

## ACADIA CENTER COMMENTS

### INTRODUCTION

Acadia Center respectfully submits the following comments in response to the Rhode Island Public Utility Commission, Division of Public Utilities and Carriers, and Office of Energy Resources' Notice of Inquiry and Request for Stakeholder Comment Regarding a Utility's Role in Deploying Beneficial Electrification with Focus on Plug-In Electric Vehicles issued June 12, 2017 in the Power Sector Transformation Initiative.

Acadia Center is a non-profit, research and advocacy organization committed to advancing the clean energy future, and is at the forefront of efforts to build clean, low carbon, and consumer-friendly economies. Acadia Center's approach is characterized by reliable information, comprehensive advocacy, and problem solving through innovation and collaboration.

Acadia Center's responses flow from our recent reports on electric vehicles and the energy system. Our report EnergyVision sets forth an ambitious pathway for states to pursue in order to achieve an economically productive, consumer-oriented, and low carbon energy future.<sup>1</sup> EnergyVision integrates four key strategies: (1) utilize market-ready technologies to electrify building heating and transportation; (2) modernize the way we plan, manage, and invest in the electric power grid so that it facilitates new technologies, decentralized energy systems, and consumer control; (3) make continued progress toward a clean electric supply through increased investments in local renewable power; and (4) maximize investments in energy efficiency so that energy consumption is as efficient as possible.

Building on this report, Acadia Center recently released EnergyVision 2030, showing how states meet emissions reductions requirements for 2030 with the above four strategies.<sup>2</sup> EnergyVision 2030 demonstrates that electric vehicles play a key role in the transformation, with 17% of the passenger fleet and 2.5% of the medium-duty fleet in the Northeast needing to be electrified in 2030 to reach emissions reduction goals (see Appendix A). To reach these needed levels, Acadia Center recommends a suite of policies (1) make PEVs more affordable, (2) increase the availability of consumer-friendly charging infrastructure, and (3) ensure that consumers are aware of EVs and their benefits. In 2015, Acadia Center issued a joint report with Conservation Law Foundation and Sierra Club entitled "Charging Up," with a comprehensive agenda to increase EV adoption.<sup>3</sup>

Acadia Center sees the Power Sector Transformation Initiative's overarching aim of developing a more dynamic, cleaner, more affordable, and reliable energy system for the 21st century and beyond as a transformative step forward for state-level energy policy and one that is fully in line with our EnergyVision strategies. The state's energy future is dependent upon an ambitious, effective, and comprehensive response to the historic challenges and opportunities

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<sup>1</sup> Acadia Center, 2014. "EnergyVision: A Pathway to a Modern, Sustainable, Low Carbon Economic and Environmental Future," (available at: <http://acadiacenter.org/document/energyvision/>).

<sup>2</sup> See: <http://2030.acadiacenter.org/>.

<sup>3</sup> <http://acadiacenter.org/document/charging-up/>

presented by the Power Sector Transformation. We accordingly commend the Division of Public Utilities and Carriers, the Office of Energy Resources, and the Public Utilities Commission for initiating this process and incorporating robust stakeholder engagement.

In February 2015, Acadia Center released UtilityVision,<sup>4</sup> a framework for reforms to utility regulation to move towards a fully integrated, flexible, and low carbon electric grid that empowers and protects consumers. The three categories of reforms are: (1) comprehensive, proactive, and coordinated planning for the electric grid; (2) updated roles for regulators, utilities, and stakeholders; and (3) fair pricing and consumer protection for all. In our recommendations below, we have sought to answer questions that implicate our EnergyVision, EnergyVision 2030, Charging Up and UtilityVision reports. Specifically, Acadia Center offers comments and recommendations in response to the Notice of Inquiry's questions regarding: (1) the role of the electric distribution system utility; (2) investments in PEVs; (3) PEV program design.

