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CESA's Comments on DSGS Draft Guidelines

Additional submitted attachment is included below.

July 29, 2022

Email to: docket@energy.ca.gov
Docket Number: 22-RENEW-01
Subject: Staff Workshop for the Demand Side Grid Support Program Draft Guidelines

Re: Comments of the California Energy Storage Alliance on Staff Workshop for the Demand Side Grid Support Program Draft Guidelines

Dear Sir or Madam:

The California Energy Storage Alliance ("CESA") appreciates the opportunity to comment on the Staff Workshop for the Demand Side Grid Support Program Draft Guidelines held on July 25, 2022. CESA appreciates the California Energy Commission ("CEC") hosting this forum to allow for stakeholders to understand and provide feedback on the Demand Side Grid Support ("DSGS") Program, which will be one of the front lines of defense against extreme grid emergencies and rotating blackouts in the state.

CESA is a 501(c)(6) organization representing over 120 member companies across the energy storage industry. CESA member companies span the energy storage ecosystem, involving many technology types, sectors, configurations, and services offered. As the definitive voice of energy storage in California, CESA is involved in a number of proceedings and initiatives in which energy storage is positioned to support a more reliable, cleaner, and more efficient electric grid. Energy storage can be a valuable behind-the-meter ("BTM") resource to provide demand flexibility and load reduction to support the grid, and CESA believes that energy storage will play an important role in the DSGS Program.

I. INTRODUCTION & SUMMARY.

As highlighted by the CEC at the workshop, current supply chain challenges as well as more extreme weather events, including extreme heat, drought, and wildfire caused by climate change, are creating compounding risks to electric reliability. Consequently, California is potentially facing significant amounts of capacity shortfall, up to 7,000 MW this year alone, with shortfalls potentially increasing through 2025.

Given that shorter lead time is needed to enroll customers in demand response ("DR") compared to the development and interconnection timelines of in-front-of-meter ("IFOM") resources, there is significant potential to leverage demand flexibility for emergency reliability in the near term. At the same time, California is installing significant amounts of a variety of BTM distributed energy resources ("DERs"), which is changing the paradigm for how the state thinks about leveraging customer demand flexibility, both in the near and long term. These technologies,

including a variety of different energy storage technologies, are enabling new and more advanced ways for customers to manage their energy use and provide grid services. The CEC highlights in the new DER Order Instituting Informational Proceeding ("OIIP") that "DERs are essential for achieving state goals for decarbonization, reliability, resilience and energy justice."[1]

Historically, DR has been considered a limited, variable resources dependent upon customers manually and voluntarily reducing electricity use during event calls. However, DR can also be enabled by the discharge of an energy storage device, with no or limited impact to direct customer electricity usage. This mitigates traditional limitations and concerns surrounding DR by providing both load reduction and potentially exports without the customer inconvenience experienced with other load control measures. Therefore, by mitigating customer attrition effects, storage-backed DR resources can be dispatched more frequently, and perhaps for longer periods, than traditional DR.[2]

As a complement and companion to the Emergency Load Reduction Program ("ELRP"), the DSGS is necessary to support near-term grid reliability and expand the ELRP-like offering to all California customers, namely the municipal utility customers who are outside of the jurisdiction of the California Public Utilities Commission ("CPUC"). While generally supportive of the overall structure of the program and the incentive amounts and options as proposed in the DSGS Draft Guidelines and during the workshop, we offer several proposed recommendations to better reflect and unlock the full capabilities of storage-backed DR in the DSGS Program:

- DSGS should compensate for incremental exports that are contributing to grid reliability.
- Dual participation in Net Energy Metering ("NEM") or similar programs should be allowed.
- Third-party demand response providers ("DRPs") should be clarified as "participants" eligible to receive DSGS payments.
- The CEC should review a DSGS DRP's baselining methodologies to ensure that accurate calculations of impact are made.
- Dispatch triggers should be assessed after the 2022 DSGS Season.
- Processes for program refinement should be outlined and the CEC should commit to such updates following the 2022 DSGS Season.

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[1] *DER Workshop and Proceeding Overview* presented by the CEC on June 1, 2022 at slide 4. Available at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=22-OII-01

[2] For example, Pacific Gas and Electric ("PG&E") conducted a residential Virtual Power Plant ("VPP") study within its DR Emerging Technologies ("DRET") pilot. The study partnered with Tesla and showed that over 92% of customers responded to event calls, with most events having a response of over 95%, and that storage-backed DR could be dispatched for three consecutive days at different times and deliver consistent positive load impacts.
See "DR Emerging technology (DRET) Tesla Battery Study Results" published by PG&E at 27.

