

The medium- and heavy-duty freight sectors represent approx. 60% of the \$1B in transportation electrification investments the CPUC has approved to date.

- We are well on our way to transitioning this critical sector but understand that there is much more work we all need to do.

The CPUC's role in accelerating ZEVs in the medium- and heavy-duty (MD/HD) space is focused on fuel, grid management, and infrastructure.

- IOUs as fuel providers: The CPUC is mandated to ensure that California's electricity mix is clean, and we now receive approx. one-third of our power from renewable sources. To utilize this fuel to clean up the transportation sector, the IOUs have implemented and are continuing to design rates specific to EVs with the goal of also ensuring electricity is a lower-cost option than conventional fuels.
- IOUs as grid managers: the CPUC is working with the IOUs to ensure additional load from EVs is integrated in a manner that does not negatively affect the grid but provides grid benefits. This includes ensuring that the distribution grid is reliable and modernized for current and future EV load, that the installation of EV charging stations is strategic, and that EV charging load is appropriately managed.
- IOUs as infrastructure providers: in addition to providing incentives for charging infrastructure, IOUs play the critical role of ensuring sites are ready for customers to install charging infrastructure and provide support for the installation of the charging station.

California's IOUs are spending approx. \$1B in ratepayer funds on EV infrastructure over the next 3-5 years, with \$606M of that approved for the medium- and heavy-duty sectors.

- All of the MD/HD programs were approved through the SB 350 proceedings.

- The Commission authorized \$578M for two large scale programs at SCE and PG&E in May 2018, which are both still in the planning and early phases of implementation.
- The Commission authorized \$27.9M in MD/HD pilots at SCE, PG&E, and SDG&E in January 2018, which are all mid-way through implementation.

These pilots will support:

- Delivery fleets (e.g. UPS, FedEx)
- Shuttle buses
- Port equipment electrification (e.g. yard tractors)
- Airport ground support equipment
- School bus electrification and renewable integration
- Idle reduction technology
- Transit bus electrification

SCE's approved program is the largest, with a \$342M budget to support a minimum of 870 sites to support the electrification of at least 8,490 medium- and heavy-duty vehicles

- Min. of 15% of budget to serve transit agencies
- Max. of 10% of budget to serve forklifts
- Min. of 25% to serve vehicles operating at ports and warehouses
- Min. of 40% of budget spent in DACs
- Rebates will cover up to 50% of the cost of the charger for sites in DACs and for transit and school buses

PG&E's FleetReady program will spend \$236M to support a minimum of 700 sites to support the electrification of at least 6,500 medium- and heavy-duty vehicles

- Min. of 15% of budget will serve transit agencies
- Max. of 10% of budget will serve forklifts
- Min. of 25% of budget spent in DACs
- Rebates will cover up to 50% of the cost of the EVSE for sites in DACs and sites that will support transit and school buses

In addition to the large-scale PG&E and SCE medium- and heavy-duty programs, which include off-road vehicle electrification, the CPUC is also overseeing several off-road vehicle electrification pilots.

- SCE has 2 pilots at the Port of Long Beach:
 - To electrify 9 Rubber Tire Gantry Cranes, which today are the second largest source of NOx emissions at the terminal, with each crane emitting approx. 210 tons of CO2 annually
 - And to electrify 20 Yard Tractors, all helping the port meet its zero - emissions by 2030 goal
- SDG&E has two off-road vehicle electrification pilots
 - To electrify Airport Ground Support Equipment (GSE) at the San Diego Airport, partnering with American Airlines
 - And to support electrification of the San Diego Port
- PG&E is working with Albertsons on an Idle Reduction Technology pilot to install 25 electric Transportation Refrigeration Unit (eTRU) ports

The Commission is also reviewing an additional \$107M for a proposed medium- and heavy-duty EV infrastructure program in SDG&E's territory that is similar in structure to SCE's and PG&E's

- As proposed, this program would be available to customers electrifying medium- and heavy-duty on-road and off-road vehicles, which is consistent with the vehicles covered by PG&E and SCE's programs.
- The proposed program would serve a min. of 300 make ready installations and a minimum of 3,000 additional EVs directly attributable to the program (each site host must agree to buy at least 2 new EVs or electrify two conventionally-fueled vehicles).

In December, the CPUC opened a new rulemaking on transportation electrification to provide guidance, structure, and certainty to the EV market, including the medium- and heavy-duty sectors.

- Up until now, all IOU transportation electrification applications have been considered on a case-by-case basis.
 - This rulemaking and the Transportation Electrification Framework (TEF) it directs CPUC staff to draft will help to better coordinate efforts among the state agencies, align goals, and streamline the CPUC application review process.
 - The rulemaking, the Transportation Electrification Framework (TEF), and ongoing coordination with our sister agencies will help guide the next chapter of policies and programs supporting California's freight electrification transition.
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