

ILLINOIS COMMERCE COMMISSION

Initiative on Plug-in Electric Vehicles

Commonwealth Edison Company

Supplemental Comments

August 15, 2011

TABLE OF CONTENTS

| | | |
|-------------|---|------------|
| I. | Executive Summary | 3 |
| II. | The Appropriate Regulatory Paradigm for Private and Public Charging Stations | 6 |
| III. | Rates and Meters | 8 |
| | A. Rate Changes | .8 |
| | B. Changes to Meter Options | 10 |
| IV. | Cost Causation and Rate Design Modifications to Handle Distribution Upgrades | 11 |
| | A. Potential Rate Design Modifications | .11 |
| | B. Cost of Upgrades | .12 |
| V. | Cost Recovery | 13 |

I. Executive Summary

Commonwealth Edison Company (“ComEd”) appreciates the opportunity to assist the Illinois Commerce Commission (“ICC” or “Commission”) in assessing the potential impacts of the introduction of Plug-in Electric Vehicles (“PEV”) on the ComEd system. ComEd previously submitted to the Commission a very comprehensive Initial Assessment¹ in which it provided very detailed responses to all of the issues that the Commission asked the parties to address at that time. Much of what ComEd stated in that Initial Assessment is applicable to the issues that the Commission has asked the parties to address in these Supplemental Comments.² Rather than repeat at length what ComEd previously stated, we have instead attached a copy of that Initial Assessment and, where appropriate, refer the Commission to the relevant portions of that document.

Comprehensive responses to the four issues identified by the Commission can be found in the body of these comments and in the attached Initial Assessment. A short summary of our response to each issue appears below:

Regulatory Paradigm

ComEd continues to support the competitive model as the most effective and efficient method to promote the development of the necessary charging infrastructure to support the deployment of electric vehicles. Attempts to regulate either the charging infrastructure or the pricing for charging services will likely cause market uncertainty, which could delay the development of this market.

¹ Commonwealth Edison Company Initial Assessment of the Impact of the Introduction of Plug-in Electric Vehicles on the Distribution System, December 15, 2010 (“Initial Assessment”), pp. 25-34. Copy attached as Appendix A.

² See Illinois Commerce Commission Initiative on Plug-In Electric Vehicles July 15, 2011 Request for Supplemental Comments (“Request”).

Rates and Meters

ComEd's existing fixed and hourly priced rates, i.e. Rate BES – Basic Electric Service (“Rate BES”) and Rate BESH – Basic Electric Service Hourly Pricing (“Rate BESH”), are available to residential and small non-residential customers for PEV charging. The optional supply service, Rate BESH, with its market-based hourly rate structure, can promote the maximization of environmental and economic benefits by sending customers the most appropriate price signals. While the fixed, default supply rates set forth under Rate BES do not help maximize environmental and economic benefits the way Rate BESH will, they nevertheless do help to overcome any trepidation on the part of potential PEV owners regarding dynamic or market-based pricing. No changes are needed to these rates to obtain such benefits.

ComEd believes that the use of a single meter to measure all electrical usage at a premises is the most cost-effective configuration. The use of a single meter is more likely to support and incent the rapid and widespread deployment of PEVs than the use of a separate meter to measure the electrical usage for PEV charging. A single meter configuration limits the expense, work and coordination required by PEV owners to make their premises “PEV ready”. In addition, a single meter in conjunction with Rate BESH can encourage PEV owners to manage their electric usage - including PEV charging load – at the whole-house level, further maximizing environmental and economic benefits.

Rate Design Modifications

There are a number of modifications that could be made to ComEd's existing rates that might potentially forestall or lessen any impacts to the ComEd distribution system caused by PEV charging. Such changes would include a requirement to use ComEd's Rate BESH for vehicle charging; the development of a load control program similar to Rider AC – Air Conditioning Cycling for use with PEV charging stations; and

a requirement to notify ComEd prior to the installation of equipment at a premise to charge at level 2 or greater.³

Cost Causation and Recovery

PEV charging will very likely impact the distribution system. Such impacts will occur on the customer's premises, on local distribution system assets, and later, as PEV adoption becomes more widespread, on the broader distribution network. In general, the retail customer, as cost causer, should be required to pay the incremental costs for providing electric service to the customer's residence or place of business provided the customer requires service above and beyond the standard electric service that ComEd provides. Where the impacts of additional electric load, including PEV charging, affect a part of the system used to serve multiple customers, those costs should be borne by all customers served by such facilities following traditional cost allocation methods.

ICC Process

In the Request, the Commission also sought comment on the appropriate process for addressing these issues. If the Commission agrees with ComEd that the competitive paradigm is the appropriate one and that ComEd's existing rates are already structured to facilitate the charging of PEVs so as to maximize environmental and economic benefits, then the Commission need take no formal action. The competitive market has already begun the deployment of PEV charging infrastructure in Illinois, and it is expected to continue to grow. However, to eliminate any lingering uncertainty, the Commission may want to consider initiating a docketed proceeding to address the jurisdictional issue.

