

Commercial Demand Response Program PROGRAM RULES

ATTACHMENT A

Issued: January 11, 2022

Version 6.0

The Commercial Demand Response (“DR”) Program (“Commercial DR Program”) is a year-round program that offers eligible customers of Hawaiian Electric Company, Inc. and Maui Electric Company, Limited (collectively the “Companies,” individually “Company”) a monthly bill credit for electing to reduce their electricity usage (or demand) in response to requests from the Companies. Commercial DR Program Participants are able to determine their individual load shed capabilities and pre-program their load reduction strategies or Curtailment Schemas in their facility Energy Management System.

Participants shall comply with the Program Rules for their Participation Option as set forth below. The Program Rules are subject to changes or modifications by either the Hawai'i Public Utilities Commission or the Companies. Capitalized terms used but not defined in these Program Rules shall have the meaning set forth in Attachment B (Definitions).

1. Program Description

- 1.1. The Commercial DR Program terminates annually at end of each calendar year. Prior to termination of the Commercial DR Program, the Companies may request approval from the Hawai'i Public Utilities Commission (Commission) to extend or otherwise transition Commercial DR Program Participants to other available DR programs of the Companies.
- 1.2. For Automatic DR (“Auto-DR”), load curtailment signals are sent to the Participating Facility through a DR Automation Server. Signals are received by the Participating Facility via a device installed at the site that initiates the pre-defined routines to reduce demand. This is a “machine-to-machine” process requiring no human intervention or effort. DR Event notification occurs concurrent with transmission of the signal. Load must be curtailed within 10 minutes of DR Event notification.
- 1.3. Participant Incentives.
 - 1.3.1. \$5.00 per kilowatt (kW) or \$10.00 per kW based on Participant’s Nominated Load, DR Event Frequency (see Section 3), and performance during each DR Event.
 - 1.3.2. Additional \$0.50 per kW per hour (kWh) of load curtailed during DR Events as an Energy Reduction Incentive, subject to the limitations set forth in Section 9.6.
 - 1.3.3. Incentives shall be paid in the form of a credit on Participant’s bill, or at the sole discretion of the Companies, by monthly check.

2. Eligibility

- 2.1. Customer demand at each Participating Facility must be equal to or greater than 200 kW. Each Participating Facility must be able to provide at least 50 kW of curtailable load per DR Event. Nominated Loads shall not be aggregated from multiple customer sites.
- 2.2. Customer must be receiving electric power service under Schedule P, Schedule J, or Schedule DS.
- 2.3. Customer must be willing to curtail load immediately (Auto-DR) when requested to do so (activation of DR Event) by Companies.
- 2.4. Participant must be willing to be enrolled for at least one (1) year.
- 2.5. The condition of the customer's equipment must meet minimum operational and safety standards.
- 2.6. The Companies reserve the right to make the final determination of the customer's eligibility for participation in the Commercial DR Program.
- 2.7. Customers may rely on generators as a component of their Curtailment Schema. Customers are responsible to comply with all applicable laws related to owning and operating a generator that is included in the Curtailment Schema.

3. DR Event Options

- 3.1. DR Events may be triggered during Program Hours. Participant may choose one of the following program options, if available to new customers:

Program Option	Fast DR (40 events)	Fast DR (80 events)	Maui Fast DR (Generators)	Maui Fast DR (40 events)
Event Hours	7am-9pm weekdays	7am-9pm weekdays	All day	All day
Generator Type	Curtailment Only	Curtailment Only	Non-emergency Only	Curtailment Only
Annual Limit	40 hrs/yr	80 hrs/yr	40 hrs/yr	40 hrs/yr
Daily Event Limit	1	1	4	4
Event Duration Limit	1 hr/event	1 hr/event	1 hr/event	1 hr/event
Number of Events Limit	40/yr	80/yr	40/yr	40/yr
Nominated Load Incentive	\$5/kW-month	\$10/kW-month	\$5/kW-month	\$5/kW-month
Energy Reduction Incentive (ERI)	\$0.50/kWh	\$0.50/kWh	\$0.50/kWh	\$0.50/kWh

4. Consequences for Non-Compliance

- 4.1. Consistent underperformance or over performance by Participating Facilities during DR Events may lead to adjustment of Nominated Load. Consistent underperformance may lead to suspension from the Commercial DR Program. Whenever Participant's Monthly Performance Level (see Section 9) falls below 0.80 or above 1.2 during two (2) consecutive months, Participant's Nominated Load may be revised to the average kW curtailed during the most recent full calendar month.

