

ELECTRIC UTILITIES WEBINAR (NOTES)

The second webinar for the Washington State Advisory Panel

September 16, 2014
2:00 pm to 3:00 pm PT

2:00 p.m. **Welcome and Introductions**

2:10 p.m. **Panel Discussion**

Washington Electric Utilities

- Ben Farrow, Puget Sound Energy
- Ramnika Jain, Seattle City Light
- Dave Warren, Washington Public Utility District Association

Charging Service Providers

- Dave Packard, ChargePoint
- Diane Fellman, NRG Energy

Washington Regulators

- Ann Rendahl, Washington Utilities and Transportation Commission (WUTC)
- Karen Glitman, Vermont Energy Investment Corporation (VEIC)

1. Under what conditions should utilities be allowed/encouraged to own and operate a public charging station, or to otherwise invest in public charging infrastructure?

2. How can utilities support the installation of charging infrastructure if doing so would add additional load and costs to the system? How should the costs and benefits be allocated?

3. Can utilities play other roles related to EVs, such as customer education and outreach?

1. Under what conditions should utilities be allowed/encouraged to own and operate a public charging station, or to otherwise invest in public charging infrastructure?

- Washington Electric Utilities
 - Lead time is crucial for utilities to implement charging policy. Establishing a public policy at the state level will give utilities time to prepare effective policies that will meet their customers' needs.
 - The WUTC already determined, and the Washington State Legislature clarified, that utilities could offer charging as a regulated service. In order for a utility to offer public charging as a regulated service, the service would have to be determined to be “in the public interest”, which is typically determined by the WUTC, though occasionally the legislature has provided direction in this regard. Usual rate-making principles would apply, including that rates were set to be “fair, just, and reasonable,” balancing of the costs with the benefits provided.

- Under the commission’s determination, non-utility entities would not be regulated as to rates, which would include any unregulated activities by utilities. In general, providing public infrastructure should: 1) Be determined to be in the public interest if there is a need in advance of the market demand to stimulate investment, and 2) Recover its cost over the long run. Pilot programs may bridge the gap, but ultimately EV users will need to cover the costs. Appropriately balanced with vehicles on the road to balance the “chicken and egg” challenge of vehicles versus public infrastructure.
- Seattle City Light is just starting to look at different options for EV customers such as rate incentives, charger rebates or setting up charging stations, etc. A steering team is being set up to investigate and analyze these options.
- **Charging Service Providers**
 - Utilities should have a role in charging, but the level of involvement depends upon the local load and EV market.
 - Utility ownership of public charging stations should be allowed only if such stations are not in the rate base of the utility. Rate basing of public charging stations would require that the charging stations be a point of electric service distribution. As such, electric service at public charging stations would be provided by the utility under a regulated tariff. Correspondingly, services at other public charging station stations would be subject to public utility regulation—the overhead of which would narrow the field of providers to only the utility itself. The result is suppression of innovation and competition where customer choice is narrowed to a single option—the utility. Subsequently, the utility-selected technologies that are stuck in rate base for 20-30 years hold up market development. Public charging becomes stuck on an antiquated model using antiquated equipment paid for by rate payers who do not benefit from it.
- **Washington Regulators & Non-Governmental Organizations**
 - According to Washington Revised Code RCW 80.28.320, the Utilities and Transport Commission only has jurisdiction over investor-owned utilities offering public charging facilities when the utility relies on ratepayers or ratepayer revenues to fund the service. Ratepayer-funded models create concerns because ratepayers are paying for a service to non-ratepayers, such that the ability to use the charging benefits is open to the public, not limited just to ratepayers.
 - Regulations limit investor-owned utilities’ outreach for the purpose of selling additional power, but these regulations do not apply to consumer-owned utilities.
 - Like telephone companies placing public phone booths, utilities could justify the use of ratepayers’ funds to advance the net societal benefits of public charging. Utilities do have a strong place in charging station ownership, but not at the detriment of the broader market.
- 2. How can utilities support the installation of charging infrastructure if doing so would add additional load and costs to the system? How should the costs and benefits be allocated?**
- **Washington Electric Utilities**

- The region is likely to have surplus capacity for the next decade, and many utilities will be required to add renewable capacity on top of the projected surplus, so utilities should be able to support PEV adoption at the expected uptake rate. Long-term reviews of residential PEV uptake are needed, however, as a flood of customers charging at once on a distribution feeder could cause short-term problems, as could vehicle-to-grid (V2G) interconnection.
- The cost-causers should be the cost payers in building and providing electricity from charging stations. Any carbon credit trading scheme should credit utilities with carbon reductions from the transportation sector to help offset the costs.
- Working with Washington Department of Transportation was a helpful process to effectively install public charging infrastructure and provide interconnection. On the dedicated charging side, Puget Sound Energy has started a pilot project looking at actual charging patterns, comparison to energy supply sources, impacts on peak and options for mitigating peak impacts.
- Each utility sets its own policy to split costs between general ratepayers and individual customers connecting to the utility system, which would include service connections for charging equipment.
- Seattle City Light set up a steering committee to review support options, such as customer rebates and areas in need of charging infrastructure.
- Charging Service Providers
 - Any time a utility can add load and clean up the environment is a good thing. Widespread EV deployment should bring down utility rates over time, so ratepayers should be willing to develop that market. The cost of installation will inhibit infrastructure growth, however.
 - The load profile (timing, size, and flexibility) of EVs makes them a beneficial resource to the grid—as well as an environmental and economic benefit to society. As a result, EVs are a resource that the utility should encourage via tariff/program design.
 - As much as possible, the incremental costs and benefits should be allocated to the EV driver to incent the right decisions and behaviors. If the utility is the pathway to environmental benefits, those benefits should also provide direct incentives to maximize not only ownership, but also electric miles driven.
- Washington Regulators & Non-Governmental Organizations
 - Utilities, if using a ratepayer-funded model, would have to recover the costs from charging facility users, even for additional infrastructure and if additional power is required to meet additional load. The low electricity prices in Washington, alone, do not provide an incentive for customers to charge off-peak to shift peak load.
 - Controlled charging is an important goal as PEV deployment increases – the right load must come online at the right time. Level 2 residential charging is more efficient and helps control charging.

