DOCKETED	
Docket Number:	22-RENEW-01
Project Title:	Reliability Reserve Incentive Programs
TN #:	254327
Document Title:	OhmConnect Comments on DSGS Modifications
Description:	N/A
Filer:	System
Organization:	OhmConnect
Submitter Role:	Public
Submission Date:	2/5/2024 4:13:53 PM
Docketed Date:	2/5/2024

Comment Received From: OhmConnect
Submitted On: 2/5/2024
Docket Number: 22-RENEW-01

OhmConnect Comments on DSGS Modifications

Additional submitted attachment is included below.

OhmConnect

February 5, 2024

California Energy Commission
Docket No. 22-RENEW-01

Submitted Electronically

RE: Comments to Inform the California Energy Commission's Modification of Demand Side Grid Support Program Guidelines

OhmConnect values the opportunity to provide comments on proposed modifications to the California Energy Commission's ("CEC") Demand Side Grid Support ("DSGS") program guidelines in response to both the Notice of Staff Workshop and the workshop held on January 23, 2024. Our comments focus on the opportunity to maximize the amount of megawatts able to support the grid by increasing the quantity of dispatchable load modifying devices.

OhmConnect is a third-party Demand Response Provider (DRP) founded in 2013 and headquartered in Oakland, California. The company provides Demand Response (DR) services to residential retail electric customers in California pursuant to Electric Rules 24 (Pacific Gas and Electric Company (PG&E) and Southern California Edison Company (SCE) and 32 (San Diego Gas & Electric Company (SDG&E)). Specifically, OhmConnect's free software service notifies households of impending DR events and pays them for their automated energy reductions using in-home smart devices. OhmConnect is registered to participate as a DRP in the wholesale electricity market operated by the California Independent System Operator Corporation (CAISO).

Our response is organized in response to the questions posed to workshop attendees. The attached appendix contains suggested content to incorporate the proposal into the guidelines. OhmConnect looks forward to helping the CEC maximize the grid benefits of DSGS funding.

Respectfully submitted,

Elysia Vannoy
Regulatory Affairs Manager
OhmConnect, Inc.
2201 Broadway Suite 702
Oakland, CA 94612
Tel. (510) 200-8849
Email: elysia.vannoy@ohmconnect.com

What additional program modifications should be considered?

Recommendation: Create a new option for controllable devices with device-level telemetry and submeter measurement capability.

The CEC has the potential to dramatically expand controllable load by following the Option 3 model to create a new option for load modifying devices with device-level telemetry and submeter measurement capability, such as smart thermostats and smart water heaters. There are more than four million smart thermostats in California homes today and the market is growing rapidly. The state also has a goal of installing six million heat pump water heaters by 2030. The vast majority of existing devices are not currently enrolled in a demand response program and are not likely to enroll in a demand response program. These controllable smart devices represent a huge opportunity for load control and an opportunity for the DSGS program. Furthermore, the proposed option serves as both a stepping stone and proving ground for the CEC's Load Management Standards by creating a pathway for device level response to market-aware signals.

Creating a new device-level telemetry option would solve a major problem for demand response providers and unlock substantial untapped load reduction capacity. The click-through process, by which customers provide authorization to share their utility meter data with a third party, is a significant barrier to participation for hundreds of thousands of potential demand response customers. The proposed option removes the need for the click-through process by using device level telemetry to measure the energy savings generated by smart, in-home devices.

In addition to removing the click-through barrier to participation, a new device-level telemetry option could open up an important new path to market integration. Technological advances – pushed along by the CEC's implementation of SB 49 – provide reliable device-level energy data in an increasing number of appliances. By developing a means of accurately measuring and accounting for energy savings at the device level, the DSGS program can develop a model that CAISO could adopt to enable market settlement based on device data. This device level measurement pathway could also provide greater visibility for Publicly Owned Utilities to plan for device level load curtailment.

The program could use the customer's device serial number and home address to verify participation, and the OEM can verify and attest the device is not controlled or used for a conflicting DR program. The proposed option would enable the addition of hundreds of thousands of devices to respond to grid needs.

Proposal Basis for Device Level Telemetry Virtual Power Plant Option
We recommend that many of the guidelines for DSGS Option 3 are mirrored, including price triggers, notifications, caps on dispatch hours, and incentives for the device-level telemetry option. Proposed incentives are based on the DSGS Option 3 capacity incentives for BTM Storage Capacity Prices by Month for the 2-hour option. Additionally, some of the following eligibility requirements and language is based on the IOU's Smart Controllable Thermostat rebate programs. Proposed language for the guidelines is detailed in the appendix. Recognizing the need for approved program guidelines prior to May, the development of this proposed option is best achieved on a separate track that could be implemented with a mid-season update to the guidelines.