- 4.2. If a Participant does not perform above a 0.50 Event Performance Factor for three (3) consecutive events, the Participant may be suspended from the Commercial DR Program for two (2) months. At the discretion of the Companies, Participant may be required to demonstrate its ability to perform at an Event Performance Factor above 0.90 in a Commissioning Load Test subsequent to suspension from the Commercial DR Program to be reinstated. Participant will resume Commercial DR Program participation with capacity payments calculated at the demonstrated Nominated Load. If required, Participant's Contract shall be modified accordingly to reflect the demonstrated Nominated Load achieved during any required Commissioning Load Test.
- 4.3. Participant may elect to Opt-Out of the Commercial DR Program at any time. If a DR Event is activated while a Participant has Opted-Out, Participant will incur an Opt-Out DR Event. Participant can Opt-Out but will not be compensated for opting out, and if an event should occur during such time, the event shall be included in the Event Performance Factor calculation (see Section 9) where the Event Load Shed shall be equal to zero.

5. Program Operation

- 5.1. A DR Event may be initiated by the Companies for any reason deemed necessary by the Companies, for example when the electric system may be impaired or operated more efficiently.
- 5.2. Participant shall curtail load within 10-minutes when requested to do so (activation of DR Event) by Companies.
- 5.3. Following a DR Event, load may be restored by Participant only after receiving approval from Companies' system operations. The schema programmed in the Participant's Energy Management System will automatically restore to pre-defined normal operating conditions at the conclusion of the DR Event.
- 5.4. The Companies may periodically conduct tests to verify the Participants' ability to curtail their Nominated Load. Tests shall not exceed one (1) interruption per month and not more than 60 minutes per test DR Event and will count against the annual limits or number of events limit in Section 3.
- 5.5. If a Participating Facility is not available to participate in DR Events due to facility construction or other activities, Participant shall temporarily withdraw or Opt-Out of DR Events via the Companies' Demand Response Management System ("DRMS"). Customer will receive an Event Performance Factor equal to zero for all opt-outs.
- 5.6. If a Participant receives a DR Event notification or the DR Event has already begun, Participant may choose to Opt-Out, but Participant will incur an Opt-Out DR Event (see Section 4.3).

6. DR Event Notification

- 6.1. Participant shall designate a primary point of contact to receive program notification and informational updates. Participant shall provide name and phone number or e-mail address for primary point of contact and any other personnel who are designated to receive DR Event notifications. Participant shall keep contact information current.
- 6.2. A phone call, email, or text may be sent to Participants' designated facility representatives upon DR Event activation.

7. Enrollment

- 7.1. A Commissioning Load Test shall occur within 90 days of Contract execution, unless otherwise mutually agreed by Participant and Companies.
- 7.2. Participant agrees to collaborate with the Companies in testing the Load Management Equipment at each Participating Facility in a timely manner. Testing should be completed at least five (5) business days prior to registering the capacity in the Commercial DR Program in order to establish a baseline. Participant is not responsible for costs associated with the Companies' collection of real-time data from the Participating Facility, provided, however, that Participant shall be responsible for costs associated with submeter installation where necessary.
- 7.3. A new Commercial DR Program Participant begins with a Monthly Performance Level of 1.00 which is adjusted based on the Participant's Event Performance Factor (see Section 9). If Participant's initial first month is less than a full calendar month and no DR Events occur, Monthly Nominated Load Incentives shall be pro-rated for the month.
- 7.4. Incentives will begin accumulating on the day following approval of Participant's Commissioning Load Test. Participant will receive initial Nominated Load, and if an event occurs in that month, an Energy Reduction Incentives at the beginning of the first full billing cycle following approval of Participant's Commissioning Load Test.

