

Residential Battery as Virtual Power Plant (VPP) Study

1. Overview

This study evaluates how BTM residential battery system can be used to provide value to the customers and the grid during grid emergency. The study will focus on customers with existing battery with solar.

The objective of the study is to evaluate:

- 1) What are the ex post load impacts using end-use battery data and premise data?
- 2) How do impacts using the end-use battery data compare with impacts at the household level?
- 3) Do the event calls lead to changes in consumption at the household level?
 - a. Is there an increase in a household's net discharge to the grid during an event?
 - b. Do residential batteries export to the grid during emergency events? Or are they used solely to offset the household's energy use?
- 4) What was the performance when consecutive events were called?
- 5) What is the full export (to the home and to the grid) capability?
- 6) What are the pros and cons of settlement of load impacts at the device (battery) level vs. premise meter level?
- 7) What is the customer experience when participating in this type of study?
- 8) How does the EM&V analysis compare with the settlement results?

2. Collaboration

The DRET team collaborated with the internal Distributed Generation team and the Integrated Grid Planning and Innovation Team to implement this study. PG&E hired a consultant to manage the EM&V for this DRET study and a third-party program administrator to support dispatch and calculation of customer compensation.

3. Results/Status

Below is the study enrollment status as of Sep 27, 2021

- Estimated DR load reduction potential from batteries discharge depends on day ahead or day of, in average 12.338 MW hours
- Total aggregate nameplate MW's – 9.723 MW
- Total number of customers enrolled – 1,059 customers
- Total number of enrolled batteries - 1,945 batteries

4. Next Steps

This assessment is scheduled to end on December 31st, 2021. PG&E will provide updates on the next bi-annual DRET report.