



Staff Report Item 14

TO: East Bay Community Energy Board of Directors
FROM: Taj Ait-Laoussine, Vice President of Technology and Analytics
SUBJECT: Demand Response Pilot (Action Item)
DATE: May 16, 2018

Recommendation

Approve the proposed Demand Response Pilot program to be offered to up to 100 E19/E20 customers in the summer of 2018, as a way to encourage continued demand response in exchange for a bill credit on par with current PG&E programs.

Background on Demand Response and Peak Day Pricing

Demand response programs provide incentives to customers to encourage them to reduce their demand during critical peak 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, there are third-party providers in California who aggregate demand response.

Peak Day Pricing (PDP) is a demand response program offered by PG&E to non-residential customers. PDP is a default but optional rate component that provides participants a discount over regular electricity rates throughout the summer (May 1 to October 31). However, PG&E may designate up to 15 summer days as 'Event Days', during which customers will incur a surcharge between 2pm and 6pm. Event Days are declared based on weather conditions. Customers are notified one day ahead of Event Days, and are encouraged to shift or reduce their load from 2pm to 6pm the next day to avoid surcharges and help alleviate peak demand.

Unlike most other Demand Response programs, CCA customers are currently not eligible to participate in PG&E's PDP program. EBCE proposes to conduct a pilot demand response that would be built much like PG&E's PDP program, and provide customers an opportunity to lower their costs in exchange for providing a demand response benefit to California in general, and to EBCE in particular.

The Proposal

After reviewing historical customer data, discussing PDP with key customer accounts, and analyzing the impact of PDP on customer bills, EBCE staff proposes to offer a pilot demand response program to a subset of customers, to encourage them to continue to provide demand response in exchange for a similar discount/surcharge rate structure as PDP. The specifics are as follows:

- **Eligible Customers:** all service points on E19 or E20 rate schedules that are currently enrolled in PDP. There are currently 1,506 customers that meet these criteria. This subset of customers has been selected because 1) they represent some of the largest EBCE accounts; 2) they are more likely to be aware of the PDP program and to actively manage their load (thereby providing a demand response benefit and receiving a commensurate bill reduction); and 3) their PDP credit is relatively straightforward to calculate. The pilot will be limited to 100 service points.
- **Duration of the Pilot:** June 1, 2018 to October 31, 2018
- **Proposed Discounts & Surcharges:** The discounts and surcharges are delineated in Table 1 below. The billing adjustments shown are identical to the ones offered by PG&E.

Table 1

Rate Schedule	Event Surcharge (\$/kWh)	Peak kW Credit (\$/kW)	Part Peak kW Credit (\$/kW)
E19P	\$1.20	\$5.66	\$1.38
E19S	\$1.20	\$5.82	\$1.44
E19T	\$1.20	\$4.20	\$1.05
E20P	\$1.20	\$6.22	\$1.47
E20S	\$1.20	\$5.69	\$1.40
E20T	\$1.20	\$5.95	\$1.42

- **Event Day Notification:** EBCE staff will monitor PG&E systems and relay notification via email or phone call to the pilot customers whenever an Event Day is declared, one day ahead of the event.
- **Credit Calculation and Payment:** At the end of the PDP Season, EBCE will calculate the discounts and surcharges for each customer enrolled in the pilot. If the sum of all credits and surcharges is in the customer's favor, EBCE will issue a credit to the customer. If the sum of all credits and surcharges is not in the customer's favor, the customer will not receive any bill adjustments.
- **Customer Notification:** If the pilot is approved, EBCE staff plans to send all qualified E19 and E20 customer a separate notice informing them of the opportunity to enroll in the pilot.

As stated above, in the event that the customer has a net loss from participating in the pilot program (i.e. event day surcharges exceed credits), EBCE staff recommends that no charge be levied against the customer. This is essentially a form of bill protection, ensuring that the

customer does not risk being penalized for participating in this pilot program. PG&E offers a similar bill protection to PDP customers during their first year of enrollment.