8. Load Management Equipment

- 8.1. The Companies, at their option, may install, own, operate, and maintain a Revenue Meter with KYZ pulse outputs and telephone modem capability, as well as an isolation relay and Company-Owned Load Management Equipment, as needed at a Participating Facility.
- 8.2. The Companies may require Participant to install sub-metering for the purposes of measurement, verification, and settlement under, but not limited to the following circumstances: if the curtailable load is a small fraction of the total facility load, the Participant has a "co-generation" system, or metering infrastructure upgrades are cost prohibitive or disruptive to Participant. Participant will be required to install an ANSI C12.1 certified meter or better. The Companies shall have the right to verify meter connectivity and confirm that the meter is functioning to required standards.
- 8.3. Participant shall provide, at their own expense, a DR Gateway that is OpenADR 2.0b or better and is certified under the OpenADR Alliance testing program. The Gateway must be upgradable to meet any future cyber security updates. The Gateway must meet the most current cyber security feature set that the Companies' DRMS provides and be compatible with the Companies' DRMS, which shall also be certified under the OpenADR Alliance testing program. Failure to validate meeting this level of security for the Gateway within three (3) months of a new DRMS security update will result in disconnect from the DRMS. Participant may also be asked to provide certain cyber security information as requested by the Companies. The Participant will maintain the Customer-Owned Load Management Equipment.
- 8.4. Participant shall allow the Companies to use or examine the Gateway as necessary for performance and operational verification of the Commercial DR Program.
- 8.5. Participant shall provide a secure location (e.g., meter room, mechanical room, or an information technology closet), for the Load Management Equipment as described herein.
- 8.6. With reasonable advance notice to Participant, Participant shall provide the Companies or its agents or contractors with access to Company-Owned Load Management Equipment not installed at the same location as the Company's Revenue Meter on the Participant's premises.

- 8.7. At Participant's option, Participant shall be provided with KYZ pulse output from the Revenue Meter to the Gateway.
- 8.8. Participant shall provide a constant 120 VAC power source within 50 feet of the Gateway.
- 8.9. Participant shall provide a dedicated analog telephone line connection to the Revenue Meter and a reliable connection for the Gateway. Ethernet connection shall consist of a static Internet Protocol address and Local Area Network access that allows for continuous Internet-based communication from each Participating Facility to the DRMS. Participant shall be responsible for the monthly charges for any required communication costs, and for ensuring that the communication lines are in proper working order. Participant shall be responsible for monthly charges to provide required communications to Load Management Equipment.
- 8.10. Costs to install and commission Load Management Equipment, including the installation of the shadow meter, development, and installation of the Curtailment Schema on the Participant's Energy Management System (EMS) and any related monitoring and control equipment, and installation of any necessary communications equipment or wiring that exceeds the amount agreed upon by the Participant and the Company will be paid by Participant.
- 8.11. Participant, at its own expense, shall maintain Customer-Owned Load Management Equipment and provide notification of changes by Participant to its Participating Facility, modifications to its Commercial DR load curtailment operations or control schema, or actions by Participant that may adversely affect Company's system or service to any of Company's other customers.
- 8.12. Participant, at its own expense, shall supply, install, and maintain any protective or switching equipment at the Participating Facility that may be required to participate in the Commercial DR Program.

9. Commercial DR Program Incentive Calculation

Participant shall receive, in the form of a credit on their bill, two forms of incentive payments: the monthly Nominated Load (capacity) Incentive (kW reduction) and the Energy Reduction Incentive (kWh reduction) for each DR Event. The Energy Reduction Incentive is calculated for each event based on the actual energy reduction demonstrated by the Participant.

9.1. Monthly Nominated Load Incentive

The Monthly Nominated Load Incentive for Commercial DR Events is up to \$5.00 per kW or \$10.00 per kW (See Section 3) per month. Monthly Nominated Load Incentives are calculated based on a Participant's performance during DR Events, or in months where no DR Events occur, Monthly Nominated Load Incentives are based on 100% of Nominated Load. The difference between a Participant's actual energy consumption (Actual Baseline) during a DR Event and the Adjusted Baseline during the DR Event day is the foundation for calculating a Participant's performance. Participant performance is calculated for each DR Event in a given month using the Event Performance Factor methodology (see Section 9.4). The Monthly Nominated Load Incentive will be adjusted based on the Participant's Event Performance Factor during each DR Event.