## Recommendations on the Role of the Electric Distribution System Utility (Area II)

### AREA II.A.

#### *Question 1. Are there other roles a utility might play in PEV adoption?*

There are several areas where utilities could play a productive role in PEV adoption, including certain investments, rate design, outreach, education, and other programs. Some of these roles, particularly outreach and education, may fall outside those outlined in Area II.A. In any role the utility might play in beneficial electrification, the right policy approach is subject to a number of constraints, beyond just the advancement of electric vehicles, that must be carefully considered. Distribution companies are not the answer for every public policy issue, and we need a modern utility regulatory system that works for consumer-friendly clean energy across the board, including energy efficiency, distributed generation, electric vehicles, and other storage.

#### *Question 2. Who are the other key actors and what should their respective roles be?*

Other key actors include vehicle manufacturers and dealers, state and local governments, major employers, charging station manufacturers and operators, and parking lot owner and operators.

Vehicle manufacturers and dealers can play an important role in accelerating EV sales, and states can help. There are several key steps that auto companies and dealers should take to raise the visibility and consumer understanding of electric vehicles, including (1) making EVs more available in more states and at more dealership lots; (2) advertising EVs; (3) training staff about EV technology; and (4) placing EVs prominently and creatively on the lot. State agencies can partner with and incentivize dealerships to sell more PEVs by offering monetary or promotional rewards,

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<sup>4</sup> Acadia Center, 2015. "UtilityVision: Reforming the Energy System to Work for Consumers and the Environment," (available at: <http://acadiacenter.org/document/utilityvision/>).

coordinating incentives and discounts, and educating dealers about state EV programs and policies. Below are several examples from “Charging Up” of how state agencies in the northeast are incentivizing dealerships to sell more PEVs:

- State governments in Connecticut, Massachusetts, and Vermont have given awards to dealerships that sold high numbers of EVs.
- Massachusetts maintains a website that indicates which auto dealerships are selling the most plug-in cars in the state.
- Connecticut’s CHEAPR program provides rebates up to \$3,000 to customers at the point of sale, and dealers receive an incentive payment worth 10 percent of the consumer rebate.
- In 2014, Vermont provided a cash incentive at select dealerships worth \$500 for customers and \$200 to dealers.

State and local governments also have a variety of opportunities to lead by example to promote vehicle electrification. “Charging Up” cites a 2015 International Council on Clean Transportation report that shows that when U.S. cities put in place key policies, they have EV adoption rates of 2-7 times higher than the national average. Specifically, governmental bodies should (1) change their procurement policies to ensure full consideration of EVs for suitable uses; (2) develop and adopt best practices to maximize electric miles driven; and (3) have fleet-wide fuel economy requirements and rules that a minimum percentage of purchased and leased vehicles should be plug-in. Governments should also provide their employees with workplace charging. Governments can also offer parking benefits for EVs, such as installing charging stations in public parking areas and reducing or waiving parking fees for plug-in vehicles.

#### *AREA II.B.*

##### *Question 1. Which of these goals should be prioritized by the utility?*

Through their influence on electricity rates and investment programs, utility policies have significant power to affect how quickly electric vehicles become widely adopted. With respect to the priorities and principles outlined in the NOI, the electric utility and the regulators should prioritize (1) smart rate structures and other programs that incentivize EV purchases and reduce barriers to EV charging, and (2) policies that allow utility investments to be optimized for a future with a smarter grid and widespread clean distributed energy resources.

First, time varying rates, managed charging, demand response, and vehicle-to-grid programs can benefit EV drivers and minimize ratepayer costs. These types of programs give EV drivers the opportunity to increase their fuel cost savings and provide good incentives to charge at low usage hours. This will encourage off-peak charging and put downward pressure on electricity rates for all customers. Utilities should avoid certain types of rate structures, such as high demand charges, that inhibit otherwise sound investments in public fast-charging and other high-power-draw applications like electric buses.

Utilities and regulators should also focus on changes to utility investment policies that will help capture a range of benefits from a modernized electric grid. Specifically, utility planning should include forecasts of EV adoption; investments to enable time-varying rates and demand response; investments that allow two-way power flow; and infrastructure investments that reduce the upfront cost of charging stations.

