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Your Partner in the Clean Energy Economy

June 30, 2017

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Re: Notice of Inquiry and Request for Stakeholder Comment Regarding a Utility's Role in Deploying Beneficial Electrification with Focus on Plug-in Electric Vehicles

Dear Chairperson Curran, Administrator McCleary, and Commissioner Grant:

Enclosed, please find comments from the Northeast Clean Energy Council (NECEC) in response to your agencies' June 14 Notice of Inquiry and Request for Stakeholder Comment regarding a utility's role in deploying beneficial electrification, with a focus on plug-in electric vehicles.

Our organization and member companies are available as a resource to you as efforts within the Power Sector Transformation Initiative continue to develop and progress. Please let us know if we can be of any assistance.

Sincerely,

Peter Rothstein
President

Janet Gail Besser
Executive Vice President

cc: Jamie Dickerson, NECEC
Alistair Pim, NECEC
Lisa Frantzis, Advanced Energy Economy
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Notice of Inquiry and Request for Stakeholder Comment Regarding a Utility's Role in Deploying Beneficial Electrification with Focus on Plug-in Electric Vehicles

Introduction

The Northeast Clean Energy Council (NECEC) commends the Public Utilities Commission (PUC or Commission), the Rhode Island Division of Public Utilities and Carriers (DPUC), and the Office of Energy Resources (OER) for their ongoing work within the Power Sector Transformation Initiative. We greatly appreciate the opportunity to respond to this *Notice of Inquiry and Request for Stakeholder Comment Regarding a Utility's Role in Deploying Beneficial Electrification with Focus on Plug-in Electric Vehicles (PEV).* Much like previous inquiries, your agencies' PEV investigation is timely and opportune, as technological advancements and policy urgency are pushing states around the country to begin proactive preparations for robust PEV adoption in the future. NECEC appreciates the opportunity to participate in and support this effort.

NECEC is a clean energy business, policy and innovation organization. Our mission is to create a world-class clean energy hub in the Northeast delivering global impact with economic, energy and environmental solutions. NECEC is the only organization in the Northeast that covers all of the clean energy market segments, representing the business perspectives of investors and clean energy companies across every stage of development. Our members span the broad spectrum of the clean energy industry, including energy efficiency, demand response, wind, solar, combined heat and power, energy storage, fuel cells, and advanced and "smart" technologies. Many of our members are doing business and investing in Rhode Island, and many more are interested in doing so in the future.

NECEC submits preliminary comments on a subset of the beneficial electrification questions posed by agencies in the June 14 Notice. For ease of reference, our responses mirror the questions laid out in agencies' notice of inquiry where applicable.

II.A. Role of the Electric Distribution System Utility

As context for exploring the role the utility may play in PEV deployment, agencies ask stakeholders to consider some of the roles utilities have played in the past:

- Safe, reliable, and adequate service provider;
- System planner and operator; system optimizer; program administrator (reduce costs and consider externalities and inequities);
- Programs optimizer (assuring programs work together efficiently);
- Transaction services provider;
- Market accelerator and transformer.

1) Are there other roles a utility might play in PEV adoption?

Utilities are well positioned to play important roles in the growth of PEV adoption. In addition to roles explicitly identified by the agencies, the utility might play a role in PEV adoption by:

1. Building out the electric system infrastructure to facilitate deployment/installation of charging infrastructure by third parties and customers;
2. Providing financial incentives for public/commercial electric vehicle supply equipment (EVSE) installation;
3. Establishing electricity rate designs/rate classes that motivate efficient use of the electrical grid by PEVs;
4. Establishing EVSE technical requirements compatible with EVSE sharing, interoperability, and load management;
5. Educating key stakeholders such as customers, workforce, and service providers about PEVs and EVSE, including through existing and new customer outreach channels;
6. Influencing building codes that require “pre-wiring” for EVSE installation;
7. Influencing EVSE deployment across application categories (e.g. workplace, multifamily, and public charging); and
8. Converting their fleet(s) to PEVs and providing charging stations to employees and customers on their property, serving as a first customer for these technologies and demonstrating their viability and reliability.

While utilities may play these and other important roles in PEV adoption, NECEC believes strongly that utility involvement should only encompass direct ownership of charging

infrastructure in very limited circumstances. Generally, it will be most beneficial for PEV drivers and Rhode Island ratepayers alike for the market for charging infrastructure to be served predominantly by competitive third party entities, much like the current framework for ownership distributed energy resources (DER) behind customer meters. In limited circumstances, such as on properties owned the utility or in communities where intervention is needed to remedy inadequate market penetration, the Commission may find it prudent to approve narrow proposals for utility-owned charging infrastructure.

