INITIAL COMMENTS OF SIEMENS


Siemens is a global leader in eMobility™ and considers eMobility to be a critical element in driving economic benefits from new investments and job opportunities, at the same time achieving the societal benefit of a cleaner environment. We operate in 180 countries and are the first corporation of our size to commit to being carbon-neutral by 2030. Siemens operates through 53 locations in the state of Illinois generating over $980 million in in-state sales and employing over 3500 Illinoians.

Siemens provides a wide variety of technology solutions to a broad spectrum of customers. They include EV owners, utilities, federal and state governments, cities, site owners (both residential and commercial, including for workplace charging), transit authorities, non-utility charging network providers, etc. Siemens’s offering in eMobility encompasses what we refer to as the Plug to Grid™ hardware and software ecosystem – and includes light, medium, heavy-duty vehicles as well as off road solutions such as:

- hardware and software for charging light, medium, and heavy duty vehicles;
software and services, including smart phone apps, for managing charging and engaging electric vehicle and electricity customers;

- make-ready equipment ranging from transformers to service drops;

- utility software to plan, operate, and manage the grid, including integrating EV charging into system operations;

- software to run transmission grids and wholesale electricity markets;

- battery storage and microgrid systems for DC fast charging installations; and

- building management and operations software that can integrate EV charging operations.

Siemens sees eMobility as a pivotal trend not just for people but any item that needs to move from one point to another – a the goal of our policy efforts is to promote public policies and global best practices to drive market growth and consumer adoption of EVs.

Siemens appreciates the opportunity to provide comments in the above-captioned NOI. Siemens respectfully suggests the following should be key policy objectives for eMobility in Illinois:

- an open market

- a modernized grid

- technical, payment, and data access standards

- time-varying pricing for EV charging

- “smart chargers” that make EVSEs, grid assets.

Our comments focus on one of the most important questions included in the NOI and one for which Siemens has particular expertise: whether utilities should own charging stations. Our view, which is supported in detail below, is that utility should be permitted to own chargers in order for EV owners and ratepayers generally to receive greater benefits at lower costs from EV adoption as well as to drive grid benefits.

Siemens reserves the right to respond to the other questions posed in the NOI through the duration of this inquiry.
We believe the most important factor in EV adoption is lowering the Total Cost of Ownership (TCO), in terms of both economics and consumer convenience and our policy focus is to help remove this key hurdle to EV adoption. There are several barriers to EV adoption, but the most important barrier is TCO – the purchase price and the cost of operation. A comprehensive study of fiscal incentives recently found that, “larger market penetration can only be achieved if EVs become price competitive [with internal combustion engine vehicles].”\(^1\) The Commission has little ability to influence the cost of vehicles, but, through allowing participation by utilities in the provision of EV charging, the Commission has the ability to reduce the cost of operation and maintenance and, therefore, improve cost attractiveness. To achieve this, we believe a key policy goal for EV charging should be open markets that allow for participation by all companies, especially in this nascent market where the capabilities of all players need to be fully leveraged. In particular, electric utilities are well positioned to help drive EV adoption by maximizing benefits and minimizing costs.

EVs offer important benefits to the electricity grid, power supply costs, and integration of renewable generation. EVs can act as a non-wires alternative to traditional grid reinforcement. They can provide peaking capacity and ancillary services. And they can lower costs by using wind and solar energy at times of abundance. We refer to these as the full value stack of EV benefits.

Capturing this full value stack on behalf of Illinoians requires:

- an end-to-end integrated system approach that is only possible via the active involvement and participation by the utility;
- seamless integration of EV charging data and operations with utility planning, operational, business, and customer systems;
- a robust connection with power supply systems; and
- a modernized grid.

Utility planners can minimize their grid investment requirements if they know where and when EV charging loads are occurring. Utility operators can maintain reliability by having the same

---

information in near real time. Utility customer engagement and charging management software can send price or control signals to smart phones and directly to EVSEs (or third party service providers), as well as allow consumers to program their charging preferences. Utility rate designers can use the data to develop time-varying rates that enable EV owners to minimize the cost of charging by taking advantage of low-cost wholesale rates, especially during times of abundant wind or solar power. And if these tariffs are applied on an EV-only basis, customers can keep their preferred rate for their other-than-EV consumption. Utility demand response program operators can use the EV data to monetize peak demand reductions and ancillary services.

At the same time, Illinois can leverage utility assets and capabilities to minimize costs in asset ownership and maintenance, EVSEs, and the consumer experience.

