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California Energy Commission
Docket No. 22-RENEW-01 - Reliability Reserve Incentive Programs

February 17, 2023

The Environmental Defense Fund (EDF), Google Nest, the Natural Resources Defense Council (NRDC), OhmConnect, Inc., and Voltus, Inc. (collectively the "Joint Parties") respectfully submit these comments in response to the California Energy Commission's January 27, 2023 Lead Commissioner Workshop: Demand Side Grid Support Program and Distributed Electricity Backup Assets Program.[1]

The Joint Parties appreciate the opportunity to submit comments on potential modifications to the California Energy Commission's (CEC) Demand Side Grid Support (DSGS) program guidelines. We applaud the agency's efforts to rapidly begin the process of revising the guidelines in light of changes to Section 25792 of the Public Resources Code resulting from enactment of AB 209 (2022), which enable new program elements to be operational by summer 2023 that can provide greater on-call emergency load reduction for the state's electrical grid during extreme weather events.

The Challenge and the Opportunity: Building a Bridge to CalFUSE and Dynamic Pricing

As the State transitions to 100% clean energy while maintaining grid reliability and affordability, the importance of scaling demand response/demand flexibility resources has become clear. This is reflected in the legislation establishing DSGS: "The dispatch order of resources in the [Demand Side Grid Support] program shall follow a loading order that prioritizes, to the maximum extent feasible to ensure electricity reliability, cost-effective demand response and efficiency resources, then feasible, cost-effective renewable and zero-emission resources, and then feasible, cost-effective conventional resources."[2]

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[1] California Energy Commission. "Demand Side Grid Support Program and Distributed Electricity Backup Assets Program." 27 January 2023. https://efiling.energy.ca.gov/GetDocument.aspx?tn=248608&DocumentContentId=83087

2 AB 205 Article 3, Section 25792 (e)

The importance of demand response (DR) is also reflected in SB 846, which established the Clean Energy Reliability Investment Plan: "[The Clean Energy Reliability Investment Plan] shall support the energy loading order, including investments in preferred resources, such as demand response and energy efficiency..."[3]

Recently enacted legislation also requires that the CEC by June 1, 2023 "adopt a goal for load shifting to reduce net peak electrical demand" and "recommend policies to increase demand response and load shifting that do not increase greenhouse gas emissions or increase electric rates." In addition to supporting grid reliability this summer, DSGS can be an important means of helping to achieve the to-be-established statewide load shift goal.

At the same time, the state's regulatory framework governing demand response has inhibited the growth of the resource. Indeed, the California Public Utilities Commission (CPUC) acknowledges this fact in its recent white paper introducing the CalFUSE framework: *"The CPUC's approach to demand response (SSDR and LMDR) is complex and may not be well positioned to address emerging grid needs. Additionally, current policies may have become a barrier to scaling demand management solutions to the levels necessary to support California's clean energy goals."*[4]

The Joint Parties believe that the DSGS program can provide much-needed incentives and market signals to grow the price-responsive demand response resource – and to encourage customers to become more responsive to electricity prices and grid needs.

It is critically important, moreover, that revised DSGS program guidelines be straightforward – so that the program can be in place for summer 2023. Grid emergencies have occurred with alarming frequency, and the revised program should be in place in time to support grid reliability right away.

In developing the proposals in this response, the Joint Parties have followed a set of four Guiding Principles for implementation:

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[3] SB 846 Article 12 Section (c)

[4] "Advanced Strategies for Demand Flexibility Management and Customer DER Compensation," CPUC June 22, 2022

1. Solutions must build on existing measurements and processes of the CEC, CAISO, and CPUC to facilitate straightforward implementation and support grid reliability starting in summer 2023;

2. Solutions must "incentivize dispatchable customer load reduction as on-call emergency load reduction for the state's electrical grid during extreme events" and provide additional resources the value of which are not already recognized in existing state programs;

3. Solutions must be transparent – to both CAISO and utilities – so that the market can plan for load reductions;

4. Solutions must provide a bridge to implementation of CalFUSE, which seeks to achieve widespread adoption of demand flexibility solutions, and retail rate structures that reflect dynamic pricing. In doing so, they should encourage and enable consumers to respond to market prices and grid needs.

