

**STATE OF CALIFORNIA
BEFORE THE CALIFORNIA ENERGY COMMISSION**

In the matter of:) Docket No. 13-IEP-1L
)
2013 Integrated Energy Policy Report) COMMENTS RE:
(2013 IEPR)) Transportation Energy
) Demand Forecast
)
) September 6, 2013

California Energy Commission

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**Comments of the Sacramento Municipal Utility District
(SMUD) on Transportation Energy Demand
Forecasts for the 2013 IEPR**

Thank you for the opportunity to provide comments on the transportation energy demand forecasts that were developed for the 2013 Integrated Energy Policy Report (2013 IEPR). SMUD observed the workshop presentations of CEC staff, consultants, and other stakeholders at the August 21, 2013, workshop, and found the workshop informative and interesting.

SMUD has two main areas of comment regarding the presentations at the workshop, as shown below.

A. SMUD Comments On 2030 Vehicle Attribute Choice Models

SMUD believes that the detailed data models that the CEC has used for some time, as summarized at the August 21st workshop, may not accurately predict consumer choice of electric vehicles, for two reasons.

First, SMUD does not believe that the method of surveying consumers regarding their potential vehicle choices is clearly applicable to relatively new “types” of vehicles. By this, we do not mean a new model of conventional internal combustion engine (ICE) vehicles, but the kind of distinct, different vehicle represented by an electric car choice. The fueling and range characteristics of these plug-in electric vehicles can be so different from the fleet of vehicles that consumers are familiar with that SMUD believes it is difficult for consumers to provide choice opinions that are not colored by consumer unfamiliarity.

Second, it is not clear to SMUD that the CEC provides consumers with attribute information that reflects the differences inherent in these vehicles, exacerbating the issue of unfamiliarity identified above. For example, if the CEC simply asks consumers about the attribute of “refueling time,” it is likely that consumers familiar with fueling their cars in 5 minutes or so at a gasoline station will not react positively to a stated attribute

of 4-8 hours or longer for a pure electric vehicle. However, this is to some degree a false comparison. For the 5-minute gasoline fueling experience, the consumer must make a stop away from home or work and actively “fuel” the vehicle. For the 4-8 hour electric vehicle experience, the consumer most often simply pulls into their driveway or garage (or into their workplace), a destination they were traveling to anyway, and spend less than one minute attaching their vehicle to a fueling source, before relaxing at home or beginning work. Due to their familiarity with the gasoline fueling option (and lack thereof of the electric fueling option), if a consumer is simply presented with a “5 minute” versus “4-8 hour” choice for vehicle refueling, they are likely to consider them as equivalent in kind experiences – requiring their time and effort during the process, rather than radically different experiences. In this regard, SMUD believes that consumers answering the CEC vehicle choice questions may fail to understand the potential convenience aspects of electric vehicles.

The CEC should find a way to separate the “normal” or everyday electric vehicle refueling experience of consumers involving commute and local travel from the occasions when the consumer is not commuting or traveling locally, and refueling is necessary away from the common destinations of home or workplace. These longer trips are the main reason for “fast chargers” to be installed in strategic locations and publicized to EV consumers, and consumers’ opinions about this aspect of refueling should also be elicited. These two experiences are unfortunately conflated in the current CEC attribute surveying, and the CEC is likely missing the boat on consumers’ true opinions of these attributes.

Similarly, the CEC should ask consumers about other novel aspects of refueling electric vehicles. Consumers are familiar with gasoline station refueling – an often messy (gas spills), potentially uncomfortable (gas stations are subject to weather extremes), and occasionally time-consuming (at times, there is a wait to refuel) experience. In contrast, electric vehicle refueling most often occurs in one’s home garage or familiar workplace parking structure, where there is no gasoline that may spill on one’s shoes or unfamiliar line of cars preventing one from parking and plugging in. The CEC should develop and ask questions to elicit consumer opinion about these differences.

The point here is to consider all of the novel aspects of electric transportation, not just aspects such as limited range and longer “refueling” times. The CEC should develop and ask questions that get consumers to consider and compare the full differences in experiences between realistic scenarios that can arise with novel vehicles or transportation modes. SMUD contends that the current CEC set of questions is not broad enough. Without expanding the question set, SMUD is concerned that the consumer’s familiarity with existing cars and refueling experiences will lead to choice responses that will not reflect a consumer’s real-world experience with electric vehicles.

Another aspect missing in the CEC choice modeling is the expansion of the transportation options that consumers have available today, and will have in the future, given a particular vehicle choice. The concept of using a “shared car” model, or a rental car model, for infrequent trips that may not fit the attributes of a chosen vehicle is not, to SMUD’s knowledge, incorporated in the model to date. One electric vehicle

manufacturer explicitly includes this option in their vehicle offering – included “vouchers” for rental ICE cars for trips that are outside the normal range of the main vehicle. In addition, the concept of getting value from allowing one’s car to be used for vehicle to grid services may be a valuable “attribute” in the future. There is a lot of research and pilot projects occurring around the country and particularly in California regarding V2G structures and feasibility, and the CEC attribute surveying and forecasting methodology should consider how to ask consumers about such expected future attributes.

SMUD suggests that the CEC reexamine the vehicle choice models, and other assumptions, that are currently the basis for transportation fuels forecasting for the IEPR. SMUD has three specific recommendations:

- 1) In future IEPR forecasts, if not in the current one, modify the vehicle attribute questions that are the basis for the vehicle choice modeling. As SMUD has described above, it appears that the surveying and modeling may not accurately capture radically unfamiliar attributes from novel vehicles such as electric cars or new (and potentially related) transportation mode choices such as shared vehicles.
- 2) Use recent data available about actual hybrid plug-in electric vehicle use to revise arbitrary assumptions that these vehicles “split” their miles driven down the middle – 50% on gasoline and 50% on electricity. Anecdotal information indicates a favoring toward electricity use for most consumers, and the CEC should have the data soon to do better than an arbitrary assumption here.
- 3) Given the relatively significant penetration of electric vehicles in the market in the last couple of years, the CEC endeavor to update any “benchmarking” of the vehicle choice models and forecasts with recent historical experience. While SMUD understands that some historical calibration is included in the forecasting to date, SMUD believes that the CEC should find a way to calibrate that includes information where recent history beyond the “normal” calibration year shows significant changes beyond model predictions.

B. SMUD Comments On Historical Vehicle Trend Examination

SMUD believes that the IEPR should better reflect the recent market development of battery electric and plug-in hybrid electric vehicles in California. Historically, there has never been an increase in the number of electric production vehicles intended for the general market (plug-in hybrid cars and pure electric cars), nor a consumer uptake of those vehicles, as has been seen in the last few years.

SMUD believes that it is important for the CEC to capture this trend as soon as possible in its long-term historical data analysis. The “Historic Trends” presentation on August 21st leaves off the recent introduction and uptake of plug-in hybrid electric vehicles, and, unfortunately, includes the recent introduction and uptake of pure electric vehicles as if at the tail end of a 20-year or longer trend. SMUD asserts that the presentation leaves the audience potentially misinformed about these new types of vehicles. SMUD

suggests that the CEC: 1) include the recent (last few years) information about plug-in hybrids on any such chart shown in the future; and 2) separate the recent battery electric vehicles (again, last few years) from any longer “trend” line for electric vehicles. The CEC should recognize that, similar to the “new” diesel vehicles presented with a separate line on the chart, “new” electric vehicles deserve their own “trend line,” and new plug-in hybrids should be included as well, either as a separate category or part of the “new” electric vehicle trend line starting in 2010.

Thank you again for the opportunity to comment.

/s/

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