Measurement & Validation of Devices

Smart Thermostats
For 2024, thermostats should be assigned a kW capacity value based on publicly available data.[1] A conservative estimate for thermostats is 0.5 kW per thermostat. Run time data should be used to verify DSGS event participation and determine that reductions are taking place.

In future years, CEC could adopt a methodology developed by Recurve that has been judged by CAISO to be tariff-compliant, which CEC could apply to existing, available data sources that already are integrated in the Recurve platform in order to compute actual, achieved savings.[2]

Smart heat pump & resistance water heaters
There are two standards which can be used to inform the capabilities of device level participation of demand flexible electric water heaters (for both resistance and heat pump types): 1) Air-Conditioning, Heating, and Refrigeration Institute ("AHRI") Standard 1430-2022 (I-P), and 2) California Energy Commission 2022 Building Energy Standards, Joint Appendix 13 ("JA13") - Qualification Requirements for Heat Pump Water Heater Demand Management Systems. The AHRI and JA13 standards both detail the necessary connectivity, communication, management, and equipment response functions that meet the proposed DSGS device requirements and enable the measurement and validation of program participation. Both AHRI 1430-2022 (I-P) and Joint Appendix 13 ("JA13") compliant water heaters offer the following data points to support demand response: power demand (watts) and cumulative energy consumption (watt-hours).[3]

Utilizing device level energy usage, the baseline methodology for the Power Saver Rewards ("PSR") program should be used to calculate energy savings during an event to arrive at demonstrated capacity. Olivine, the program administrator, has existing processes to implement the event savings calculations for the Emergency Load Reduction Program ("ELRP") and could readily adapt them for DSGS.

Additional Considerations

Maintaining Integrity of Resource Adequacy
It is important to note that this device level option is complementary to resource adequacy and not a substitute. As discussed in further detail below, prospective DR enrollees' high rate of failure to complete the click-through data authorization process results in interested customers being left out of a DR program and lost MWs of controllable load. The proposed option provides customers with a simple and easy

---

[1] Southern California Edison Company (U 338-E) Compliance Filing Pursuant to Load Impact Filing Requirements (filed 4/3/23 in Docket R.13-09-011) at 25 indicates 0.9kW impact for SEP;Pacific Gas And Electric Company 2023-2027 Demand Response Programs, Pilots, And Budgets 2024-2027 Full Proposal Prepared Testimony (Docket A.22-05-002) at 3-41 indicates a 0.57kW impact per smart thermostat; San Diego Gas and Electric Company Report on Interruptible Load and Demand Response Programs (filed 1/22/24) Average Ex Post Load Impact kW/Customer Table indicates 0.41 kW per customer impact for the AC Saver Day Ahead Residential Program.

[2] Glass, J., Suffian, S., Scheer, A., and Best, C. (2021). Demand Response Advanced Measurement Methodology: Analysis of Open-Source Baseline and Comparison Group Methods to Enable CAISO Demand Response Resource Performance Evaluation.

[3] California Energy Commission, (2022). Building Energy Standards, Joint Appendix 13 - Qualification Requirements for Heat Pump Water Heater Demand Management Systems, at 13-4.

program enrollment resulting in participation in a *temporary* program that provides grid benefits. The market integration of DR customers is, and continues to be, the most lucrative path for aggregators and participants. Enabling device level participation in the DSGS program can inform the development of a model that CAISO could adopt to enable market settlement based on device data.

Dual Participation
The verification of participation in a conflicting program is a salient issue for both the CEC and DSGS providers to prevent double compensation for energy reductions. The scale of the issue is small for two reasons: 1) DR participation levels, and 2) device level information. First, only approximately 2-5% of all residential customers participate in load-modifying or market integrated IOU DR programs, with a comparably low percentage participating in third-party market integrated DR. Second, connected devices are required to participate in many IOU and third-party DR programs and manufacturers and/or aggregators know which entities control a device. A device exclusively controlled by an aggregator is highly unlikely to be participating in a conflicting program. In instances of conflicting program control and/or multiple authorizations, these devices would not be enrolled in DSGS. Exclusive or non-conflicting control would both be attested to by the aggregator and demonstrated as part of an audit or invoicing process. Regarding ELRP, customers defaulted into the program often do not share the same characteristics as smart device adopters. Dual enrollment of devices is a low risk for both the CEC and aggregators.

