

June 19, 2014

California Energy Commission
Docket Office, MS-4
Re: Docket No. 14-IEP-1B
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California Energy Commission

DOCKETED

14-IEP-1B

TN 73241

JUN 19 2014

Re: Southern California Edison Company's Comments on the California Energy Commission Docket No. 14-IEP-1B: Lead Commission Workshop on the *California Statewide Plug-in Vehicle Infrastructure Assessment*

Dear Commissioner Scott:

On June 5, 2014, the California Energy Commission (Energy Commission) held a Lead Commissioner Workshop ("Workshop") on the National Renewable Energy Laboratory's ("NREL's") *California Statewide Plug-In Vehicle Infrastructure Assessment* ("Assessment") as part of the 2014 Integrated Energy Policy Report Update (2014 IEPR Update) process. Southern California Edison (SCE) participated in the Workshop and appreciates the opportunity to provide these written comments.

The Workshop focused on introducing and discussing the Assessment, which was prepared under the Energy Commission's guidance pursuant to its *2013 ZEV Action Plan: A Roadmap Toward 1.5 Million Zero-Emission Vehicles on California Roadways by 2025*. Although the Assessment "serves as a good starting point for the Energy Commission's efforts to monitor infrastructure development and [Zero-emission vehicles] ZEV growth over the next several years and across different market regions,"¹ SCE recommends the following actions. First, SCE recommends that the Energy Commission create a stakeholder working group to focus on the identification and implementation of "no regrets" solutions for the challenges and barriers to Plug-in Electric Vehicle (PEV) adoption and infrastructure development. SCE encourages the Energy Commission to coordinate an interagency transportation electrification working group for demand forecasting and related planning efforts. Third, in future assessments, SCE recommends that the Energy Commission (1) address the business issues associated with deploying and operating PEV charging infrastructure, including evaluating the costs and benefits, (2) recommend that the utilities have an expanded role in supporting the PEV market.

¹ See May 2014 *California Statewide Plug-In Electric Vehicle Infrastructure Assessment* at p. 19, available at: <http://www.energy.ca.gov/2014publications/CEC-600-2014-003/CEC-600-2014-003.pdf>

A. The Energy Commission Should Create a Stakeholder Working Group to Identify “No Regret” Solutions to Address Barriers to PEV Adoption and Infrastructure Development

Arguably, the most appropriate and effective role for a government agency attempting to effectuate massive change in matters of great societal concern, especially when dealing with nascent and evolving technologies, is to identify and implement no regret measures as expeditiously as possible. Prioritized agency action and incisive decision making will simplify a daunting task and be a prudent use of taxpayer revenues that will produce results. The rapid implementation of no regrets measures, however, will support, if not propel, the development of a mature market, allowing the government to ultimately end its involvement.

The workshop participants generally agreed that funding charging infrastructure for workplaces, multi-unit dwellings, DC fast charging and long dwell time locations were appropriate priorities. SCE agrees that prioritizing funding for these aspects of charging infrastructure is a good starting point for the near term, but more data is needed to develop a plan for no regrets solutions. SCE thus recommends that the Energy Commission create a stakeholder group that includes private and public entities to further identify and implement no regrets solutions to the challenges and barriers to PEV adoption and infrastructure development, as well as to address critical issues in preparation for the next Assessment² as set forth below.

The first order of business for the group would be to develop guiding principles for prioritizing no regrets strategies for investing in and developing an infrastructure for PEV charging, such as low-cost, near-term, easy wins that have a low risk of failure and stranded assets. SCE proposes that the guiding principles SCE articulated in its Comments on the Lead Commission Workshop on Transportation act as a starting point for these discussions.³

B. The Energy Commission Should Coordinate an Interagency Transportation Electrification Working Group for Demand Forecasting and Related Planning Efforts

To ensure that the Energy Commission’s next Long-Term Demand Forecast, PEV Infrastructure Assessment and other related planning efforts are accurate and consistent with other entities’ data, SCE recommends that the Energy Commission create a forum for a coordinated working group effort in which stakeholders from the private and public sector share information, assumptions, and methodologies for forecasting transportation electrification and associated infrastructure. Multiple efforts have been or are being concurrently prepared by several entities with differing results.

² See May 2014 *California Statewide Plug-In Electric Vehicle Infrastructure Assessment* at p. 5, available at: <http://www.energy.ca.gov/2014publications/CEC-600-2014-003/CEC-600-2014-003.pdf>.

³ See SCE’s Comments on the Lead Commission Workshop on Transportation available at: http://www.energy.ca.gov/2014_energy_policy/documents/2014-03-27_workshop/comments/Southern_California_Edison_Companys_Comments_on_the_Lead_Commission_Workshop_on_Transportation_2014-04-11_TN-72892.pdf

For instance, SCE has conducted its own studies on electric vehicle load forecasting, and has arrived at a much higher forecast than that which was provided in the NREL study.⁴ SCE's current estimates are more than 50% higher than the Energy Commission's. The California Electric Transportation Coalition study's results are also about 50% higher. Additionally, assessments conducted by groups such as California Air Resources Board ("CARB"), the Energy Commission's 2013 IEPR, the Electric Power Research Institute ("EPRI"), and academic institutions like UC Davis, appear to have different assumptions and results for their assessments on plug-in vehicle infrastructure and associated transportation electrification demand.