3. Can utilities play other roles related to EVs, such as customer education and outreach?

- Washington Electric Utilities
 - Utilities should provide outreach and education, but in a very non-biased manner. Education should not be confused with advertising.
 - Customers expect utilities to be well-informed and assist customers with decisions about their energy use, so investor-owned utilities should provide customer education and outreach around PEVs.
 - Utilities can also provide less technical outreach and education, such as an online cost calculator of owning an EV or information on different incentives available to the customers. Also, utilities can provide information on correct way of charging and infrastructure required.

- Charging Service Providers
 - Utilities are expert representatives for customers and, therefore it is valuable for them to provide outreach.
 - Utilities have long played a role in education and outreach for energy efficiency and energy safety. However, in the auto industry, “education and outreach” is called “consumer marketing”. It’s unclear if the utilities have the skills to be effective in the consumer markets around the purchase decision of an automobile.

- Washington Regulators & Non-Governmental Organizations
 - Investor-owned utilities can’t promote electricity for the purposes of building their load – they can promote improved electric use, but not greater consumption. A separate entity, using private shareholder funds, however, can be used for promoting or advertising use of EVs and EV charging facilities.
 - Utilities should think of themselves as employers disseminating knowledge through employees who can spread EV expertise through local areas.

2:50 p.m. **General Q&A**

1. Can a utility rate scheduled for EV chargers come close to recovering costs?

- Washington Electric Utilities
 - Allocating subsidies and determining who should be responsible for payment is at the heart of the utility deployment issue.

- Charging Service Providers
 - No. The cost burden of the electric vehicle supply equipment (EVSE) is too much and will create a big negative for the market.

2. How are cost recovery rates determined? Through current usage or future usage?

- Charging Service Providers
 - Rates must be designed for the market. Looking at current usage, Level 2 charging is supposed to reduce range anxiety (and should be affordably priced). Higher rates will discourage use of those chargers.

3. What is the cost of fast charging installation?

- Charging Service Providers
 - Installation at new construction sites is much less expensive than retrofitting sites because charging specs can easily be incorporated into design. Retrofitting can be expensive.

4. If you are trying to combat range anxiety, is a three hour charge the best form? What is the cost of a DC fast charging-centric system?

- Washington Regulators & Non-Governmental Organizations
 - Demand charges can make DC fast charging prohibitively expensive to operate. Policy or recovery rates can overcome expensive demand charges.
- Charging Service Providers
 - Level 1 and Level 2 chargers address long stay time charging at home, work, and destinations. Level 2 chargers do not solve range anxiety. Consumers will demand fast, easy, and ubiquitous solutions that get them to their destinations with minimal delay. Twenty minutes on a DC fast charger is a minimal delay, but three hours on a Level 2 charger is not.
 - DC fast charging systems have a high fixed cost structure driven by high capital investment and high fixed operating costs rooted in demand charges and maintenance. Given that home charging creates a low usage frequency of public charging, the penetration rates have to be very high to achieve breakeven on these costs. The challenge will be even greater for the fringe stations in markets that are even lower use but are critical to painting a comprehensive map to address range anxiety.

5. The current gas station model makes very little off gas, but rather makes money off convenience items in stores through increased traffic – is this model relevant to fast charging?

- Charging Service Providers
 - A 30 minute turnover is still too long for this model to work with EVSE. Gas stations see 5-6 customers per pump in that period.
 - The model may be relevant, but not until much larger scale is achieved. Gas cars have high market deployment and do no fueling at home. Every gas car must go to a gas station on a regular basis. The resulting high-count and high-frequency-of-use provides gas station owners the volume to cover fixed costs and to generate a strong flow of ancillary

revenue. EVs have weak market deployment and do most fueling at home. While public chargers are largely optional and infrequently used, they are critical to drive adoption. The resulting low-count and low-frequency-of-use does not provide station owners the volume to cover fixed stations costs or to generate a strong flow of ancillary revenue. Even at much higher deployment rates, home fueling limits the value and volume on the charger. As a result, EV chargers may need a different model than gasoline fueling.

6. How can demand charges and rate structures be set to permit financially viable operations?

- Washington Electric Utilities
 - Investors are reluctant to invest in EVSE until a profitable business model has been demonstrated. Demand charges and rate structures are just pieces of the puzzle; profitability is paramount.
 - The bigger challenge has been finding locations with 3-phase power and the right real estate for charging infrastructure.

7. How many locations are needed until installation costs are made competitive?

- Washington Electric Utilities
 - Sizing the market is still uncertain, so estimating is difficult. The charging ports that are built typically get used. Looking at future costs, it is important to keep in mind that trenching is one of the greatest contributors to installation costs.