Aggregators will bear the risk that some of the participants enrolled might later be deemed ineligible for DSGS incentives. To support the enrollment validation contributions of the various parties, the CEC should continue to provide administrative budgetary support to entities supporting this process. Third party DRPs have an existing bilateral process to resolve enrollment conflicts that allows customers to choose which program they prefer. Under this option, aggregators' DSGS invoices will not be paid until after validation of dual enrollment is complete, a process that could take weeks or even months.

What are the barriers to enrollment and participation for both providers and participants?

The primary barrier to enrollment and participation for both providers and participants is the click-through process, impeding the widespread participation of automated devices in a DR program. Half of residential customers that begin the process of enrolling in a DR program fail to complete the click-through data authorization process.[4] OhmConnect, Leap, and the California Efficiency and Demand Management Council offered solutions to improve the click-through process, but these suggestions were ignored in the California Public Utilities Commission's decision.[5] Requiring customers to authorize sharing of their IOU meter data in addition to releasing device level data would not only be redundant, but drive away customers who would otherwise consent to their devices participating in DSGS. Providing a DSGS option tailored to device level participation removes this barrier to participation by using device level data to measure demand reductions rather than relying on meter data from IOUs, and utilizes a standardized street address to uniquely identify program participants without the use of personal identifiable information.

What is a reasonable deadline for submitting incentive claims to ensure timely reporting of performance while providing sufficient time to providers and participants to gather the

[4] California Public Utilities Commission Docket A.18-11-015, Ex. OHM-0601, at p. 10.
[5] California Public Utilities Commission Decision 23-09-006.

necessary data?

For options that rely on interval data provided by utility distribution companies, the untimely provision of accurate settlement quality meter data can delay the calculation of incentive claims. A reasonable deadline for submitting incentive claims that provides sufficient time to receive the necessary data is at least 90 days.

APPENDIX

Incentive Option 3.X: Device Level Telemetry Virtual Power Plant Pilot

A. Aggregator Eligibility

A DSGS provider, or its authorized third party, is considered a device level telemetry VPP ("DLTVPP") aggregator when administering Incentive Option 3.X. Third-party providers, POUs, and CCAs are eligible to serve as device level aggregators. POUs and CCAs may serve only customers for which they serve as the LSE or retail provider.

A DLTVPP may consist of smart controllable thermostats, smart water heaters, or other smart load-modifying devices.

To be eligible to serve as a DLTVPP aggregator of Incentive Option 3.X, DLTVPP aggregators must:

- Have the participant's exclusive authorization to send dispatch signals or directly control individual devices;
- Standardize participant addresses through USPS API for address verification;
- Agree to adjust the device settings during DSGS events;
- Collect and provide hourly or subhourly device telemetry data to the CEC;
- Receive authorization from participants allowing for the use of their device for the purpose of DSGS Program participation;
- Provide the serial numbers of the participating devices;
- Attest to control over each participating device and no awareness of conflicting programs to the best of their knowledge;
- Verify all enrolled serial numbers and that the devices are communicating with the DSGS provider and setpoints are able to be adjusted.

B. Participant Eligibility and Enrollment

Eligible participants must:

- Be a residential customer;
- Have a device that has settings that can be adjusted to reduce energy usage during an event and be cellular or Wi-Fi enabled and connected to the internet;
- Authorize the use of device level data for the purpose of participating in DSGS;
- Acknowledge and agree to prohibition on dual enrollment in a conflicting program;
- Permit contact from the DRP and CEC to perform enrollment verification activities;
- Acknowledge that the program administrator may contact them to verify that the device enrolled in the program is installed on site.

The DLTVPP aggregator must submit the following accurate and complete information for each enrolled participant in a form provided by the aggregator:

- service address (standardized through United States Postal Service API);

- email address or phone number;
- device type;
- device manufacturer;
- device serial number;
- utility;
- authorization allowing the use of participant device data for purposes of program participation.

DLTVPP aggregators must collect and retain participant enrollment information, which may be reviewed by the CEC in an audit as described in Chapter 7, Section D.

C. Incentives

Monthly incentive amounts are the same dollars per kW as Option 3 for the two hour duration. Incentive payments shall be made to DLTVPP aggregators based on the demonstrated load curtailment capacity of the device level DLTVPP. DLTVPP aggregators shall allocate incentive payments between the DLTVPP aggregator and its participants pursuant to the terms and conditions agreed to between the DLTVPP aggregator and participant. DLTVPP aggregators shall be eligible for a payment for demonstrated capacity at the rates defined in Table X based on the capacity (kW) demonstrated by the DLTVPP aggregator in each month.

An additional 30 percent bonus shall be applied to capacity incentives for program year 2024 for early participation in the program. Additional bonuses in future years may be provided at CEC discretion.