*Question 2. Which goals should be shared with, or left to, other actors?*

Utility regulators should prioritize reforms to the policies that guide utility investment decision-making. Regulators should update the evaluation criteria for utility investments to include benefits from reduced oil consumption, healthier air, and lower greenhouse gas emissions. Regulators should also focus on linking the utility's financial incentives to promoting EVs.

*Question 3. What other goals could be achieved by, and considered in, a utility's proposal to play a role in the adoption of PEVs?*

Another goal for a utility's proposal to impact PEV adoption should be to address key market failures. One market failure to date has been the slow adoption of PEV chargers at multi-unit dwellings and minimal expansion of public charging infrastructure, particularly DC Fast chargers. These market segments have been difficult to reach due to split incentives and difficulty recovering investment costs, which can be quite high if significant upgrades to a site's electrical infrastructure are needed.

*Question 4. What metrics might be useful in determining the effectiveness of a utility's PEV business or program?*

Metrics for success would vary based on the final program, but could include the number of chargers built as a result of utility investment, the favorable shift in demand for charging in a load management pilot, or the utilization rates of charging stations installed under the program. Another metric to consider for program success, although not necessarily in the scope of determining a performance incentive, is the increase in EV purchases, especially in multi-unit dwellings, that were influenced by local charger installations. As with the energy efficiency programs, an independent evaluator should be used to ensure unbiased program assessment if the utilities are eligible for a performance incentive.

### **Recommendations on Investments in PEVs (Area III)**

#### *AREA III.A.*

*Question 1. What other investment needs, not listed above, are there in the PEV sector?*

In addition to the investment needs listed in Area III.A., the state should also include PEV purchase incentives and electrification of medium- and heavy-duty fleets in their planning. PEV purchase incentives are vital to growing the PEV market in the state. A lower purchase price is the top factor that would convince potential buyers to purchase an PEV<sup>5</sup>, and point of sale rebates are one of the most effective ways to lower this barrier. The need for these incentives will decrease as market penetration of PEVs grows, but they are still necessary in the state's nascent PEV market.

To work toward full electrification of transportation, the state also needs to consider investments in medium- and heavy-vehicles and their associated infrastructure. There are currently many commercially available electric vehicles

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<sup>5</sup> Airbiquity, "The Electric Vehicle Study," December 2010

in these classes, such as delivery trucks and buses, and the state should include investments for electrification of these fleet vehicles in their planning.

*Question 2. What are the specific and relevant circumstances of Rhode Islands' current and future transportation sector that might affect or prioritize these needs?*

Stakeholders should consider prioritizing electrification efforts in environmental justice areas, and there are different strategies for doing so. In terms of consumer-focused efforts, it is important to caution that efforts to construct charging infrastructure in low-income neighborhoods must be paired with efforts to make PEVs affordable and accessible for residents, such as through a low-income PEV rebate program that extends the RI consumer rebate program (known as DRIVE) to used vehicles and provides more generous rebates.

Rhode Island should also consider strategies for industrial electrification in environmental justice areas. In particular, efforts on electrifying the Port of Providence warrants consideration. The diesel engines at ports, which power ships, trucks, trains, and cargo-handling equipment create air pollution that impacts the health of workers and people living in nearby communities and contributes significantly to regional air pollution. It is well-documented that air pollution from diesel exhaust is linked with high levels of asthma and bronchitis in children and leads to school absenteeism and emergency room visits.<sup>6</sup> The experience of the Port of Los Angeles, which plans to have an emission-free freight system by 2050, may offer best practices for port electrification. The Port of Los Angeles has reduced particulate pollution by 83 percent since 2005 with a menu of strategies that includes “shore-to-ship power,” basically plugging ships into the power grid so they can use electricity to load and unload goods and keep the ships running. The port has also invested in electric trucks, cranes, and lifting equipment. In 2016, the port and its partners announced the launch of a microgrid that includes solar power and battery storage that will operate completely off the grid.<sup>7</sup>

The electrification of transit buses is another means for improving air quality in environmental justice populations. Transit buses typically service urban areas with already high concentrations of air pollution, and like port equipment, these diesel-powered vehicles add to the poor air quality that impacts public health. Replacing these buses with electric versions that have no tailpipe emissions will have positive impacts regionally and in communities they serve, and Acadia Center supports efforts to electrify Rhode Island’s public transit bus fleet.

