

*STAFF DRAFT CPUC VGI-Related “Stocktake” 3-9-2020*

*Senate Bill (SB) 676:* [SB 676](#) (Bradford, 2019) directed the CPUC to identify strategies and metrics that ensure the IOUs’ TE programs “maximize the use of feasible and cost-effective electric vehicle grid integration” by the end of 2020. The bill also requires reporting by IOUs and community choice aggregators.

*TOU EV TOU Rates:* [PG&E](#), [SCE](#), [SDG&E](#) and [Liberty](#) each currently offer electric vehicle “time-of-use” energy rates for residential customers. Time-of-use rates encourage customers to charge during “off-peak” hours. This helps minimize the impact of the energy demand from electric vehicles on the electric grid. Customers may elect to measure both their home and electric vehicle energy use on one meter or measure them separately. SCE and [Liberty](#) also offer TOU rates for commercial customers’ electric vehicle charging. CPUC Energy Division staff have proposed in the staff draft [Transportation Electrification Framework](#) (TEF) to require that all IOUs offer “opt-out” TOU rates and dynamic EV TOU rates and also begin development of rates for other VGI services. See p101. The draft TEF is currently available for party comments.

*SCE Commercial EV Rate:* Decision18-05-040 authorized SCE to establish three EV TOU rates for commercial customers, which will be recovered through volumetric charges. The rates do not include demand charges for the first 5 years; all charges are instead recovered through volumetric energy rates. In years 6-10, demand charges will be phased back in incrementally, while volumetric energy charges decline.

*SDG&E Dynamic TOU EV Rate Pilot:* SDG&E developed a pilot VGI rate for customers participating in the Power Your Drive (PYD) pilot. The rate offers EV drivers a day-ahead, hourly dynamic rate based on CAISO energy prices. This rate is only available to customers participating in the PYD pilot.

*PG&E Commercial EV Dynamic TOU Rate:* The CPUC issued [Decision 19-10-055](#) that includes a requirement that PG&E file an application for a real-time electric vehicle commercial rate by October 2020. The Decision also lists a number of questions that should be addressed.

*V2G AC interconnection:* The V2G AC Sub-group has concluded and a stakeholder report was filed in December 2019 with comments and reply comments filed in January 2020. The stakeholder report, which may be adopted through the Rule 21 proceeding (R.17-07-007), identified areas where gaps exist for safety standards and some potential pathways to enable V2G interconnection.

*Demand Response Pilots:* PG&E and SCE implemented “demand response” pilots for electric vehicles developed in accordance with [Decision 12-04-045](#), i.e. when customers change their electricity usage (typically reducing use or shifting use to other times in the day) in response to economic incentives, price signals, or other conditions.

- [PG&E BMW iChargeForward Pilot](#)
- [SCE Workplace Charging Pilot](#)
- [SCE Smart Charging Pilot](#)

*Department of Defense Vehicle-to-Grid Pilot:* [SCE partnered with Los Angeles Air Force Base](#) from late 2015 to September 2017 to conduct a vehicle to grid (V2G) pilot program that allowed its fleet of 34 electric vehicles to send power back to the electric grid. The vehicle batteries acted as storage, charging when power was cheapest – typically midday when renewable energy generation peaks – and discharge energy back to the grid when there were supply constraints. Throughout the pilot, which was funded by the [California Energy Commission](#) and the U.S. Department of Defense, SCE provided L.A. Air Force Base a [specific vehicle-to-grid \(V2G\) rate](#). The final pilot report can be found [here](#).

*SDG&E V2G school bus pilot:* The CPUC, as part of [Decision 19-08-026](#) (August 2019), authorized SDG&E to implement a school bus V2G pilot.

*EPIC:* The [Electric Program Investment Charge \(EPIC\)](#) supports the development of non-commercialized new and emerging clean energy technologies in California and provides assistance to commercially viable projects. The [California Energy Commission](#) administers 80 percent of the funds collected, and the three IOUs administer the remaining 20 percent. Several EPIC projects are related to vehicle-grid integration. The CPUC has issued an [Order Instituting Rulemaking](#) in October 2019 (Rulemaking 19-10-005) to “review the EPIC program, consider whether and how to continue funding the program, and to consider appropriate administrative and programmatic changes to improve the program.”

*Research Database:* In 2018, CPUC collected surveys with pilot project information on zero-emission vehicle infrastructure and vehicle-grid integration research. The [survey results](#) can be downloaded as an Excel file.

*Microgrids:* The California Public Utilities Commission initiated [Rulemaking 19-09-009](#) to design a framework surrounding the commercialization of microgrids associated with [SB 1339](#) (Stern, 2018) and to account for the Commission’s commitment toward utilizing additional technologies and activities that may be useful for achieving overall resiliency goals. For more information, see the CPUC [Resiliency and Microgrids](#) webpage.