The DSGS program can provide an important pathway to develop a more robust demand response resource during the upcoming transition period, during which CalFUSE and other state policies are expected to evolve to better support flexible demand, and to help the State transition to a clean energy future as homes and businesses increasingly electrify.

The Joint Parties offer three complementary Proposals through which the DSGS program would help reduce load during extreme events beginning in Summer 2023:

DSGS Proposal 1: Supplement Energy Market Value When the Grid is Stressed

DR providers (DRPs) participating in the Resource Adequacy (RA) program face multiple dispatch requirements that are tethered neither to market prices nor grid need. This reality pushes DRPs into uneconomic dispatch while limiting the resource's potential to help prevent grid emergencies. The DSGS program can help correct the misaligned incentives that exist today. Specifically, a pathway within DSGS can be

established to supplement market-integrated DR resources' CAISO energy settlements from May 1-October 31, when the grid is most stressed.

This proposal is intended to incentivize DRPs for becoming "used and useful" and reflect the higher value of dispatchability, relative to capacity payments. This is important to build the robustness of the DR resource to maximize its capability during periods of extreme grid stress.

We propose that a DSGS incentive be provided for CAISO dispatch events from May 1 - October 31 by multiplying a DR resource's CAISO net energy settlement (provided it is non-negative) by a factor of 200% during normal grid conditions and by a factor of 300% during emergency grid conditions. These incentive factors would encourage dispatch during peak demand summer months when the grid often faces unanticipated stress. Table 1 shows how the DSGS incentive would be calculated in three hypothetical scenarios.

Table 1: Example DSGS Energy Incentive Calculations

Example No.	Trade Date	Hour Ending	CAISO Net Settlement ($)	Summer Date?	Grid Emergency?	DSGS Incentive Factor (%)	DSGS Incentive Amount ($)
1	May 25	16:00	$500	No	No	0%	$0
2	Sep. 6	14:00	$500	Yes	No	200%	$1,000
3	Sep. 6	18:00	$500	Yes	Yes	300%	$1,500

NOTES: - "Summer" is May 1 to Oct 31
- "Grid Emergency" is Flex Alert or more severe
- "CAISO Net Settlement" is sum of charge codes 6011, 6460, 6470 and 6475

There are several advantages to this approach:

- Straightforward to administer
    - Leverages existing CAISO infrastructure for DR resource performance and settlement calculations
    - CEC calculates and disburses DSGS payments using processed data readily available from DRPs or the CAISO
- Encourages DR resources to be "used and useful"
    - All CAISO dispatch events during peak demand summer months (May 1 - October 31) are eligible for DSGS payments ("used")

    - DSGS payments are greatest when CAISO grid need is greatest ("useful")
    - **Payments only made for actual energy deliveries**
- Builds a bridge to the future when dynamic retail rates are implemented
    - DRPs and customers are conditioned to respond to price signals, particularly summer emergencies
- Supports the state's greenhouse gas emissions goals

DSGS Proposal 1 Implementation Details

DSGS energy incentive payments are calculated and disbursed by the CEC at two points in time – first in October (for the period May 1 to July 31) and again in January (for the period August 1 to October 31) – according to the following steps:

1. CAISO provides CEC with 5-minute Resource-level settlement data from the DRP's T+55B invoices for the applicable three-month period for the following four CAISO charge codes:
    i. 6011 – Day-Ahead Energy
    ii. 6460 – Fifteen-Minute Market Energy
    iii. 6470 – Real-Time Dispatch Energy
    iv. 6475 – Real-Time Uninstructed Imbalance Energy
2. CEC sums the charge codes in (1) across all of the DRP's Resources, by hour, yielding Net Energy Settlement (NES) for each hour of the three-month period.
3. CEC confirms the specific hours during which the CAISO grid operated under "Emergency" conditions – i.e. Flex Alert or more severe.
4. For Emergency hours, CEC multiplies the hourly values for NES calculated in (2) by a factor of three; for non-Emergency hours, CEC multiplies the hourly values for NES calculated in (2) by a factor of two.
5. CEC sums the hourly values in (4) to yield the total DSGS energy incentive payment for the applicable three-month period.

