should watch these proceedings closely, and regulators may want to prepare to proactively address EV infrastructure rules and policies in their respective jurisdictions.

Authors

Andrew C. Hanson

Partner
AHanson@perkinscoie.com 608.663.7498

Explore more in

Environment, Energy & Resources Energy Infrastructure & Clean Technology

Related insights

Update

A Greener Holiday Future: California Establishes Nation’s First Apparel and Textile Article EPR Program

Update

FERC Meeting Agenda Summaries for October 2024