



## Staff Report Item 8

**TO:** East Bay Community Energy Board of Directors  
**FROM:** JP Ross, Sr. Director of Local Development, Electrification and Innovation  
**SUBJECT:** Battery Demand Response Pilot (Action Item)  
**DATE:** May 15, 2019

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### Recommendation

Receive an update and approve the Battery Demand Response Pilot.

### Background on Demand Response

Demand response programs provide incentives to customers to encourage them to reduce their energy demand during high priced periods. Demand response helps California manage its peak electricity demand, avoids the need for peaking power plants, reduces the cost of energy during certain hours, prevents pollution from peaking power plants, and increases the reliability of the grid. PG&E offers demand response programs to its residential and commercial customers. In addition, the California Independent System Operator (CAISO) allows companies and aggregators to bid load into the market.

The CAISO offers a Demand Response Program<sup>1</sup> for Demand Response Providers and aggregators to bid load into the day-ahead, real time and ancillary services markets. Participation in the ISO market requires significant investment and coordination which may limit participation, requiring a scheduling coordinator and ISO-certified revenue quality meters. Additionally, customers are not allowed to export power from behind the meter energy storage (BTM) when offering energy to the CAISO.

EBCE is in the second year running the PDP-EBCE program for large commercial customers, approved at the April 17, 2019 Board meeting<sup>2</sup> and plans to offer additional Demand Response programs to allow a diverse range of customers ways to participate in our energy market.

### The Proposal

After reviewing the existing demand response programs available to EBCE customers, EBCE staff proposes to offer a demand response program to customers and aggregators operating

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<sup>1</sup> <http://www.caiso.com/participate/Pages/Load/Default.aspx>

<sup>2</sup> <https://ebce.org/wp-content/uploads/Item-10-Demand-Response-Program.pdf>

BTM battery storage systems who can respond to market signals and increase battery discharge rates during high market pricing periods to reduce EBCE procurement obligations.

- **Eligible Participants:** all service points serviced by EBCE with a minimum battery capacity, individually or in aggregate, of 50kWh
- **Duration of the Program:** June 1, 2019 to October 31,2019
- **Compensation for participation:** \$100/MWh of delivered energy
- **Event Day Notification:** EBCE staff will monitor CAISO Real Time pricing to determine when market pricing will peak for EBCE and relay notification via email or phone call to participants 75 minutes prior to an Event start; defining the start hour and duration of the event. EBCE can call up to 45 events during the 2019 summer season.
- **Credit Calculation and Payment:** EBCE will obtain battery discharge logs from participants to develop a baseline charging regime for participating BTM battery systems. Compensation will be based on discharge levels above the baseline during event periods.
- **Customer Notification:** EBCE will issue a solicitation for participation in the program.
- **Program Cap:** 10 participants

### Analysis

According to publicly available data for battery storage incentives available through the Self Generation Incentive Program, there are 219 BTM batteries operating in EBCE territory totaling 3.7MW of battery storage. There are currently an additional 261 projects in development totaling almost 12.8MW of capacity. This is a low estimate of the batteries in operation, as not all systems will be captured in this data set. These distributed batteries are a key resource for EBCE to integrate into its energy management planning to provide both energy, and other services.

### Financial and Other Impacts

There is significant volatility in the California Energy Market. The average energy price since 2017 has been \$42/MWh. However, in 2017 and 2018 there were 272 hours when the energy price was been above \$150/MWh with 108 of those above \$300/MWh. Therefore, there is significant opportunity for EBCE to leverage our increasingly engaged and capable customers in innovative opportunities to mitigate these high prices.

The financial impact to EBCE should be positive. EBCE will be calling events when the Real Time Market is above \$150/MWh and compensating customers \$100/MWh. However, there is some exposure as EBCE is planning to give customers a 75-minute window to respond, and in that time period the Real Time Price may decline. EBCE can manage this exposure as the program operates by modifying when events are called.

As EBCE runs the program evolves we expect financial impacts to improve as automation and market responsiveness would increase.

The 2019 Battery Demand Response Pilot will be closely coordinated with EBCE procurement staff in order to maximize savings to EBCE by lowering costs during high priced periods. The program can generate several benefits:

- **Innovative Programs-** By offering customers this option, EBCE can deliver on our promise to develop innovative programs for our customers to increase energy market fluency and participation by our customers.
- **Demand Response Benefit -** By monitoring the CAISO market costs EBCE will continue to develop Demand Response efforts that can:
  - Lower load during peak hours - which are typically more expensive hours - resulting in potentially lower procurement costs to EBCE;
  - Decrease need for power generation from peaking power plants, which can result in less emissions; and,
  - Increase grid reliability.
- **Direct Experience in Demand Response Programs -** The will continue to generate valuable staff experience in implementing a demand response program. This will facilitate the future roll out of other programs that are more specifically tailored to the needs of Alameda County and EBCE.
  - For example, real time pricing was \$0/MWh or negative for 713 hours over the last 2 years driven by high solar production. There is additional opportunity to encourage customers to consume low cost renewable power with discounted energy prices in following Demand Response programs for charging batteries and EVs. The Demand Response pilot will give EBCE working knowledge of how we can utilize lower cost energy during these hours.

## Conclusion

This proposed program will enable EBCE staff to offer customers and aggregators with BTM battery systems to participate in the energy market and help lower energy procurement costs for EBCE while also creating an additional revenue stream for battery owners.