II. DSGS SHOULD COMPENSATE FOR INCREMENTAL EXPORTS THAT ARE CONTRIBUTING TO GRID RELIABILITY.

In the development, execution, and ongoing refinements of the DSGS Program, CESA encourages the CEC to continue to leverage the factual record developed by the CPUC in the Emergency Reliability proceeding, Rulemaking ("R.") 20-11-003. Overall, the DSGS Program is very similar to the CPUC-administered Emergency Load Reduction Program ("ELRP") in its goal to allow BTM DERs to provide additional reliability value during times of grid stress and emergency, as indicated by the Energy Emergency Alert ("EEA") system. Specifically, in establishing the ELRP, the CPUC determined that exports could provide incremental value during extreme events threatening grid reliability, given that customers may have export-capable devices that will not be used to their full capability for grid benefit during emergency events.[3] For example, PG&E conducted a pilot with Tesla through their Demand Response Emerging Technology ("DRET") Program that showed how residential battery customers could provide incremental exports after serving onsite load. The pilot saw customers exporting an average of 3.27 kW over the 6-8pm period during events, compared with baselines where batteries did not export at all because they were discharged more modestly for BTM consumption.[4] There is also additional stranded capacity in non-residential systems, particularly if DSGS events are called during times of low or minimal load levels outside normal business operations, such as the weekend.

Given this value, CESA recommends that exports be eligible for compensation as "incremental load reduction" in the DSGS Program. To incorporate exports into the program, the CPUC's ELRP Program can provide guidance in establishing baselines that are inclusive of exports under DSGS payment Options 1 and 2.[5] For Option 3, participants could leverage a California Independent System Operator ("CAISO") market participation pathway that values exports, such as the Distributed Energy Resource Provider ("DERP") model. In non-CAISO Balancing Authorities ("BA"), DSGS providers can propose dispatch and baseline measurement methodologies inclusive of exports. Even though the CEC hopes to launch the DSGS Program almost immediately in August 2022, revising the program guidelines to accommodate exports as incremental load reductions should not pose significant burden on the CEC since baselining methods and load-reduction technologies will be proposed and submitted as part of the application and verification process for DSGS providers ("Step 1" of enrollment process in the draft guidelines). As such, we urge the CEC to incorporate these updates and recommendations as part of the immediate launch of the DSGS Program for the inaugural 2022 summer season.

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[3] Decision ("D.") 21-03-056 issued by the CPUC on March 26, 2021 at 22: "double compensation for exports is a non-issue because exports are not modeled in the California Energy Commission forecast and because the provision of reliability services in accordance with the ELRP are outside the RA framework; safety and reliability concerns associated with exports can be addressed in the interconnection process."

[4] "DR Emerging technology (DRET) Tesla Battery Study Results" published by PG&E at 23.

[5] *See* PG&E Advice Letter 6485-E, Southern California Advice Letter 4708-E, and San Diego Gas & Electric Advice Letter 3939-E, "Emergency Load Reduction Program Pilot Terms and Conditions of Southern California Edison Company, Pacific Gas and Electric Company, and San Diego Gas & Electric Company in Compliance with Decisions 21-12-015 and 21-12-069"

III. DUAL PARTICIPATION IN NET ENERGY METERING OR SIMILAR PROGRAMS SHOULD BE ALLOWED.

In the draft DSGS Guidelines, participants must not be "[e]ligible to participate in demand response, *net energy metering*, or emergency load reduction programs offered by entities under the jurisdiction of the California Public Utilities Commission. [*emphasis added*]"[6] CESA interprets this to mean that the CEC is looking to exclude eligibility for those customers who are investor-owned utility ("IOU") distribution customers that could enroll in the Net Energy Metering ("NEM") tariff under CPUC jurisdiction. However, CESA seeks clarification that DSGS participants could be enrolled in a NEM or NEM-like tariff in a utility service territory outside of the CPUC's jurisdiction.

For example, the Sacramento Municipal Utility District ("SMUD") has its own NEM program for customers with BTM solar. This NEM program falls outside CPUC jurisdiction but does allow customers to both consume their self-generated electricity BTM and accrue bill credits for exported energy. SMUD customers currently installing solar or solar + storage systems are now eligible for a new Solar and Storage Rate, which is different from the previous NEM program but still allows for BTM consumption and provides credits for exports. Similarly, Los Angeles Department of Water and Power ("LADWP") has a NEM program and Feed-in-Tariff ("FiT") program for customers with BTM exporting systems, and publicly owned utilities ("POUs") across the state have a variety of NEM and net billing programs for customers.

Given that most customers with BTM energy storage and renewable generation systems (*e.g.*, solar) are on some form of a NEM or net billing rate, the DSGS Program should not prohibit dual participation with these tariffs. As shown by the previously mentioned DRET pilot, in which all customers were participating in PG&E's NEM tariff, customers can alter and increase use of BTM devices, particularly storage, in response to price signals beyond those provided by their retail tariff, like those that the DSGS Program would provide.[7] Given that load reduction and exports of NEM systems can be aligned in its dispatch to support system grid emergencies instead of retail needs, dual participation should be allowed. Issues surrounding double compensation should be mitigated by the development of baselines, whereby only additional response above normal DER use would receive DSGS compensation.