DSGS Proposal 2: Supplement DR Capacity Value with Performance Adder

DR capacity in California has remained relatively flat since 2020; in 2023, it is set to explicitly decline. This lackluster growth is the result of a number of issues, including the contraction of the Demand Response Auction Mechanism (DRAM) program budget

since 2019, the high cost and complexity of market entry outside of the DRAM, and a general lack of incentives to invest in the growth of the resource in an uncertain regulatory climate.

The DSGS program could incentivize DRPs to enter the California market in spite of the persistent difficulties and, importantly, grow beyond the existing capacity commitments. In particular, DSGS could supplement third-party DRPs' RA contract revenues during summer months when the grid is most stressed and DR resource performance typically exceeds RA contract quantity.

DR is not particularly well suited for the Resource Adequacy market, which credits resources for the amount of capacity they can be expected to deliver under weather conditions that occur with 50% likelihood (so-called "1-in-2" weather conditions). During times of extreme weather – e.g., "1-in-10" weather conditions – weather-sensitive DR is often significantly more effective and impactful, sometimes on the order of 200%.

A simple example is instructive: many residential DR customers typically use ~1.5 kW per hour from 4:00-9:00 PM. During the September 2022 heat wave, these same customers' usage doubled to ~3 kW per hour, which both (1) created stress on the grid, and (2) enabled greater energy savings potential for each customer, in kW per hour, than would otherwise be the case. Resource Adequacy does not properly account for this benefit because it provides a revenue stream that reflects 1-in-2 weather conditions; in contrast, the DSGS can provide additional incentives for resources that double their performance during times of extreme weather (say 1-in-10 weather conditions), which are often the biggest drivers of extreme grid stress.

Specifically, the DSGS program could fund a per-MW-Summer incentive for Demonstrated Capacity during the Summer season (May 1 - October 31) that is incremental to a DRP's RA Supply Plan Capacity (if any). The DSGS incentive rate applicable to such incremental capacity would be $76,500 per MW-Summer, as proposed by the CEC in its August 2022 DSGS Program Guidelines (see pp. 9-10). For simplicity, and in order to avoid disincentivizing frequent dispatch, Demonstrated Capacity would be based on maximum hourly load reduction during the Summer season.

There are several advantages to this approach:

- Rewards strong performance by weather-sensitive DR resources during periods of extreme weather and grid stress.
- Does not perversely incentivize DR providers to bid aggressively or withhold their resources from the California RA market.
- Incentive is paid only when the DR provider demonstrates performance in excess of its RA obligations, thereby incentivizing growth of the resource during the delivery year.
- Straightforward to administer: CEC calculates and distributes incentive payments using data provided by CAISO.

DSGS Proposal 2 Implementation Details

A DRP's **Incremental Capacity** for the Summer season that is eligible for a DSGS incentive payment is the difference between its **Demonstrated Capacity** and **Supply Plan Capacity** as calculated below. If this difference is less than or equal to zero, then the DRP is not eligible for a DSGS incentive payment.

Demonstrated Capacity for the Summer season is calculated in the following steps:

1. CAISO provides CEC with 5-minute Demand Response Energy Measurement (DREM)[5] data for all of the DRP's Resources for Trade Dates May 1 - October 31.
2. CEC aggregates DREM data in (1) by SLAP-hour.[6]
3. For each SLAP, CEC identifies the single hour during the period May 1 - October 31 with the greatest value calculated in (2).
4. CEC aggregates the SLAP-level values identified in (3) to yield the DRP's Demonstrated Capacity for the Summer season.