9.2. Estimated Baseline Calculation

The purpose of the Estimated Baseline is to establish what a Participant's normal energy usage would be based on a Participant's historical energy usage data. The Estimated Baseline kW uses five (5) minute interval data to calculate the average demand of the ten (10) previous

Similar Usage Days (weekdays, non-holidays, non-event days) prior to the DR Event day. The Estimated Baseline establishes the average normal demand for the Participating Facility for the period prior to and during the DR Event period based on the corresponding interval points from the previous ten (10) Similar Usage Days.

9.3. Adjustment Factor

In order to account for days when abnormal energy usage may occur (e.g., higher or lower demand than normal due to weather conditions or other anomalies), the Estimated Baseline is adjusted by using an Adjustment Factor. The Adjustment Factor is based on the difference in Actual Baseline and Estimated Baseline calculated for a Calibration Period. The Calibration Period is the first three (3) hours of the Adjustment Period. The Adjustment Period is a minimum of four (4) to a maximum of five (5) hours in duration. The start of the Adjustment Period is aligned to the beginning of the hour in which the DR Event starts. The Adjustment Factor is calculated as the ratio of the Actual Baseline to the Estimated Baseline during the Calibration Period. The value of the Adjustment Factor is capped at 1.20 or less and 0.80 or greater. The Estimated Baseline calculated for the DR Event period is multiplied by the Adjustment Factor which results in the Adjusted Baseline. The Adjusted Baseline is used to calculate the Nominated Load (capacity) Incentive and the Energy Reduction Incentive.

9.4. DR Event Performance

The duration of the DR Event will be based upon the Companies' DRMS system event logs. The Actual Baseline recorded during the DR Event is subtracted from the Adjusted Baseline to calculate Event Load Shed in kW.

DR Event performance is then measured as a ratio of Event Load Shed to Nominated Load resulting in each Participant's Event Performance Factor.

$$\text{Event Performance Factor} = \frac{\text{Event Load Shed (kW)}}{\text{Nominated Load (kW)}}$$

Table 1: Event Performance Factor

Overall Event Performance Level	Event Performance Factor
0% to 250%	0.0 to 2.5 proportional to performance

From Table 1 above, given a Participant's Event Performance Factor, impact on the Participant's Nominated Load Incentive will be determined and included in the Monthly Nominated Load Incentive calculation.

9.4.1. Under Frequency ("UF") Event Performance

The DR Event Performance Factor for all UF Events is 100%. Only customers with UF Capability will be eligible for UF Events.

9.5. Monthly Nominated Load Incentive Calculation

The Event Performance Factor calculated for each event during the month shall be summed and divided by the number of DR Events for the month, as follows:

$$\text{Monthly Performance Level} = \frac{\text{Sum of Event Performance Factors}}{\text{Number of DR Events}}$$

The Nominated Load Incentive is \$5.00 per kW or \$10.00 per kW depending on the program option selected (See Section 3). Monthly Nominated Load Incentive shall be paid to Participants for each kW of Nominated Load, as specified in Participant's Contract and as adjusted by Participant's Monthly Performance Level, as follows.

$$\text{Monthly Nominated Load Incentive} = \text{Nominated Load (kW)} \times \text{Monthly Performance Level} \times \text{Nominated Load Incentive (\$)}$$

If no DR Events are called in a given month, Monthly Performance Level is equal to 1.00.

9.6. Energy Reduction Incentive

Energy savings attained (kWh) during DR Events are rewarded in the form of an Energy Reduction Incentive. The energy saved or curtailed during a DR Event is calculated by taking the difference between the total energy measured (or consumed) and the Adjusted Baseline.

$$\text{DR Event Energy Curtailed (kWh)} = \text{Adjusted Baseline (kWh)} - \text{Actual Baseline (kWh)}$$

The Energy Reduction Incentive is \$0.50 per kWh.

$$\text{Energy Reduction Incentive} = \text{DR Event Energy Curtailed (kWh)} \times \text{Energy Reduction Incentive (\$/kWh)}$$

9.7. Minimum Incentive Payment

If the Monthly Nominated Load Incentive is less than or equal to \$5.00 for any given month, the Monthly Nominated Load Incentive and Energy Reduction Incentive be deemed to be \$0.00.