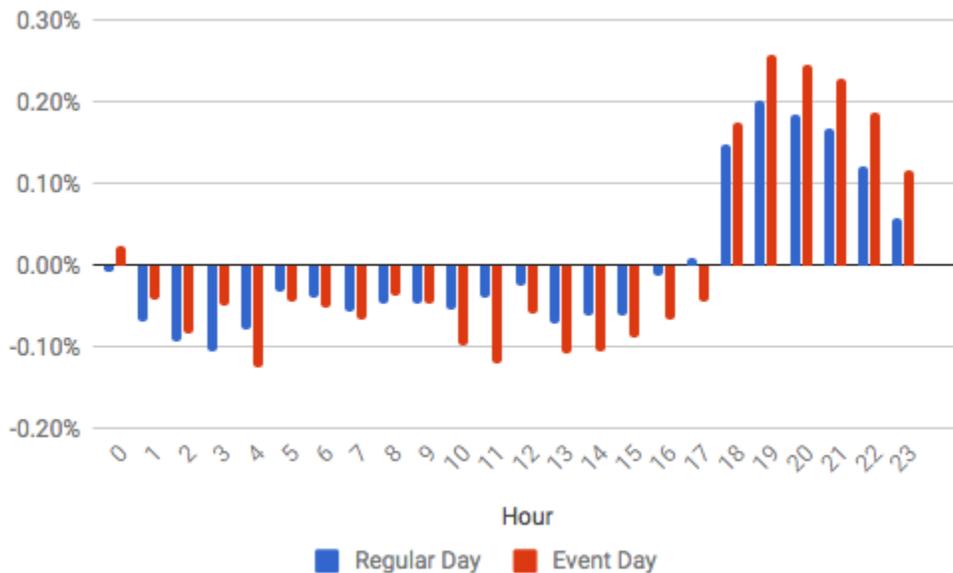
Analysis

This proposal is informed by an analysis of EBCE PDP customers, a comparison of those customers to non-participating customers, and an informal review of what other CCAs are doing.

The analysis of E19 and E20 PDP participants provided the following insights:

- As illustrated in **Figure 1** below, in aggregate PDP participants ‘deepen’ their energy usage reduction during event days and hours, when compared to non-participants and non-event days. The figure shows 24 groups of bars, one for each hour of the day, averaged over the summer of 2017. Each bar represents the difference between the percent of daily load in that specific hour for PDP participants, minus the percent of daily load in that specific hour for non-participants. The blue bars represent the calculations for regular days, and the red bars represent them for event days. The sum of all the blue bars and all of the red bars is zero. While this is a complex way of analyzing the data, it clearly illustrates how hours 14 through 17 (the event hours) are significantly lower during event days (red) than non-event days (blue) and most other hours. This indicates that on event days, PDP customers shift some of their load from event hours to other hours.

Figure 1 PDP Participants vs. Non-Participants



- Overall, most PDP participants are actually net losers in the PDP program, because they are either not aware of the program or are not actively managing their load. Only

158 E19/E20 customers appear to be benefitting from the program, while 1,346 customers appear to be losing by being on the program¹.

What Other CCAs Are Doing

Other CCAs have faced the same issue with enrolling customers that participate in PG&E's PDP program, and have handled it in different ways:

- **Do Nothing** - Do not inform the customers and let them make their own decisions.
- **Customer Notification** - Send customers a letter indicating that the PDP program and CCA enrollment are not compatible and let them decide how to proceed with opt-outs.
- **Bill Protection without Event Notification** - Provide customers with a bill protection mechanism that recalculates their bill at the end of the season, and credits them as appropriate based on the PDP rates. Some CCAs are doing this bill protection upon request, others are offering it for all PDP-enrolled customers.
- **Event Notification and Bill Protection** - Provide customers with notification of event days, encourage them to respond, and recalculate their bill at the end of the season based on PDP rates.

The recommendation of EBCE staff is essentially the same as the last option. This option is currently being contemplated by another CCA, but has not yet been implemented. Staff recommends against only providing bill protection without event notification, since this is effectively compensating the customer without giving them any signal to alter their demand. This dilutes the demand response benefit of the program.

Financial and Other Impacts

Using 2017 data and 2018 rates, EBCE staff was able to calculate an approximate cost/benefit for each E19/E20 customer enrolled in PDP (see footnote 1 on the previous page). If all customers were allowed to enroll, the data indicates that the cost to EBCE would be between \$200K and \$450K, with an expected average of \$300K. The total load of all 158 customers that would be receiving a credit amounts to 33,000 MWh. So, in aggregate, this represents an average credit of 0.9 cents/kWh.

Given how the pilot program is being designed, EBCE staff estimates no significant additional costs to execute and implement the pilot. The enrollment, notification, and calculation of bill credits will be performed by existing EBCE staff. There may be a nominal one-time cost to issue the credits through the billing system (to be determined).

The pilot program could generate several benefits:

- **Customer Retention** - By offering customers this option, EBCE can remain competitive with PG&E by providing the full range of credits available. Anecdotal evidence indicates that this can help customers elect to remain with EBCE service, and even opt-up to the premium product offering.

¹ This analysis is approximate as it is based on hourly data rather than 15 minute data, and since specific customer enrollment options such as capacity reservations are not necessarily known. It is deemed directionally accurate.