### *AREA III.B.*

*Question 1. What are other source of PEV investment could be tapped in RI?*

In addition to the sources of capital for PEV investments listed in Area III.B., Rhode Island should explore other sources as EV adoption continues to grow. One revenue source that is gaining momentum through the Transportation Climate Initiative and other forums is market-based transportation climate policy, such as a cap-and-

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<sup>6</sup> Natural Resources Defense Council, 2004, “Harboring Pollution: Strategies to Clean Up U.S. Ports.” Available from: <https://www.nrdc.org/sites/default/files/ports2.pdf>

<sup>7</sup> Smithsonian.com, 2016, “Is Zero-Emission Freight Possible? The Port of Los Angeles Thinks So.” Available from: <http://www.smithsonianmag.com/smithsonianmag/california-plans-clean-its-entire-freight-industry-2050-starting-la-ports-180959337/>

invest program. This type of revenue-raising mechanism could be modeled after the Regional Greenhouse Gas Initiative (RGGI), where proceeds are returned to the participating states. A cap-and-invest program applied to transportation emissions could be used to raise funds for traditional infrastructure and PEV programs, while helping the state meet its emissions reduction goals.

Another source of funding that should be considered for PEV investments is the Volkswagen settlement funds. Rhode Island is set to receive two payments from VW: \$14.4 million from the Federal settlement,<sup>8</sup> of which 15% can be used toward PEV infrastructure investments and the remaining funds for medium- and heavy-duty electrification, and \$4.1 million from a multi-state settlement,<sup>9</sup> which could all be used for clean transportation investments. While these settlement funds are a finite resource, leveraging the money to supplement other sources would likely result in the greatest investment for RI.

*Question 2. Are any of these sources best suited for the investment needs and goals described above?*

Yes. The Federal and multi-state Volkswagen settlement funds are best suited for charging infrastructure, medium- and heavy-duty electrification, and EV rebates. Specifically, the 15% of the available funds from the Federal settlement provide an excellent opportunity to invest in charging infrastructure in the state. The remainder of these funds should be used for electrification of state medium- and heavy-duty vehicles, in particular, transit and school buses. These funds could be applied in many ways, including grants to cover the incremental cost of an electric vehicle purchase or a fund-matching program. The multi-state VW settlement funds are better suited for passenger vehicle rebates because, unlike the Federal funds, they aren't restricted from this purpose. These funds could be used to boost the existing DRIVE program.

Funding raised through a cap-and-invest transportation climate policy would be best invested in aiding compliance with the program. Since the program would limit transportation carbon emissions, it would be best to reinvest the funds to support clean transportation options that reduce transportation emissions. For example, investing these funds in PEV incentives, charging infrastructure, or education and outreach would all help compliance with the program and support the PEV market.

*Question 3. Is ratepayer-funded investment aligned with certain goals and not others?*

The same limitations for ratepayer-funded utility PEV investment should apply as for other forms of grid modernization investment. First, investments owned by the distribution company must fit within the legitimate role of a distribution company. Second, these investments should be made in ways that provide benefits to ratepayers and the state. Third, the distribution company investments should be coordinated with other investments, initiatives, and

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<sup>8</sup> The First Partial (2.0 L) Consent Decree and the Second (3.0 L) Partial Consent Decree, available here: <https://www.epa.gov/enforcement/third-partial-and-30l-second-partial-and-20l-partial-and-amended-consent-decree>