The role utilities should play is that of distribution system ownership, operation, and planning up until the point of charging stations. The utility should also be involved in planning the integration and optimization of such infrastructure. As a facilitator, the utility will treat PEV charging like other potential load, providing nondiscriminatory electric service when and where requested. And, in a grid management role, the utility will need to manage the charging operation to better integrate charging with grid capabilities and grid needs. However, the utility should generally not be engaged in the business of vehicle charging, whether providing charging equipment or the charging service.

2) Who are the other key actors and what should their respective roles be?

In the broad PEV ecosystem that we envision will emerge, many other parties will be required to collaborate in driving the electrification of transportation. These actors will likely include infrastructure suppliers, software companies, early adopters and customers, auto OEMs (original equipment manufacturers), auto dealers, site hosts, policymakers/regulators, city planning and public transportation officials, advocacy and standards organizations, and public officials across municipal, state, and federal government entities.

In the future, customers can be adequately served by the increasingly competitive EVSE marketplace of third-party actors. Where appropriate, utilities' existing relationship with end-users gives them a unique market position that, when leveraged, can quickly expand the PEV charging network, improve quality and costs, and enhance innovation. These utility efforts should be directed at enabling and leveraging third parties.

IIB: Goals for the Electric System and PEVs

In their inquiry, agencies list eight (8) goals emerging from Docket 4600, along with other categories of aspirations that will have bearing on efforts to promote PEVs. For reference, we will refer to the Docket 4600 goals by number as:

1) Provide reliable, safe, clean and affordable energy to Rhode Island customers over the long term (this applies to all energy use, not just regulated fuels);
2) Strengthen the RI economy, support economic competitiveness, retain and create jobs by optimizing the benefits of a modern grid and attaining appropriate rate design structures;
3) Address the challenge of climate change and other forms of pollution;
4) Prioritize and facilitate increasing customer investment in their facilities (efficiency, distributed generation, storage, responsive demand, and the electrification of vehicles and heating) where that investment provides recognizable net benefits;
5) Appropriately compensate distributed energy resources for the value they provide to the electricity system, customers, and society;
6) Appropriately charge customers for the cost they impose on the grid;
7) Appropriately compensate the distribution utility for the services it provides; and
8) Align distribution utility, customer, and policy objectives and interests through the regulatory framework, including rate design, cost recovery, and incentives.

1) Which of these goals should be prioritized by the utility?

It is important to broadly prioritize goals rather than attributing specific goals to individual actors. Many of the agencies' goals can be most effectively addressed when targeted by numerous actors. It is also necessary to frame goals based on desired outcomes rather than simple quantifiable targets. For example, the agencies should prioritize emissions reduction goals over simply electrifying a set number of vehicles. Such targets should be viewed as a means to achieve these larger environmental and economic objectives.

While these goals should be targeted by many different actors, the utility will feature prominently in all of them. The utility should take deliberate actions in support of goals 1-6, and should also coordinate with other actors to contribute to 7 and 8.

2) Which goals should be shared with, or left to, other actors?

As previously stated, the utility will play an important role in achieving many or all of the agencies' goals. Other actors, however, should contribute to initiatives aimed at achieving the goals as well. The agencies and the distribution utility should establish processes that provide for other actors' input. These actors include stakeholders, customers (residential, low-income, and business), clean energy, PEV, and EVSE businesses, environmental advocates, and transportation planning and economic development agencies.

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

There are many goals that can be considered alongside those defined by the agencies. Specifically, agencies should consider:

- The ratio of PEV to commercial EVSE
    - Today, the ratio across the United States is estimated to be approximately 10 to 1. To achieve critical mass and give the average vehicle consumer "range confidence" to purchase a PEV, some of our members estimate that a ratio of 4 to 1 will be necessary, the result of a compilation of industry assessments done by National Renewable Energy Laboratory (NREL), Electric Power Research Institute (EPRI), Pacific Gas & Electric (PG&E), and our members. Agencies should look to compile, if they have not done so already, a Rhode Island database of PEV on the road and charging stations installed.
- The degree to which the utility's proposed role addresses market failures (e.g., a situation in which the market is not growing sufficiently to meet the state's objectives or the private sector is unable/unwilling to serve all customers)
    - One such example might be the availability of infrastructure in underserved communities and neighborhoods, including at low-income and multi-unit dwellings.
- The degree to which the participation of the utility encourages interoperability on the front end and back end
- The degree to which the utility's role allows for and encourages competition
- Prioritization of large fleets (private and state-owned)
- Potential for significantly lowered emissions from the transportation sector
- Increased and more efficient utilization of charging stations and distribution system infrastructure.