- **Demand Response Benefit** - By continuing to provide customers the demand response signal through Event Day Notification, this proposal ensures that EBCE receives more of the demand response benefit than a simple bill protection mechanism. This benefit can manifest in multiple ways:
 - Lower load during peak hours - which are typically more expensive hours - resulting in potentially lower procurement costs to EBCE;
 - Decreased need for power generation from peaking power plants, which can result in less emissions; and,
 - Increased grid reliability.

- **Direct Experience in Demand Response Programs** - The pilot should generate valuable staff experience in implementing a demand response program. This could facilitate the future roll out of other programs that are more specifically tailored to the needs of Alameda County and EBCE.

The pilot will also seek to more clearly understand the costs and benefits of operating such a program and will use metered and market pricing data to calculate a more complete cost/benefit analysis.

Conclusion

This proposed pilot program will enable EBCE staff to offer large energy users an option equivalent to PG&E's PDP program. This will allow those customers to benefit from the same types of bill credits available to them under PG&E service, allowing EBCE to remain competitive. Unlike a simple bill protection mechanism, this program will continue to encourage those customers to provide a demand response benefit and will allow EBCE staff to better understand the costs, benefits, and mechanics of implementing a demand response program.

RESOLUTION NO. _____

A RESOLUTION OF THE BOARD OF DIRECTORS
OF THE EAST BAY COMMUNITY ENERGY AUTHORITY
APPROVING A PILOT DEMAND RESPONSE PROGRAM

THE BOARD OF DIRECTORS OF THE EAST BAY COMMUNITY ENERGY AUTHORITY DOES HEREBY FIND, RESOLVE AND ORDER AS FOLLOWS:

Section 1. The East Bay Community Energy Authority (“EBCE”) was formed on December 1, 2016, under the Joint Exercise of Power Act, California Government Code sections 6500 *et seq.*, among the County of Alameda, and the Cities of Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Piedmont, Oakland, San Leandro, and Union City to study, promote, develop, conduct, operate, and manage energy and energy-related climate change programs in all of the member jurisdictions.

Section 2. Demand response programs provide incentives to customers to encourage them to reduce their demand during critical peak periods. Peak day pricing (“PDP”) is a demand response program offered by PGE to non-residential customers. The PG&E program offers participants a discount over regular electricity rates throughout the summer (May 1 to October 31). EBCE customers are not eligible to participate in PG&E’s PDP program.

Section 3. EBCE proposes to conduct a pilot demand response PDP program similar to PG&E’s PDP program to provide customers an opportunity to lower their usage during critical peak hours when needed, reducing their summer energy costs, and allowing EBCE to understand how PDP can help EBCE better manage the peak electricity demand, avoid reliance on peaking power plants, increase the reliability of the grid and overall better

Section 4. The Board of Directors hereby approves the proposed Demand Response Pilot program to be offered to up to 100 E19/E20 customers in the summer of 2018, in order to encourage continued demand response in exchange for a bill credit on par with current PG&E programs.

ADOPTED AND APPROVED this 16th day of May, 2018.

Scott Haggerty, Chair

ATTEST:

Stephanie Cabrera, Clerk of the Board



Proposed Pilot Program Demand Response

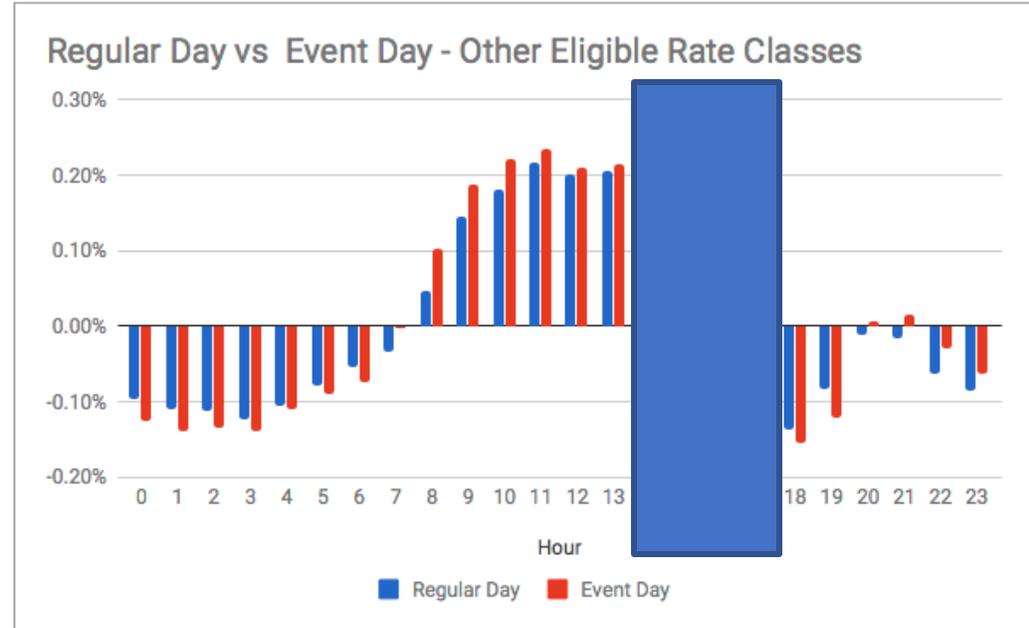
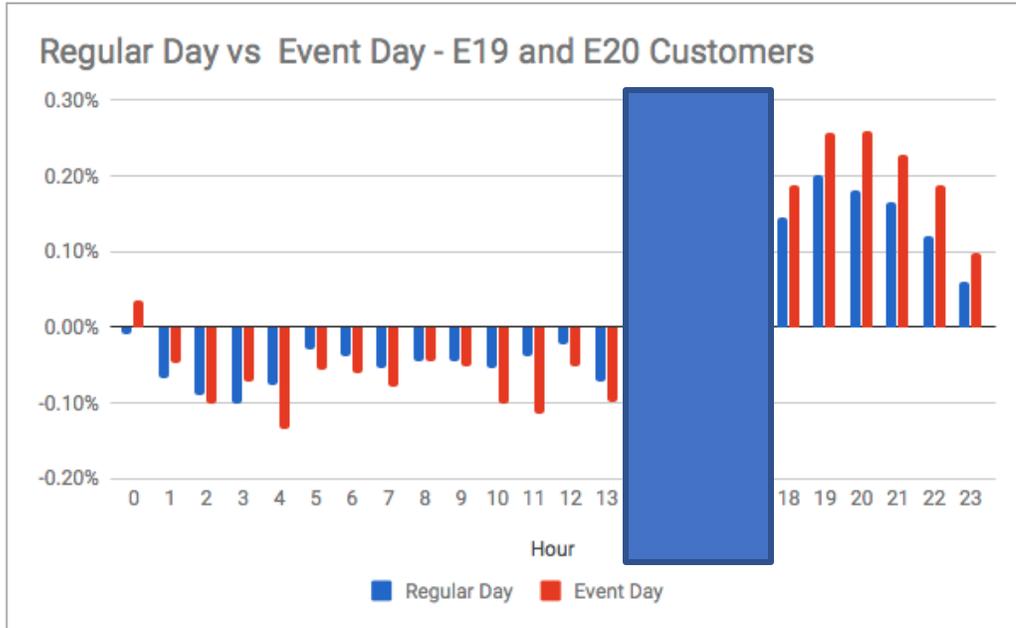
Taj Ait-Laoussine
May 16, 2018



OVERVIEW

- Demand Response provides incentives to customers to reduce demand during critical peak hours.
- Peak Day Pricing (PDP) Program at PG&E:
 - Default but Optional Program
 - Runs May 1 through October 31
 - Up to 15 Event Days per season, declared on day ahead, 2pm to 6pm
 - Lower summer rates, but significant surcharges during event periods
 - ~30K EBCE Prospective Customers Currently Enrolled, ~ 30% of total load
 - For some large accounts, seasonal credits > \$100K, > 7% of Summer Bill
- PDP is not compatible with CCA Service.

Impact of PDP Participants



- Each bar represents the difference between the percent of daily load in that specific hour for PDP participants, minus the percent of daily load in that specific hour for non-participants. The blue bars represent the calculations for regular days, and the red bars represent them for event days. The sum of all the blue bars and all of the red bars is always zero across the day.
- The left chart illustrates the behavior of E19 and E20 participants, the right chart for all other eligible rate classes.
- Data on the left indicates that E19 and E20 participants have lower loads during the target hours when compared to regular customer, and deepen their load reductions during event hours.
- Data on the right indicates that customers on other rate classes are not as well aligned with target hours, and overall do not provide much of an increase in load reduction.

Proposal

- Provide a program equivalent to PDP, on a pilot basis
- Open to E19 / E20 customers, currently on PG&E's PDP, up to 100
- EBCE will provide event day notification to motivate demand response
- EBCE will calculate credit / surcharges at the end of the season
- Customers will be credited any net credit left after event day charges have been deducted

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E20S	\$1.2	\$5.69	\$1.40
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Impacts

- Costs – additional credits expected on the order of \$200K - \$400K
- Potential Benefits
 - Remain competitive with full PG&E product options
 - Reduce peak demand and peak procurement costs
 - Reduce need to rely on peak power plants
 - Increase grid reliability
- Learning from the Pilot
 - Mechanics of implementing a customer program
 - More fully refined cost / benefit analysis.