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LADWP Comments re CEC Light Duty EV Calculator

Additional submitted attachment is included below.

BEFORE THE ENERGY COMMISSION
OF THE STATE OF CALIFORNIA

In the matter of:	)	Docket No. 17-IEPR-07
	)	
2017 Integrated Energy Policy Report (2017 IEPR)	)	Light-duty Plug-in Electric
	)	Vehicle Calculator Tool for
	)	Publicly-Owned Utility
	)	Integrated Resource Plans
	)	
	)	RE: Integrated Resource Planning

COMMENTS FROM THE LOS ANGELES DEPARTMENT OF WATER AND POWER ON THE CALIFORNIA ENERGY COMMISSION'S LIGHT-DUTY PLUG-IN ELECTRIC VEHICLE CALCULATOR TOOL FOR PUBLICLY-OWNED UTILITY INTEGRATED RESOURCE PLANS

The Los Angeles Department of Water and Power (LADWP) appreciates the opportunity to submit written comments regarding the California Energy Commission's (CEC) Light-duty Plug-in Electric Vehicle Calculator Tool for Publicly-Owned Utility Integrated Resource Plans (Tool).

LADWP is a vertically-integrated publicly-owned electric utility, which serves a population of over 3.8 million people within a 465 square mile service territory spanning the City of Los Angeles and portions of the Owens Valley. LADWP is the nation's largest municipal utility, the third largest electric utility in the state, and one of five California balancing authorities. LADWP's mission is to provide clean and reliable water and power in a safe, environmentally responsible, and cost-effective manner.

LADWP strongly supports the CEC's efforts to provide methodologies to quantify the net emissions decrease that would result from transportation electrification. Given that the transportation sector accounts for a significant portion of California's greenhouse gas (GHG) emissions, electrification of the transportation sector is a critically important measure for achieving substantial economy-wide GHG emissions reductions. Furthermore, electrification will yield significant net emission reductions in criteria air pollutants that are necessary to attain the new and more stringent air quality goals set by the Clean Air Act.

To support electrification, LADWP is investing in electric vehicle charging infrastructure and promoting the rapid deployment of electric vehicle technology. Having an electric vehicle calculator tool is critical for quantification of the net emissions reductions resulting from the electrification of the transportation sector. Most importantly, the establishment of an accurate

analytic tool is essential for the development by agencies of incentives to encourage, maximize, and efficiently target LADWP's investment in electrification.

LADWP's comments and analysis below is based on version 3.0 of the Tool.

Clarity of Instruction, Sources, Methodologies and Assumptions

The only source of instruction for the usage of this Tool is in the 'Introduction' tab of the spreadsheet. The operating instructions briefly describe eight steps to using the tool, but do not explain or define the terms used. Assumptions and sources are scattered throughout the workbook, with little or no explanation regarding the rationale or justification for the decision chosen. LADWP recommends that instructions, definitions, sources, methodologies, and assumptions be clearly stated and explained in a centralized location.

Specific LADWP recommendations are outlined below.

- The Tool provides multiple Power Plant Stack Emission Rates from various sources (*i.e.*, CA GREET 2.0, CA GREET Average Mix 2014, SCAQMD 2012, Vision 2016), but does not describe the differences among the sources.
- The methodology for predicting new vehicle sales is not explained.
- California Air Resources Board (ARB) assumptions are listed on certain tabs (i.e. 'Accrual_retention,' 'Fuel_energy_efficiency,' 'Emission Factors'), but CEC assumptions are not clearly stated.
- Under the 'Accrual_retention' tab, the alternative Accrual Rate data uses ARB data for battery electric vehicle (BEV) non-Tesla, BEV Tesla, and plug-in hybrid electric vehicle (PHEV). Below the data, it is stated that the numbers are "based on EMFAC2014, gasoline LDA passenger cars from the calendar year 2010." It is not clear if all accrual rates are based on passenger cars from only calendar year 2010. LADWP recommends that CEC cite the source for the following assumptions:
    - PHEVs have the same annual total vehicle miles traveled (VMT) as internal combustion engines (ICE);
    - Long-range BEVs have the same annual total VMT as ICE; and
    - Short-range BEVs have 65% of ICE VMT.
- LADWP recommends that CEC clarify the difference between Tesla and non-Tesla BEVs.