If the Commission disagrees with ComEd or if other parties strongly favor the regulated paradigm, then at a minimum some docketed proceeding will be necessary to resolve the dispute. More likely however, legislation will probably be needed to enable

³ Level 1 charging is at 120 volts; level 2 charging is at 240 volts; higher charging levels typically employ direct current ("DC") technology.

the Commission to exercise jurisdiction over this industry due to the issue of whether a sale or resale of electricity is involved in the transaction of PEV charging. If charging services involves the sale or resale of electricity, only utilities and alternative retail electric suppliers (“RES”) would be able to provide charging services.⁴

II. The Appropriate Regulatory Paradigm for Private and Public Charging Stations

ComEd believes that there are two primary public policy goals that a regulatory paradigm for PEV charging stations should promote. The regulatory paradigm should support the robust entry and deployment of PEVs in Illinois in as customer-friendly a way as is possible. Second, the regulatory paradigm should ensure that impacts to the electric distribution system from PEV charging are effectively managed.

In ComEd’s Initial Assessment, ComEd provided a detailed legal and policy analysis of the regulatory paradigm that would best promote these goals. ComEd concluded that the competitive model best promoted the public policy goals described above. Charging stations are already being installed and operated throughout the ComEd service territory by various entities, and more are on the way.⁵ Regulatory oversight through rulemakings and contested proceedings will only serve to create uncertainty, cause delay, raise costs and limit customer choices by picking winners and losers. Any residual public policy concerns regarding the use of the competitive model can be adequately addressed through existing regulatory edicts.

In the private setting, most homes are already fully capable of charging an electric vehicle through a standard 120 volt wall outlet, without the need for any additional equipment. Many homeowners that do choose to purchase and install a charging station soon discover that it is simply another large appliance hard-wired into the existing home electrical system. In this regard, a charging station is quite similar to an air-conditioning

⁴ Initial Assessment, pp. 27-33.

⁵ Initial Assessment, pp. 13-15, 34.

unit, electric clothes dryer or an electric hot water heater. To our knowledge, no one has ever suggested a need to subject those industries to regulation.⁶

In the public setting, the issue is a little more complicated. The offering of charging services to the public can be analogized to the sale of energy, which would subject the provider of those services to regulation as either a public utility or a RES. However, as ComEd discusses at length in its Initial Assessment,⁷ ComEd believes that charging services are more appropriately considered to be a competitive service in which energy is but an input. Moreover, the user of the charging services is not the typical “Retail Customer” that is served by a utility or a RES and as envisioned in the law. Under the Illinois Public Utilities Act (“PUA”), a Retail Customer is a single entity taking service at a single premises.⁸ A public charging station will serve multiple customers that may or may not be retail customers of the electric utility in whose territory the charging station resides or even residents of Illinois. In this regard, charging station customers are similar to hotel, motel and nursing home patrons who are quite mobile. As discussed in ComEd’s Initial Assessment, the Commission has previously found that the offering of electric usage to such patrons is not a regulated sale of energy.⁹

The widespread deployment of charging stations, particularly those capable of level 2 or greater charging, does raise a potential reliability issue.¹⁰ The placement of several level 2 charging stations in close proximity to each other could detrimentally impact distribution system components, particularly service transformers. Thus, it is essential that ComEd receive notice of the installation of all level 2 or higher charging equipment prior to its installation. ComEd’s tariffs could be revised to require customers to provide such notification to ComEd. However, ComEd does not believe that this

⁶ Because a charging station is not necessary for a homeowner to receive power and energy from a supplier, it does not meet the definition of a “Delivery Service” (see 220 ILCS 5/16-102). Similarly, since there is no sale of power or energy from the charging station separate from the sale of power and energy from the homeowner’s existing supplier, the charging station provider is neither a utility nor a retail electric supplier (“RES”) (see 220 ILCS 5/3-105 and 16-102). Thus, there is no legal basis to regulate the providers of charging stations for private use.

⁷ Initial Assessment, pp. 27-33.

⁸ 220 ILCS 5/16-102.

⁹ Initial Assessment, p. 32.

¹⁰ See Initial assessment, pp. 34-37.

would be very effective as it would be difficult and costly to enforce. The better option is for ComEd to continue to work with manufacturers, dealers, homebuilders and municipalities to ensure that ComEd receives such notice.

The adoption of the competitive paradigm for deployment of PEVs does not require any further regulatory or legislative action. Existing law and regulation fully support such a paradigm. However, should the Commission opt for a regulated paradigm, legislative changes would likely be necessary to implement such a paradigm.