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

The agencies could evaluate the deployment of EVSE by considering:

- The ratio of PEV to EVSE by application category (e.g., workplace, multifamily, hospitality and public charging locations)
- EVSEs deployed by geographic footprint and demographic profile (e.g. EVSEs deployed in high vs. low income locations in large cities vs. small towns)
- The temporal impacts of increased electric consumption from EVSE – how the program affects the efficient usage of the distribution system and how successful the program is in avoiding load-growth driven infrastructure upgrades

A process should be established to develop metrics with input from all relevant stakeholders.

III. Investment in PEVs

Possible investment needs identified by the agencies include: energy supply upgrades and procurement; distribution system upgrades; interconnection; public, private, and shared electric vehicle supply equipment (EVSE) and installation; public charging station property, charging station communications, operations, and management (physical and IT); PEV, EVSE, customer, etc. communication with the grid; marketing (vehicles and charging equipment); and customer service (end-use and/or station owners and providers).

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

Educating customers is a necessary investment to complement other PEV goals. This may entail significant communication and marketing expenses in addition to personnel and labor costs. Customer education will be crucial to promote the economic benefits of PEVs and address behavioral issues like "range anxiety," especially as EVSE infrastructure becomes more prevalent. As alluded to above, utilities may be particularly well positioned to leverage existing channels of customer outreach to implement PEV-education initiatives. These channels could range from regular mail communications to customers to the layering of PEV-related outreach as part of existing energy efficiency programming such as marketing, call-center operations, and contractor engagement. In addition, PEV companies and EVSE developers can and should participate in customer education efforts.

To accompany increased deployment of EVSE infrastructure, it will also be crucial to invest in training and workforce development to ensure that Rhode Island is able to capitalize on demand for these projects. This will require a wide dispersal of increased awareness and fluency throughout existing ranks of electricians, designers, auto-mechanics, and general contractors. It will also necessitate a robust investment in the next generation of workers, who will be charged with servicing and installing a drastically different fleet of automobiles and related charging infrastructure with each passing decade. The Raimondo Administration has already identified growing the state's clean energy workforce as a key pillar of Rhode Island's economic development, and workforce investments related to PEVs should dovetail perfectly with these broader efforts.

IIIB: Utility Investment in PEVs

In considering these likely investment needs, agencies note that a utility could propose a wide range of investment strategies that include some or all of the investments that would both support PEV goals and align with state policy. However, there are a number of sources for PEV investments, including:

- Market/private capital; end-user capital;
- Taxpayer-funded programs;
- Utility investor capital not included in rate base;
- Utility investor capital included in rate base; and,
- Ratepayer program charges

1) What other source of PEV investment could be tapped in RI?

Rhode Island can look to other funding sources to increase PEV adoption and invest in the infrastructure to support it. As part of broader regional efforts, the Regional Greenhouse Gas Initiative (RGGI) model could be applied to the transportation sector. As discussed in more detail in comments submitted by the Acadia Center, this "cap and invest" mechanism would set a price on carbon emissions and invest the proceeds towards PEV adoption initiatives.

Rhode Island could also finance PEV-related investments from the Volkswagen Settlement Fund. Although the settlement fund will not provide a continuous funding source, an upfront influx of funding could catalyze initial PEV investments as a strong start to the program.

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

The cap and invest model described above lends itself well to funding for PEV adoption, specifically addressing the agencies' goal to "address the challenge of climate change and other forms of pollution". Setting a price on transportation carbon emissions will help promote a transition to electric vehicles and help reduce emissions of carbon and other particulates. As such, investing funds from such a model would provide double dividends for Rhode Island in pursuit of the state's electrification, economic, and environmental goals. Additionally, cap and invest will promote the commercial competitiveness for PEVs, allowing all types of vehicles to compete in the market on equal footing by accounting for negative external costs associated with carbon-emitting vehicles.

3) Is ratepayer-funded investment aligned with certain goals and not others?

In general, ratepayers can be a significant source of investment where PEV investments have the potential to benefit all ratepayers, including current PEV drivers, future PEV drivers, and non-PEV drivers through more effective use of the electricity grid and favorable impact on the environment. Distribution investments directed at PEV integration should strive to reduce long-term electricity prices and maintain grid reliability while leveraging renewable energy, energy storage, energy management software, and open standards for automated demand response.

4) In what ways might ratepayer-funded investment be balanced with other sources?

As discussed in Question III.B.1, there are a variety of funding sources that could be used to supplement or offset ratepayer funding for EV investments. Another source to consider is private funding for home and workplace EVSE installation. To spur this investment initially, property owners could be offered matching incentives for dollars they put towards installing and maintaining of the charging stations. The matching funding could come from a variety of sources, but could include the revenues from modest ratepayer surcharges in certain circumstances. This arrangement could effectively distribute costs between ratepayer funding and private investments while promoting a competitive EVSE market.

