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**PG&E Comments on EPIC 2021-2025 Investment Plan Scoping -
Draft Initiatives**

Additional submitted attachment is included below.



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California Energy Commission

Research and Development Division - Electric Program Investment Charge (EPIC) Program
Docket Number 20-EPIC-01
1516 9th Street
Sacramento, CA 95814

Re: Pacific Gas and Electric Company Comments in Response to the California Energy Commission’s EPIC 2021-2025 Investment Plan Scoping – Draft Initiatives for EPIC 4 (Docket No 20-EPIC-01)

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to provide comments to the California Energy Commission (CEC) related to the August 4, 2021 workshop that discussed 2021-2025 investment plan scoping and draft initiatives for EPIC 4.

PG&E supports the objectives of the plan’s wide range of initiatives and provides the following comments:

1. Deep Collaboration Opportunities with the Investor Owned Utilities (IOUs)

Research, Development and Demonstration (RD&D) projects where solutions need to be validated through integration with distribution utility systems and/or demonstration on the utility distribution systems will require deep engagement with distribution utilities. This type of engagement supports successful execution of the RD&D projects, and more importantly, establishes a path to future scaled operational deployment on the distribution system. PG&E looks forward to close collaboration between the IOUs and the CEC to scope efforts for technology demonstration projects in certain areas to ensure alignment with the utilities’ technology roadmaps and standards. PG&E recommends that in cases when the CEC efforts are outside of the scope of an IOU’s EPIC initiatives, if the IOU is not in a position to conduct their own corresponding or supplemental EPIC projects in specific areas, that any necessary IOU involvement be funded through the CEC’s EPIC budget.

In particular, the following proposed CEC initiatives described by the CEC in their document released on July 7, 2021¹, will require deep IOU collaboration with the CEC to be successful, and ultimately implemented at scale for the benefit of electric customers:

¹ Electric Program Investment Charge (EPIC) 4 Investment Plan: California Energy Commission (CEC) Staff’s Proposed Draft Initiatives, July 29, 2021: <https://efiling.energy.ca.gov/getdocument.aspx?tn=239068>

- Initiative number 5: Long Duration Energy Storage Technology Demonstrations to Support Grid Reliability.
- Initiative number 6: Energy Storage Use-Case Demonstrations to Support Grid Reliability.
- Initiative number 10: Technology Demonstrations to Address Grid Congestion Resulting from 3X Generation Growth on the Path to a Decarbonized California (e.g. power flow control, smart conductors, etc).
- Initiative number 11: Demonstrate Technologies to Maintain Reliability and Power Quality in the Inverter-Centric Grid of the Future Associated with High Levels of Renewables.

2. Additional Research Initiative to Consider:

The CEC has been active in the development of community microgrids and we believe there are further RD&D opportunities in this area. The CEC 2021 Interim Investment Plan includes a resilience and reliability theme which includes microgrids, however we would like to highlight community microgrids for consideration as a distinct initiative.

3. Coordination with Existing California Public Utilities Commission (CPUC) and Utility Programs:

In the cases where active IOU emerging technology efforts are being conducted outside of the EPIC program, the CEC’s Investment Plan should be complementary to these efforts. For instance, the following initiatives might include potential overlap:

- Initiative number 18: Enabling Plug-in Electric Vehicles (PEV) as Distributed Energy Resources.
- Initiative number 19: Integrating Distributed Energy Resources for Grid-Supportive Vehicle Charging.
- Initiatives number 24 through 33: These initiatives are under the Improve the Customer Value Proposition of End-use Efficiency and Electrification Technologies.

4. Comments Related to Initiative Number 18 Referring to Enabling Plug-in Electric Vehicles as Distributed Energy Resources Initiative:

As mentioned in item three above, we find that this initiative would be potentially complementary to existing IOU programs. Demonstrated bi-directional charging technologies can be market-tested in the market under existing and future IOU pilots.

Under PG&E’s current EPIC 3.27 Multi-Purpose Meter Project, PG&E is working on developing and demonstrating utility-grade, advanced metering infrastructure (AMI)-compatible PEV submetering and implementing the Plug-In Electric Vehicle Submetering Protocol (CPUC Rulemaking R.18-12-006) that can be used in residential, multi-dwelling, and commercial settings, which is flexible, safe, and reliable, and can be utilized in multiple grid support use-cases. Through this work we found that often accuracy and cost are countervailing forces. PG&E recommends that the level of accuracy of submeters be compliant with the American National Standards Institute (ANSI) C12.20.

Under its current EPIC 3.03 advanced distributed energy resource management systems (DERMS) and advanced distribution management solutions (ADMS) project, PG&E is working on enabling communication with distributed energy resources (DERs) for multiple public safety and grid support use-cases.

The description of this initiative could be interpreted as solely for the development of a bi-directional direct current (DC) charging approach. As this market is nascent, we suggest the additional consideration of a bi-directional alternating current (AC) charging approach where the inverter is on the

vehicle instead of in the charging equipment. As the number of bi-directional capable vehicles will dwarf DC charging points, the potential positive impact on the grid of including the bi-directional AC charging approach could be significant. PG&E recommends including PEV discharging mode into the PEV initiative scope.

5. Comments related to Initiative Number 19 Referring to Integrating Distributed Energy Resources for Grid-Supportive Vehicle Charging

The joint IOUs are authorized to conduct vehicle-to-grid (VGI) pilots under the CPUC Decision D.20-12-029 which are intended to scale adoption of VGI technologies and evaluate cost-effectiveness for use-cases. PG&E's pilots are large-scale beyond the laboratory research and small-scale demonstrations. PG&E would like to avoid duplicative efforts between the joint IOUs and the CEC in this space.

PG&E continues to support the public investments in RD&D to create and advance new clean energy solutions, foster regional innovation, and bring ideas from the laboratory to the marketplace. We appreciate the opportunity to comment on the EPIC 4 Investment Plan for the year 2021 to 2025 to continue investing in clean energy research. Please do not hesitate to contact me if you have any questions.

Sincerely,

Licha Lopez