III. Rates and Meters

The next issue that the Commission seeks comment on is what changes to existing rates or meter options might be needed in order to maximize environmental and economic benefits from the use of electric vehicles. While ComEd's residential real-time pricing program is currently under review in Docket 11-0727, ComEd believes that its existing rates and meter options are fully capable of attaining these benefits without any necessary changes. However, the full deployment of advanced metering infrastructure ("AMI") throughout the ComEd service territory would be the best method for attaining the maximum benefit.

A. Rate Changes

ComEd currently offers both a flat rate (Rate BES) and an hourly rate (Rate BESH) to its customers. While both rates offer certain benefits, Rate BESH more clearly provides the opportunity to maximize those benefits by incenting customers to lower usage during high-cost periods and shift usage to lower-cost periods. ComEd provided a detailed analysis demonstrating the potential benefits that could be achieved in its Initial Assessment.¹¹

¹¹ Initial Assessment, pp. 45-49.

Flat rates bear little relation to the cost of providing or delivering electricity in a given hour and, therefore, provide little incentive to a customer to change consumption. As a result, the use of flat rates for PEV charging may lead to the charging of PEVs whenever consumers arrive home from work, shopping errands, etc., rather than during periods when the utility's local distribution system may be better suited to accommodate the additional load. ComEd described the potential impacts associated with uncontrolled charging in its Initial Assessment.¹² On the other hand, while flat rates may not send the appropriate price signal to PEV owners relative to either the current market price for the supply of the electricity for charging or the impact charging may have on the local distribution system, they may address concerns on the part of some potential PEV customers regarding exposure to uncertain and potentially volatile dynamic or market-based prices, which may still serve to advance environmental and economic interests (use of PEVs). Indeed, recent gasoline price volatility has generated consumer interest in price hedging.

While hourly rates are more complex to understand, they clearly offer the potential for achieving greater benefits. The analysis provided in ComEd's Initial Assessment demonstrates that customers that opt for hourly rates can save upwards of 60-70% off the annual cost of energy for charging their PEVs.¹³ Such savings would provide a much stronger inducement to purchase an electric vehicle than the use of flat rates.

Rate BESH is currently available to all of ComEd's customers. No changes to the rate are necessary for customers to achieve the savings described in the Initial Assessment. However, the rate is currently optional for ComEd's residential and small commercial customers¹⁴. Given the potential benefits that are available through the use of this rate, it could be argued that Rate BESH should be made mandatory for all

¹² Initial Assessment, pp. 34-37.

¹³ Initial Assessment, pp. 45-49.

¹⁴ Currently, residential and small commercial customers can elect bundled service with ComEd under either Rate BES or Rate BESH, whereas nonresidential and lighting customers with demands that are 100 kilowatts and greater are declared competitive (see 220 ILCS 5/16-113) and the only bundled service available is Rate BESH.

residential and small commercial customers who have purchased a PEV (i.e., establish Rate BESH as a so-called “end use rate” for homes with PEVs). However, there are legal limitations on the ability of the Commission to implement such a proposal.¹⁵ Moreover, legal constraints aside, ComEd does not recommend that this change be made for practical and policy reasons. In a competitive retail market, it would be nearly impossible to force customers to stay on a mandatory, regulated rate structure, as these customers always have the option of switching service to a RES. And, attempting to do so may only further entrench customers with their local utilities for supply. In addition, municipal aggregation is becoming a reality in a growing number of communities. Once implemented, all customers that do not opt-out of the municipal aggregation program in a particular community will be served by a RES at the same, typically flat, rate. Thus, over time, this matter has the potential to migrate from the State to the local level.

B. Changes to Meter Options¹⁶

Currently, ComEd’s standard approach to serving both residential and nonresidential customers is through the use of a single-meter configuration. This means that a single meter is used to measure all electrical usage at a premises. ComEd believes that the single-meter configuration offers the best opportunity to maximize the environmental and economic benefits from the deployment of PEVs.

It is possible to separately meter the electrical usage of a charging station or a PEV at a premises. However, such a dual-meter configuration would require the installation of additional metering equipment at the premises and a separate electric service panel. The costs of all of this additional equipment, and of the second meter, would be borne by the premises owner under current policy. This additional cost, on top of the cost of a charging station, would erode the economic benefits, if any, of splitting the load.

¹⁵ See section 16-103(c) & (e) of the PUA.

¹⁶ Metering is discussed in great detail in the Initial Assessment at pages 53-56.

One additional metering option that the Commission should consider is the deployment of AMI meters throughout the ComEd service territory. Such meters would materially assist customers in their use of hourly rates and enable other forms of time differentiated pricing options from RESs. As described above, the use of hourly rates can result in substantial savings to customers, and thus make it more likely that they would be willing to purchase a PEV.

