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Transportation Electrification Guidance for Publicly Owned Utilities' Integrated Resource Plans

April 12, 2017 Draft

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Background and Objective:

Energy Commission staff recommends, pursuant to Senate Bill 350, the following integrated resource planning (IRP) transportation electrification *information, data, and reports*. Consistent with the directions of Executive Order B-16-2012, staff recommends that this information serve as a best practice benchmark to help the State support electric transportation charging infrastructure that is integrated with the electricity grid and will be able to support 1 million zero-emission vehicles (ZEV) by 2020. POU's and their local government authorities can provide indispensable contributions to the achievement of the ZEV Executive Order and "address the procurement" of Transportation Electrification (TE) in their IRPs. We recognize that gathering and analyzing this TE information will require time and additional resource commitments and we would be open to your ideas and jointly explore ways to support individual POU's and groups of POU's to achieve TE best practice benchmarks.

Recommended Information, Data and Reports:

While not intended to be exhaustive, the Energy Commission provides the recommendations below to elaborate upon and clarify the Transportation Electrification data included in CEC staff's *"Proposed Guideline Topics for Publicly Owned Utilities' Integrated Resource Plans."* Staff identifies that this range of suggested information can help the POU's —given their unique priorities, capabilities, resources, and technologies— in their voluntary efforts to analyze, prepare for, and accommodate their customers' widespread use of Transportation Electrification on an ongoing basis. Staff suggests that POU's consider including the following data and information within their IRPs:

1. Annual estimates to 2030 of the number and types of Electric Transportation, charging and propulsion infrastructure deployed¹, and retail customers served in the service territory; the associated load and applicable charging tariffs; incremental electricity-sector GHG emissions, reduced transportation-sector GHG and air pollutant emissions, and supporting emissions accounting methodology².
 - a) In order to quantify, characterize, and locate retail TE vehicles, charging equipment or customers, the POU's may employ a "Notification Protocol" that compiles or analyzes different datasets (e.g. rate enrollments, vehicle sales, load scanning, building permits, TE Program participants, distribution system infrastructure checks and upgrades, etc.). Note: Expanding data collection methodologies may be needed to differentiate information by Transportation "Customer Type" quantitatively. The Energy Commission recommends, for consistency with the Air Resources Board's convention for accounting in the California GHG Emission Inventory, to align with the Economic sector, Scoping Plan, and/or IPCC categorization.³ For example if using the Economic Sector categorization for a municipal electric transit customer, the customer would be categorized: Transportation, On Road, Heavy-duty Vehicle, Buses.

¹ As broadly defined in P.U. Code §237.5, Transportation Electrification means vehicles, vessels, trains, boats, or other equipment that are mobile sources of air pollution and greenhouse gases and the related programs and charging and propulsion infrastructure investments to enable and encourage this use of electricity.

² For example see the Common Assumptions Excel tool in development for potential use by POU's.

³ For example see <https://www.arb.ca.gov/cc/inventory/data/data.htm> and https://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_categorization_crosswalk.xlsx

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- b) Total retail TE load (e.g. MWh and differentiated by Customer Type). Useful statistical analyses of this total load may include but are not limited to the following decompositions⁴:
 - Monthly energy consumption per Customer Type
 - Monthly peak load and hour occurring (non-coincident) per Customer Type
 - Monthly peak load and hour occurring (coincident with peak) per Customer Type
 - 7-day weekly load profile per Customer Type
 - 24-hour load profile per Customer Type
 - Load characterizations generated from customers with separately-metered service, “check” meters, and/or submeters embedded in charging equipment.
 - c) Effect on Cross-Sectoral Greenhouse Gas and Air Pollution Emissions (e.g. metric tons).
 - Increased electricity sector GHG and air pollutants
 - Decreased transportation sector GHG and air pollutants
 - Net effect on economy-wide GHG and air pollutants
 - d) List of retail rates for electric transportation charging
2. The effect on the quantitative measures discussed in Item 1 above from existing or planned investments, incentives, rates, or programs (“TE Programs”)—specifying the barriers and proposed solutions—and identifying those that target Disadvantaged Communities⁵.
 - a) List of rate design modifications to encourage customer electrification
 - b) Describe or quantify the intent and methodology to geotarget investment in Disadvantaged Communities
 3. A description of how electrification investments across sectors are prioritized to account for the transportation emissions inventory relevant to the POU’s service territory (by subsectors e.g. on-road, off-road, rail, water-borne, aviation). A description of how the utility’s TE Programs align with or leverage State grants, incentives, and technology research, demonstration, and deployment efforts. A description of how the utility’s TE Programs will leverage private, local, or federal sources of capital to alleviate financial burdens on ratepayers.⁶
 - a) How the utility will leverage the learnings from previous pilots that it has (or other organizations have) led in order to commercialize electric transportation technology?
 - b) How will the utility engage with partners (third party providers, community organizations)?
 - c) Will the utility have a Monitoring and Evaluation Plan to measure effectiveness of and identify means to improve future programs?
 4. A description of the utility’s plans to educate and outreach to customers on their TE Programs. In particular, a description of any efforts focused on coordinating with facilities that host a large number of mobile emissions sources within its service territory (e.g. parking facilities, ports, airports, or distribution centers).
 5. A description of the utility’s TE Programs’ alignment with Statewide goals and policies (e.g. Executive Order B-16-2012 and the subsequent *2016 ZEV Action Plan*, *2016 Mobile Source Strategy*, *California Sustainable Freight Plan*, and *California Vehicle-Grid Integration Roadmap*). The utility plans, if any, to coordinate with other utilities to meet broader community or regional infrastructure needs and ensure interoperability and accessibility of charging systems.
 - a) Describe an overall strategy to meet policy objectives of widespread transportation electrification

⁴ For example see: Joint IOU Load Research Reports pursuant to CPUC Decisions 11-07-029, 13-06-014, and 16-06-011.

⁵ Pursuant to P.U. Code §454.52 (a)(1) subpart (H)

⁶ Pursuant to P.U. Code §454.52 (a)(1) subparts (C) and (D)

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- b) Describe how the utility considers its TE Programs to contribute to applicable local, state, or federal statutory requirements to reduce air pollutant and GHG emissions
 - c) Describe plans to, per P.U. Code §740.2, coordinate with adjacent or similarly-situated utilities to meet regional infrastructural needs to ensure harmonious inter-territory operation of electric transportation technologies and mitigate risks of stranding assets.
6. A description of how TE Programs are coordinated with other distributed energy resource (distributed generation, small-scale storage, demand response, energy efficiency) planning to ensure that vehicles are charged in a manner consistent with electric grid conditions.⁷

⁷ Pursuant to P.U. Code §454.52 (a)(1) subparts (E), (F), and (G)