Additionally, DLTVPP aggregators shall receive incentives for the months of May, June, and July 2024 based on their highest monthly demonstrated capacity shown in program year 2024.

D. Program Availability and Event Triggers

Program events may occur only during the following times:

- **Daily Availability:** Starting no earlier than 4:00 p.m. and ending no later than 9:00 p.m.
- **Weekly Availability:** Seven days a week
- **Maximum Events:** Thirty-five events per program year (May–October). If the events called in a month bring the total for a given resource to more than 35 events for that program year, the events in that month with the highest performance shall be included in the 35-event maximum and used to determine demonstrated capacity. Participation in more than 35 events is not required.
- **Minimum Events:** One per month (may be a test event called by the DLTVPP aggregator in the absence of a DSGS Program event)

An event is defined by any hour that meets both of two price-based criteria within the program hours. An event may last from one hour to the maximum resource duration. For all resources, price is defined as the California ISO day-ahead locational marginal price (LMP)

for the default load aggregation point (DLAP) of the host UDC, or the Path 15 zone of the host UDC if a DLAP is not available.[6] These criteria are:

- **Absolute Price Trigger:** The LMP must be greater than or equal to $200/MWh. If no hours within the program window meet this threshold, no event shall be called.
- **Nonconsecutive Prices ≥$200/MWh:** If multiple hours within the program window meet the absolute price trigger but are not consecutive, the hour or hours in between shall also be considered to meet this criterion.
- **Relative Price Trigger:** The hours with the highest mean consecutive LMP over the duration of the 2-hour capacity commitment. If the number of hours where the day-ahead LMP ≥$200/MWh exceeds the nominated capacity duration, only those consecutive hours with the highest mean LMP shall be considered event hours.
- **Equal Values:** If the highest mean consecutive hourly price applies to more than one set of hours (that is, if there is a tie), the event will be the first (that is, earliest) set of hours meeting these conditions.

For example, the performance of the 2-hour resource will be measured over the two highest-priced consecutive hours that meet or exceed $200/MWh during the 4:00 p.m.–9:00 p.m. program window. If more than two hours meet or exceed $200/MWh during this window on a given day, only the two highest-priced consecutive hours will count toward performance. If less than two hours meet or exceed $200/MWh, only those hours will count toward performance.

In the absence of a program event during a participation month, a DLTVPP aggregator must define one or more test events to substantiate a demonstrated capacity value. The test hours must be consistent with the relative price trigger (that is, must occur during hours with the highest consecutive LMPs within the program hours) and last for the duration of the capacity commitment. A DLTVPP aggregator may take the highest performance of multiple test events as the demonstrated capacity. Test events do not count toward the maximum number of DSGS events.

E. Measuring Performance

Performance is measured differently based on device type.

Smart Thermostats

For 2024, thermostats will be assigned a 0.5kW savings value for demonstrated capacity, based on publicly available data.[7] Thermostat runtime data will be used to verify DSGS event participation. Future program years may utilize a methodology to calculate individual thermostat savings to determine demonstrated capacity.

Smart Water Heaters

[6] The UDCs and corresponding aggregate pricing node IDs are Pacific Gas and Electric ("DLAP_PGAE-APND"), Southern California Edison ("DLAP_SCE-APND"), San Diego Gas & Electric ("DLAP_SDGE-APND"), and the POUs of Anaheim, Azusa, Banning, Pasadena, Riverside, and Vernon (SP15, "TH_SP15_GEN-APND").

[7] Southern California Edison Company (U 338-E) Compliance Filing Pursuant to Load Impact Filing Requirements (filed 4/3/23 in Docket R.13-09-011) at 25 indicates 0.9kW impact for SEP;Pacific Gas And Electric Company 2023-2027 Demand Response Programs, Pilots, And Budgets 2024-2027 Full Proposal Prepared Testimony (Docket A.22-05-002) at 3-41 indicates a 0.57kW impact per smart thermostat; San Diego Gas and Electric Company Report on Interruptible Load and Demand Response Programs (filed 1/22/24) Average Ex Post Load Impact kW/Customer Table indicates 0.41 kW per customer impact for the AC Saver Day Ahead Residential Program.

Device level energy usage will be used to determine energy savings during an event to arrive at demonstrated capacity. The baseline will be calculated using average energy usage for the ten previous weekdays (if the event is on a weekday) or the five previous weekend days or holidays (if the event is on a weekend or holiday) to identify the five days with the highest energy usage for a weekday event, or the three days with the highest energy usage for a weekend or holiday event. Event days or days with power outages are excluded. Aggregators will also report aggregate performance for each event.