6) How could a utility recover costs and receive compensation for various types of investment strategies (e.g., rate base with return on investment, program charge with performance incentive, etc.)?

Utility cost-recovery and compensation should be tied to achieving measurable outcomes and performance benchmarks, tied to the goals and factors discussed above. Please see NECEC and Advanced Energy Economy's (AEE) earlier comments on the Utility Business Model (UBM).

IV: PEV Program Design

Agencies are correct in noting the critical importance of considering which PEV program activities the utility is best suited to manage, which activities should be left to markets and other actors, and which activities, if any, should be shared or bridged between the two. Such activities relevant to the discussion of PEV program designs are numerous. As the agencies note, they generally fall into five (5) categories: determining rates and cost recovery; developing and administering the program; determining investment strategies; planning the system for PEV growth; and providing other services.

1) What other activities are important to consider?

The agencies should consider rate design as a means to influence PEV charging behavior. Instituting a TOU rate(s) for PEV charging will allow customers to charge their vehicles during off-peak hours, when electricity costs are often significantly cheaper than at other points in the day. Electric customers with access to TOU rates can tap into these lower costs typically by charging their vehicles at night. TOU rates are more common for business customers, but some utilities have been implementing TOU rates to allow PEV owners to opt into a different rate structure. In New Hampshire, Liberty Utilities provides a TOU rate for residential customers, and Con Edison also offers a voluntary TOU rate for residential customers in New York. Allowing customers to access low cost electricity is a good way to reduce the total cost of ownership of electric vehicles and to enhance their relative attractiveness to conventional internal combustion engine alternatives.

The agencies should work with relevant entities and sister agencies to promote building code requirements that streamline and facilitate the installation of charging stations. In commercial and industrial settings, this should include pre-wiring a set percentage of workplace and public parking spaces for PEV charging. A PEV-ready mandate for all new construction will reduce the cost of EVSE deployment in the future, making it a more economical investment.

Additionally, the agencies should consider guidelines for the locations of EVSE, and should encourage deployment in multifamily units, workplace properties, and highly visible public locations. Publicly displaying PEV charging stations will demonstrate the prevalence of PEV infrastructure in Rhode Island to customers, increasing their confidence in the ease of owning an electric vehicle.

Lastly, the agencies should consider EVSE Equipment Requirements. Borrowing from best practices gleaned in other jurisdictions, agencies should consider promulgating guidance relating to Level 2 charging stations, station networking capabilities, interoperability, demand response capability, and other potential requirements. Additionally, as much as practicable, advanced metering functionality (AMF) should be required at customer sites with EVSE. The capabilities offered will help to both create grid benefits and give the utility and regulators visibility into consumption patterns and other relevant factors. Finally, access to DC fast charging stations will be important to increase range confidence in Rhode Island, especially given its important location on the I-95 corridor. This infrastructure may require more upfront cost and lower initial usage, but it will be important to prioritize investment as a way to seed early adoption. These stations, of course, will require individualized rate design treatment, as demand charges are not a workable rate structure for these installations.

(2) Which should be prioritized in a utility proposal, and which should be left to other entities?
(3) Of the elements that should be prioritized in a utility proposal, what design options are aligned with policy goals?

Any utility program to support and promote beneficial electrification through PEVs must address distribution planning and rate design. Integrating large-scale charging infrastructure will require consideration of how it impacts the overall grid. Utilization rate of chargers is low, and there is promise in expanding how PEV chargers are used. For example, they can act as the loads during the charging state or energy storage devices during the discharging stage.

With regard to rate design, time-varying rates should be implemented. These can take the form of either static lowered rates for off-peak, as well as more sophisticated dynamic rates that may vary daily by load profile. When considering rate design, policymakers should take into account the fact that beneficial electrification driven by increasing deployment of PEVs will increase retail

electric sales/throughput. This is especially noteworthy in the context of current discussions of how to design rates when sales/throughout are flat and declining. Increased availability of time-varying rates would be directly in line with the principles and recommendations in Docket 4600.

Conclusion

Rhode Island is in a unique position to transform both its transportation system and the electric grid in a complementary manner. The comprehensive investigations into both sectors and the overlaps between them currently underway will be critical to ensuring a successful outcome with long-term costs controlled, more energy choices for customers, and a smarter and more flexible grid. NECEC commends the Rhode Island agencies for embarking on the journey in Power Sector Transformation and not shying away from the thorny questions that may arise in discussions around beneficial electrification. Instead, tackling these important issues head-on and upfront will make sure the Ocean State is prepared well in advance for challenges and opportunities that may emerge down the road.

We appreciate the opportunity to provide agencies with these preliminary comments, and we look forward to continued involvement in the Power Sector Transformation Initiative process.