EV Charging in Pennsylvania: Necessary background for policymakers in determining the role of electric utilities.

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The Problem

- The adoption of Electric Vehicles in America places the transportation sector and the electricity sector on a collision course
- Policymakers now need to confront realities of the electricity sector that were previously irrelevant to transportation.
- One such issue is the role of electric utilities in the EV transition, specifically as they relate to the deployment of EV charging infrastructure. This question that remains open in the state of Pennsylvania.

Policy Questions

- Many states have set EV adoption goals, but are unprepared to answer the challenging set of policy questions regarding EV charging infrastructure that follow:

"Should the state commission encourage electric utilities to compete with gas stations?

Would ratepayers be required to pay for such activities?

Shouldn't the private sector handle it?

Or the public sector?

How could electric utility participation in the EVSE industry be reconciled with traditional consumer protection and anti-monopoly regulatory policies?"

-Adam D. Orford, "Rate base the charge space – The law of utility EV infrastructure.

Policy Design Options

- The question "What is the utility role in the EV transition?" is largely derived from the broader question: "Who is going to *pay* for the EV transition?"
- Taxpayers, utility ratepayers, the government, and investors all provide funding streams with their own unique considerations
- The three main policy design options all must determine the importance of these actors

Utility-Led Development

This option applies a guaranteed rate of return to utilities on EV charging investment, with the goal of incentivizing a proactive buildout.

Strengths	Weaknesses	Opportunities	Threats
• Optimal Siting of EVSE on the grid • Labor force already exists (caveats here) • Environmental advocates likely would support	• Technology risk for ratepayers • Potential unfair advantage over the private sector • Potential Labor Constraints	• Incentivize public EVSE build-out in underserved communities • Managed charging/V2G applications streamlined	• Private industry opponents • No guarantee of utility buy-in • No guarantee of effectiveness • Potentially will raise rates

Market-Led Development

This option deems private EV charging companies to be the most capable actor, and leaves utilities in a more traditional reactive role.

Strengths	Weaknesses	Opportunities	Threats
• Technology risk remains with investors • No utility interference with the EVSE market • Innovation from private companies looking to gain an edge • No raised rates from EVSE itself	• Little incentive for equitable deployment • Potential for sub-optimal siting in the absence of utility collaboration efforts • DCFC demand charge issues • Data sharing issues with utilities	• Standardization of charge networks through business partnerships	• Opponents from environmental advocacy and consumer equity groups • No guarantee of utility-industry collaboration is needed for optimal deployment

Shared Responsibility

This option applies utility cost recovery to backbone infrastructure, while leaving charger units themselves to the free market.

Strengths	Weaknesses	Opportunities	Threats
• Keeps utility in front of the meter, but encourages a proactive approach. • Technology risk largely remains with investors • Creates natural conditions for utility-industry collaboration • Little-to-no interference with the EVSE market	• Not guaranteed to incentivize equitable buildout • DCFC demand charge issues	• Streamlines EVSE development by fostering utility-industry collaboration • Opportunity to develop robust equitable distribution policies.	• Regulatory hurdles. • Largely unproven

Equity

- An adequate network of EV charging is required to be installed *before* consumers are willing to adopt EVs.
- It is advantageous, even necessary, to wait until *after* an area has high EV penetration to deploy chargers.
- This has created a situation where despite exponential increases in the total number of chargers installed, the correlation between population density and charger dispersion is non-significant.
- This trend has been largely biased against low–income, Black-identifying, and disinvested neighborhoods.
- Equity provisions need to be baked into any determined utility role.

Potential policy advancements include:

- Requiring a specific % of program funding be dedicated to equitable distribution
- Designing priority development corridors
- Collaboration with community leaders to optimize public charger locations

Conclusion

- Of the three policy design options that were presented, the shared responsibility offers the approach most tailored to the strengths of not only the private EVSE market but electric utilities as well.
- Utilities would be allowed to capitalize on their existing skills of building out and maintaining necessary backbone distribution infrastructure while allowing for private EV charging companies to continue to innovate and own/operate the chargers itself
- Explicit, equity-centered provisions must be written into any future EV policy in Pennsylvania.

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