<sup>9</sup> See: [https://ag.ny.gov/sites/default/files/vw\\_settlement\\_agreement-execution\\_copy\\_with\\_signatures.pdf](https://ag.ny.gov/sites/default/files/vw_settlement_agreement-execution_copy_with_signatures.pdf)



programs in the state. Acadia Center also agrees with the regulatory limitations set forth by the Massachusetts Department of Public Utilities on PEV charging investments by distribution companies in D.P.U. 13-182 that were largely codified into statute. (Chapter 448 of the Acts of 2016, §1(f)). The statutory provision requires that a distribution company proposal can only be approved if it “is in the public interest, meets a need regarding the advancement of electric vehicles in the commonwealth and does not hinder the development of the competitive electric vehicle charging market.”

All of the goals in section II have at least some aspects that fall within these frameworks, as do the additional considerations described in Question II.B.1.

*Question 4. In what ways might ratepayer-funded investment be balanced with other sources?*

For electrification goals that fall outside of the framework outlined in Question III.B.3, other sources of funding must be considered to complement ratepayer investments. Question III.B.2 describes ways in which two non-ratepayer capital sources can be used ways to support beneficial electrification. Another example of how private capital can be used to supplement ratepayer funded programs is through a “make ready” utility program to develop charging infrastructure. In this model, the utility is only responsible for building or upgrading the infrastructure behind the meter, while the property owner provides capital to purchase and maintain the charging station. This method of sharing costs limits ratepayer investment, maximizes private capital, and facilitates a competitive charging market.

*Question 5. Is there anything particular about Rhode Island’s current and future transportation sector that might limit or augment any of these investment sources?*

EVs pay the Energy Efficiency Program Charge and as their total contribution increases stakeholders should consider how to cost-effectively use those contributions. While Acadia Center has not analyzed the merits or cost-effectiveness of these ideas, considerations could include providing consumer rebates for electric vehicles or high efficiency charging equipment. Different ideas for effective uses of these funds should be analyzed. At this point, EV contributions to the Energy Efficiency Program Charge are likely not significant enough to warrant near-term action.

Rhode Island’s Standards for System Reliability Procurement identify EVs as a customer-side non-wires alternative that may be utilized to optimize grid performance. Regulators and the utility should include consideration of EVs in long and short-term system reliability planning and combine and leverage funding resources for EVs as a grid resource in targeted system reliability areas.

*Question 6. How could a utility recover costs and receive compensation for various types of investment strategies?*

In Massachusetts Department of Public Utilities Docket No. 17-13, National Grid proposes a tariff for concurrent cost recovery of its Electric Vehicle Market Development Program (EV Program) through distribution rates. The tariff is designed to recover the incremental costs associated with the implementation and operation of the EV program, including distribution system infrastructure costs; the customer-side costs of charging station installation; customer

rebates; and O&M costs to support the EV Program (e.g. payroll, contractor costs, advertising, information systems and software, and demand response communications systems).<sup>10</sup>

National Grid propose to earn a performance incentive associated with the results of its proposed EV Program, citing the energy efficiency performance incentive as an example. National Grid explains that the performance incentive would reward the Company for facilitating activities that would not otherwise benefit the company's shareholders. Specifically, National Grid proposes a performance incentive of approximately 5.5 percent of the Charging Program spending budget. The utility would earn the performance incentive for achieving a goal of developing 140 EVSE sites. If National Grid develops all 140 sites, the company would receive \$1 million in performance incentive. There is a threshold of 75 percent, or 105 sites, before the utility can earn any performance incentive, and the performance incentive tops out at 125 percent of the target, or 175 sites.<sup>11</sup>

National Grid explains that the company evaluated other cost recovery models, including funding the Charging Program through capital investment with cost recovery provided for through an annual revenue requirement. National Grid determined that, among several reasons, the performance incentive would be less expensive for ratepayers and provide a better incentive for the utility to seek cost-effective ways to establish new charging sites with as few upgrades to the distribution system as possible. National Grid calculates that the net present value of the pre-tax return on the Charging Program would be approximately \$1.01 million, while the net present value of the performance incentive would be \$660,000.<sup>12</sup>