Whether the working group is formed as a subgroup of the existing Demand Analysis Working Group ("DAWG") or as a separate effort, it would provide stakeholders with an opportunity to engage with each other, and to provide the most up-to-date information to the Energy Commission as transportation electrification continues to evolve and impact future energy load.

C. Future Assessments Should Address the Correlation Between Infrastructure and PEV Adoption, the Best Use of Public Funds, the Business Case for Charging Infrastructure and the Role of the Utility Role in Accelerating the Market

1. Future Assessments Should Explore Whether a Correlation Exists Between PEV Charging Infrastructure Deployment and PEV Adoption

SCE believes that expanding and accelerating adoption of PEVs is critical. Many studies, including the Assessment, attempt to quantify the infrastructure required to serve the future PEV load using projected PEV adoption. No legitimate studies, however, have established a correlation between PEV adoption and charging infrastructure deployment, especially with regard to away-from-home charging infrastructure. Away-from-home charging infrastructure may increase electric miles in certain situations, such as for plug in hybrids drivers who have a daily commute that exceeds the battery's capacity. SCE recommends studying further if away-from-home charging infrastructure will support PEV adoption.

2. Future Assessments Should Prioritize the Use of Public Funds

As noted above, SCE strongly supports prioritizing investment of public funds to most effectively support PEV adoption. Most analyses, including the Assessment, conclude that home and workplace should and will provide the vast majority of the charging. Accordingly, in the short term, every effort should be made to facilitate deployment of charging infrastructure in these two critical segments. Future Assessments should more thoroughly explore no regrets solutions and their prioritization to support widespread PEV adoption.

3. Understanding the Costs and Benefits of PEV Charging Infrastructure is Essential to Determinations Regarding Public Support

⁴ See October 25, 2013 SCE 2013 IEPR Comment Letter at p. 26, Section B available at: http://www.energy.ca.gov/2013_energypolicy/documents/2013-10-15_workshop/comments/Southern_California_Edisons_Comments_2013-10-29_TN-72296.pdf

The Assessment provides a set of analyses and metrics to define the future state of PEV charging, it does not thoroughly evaluate the current state and identify the gaps and barriers that will have to be overcome in the future. For instance, the Assessment does not address the challenges managers and residents of multi-unit dwelling and employers have reported experiencing when attempting to deploy charging infrastructure. Anecdotal evidences strongly suggest that these two segments are struggling and that charging infrastructure is not being deployed at a level sufficient to meet demand.

The high cost associated with installing a viable and accessible PEV infrastructure to provide creates a barrier to profitability for market participants. The NREL study, however, did not address this problem by clearly enumerating costs and benefits for the various segments of the charging market. Understanding the potential barriers to profitability in the market is critical to determining the amount of public support that is needed to support the market's development and maturation. In addition to public agencies' understanding PEV charging infrastructure costs, market participants will also benefit from a greater understanding of the total system costs associated with deploying PEV infrastructure in different locations—including transformer upgrades, service drops, trenching, networking, and demand charges—so that they can identify ways to reduce them.

Future assessments should examine the costs and benefits for market participants to develop PEV charging infrastructure. These assessments should also include a comprehensive description of the roles of various market participants, such as hardware providers, charging station installers, site owners and tenants, network providers, , utilities, etc. Moreover, future assessments should include detailed explanations of different charging market segments, with consideration of different factors, such as length of dwell time (e.g., long, medium, or short), type of PEV user (e.g., short-range BEV, long-range BEV, short-e-range PHEV, and long-e-range PHEV), benefit (e.g., topping off e-range or refilling the battery), cost (e.g., free, low-cost or high-cost) and detailed submarket (e.g., single family homes, duplexes, triplexes, townhomes, apartments, condos).

To that end, the Energy Commission should facilitate collaboration between stakeholders to gather detailed data about the costs and benefits of PEV charging infrastructure in various charging market segments. The Energy Commission can also draw from reports prepared by the National Academy of Sciences and the National Petroleum Council, as well as various studies performed by UC Davis and EPRI.

3. An Expanded Utility Role Will Accelerate the PEV Market's Maturation

Several Workshop participants, including Terry O'day of EVgo, Richard Lowenthal of Chargepoint, Scott Briasco of the Los Angeles Department of Water and Power, called for an expanded utility role in PEV infrastructure development.⁵ Wade Crowfoot, a senior advisor to

⁵ Some parties also raised concerns about the cost of transformer upgrades and demand charges. A stakeholder group should be convened to understand the costs and benefits of potential solutions. Demand charges are influenced by multiple factors, including the amount, type and location of

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Governor Brown, also acknowledged that this was an issue that should be addressed. SCE agrees that expanding the role of utilities will accelerate PEV adoption. This issue is being addressed in the pending California Public Utility Commission's Alternative Fuel Vehicle Order Instituting Rulemaking. It should also be a subject of future Assessments.

In conclusion, SCE appreciates the Energy Commission's consideration of these comments and looks forward to its continuing collaboration with the Energy Commission. Please do not hesitate to contact me at (916) 441-2369 with any questions or concerns you may have. I am available to discuss these matters further at your convenience.

Very truly yours,

Manuel Alvarez

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charging. For example, much larger amounts of level 1 workplace charging can be deployed, compared to level 2, with the same impact on demand charges and the distribution system.