Group 1 projects must evaluate the cost-effectiveness of virtual power plants (VPPs) as a long-term grid resource. As such, the net benefit calculations must consider the existing and evolving market conditions, including but not limited to electricity rates, customer programs, and wholesale market prices for energy and capacity procurements. The use of hypothetical or experimental rates is not allowed.

Group 1 projects must submit a “Project Net Benefits” report by the end of Year 4. This report must analyze all the cost savings, revenues, and expenditures from demonstrating the proposed VPP. If certain types of cost savings and expenditures involve confidential or sensitive data, proxy values informed by publicly available sources may be used. By the end of Year 4, Group 1 projects are expected to generate net benefits (revenues and savings minus costs) equivalent to 20 percent of the total project funding. This metric should be included in Attachment 10 and will be used as a key performance indicator to evaluate the success of projects. In addition to energy cost savings, projects are encouraged to track emerging incentive programs and seek additional revenues from various resources to increase the cost recovery performance of projects.

Potential cost savings may include but not limited to:

* Utility bill savings (existing dynamic rates, demand charges, and/or pilot partnerships)
* Load serving entity (LSE) capacity procurement savings (or resource adequacy credits obtained via CPUC’s Load Impact Protocols)
* LSE energy procurement savings in California Independent System Operator (CAISO) markets

Potential revenues may include but not limited to:

* CAISO energy markets (direct market participation)
* Third-party demand response (DR) provider contracts
* Utility DR programs
* California investor-owned utilities (IOU) Market Access Program (MAP)
* IOU energy efficiency rebates and incentives for smart devices
* Self-Generation Incentive Program (SGIP) revenues
* Emergency Load Reduction Program (ELRP) credits
* Future distributed energy resources (DER) deployment incentives from the Distributed Energy Backup Assets (DEBA) program
* Any other IOU partnership to stack value from transmission congestion relief and/or distribution transformer deferral benefits.

Potential costs may include but not limited to:

* Grant administration and project management
* DER management software procurement and subscription
* Customer incentives for smart devices and installations
* Customer incentives for program participation and load reductions
* Customer outreach and education

Group 1 projects must also submit an Energy Measurement & Verification (EMV) report. EMV reports prepared for (or generated by) relevant demand response or utility customer programs, when applicable, can be used. The Project Net Benefits report will build on the EMV analysis and give insights into the cost recovery performance of VPPs in addition to any market issues driven by regulatory barriers. Additionally, projects are encouraged to use engineering/statistical/economic models, such as the Avoided Cost Calculator, to compare the real-world results of their VPP to hypothetical benefit estimates.

Additionally, to fully capture VPP benefits, projects are encouraged to conduct a social-environmental benefits analysis. This analysis could include estimated greenhouse gas (GHG) reductions, workforce benefits, and any other economic benefits to consumers participating in the project as individuals, with no contractual obligations to CEC. The GHG benefits may consider long-run marginal emissions to reflect long-term benefits considering California’s evolving electricity generation mix. See References below for additional information about the programs listed above.

**References**

CAISO (2024) Demand Response

* <http://www.caiso.com/participate/Pages/Load/Default.aspx>

NREL (2022) Cambium Long-Run GHG Emissions

* https://data.nrel.gov/submissions/206

CEC (2023) Distributed Energy Backup Assets

* [https://www.energy.ca.gov/programs-and-topics/programs/distributed-electricity-backup-assets-program](file:///C%3A%5CUsers%5Cdldavis%5CDownloads%5C%E2%80%A2%09https%3A%5Cwww.energy.ca.gov%5Cprograms-and-topics%5Cprograms%5Cdistributed-electricity-backup-assets-program)

CPUC (2023) Market Access Program

* <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/energy-efficiency/market-access-program>

CPUC (2023b) Self-Generation Incentive Program

* [https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/self-generation-incentive-program](file:///C%3A%5CUsers%5Cdldavis%5CDownloads%5C%E2%80%A2%09https%3A%5Cwww.cpuc.ca.gov%5Cindustries-and-topics%5Celectrical-energy%5Cdemand-side-management%5Cself-generation-incentive-program)

CPUC (2023c) Emergency Load Reduction Program

* [https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-costs/demand-response-dr/emergency-load-reduction-program](file:///C%3A%5CUsers%5Cdldavis%5CDownloads%5C%E2%80%A2%09https%3A%5Cwww.cpuc.ca.gov%5Cindustries-and-topics%5Celectrical-energy%5Celectric-costs%5Cdemand-response-dr%5Cemergency-load-reduction-program)

CPUC (2024) Avoided Cost Calculator

* [https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/energy-efficiency/idsm](file:///C%3A%5CUsers%5Cdldavis%5CDownloads%5C%E2%80%A2%09https%3A%5Cwww.cpuc.ca.gov%5Cindustries-and-topics%5Celectrical-energy%5Cdemand-side-management%5Cenergy-efficiency%5Cidsm)

IOU (2024) CalFUSE Pilots

* <https://www.dret-ca.com/dynamic-rate-pilot/>
* <https://www.pge.com/en/clean-energy/electric-vehicles/getting-started-with-electric-vehicles/vehicle-to-everything-v2x-pilot-programs.html>

PG&E (2023) Energy Efficiency Incentives for Businesses

* [https://www.pge.com/en/save-energy-and-money/energy-usage-and-tips/business-energy-saving-tips-and-tools.html](file:///C%3A%5CUsers%5Cdldavis%5CDownloads%5C%E2%80%A2%09https%3A%5Cwww.pge.com%5Cen%5Csave-energy-and-money%5Cenergy-usage-and-tips%5Cbusiness-energy-saving-tips-and-tools.html)

PG&E (2023b) Utility DR Programs

* <https://www.pge.com/en/save-energy-and-money/energy-saving-programs/demand-response-programs/business-programs.html>

PG&E (2023c): DER Partnership Pilot

* [https://www.pge.com/en/save-energy-and-money/energy-saving-programs/distributed-energy-resources.html](file:///C%3A%5CUsers%5Cdldavis%5CDownloads%5C%E2%80%A2%09https%3A%5Cwww.pge.com%5Cen%5Csave-energy-and-money%5Cenergy-saving-programs%5Cdistributed-energy-resources.html)