A core competency for utilities is asset ownership and maintenance. They specialize, in part, in the distribution grid, which consists of very large numbers (millions) of widely dispersed devices that must operate safely and reliably with low maintenance costs for periods of decades. EVSEs are exactly this type of asset and, in fact, have many features in common with smart meters (data recording, communications, electronics in harsh environments, etc.). Utilities have the necessary expertise, business processes, and software for deploying, managing, and maintaining such assets. Utilities have scale economies in maintenance personnel and systems, customer base, and other areas. Utilities have both field personnel and mobile workforce management systems to provide services across a widely dispersed service territory. Utilities can ensure that consumers relying on their EVSE will have rapid and high quality response to a service need – an essential element of Illinois policymakers providing consumers with the comfort they need to rely on EVs. Of course, capturing the full benefits as described above directly reduces operating costs by minimizing electricity costs, including costs that might otherwise be required to reinforce the grid. They can have the greatest ability to reduce these costs when they own EVSEs.

Utilities have access to low cost capital. They have the ability to depreciate the assets over long periods of time, because they have long-standing franchises and investors whose expectations are consistent with lengthy depreciation periods. Utilities have the ability to redeploy assets such as
EVSEs, if needed, to other customers, because they have very large, diverse, and lasting customer bases. So if a utility installs an EVSE for a consumer who then moves out of state or sells their EV, the utility can more easily take the EVSE and install it elsewhere – keeping the ratepayer-funded asset used and useful. (Alternatively, the utility could be part of a policy of having a Level II charger installed at every residential premise over a long period of time as is planned in the European Union.2) On the maintenance side, utilities have existing field personnel and mobile workforce management systems to provide reliable and efficient services across a widely dispersed service territory. These maintenance capabilities not only reduce costs but also ensure that consumers relying on their EVSE for charging will have rapid and high quality response to a service need.

Utilities can play a major role in reducing the actual costs of EVSEs as well. One way is by procuring larger quantities of EVSEs. Quantity discounts enabled by large scale utility purchases reduced smart meter costs by two thirds virtually immediately.3 Today’s EVSE purchases are in the quantities of up to hundreds; utility ownership could increase that level to potentially tens of thousands. Another way is through standardizing functionality, another area of utility expertise. We expect EVSEs to continue to have diverse features, so customers should have the ability to choose from a range of utility-qualified products. However, just as all home networks run on WiFi, all EVSEs should have common communications capabilities (probably Ethernet, WiFi, or cellular as options). To maximize benefits, qualified EVSEs should have the metering capability of recording consumption in intervals of one hour or less and sufficiently accurate to allow billing of EV-only tariffs. These standard features allow for interoperability – a key requirement for cost reduction – and reduced risk of obsolescence. The regulator’s goal should not be to specify all the standards but instead to promote standards utilization, because such standards are essential to both short- and long-term cost reductions.

---

3 - Personal experience in three decades of experience with advanced and smart meters.
Utilities can also play a major role in minimizing consumer experience costs, a major barrier to EV adoption.\(^4\) For example, utilities can play a key role in substantially reducing concerns and uncertainties for consumers when buying an EV. There are many questions in which the utility is not involved that relate to a specific vehicle’s features and performance, but the utility can assist by being the trusted energy adviser regarding the home EVSE. Where the utility manages the solution, the consumer can rely on the utility’s experience, expertise, longevity, service delivery capability, service reliability, and other strengths in providing and maintaining the EVSE. The consumer can rely on the utility’s objectivity in qualifying EVSEs, estimating EV charging costs, helping manage EV charging hours for time-varying rates, and so on. The consumer’s goals relative to EVSEs are simplicity, reliability, safety, and efficiency (low cost), goals that are well served by the utility being the asset owner and maintainer. Where the utility provides the home EVSE solution, there is a benefit for the sale of EVs as well. The National Research Council found that car salesmen have little expertise and even less desire to discuss EVSE requirements with EV buyers.\(^5\) This is a critical step in the buying process – which needs to be managed effectively to close the sale. The answer to the EVSE question, “Call your local utility, and they will take care of it,” is a compelling one for both consumers and car dealers, overcoming a major barrier to EV adoption.\(^6\)

We thank the Commission for this opportunity to engage in the NOI and look forward to being an eMobility resource to the Commission.

Chris King  
Chief Policy Officer  
Siemens Digital Grid  
(510) 435-5189  
chris_king@siemens.com

---

\(^4\) “Finding: Most potential PEV customers have little knowledge of PEVs and almost no experience with them. Lack of familiarity with the vehicles and their operation and maintenance creates a substantial barrier to widespread PEV deployment.” in “Overcoming Barriers to Electric-Vehicle Deployment,” National Research Council, 2013.


\(^6\) “The main barriers to the widespread adoption of residential charging of PEVs appear to be the cost and the effort of installing the wiring and charging apparatus.” in op. cit., National Research Council, 2013.