IV. Cost Causation and Rate Design Modifications to Handle Distribution Upgrades

ComEd's Initial Assessment discussed potential impacts to the distribution system associated with the charging of PEVs.¹⁷ ComEd's analysis found that level 1 charging posed little immediate threat to the distribution system. However, level 2 charging, even in small amounts if grouped closely together, would impact certain distribution system components, particularly local distribution equipment such as service transformers. In addition, at higher penetration levels, these grid impacts would extend beyond individual feeders and local equipment. ComEd has identified several potential modifications to its rates that address the need to upgrade the distribution system in response to increased charging. At some penetration level, ComEd will need to upgrade its system and recover those costs from its customers.

A. Potential Rate Design Modifications

Perhaps the most effective method to forestall the need to upgrade the distribution system in response to increased vehicle charging would be to require all owners of level 2 or higher charging stations to switch their electric service to time-variable rates, such as ComEd's Rate BESH. As discussed above, such rates provide effective incentives for customers to switch their vehicle charging to off-peak periods.¹⁸ However, as also pointed out above, it is not clear how effective such an end-use rate would actually be as

¹⁷ Initial Assessment, pp. 34-39.

¹⁸ See Initial Assessment, pp. 36-37.

customers who are required by a utility to take service under hourly rates can always switch service to a RES. Furthermore, it is unlikely that the Commission currently has the authority to require a RES to serve customers with charging stations under hourly rates. Legislation would probably be required.

Another significantly effective approach for lessening impacts to the distribution system is through the use of load control devices, similar to what ComEd currently employs for air conditioning units. This would require the development of a new tariff, similar to ComEd's Rider AC, which would be applicable to charging stations. To be truly effective, such a tariff should be made mandatory for all customers with a level 2 and above charging station.¹⁹

A third important, but questionable, tariff modification would be to require all customers to notify ComEd prior to the installation of a level 2 charging station. Such notice would not forestall the need for any upgrades, but it would allow ComEd the opportunity to address the need for any upgrades prior to there being any adverse impact to the distribution system.²⁰ However, as discussed above, it is not clear how effective or enforceable such a provision would prove to be in practice. For this reason, ComEd is considering other avenues such as working with third parties to ensure that it receives such timely notice.

B. Costs of Upgrades

In this section we discuss the types of costs that could be incurred due to increased charging of electric vehicles. In the next section, we discuss who should bear those costs.

The initial costs that may need to be incurred relate to any potential changes to the customers' electric system at its residential premises. Most customers should have ample

¹⁹ See Initial Assessment, pp. 37-38.

²⁰ See Initial Assessment, p. 37.

service capacity for either level 1 or level 2 charging at their residential premises. However, if, as discussed above, a separate meter must be installed, then the cost of a new meter will be incurred as well as the cost of a new meter socket, a separate service panel and an increase in the amperage on the circuit.²¹

PEV charging is also expected to impact the local distribution system. At expected initial penetration levels, the use of level 1 charging poses minimal threat to the distribution system. However, the use of level 2 charging could lead to capacity issues if such charging stations are clustered in a particular geographic area. In such situations, local distribution components, particularly the service transformer, may need to be upgraded.²²

As PEVs achieve more significant penetration levels over time, there is the likelihood of further impacts. Very likely, such impacts will extend beyond the individual feeders and local equipment and begin impacting other equipment, such as substations which would need to be upgraded and capacity expanded.²³

V. Cost Recovery and Allocation Methods

The traditional ratemaking criterion for determining who should pay for necessary distribution upgrades is that costs should be borne by the cost causer. Thus, upgrades on a particular customer's premises due to the addition of electric load, including the need to charge an electric vehicle, would be the responsibility of that particular retail customer. This conclusion is consistent with ComEd's existing tariffs²⁴, provided the retail customer requires service above and beyond the standard electric service that ComEd provides. However, while the need to upgrade local feeders or transformers may be attributable to the actions of individual customers, the reality is that many customers use those facilities and contribute to the determination of the appropriate sizing of those

²¹ See Initial Assessment, p. 54.

²² See Initial Assessment, pp. 34-36.

²³ See Initial Assessment, p. 37.

²⁴ See Rider NS – Nonstandard Services and Facilities

facilities over time. Under traditional ratemaking practices, the incremental costs of such system enhancements are allocated, in a rate case proceeding, to all applicable customer classes using such facilities. Similarly, for any needed upgrades beyond the local feeders and transformers, the costs are borne by all customer classes that utilize such facilities. The traditional approach of allocating and recovering system enhancement costs through class-based rates is appropriate and fair as it recognizes that all customer load is the same and equally on the margin with respect to the need for system enhancements - whether as a result of the purchase of a PEV, or a supersized plasma television or the retention of an inefficient second refrigerator in the garage.