Electric Vehicle (EV) Efficiency Calculations

In the electricity consumption calculations, BEVs' efficiency using the CEC data is calculated using the PHEV kWh per 100 mile data from 2010-2015. The reason for basing the BEV efficiency on PHEV data is not explained. Additionally, the PHEV energy efficiency kWh/100 mile used for calculating the BEV efficiency is not used for calculating the PHEV efficiency. LADWP recommends that CEC clarify and explain the methodology for these calculations.

Annual Generation Carbon Intensity

In the operating instructions ('Introduction' tab), Step 5 instructs the utility user to "Insert values for Annual Generation Carbon Intensity." However, under the 'Step 4' tab, Step 5 instructs the user to choose between "Include or Exclude Up-Stream Power Plant CO2e emissions." Besides this discrepancy, the default value for the annual generation carbon intensity (CI) input was set at 0.250 tons CO2e/MWh (67.78 gCO2e/MJ; ignoring upstream emissions). ARB GREET 2.0 assumes CI of 124 gCO2e/MJ, which was noted by CEC, but the reason for why it was not used as the default value is not clear. CEC also pointed out that carbon intensity of utility electric generation to meet PEV-associated electricity demand is 0.13 tons CO2e/MWh, but there is no citation for this.

LADWP supports the option for a utility to input its individual annual generation CI values. However, if CEC does include default CI values, LADWP recommends that it provide default CI values that are more representative of future power generation. For example, instead of using a constant CI through 2030, the CI would decline annually to a more representative mix of future energy resources that reflects reaching the renewable portfolio standard (RPS) goal of 50 percent by 2030.

Emission Factors and Renewable Portfolio Assumptions

Step 3 of the Tool allows utilities to insert the expected power plant criteria pollutant emission rates for NOx and PM10 and it will calculate the emission factor to be used in the calculation of total NOx and PM reduction or increase due to charging of PEVs. The instruction states that the utilities should input the emission rates of the expected power plant anticipated to recharge the PEVs, and if left blank, the default statewide average power plant emission rate per the GREET 2.0 model will be used. The concern here is that this approach results in the inputting of an unrepresentative value because one constant value will be used for all years until 2030. With the exception of PEV consumption met by customer-side generation, the remainder of the PEV consumption is assumed to be met by power plants that emit pollutants, which is exceedingly unlikely to be the case with the increased use of renewable energy. The NOx and PM calculations do not seem to consider changing energy mixes to meet a 50 percent RPS or allow the user to adjust annually. LADWP recommends that the power plant criteria pollutants emissions levels be adjusted over time to reflect this trend, similar to CEC's proposal in the tool to vary the CO2e each year.

Refinements

The following is a list of refinements or bugs:

- In 'Step 4' tab, the user can select results for "WTT" or "No WTT" (cell N6). However, this selection does not affect the selection for "WTT" or "No WTT" in the 'Emission Factors' tab (cell U1). It is possible to have "WTT" selected in the 'Step 4' tab and "No

WTT" selected in the 'Emission Factors' tab, resulting in different numbers. The two selections should be linked to prevent this from happening.

- The instructions on the 'Introduction' tab and the numbering of steps on the 'Step 4' tab are not aligned, with steps 6 and 7 apparently switched.
- The terms "low-driving range" and "high-driving range" are used in the 'Introduction' tab, while "short range" and "long range" are used in 'Step 4' tab. Are both terms analogous to each other? LADWP recommends clarifying these terms.

Conclusion

LADWP applauds CEC's effort, in collaboration with ARB, to develop a robust tool for utilities to use. Overall, the results from the tool will be useful in more accurately quantifying net emissions reductions resulting from transportation electrification. The establishment of such an accurate analytic tool should help to develop effective incentives to encourage electric utilities' continued investment in electric transportation to meet the Governor's executive order goal of 1.5 million PEVs by 2025. LADWP looks forward to continuing working with CEC in the development of this Tool and the IRP process.

If you have any questions, please contact me at (213) 367-0239 or Mr. Mark J. Sedlacek at (213) 367-0403.

Dated: June 14, 2017

Respectfully Submitted,

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