### Recommendations on PEV Program Design (Area IV)

*Question 1. What other activities are important to consider?*

Public education is an essential part of a comprehensive PEV program design. The vast majority of car buyers are still lacking the basic knowledge they need to consider purchasing an EV. Automakers bear a large responsibility for advertising the benefits of their vehicles to consumers, but government agencies, utilities, nongovernmental organizations, and others must play an important role as well. Three key elements of a public education program include: (1) promotion of workplace charging; (2) informative, user friendly websites about the benefits of EVs and the steps to purchase one; and, (3) compelling marketing and advertising, such as ride-and-drive events. Utilities also have a responsibility to educate consumers about electricity rate designs that benefit EVs. For example, in the process of Connecticut PURA's Docket 16-07-21 on time-of-use rates for electric vehicles, stakeholders learned that one of the state's utilities did not advertise their time-of-use rates at all.<sup>13</sup>

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<sup>10</sup> Massachusetts Department of Public Utilities Docket 17-13, Exhibit KAB/BLC-1, "Petition of Massachusetts Electric Company and Nantucket Electric Company, each d/b/a National Grid for Pre-Approval of Electric Vehicle Market Development Program and of Electric Vehicle Program Provision." Tariff is included as M.D.P.U. No. 1334.

<sup>11</sup> Id. p. 59

<sup>12</sup> Id. pp. 59-62.

<sup>13</sup> See: Utility response to Acadia Center interrogatory ACTR-027 in PURA docket 16-07-21.



*Question 2. Which should be prioritized in a utility proposal, and which should be left to other entities?*

One approach to EV Infrastructure that Acadia Center supports, which is also in line with the MA DPU limits described in Question III.B.3, is the construction of “make-ready” PEV infrastructure. The basis of these proposals is that the utility prioritizes the build out of sufficient infrastructure to support installation of a charging station by the owner of a chosen site. The purchase and maintenance of the actual charging station is primarily left to the site owner. These “make ready” proposals are akin to line extension policy and facilitate a competitive charging market by avoiding utility ownership of the PEV charger.

To best ensure that “make ready” or other utility investments serve to build the PEV market and support grid modernization, utilities should be required to collect data from all charging station installations for pilots and research and development on demand response and other load management programs. Utilities should also ensure that any chargers installed through a ratepayer funded program are able to collect a minimum set of data, including charge times, demand per charge, and charge duration with anonymity to the driver. Further, there is on-going research at Idaho National Lab demonstrating that some chargers have greater standby energy consumption when not in use, as well as varying efficiencies during charging.<sup>14</sup> The utilities should ensure that any ratepayer-funded subsidies for chargers are only for the most efficient models capable of the necessary data collection.

Beyond investment in physical infrastructure, any utility proposal to develop Level 2 or DC Fast charging should examine whether the relevant rate classes include significant demand charges. These rate structures pose a significant barrier to PEV charging, particularly DC Fast charging that requires a high power draw over a short period of time and should either be reformed generally or alternative rate structures should be provided for these charging applications. Customer outreach and education will also be a vital component to the success of any PEV infrastructure program, and utilities can use their existing customer relationships to spread awareness.

*Question 3. Of the elements that should be prioritized in a utility proposal, what design options are aligned with policy goals?*

By investing in the necessary infrastructure to support charging stations, a “make ready” utility program aligns with the key policy goal of addressing market failures. As described in Question II.B.3, some important market segments have been left behind by the PEV market due to split incentives and the high cost of building the electrical infrastructure necessary to support PEV charging. A “make ready” utility program significantly lowers a property owner’s costs for installing a charging facility by having the utility pay for the electrical infrastructure.

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<sup>14</sup> See: [https://energy.gov/sites/prod/files/2014/03/f13/vsso96\\_francfort\\_2013\\_o.pdf](https://energy.gov/sites/prod/files/2014/03/f13/vsso96_francfort_2013_o.pdf)