Supply Plan Capacity for the Summer season is calculated in the following steps:

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[5] The CAISO Tariff (Appendix A) defines Demand Response Energy Measurement as: "The Energy quantity calculated by comparing the Customer Baseline of a Proxy Demand Resource or Reliability Demand Response Resource against its actual underlying Load for a Demand Response Event."

[6] The CAISO Tariff (Appendix A) defines a Sub-Load Aggregation Point (SLAP) as: "A CAISO defined subset of [Pricing Nodes] within a Default [Load Aggregation Point]." Proxy Demand Resources (PDRs) and Reliability Demand Response Resources (RDRRs) allow the aggregation of individual customers within, but not across, SLAPs.

1. CAISO provides CEC with the DRP's monthly RA Supply Plans for each month May to October.
2. For each month, CEC aggregates the Resource-level Supply Plan MW values in (1) by SLAP.
3. For each SLAP, CEC identifies the month with the greatest value calculated in (2).
4. CEC aggregates the SLAP-level values identified in (3) to yield the DRP's Supply Plan Capacity for the Summer season.

Note that DRPs submit their monthly RA Supply Plans to CAISO no later than 45 days prior to the start of the applicable RA month. DRPs submit DREM data to CAISO no later than 45 business days after the applicable Trade Date. Accordingly, CAISO will possess all of the data needed for the CEC to calculate Incremental Capacity for the Summer season by approximately early January of the following year.

DSGS Proposal 3: Allow customers who are not yet market enrolled to participate in DSGS

Many stakeholders have noted that one of California's major untapped load reduction resources is the large number of California electricity customers that have smart devices (especially smart thermostats and smart plugs) but have not managed to get through their utility's cumbersome "click-through" process to become market enrolled.

In Generac's DEBA DSGS Program Design Proposal (2/7/23), Generac estimates that its customers with existing smart thermostats could reduce load by 50 MW during an emergency event, if allowed to participate in the DSGS program. Participation and load impact results can be tracked through the device's advanced telemetry.

We recognize that it may take some time to develop protocols to verify reductions directly from smart devices, but we support approaches such as the one outlined by Generac and urge the CEC to adopt guidelines that allow non-market-enrolled customers to participate in DSGS. We encourage future program rules to shift the installation to default customers into these programs and allow them to opt-out either by manually overriding the device (adjust the thermostat) or un-enrolling from the

program. Automated devices should be connected and enrolled at the point of installation as a default, with notice to the consumer.

Program Eligibility: Clarification of Effect of Legislative Change

When the DSGS program was created under AB 205, the legislation restricted eligibility to those customers in the territories of Publicly Owned Utilities (approximately 11% of all Californians). The statute was amended[7] to significantly expand the eligibility for DSGS:

*"Eligible recipients **may** include all energy customers in the state, except those enrolled in demand response or emergency load reduction programs offered by entities under the jurisdiction of the Public Utilities Commission." (emphasis added)*

The Joint Parties would like to emphasize that the Legislature clearly expanded eligibility for DSGS to "all energy customers in the state." This change creates enormous opportunity for the expanded DSGS program to increase potential load reduction. The purpose of the legislative change is clear: to allow the CEC to expand the DSGS program to all Californians. Given California's grid reliability issues, the CEC would have a hard time justifying maintaining the current limitation, where just 11% of Californians can participate in DSGS. The Joint Parties urge the Commission to act on the statutory language and allow "all energy customers" in California to participate in DSGS.

The Joint Parties wish to thank the CEC for its leadership in revising DSGS program guidelines in time to have a positive impact on grid reliability beginning in summer 2023. We hope you will adopt the proposed changes to program guidelines outlined here to incentivize growth of the demand response resource and substantial load reduction during extreme events to support a clean, affordable, and reliable grid.

[7] See AB 209, effective September 7, 2022 (emphasis added)

Respectfully submitted on behalf the the Joint Parties,

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