IV. THIRD-PARTY DEMAND RESPONSE PROVIDERS SHOULD BE CLARIFIED AS "PARTICIPANTS" ELIGIBLE TO RECEIVE DSGS PAYMENTS.

In the draft DSGS Guidelines, eligible participants are defined as "[c]ustomers or aggregators of a DSGS provider […]" CESA interprets this to mean that the retail customer for any given meter is eligible to receive payments, as well as third-party aggregators that may operate energy use for portfolio of retail customers or BTM devices. However, there may be unique relationships between the retail customer for a particular meter, an aggregator, and the owner of a BTM DER.

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[6] Draft Proposed DSGS Program Guidelines at 2.
[7] *See* "DR Emerging technology (DRET) Tesla Battery Study Results" published by PG&E.

In the same draft DSGS Guidelines, it also specified that "DSGS providers shall pay eligible incentive amounts directly to participants." Given the unique relationships between different entities that may be responsible for the ultimate event response, CESA recommends that the definition of DSGS Participant be modified to "Customers, ~~or~~ aggregators, or third-party demand response providers of a DSGS provider […]" Alternatively, modifications could be made to the direction to pay participants directly to allow designated entities responsible for managing event response to receive payments: "DSGS providers shall pay eligible incentive amounts directly to participants or a designated third-party."

Allowing for more flexibility in payment disbursement will allow more customers to participate given that third-party entities can work with the customer to ensure maximum event response.

V. THE CEC SHOULD REVIEW DSGS PROVIDER BASELINING METHODOLOGIES TO ENSURE THAT ACCURATE CALCULATIONS OF IMPACT ARE MADE.

The draft DSGS Guidelines do not specify which baselines will be used to determine incremental load reduction and to assess the impact of the program, particularly for payment Options 1 and 2. For participants choosing payment Option 3 within the CAISO footprint, energy payments will be made according to market participation rules, which include applicable baselining methodologies. However, it remains unclear which baselines will be used by DSGS providers to determine responses during event dispatches. CESA does not recommend a particular baseline methodology to be used in the DSGS Program but instead would like to emphasize that different DER technologies or customers participating in DSGS may warrant different baselining and measurement methodologies.

For example, submetering offers a way to measure the DR contributions of certain devices (*e.g.*, energy storage, electric vehicle chargers) more accurately and should be used to determine the contributions of these devices to DSGS events. Since device-backed DR, especially storage-backed DR, moves event response away from customers reducing electric usage and towards the dispatch of devices, event response can be measured as the direct output of the device. This is done in recognition that any incremental storage discharge or reduction in air-conditioning use, water heating, or other device-controlled loads would have otherwise been electricity consumption from the grid. Submetering creates more accurate baselines of typical storage or device performance, with easier calculations for incremental load reduction above what is typically provided on non-event days. Additionally, accurate submeters already exist, with ANSI standards available for non-residential systems and evidence of accuracy for existing residential sub-meters.[8]

Thermal energy storage ("TES"), which uses electricity to store thermal energy that can later be used for air conditioning or heating uses, can also provide unique value during DSGS events that should be considered. Considering that EEAs are often triggered by high heat events, TES that shifts

[8] *Ibid.* at 2: "Load impacts estimated using household-level smart meter data were similar to those calculated using battery end-use data, with less than a 1% difference between the impacts on average."

air conditioning energy use can be particularly valuable. During high temperatures, traditional vapor cooling air conditioning units become less efficient, therefore requiring more electricity to operate during times when there is also elevated demand for air conditioning.[9] In these conditions, TES provides additional load reduction compared to what would have been used during the event, but many baselines do not factor in these unique considerations. CESA recommends using the Self-Generation Incentive Program's ("SGIP") dynamic TES baseline for TES in DSGS.[10]

These are just two examples of the unique baseline considerations for DSGS. While DSGS providers will be proposing their own baseline methodologies, CESA encourages the CEC to provide oversight and ensure that proposed baselines and measurement methodologies accurately reflect the contributions of these DERs during these events.

VI. DISPATCH TRIGGERS SHOULD BE ASSESSED AFTER THE 2022 DSGS SEASON.

The North America Electric Reliability Corporation ("NERC") established the EEA system to create consistent definitions for different stages of grid emergency. The four stages established are: EEA Watch (for day-ahead forecasts of deficiencies), EEA 1, EEA 2, and EEA 3. The Draft Guidelines set the DSGS dispatch trigger for customers receiving incentives under Options 1 and 2 at an EEA 2 or 3, with standby for Option 2 customers triggered by an EEA 1.

This EEA system has only been in place since April 2022 in the CAISO BA. Previously, CAISO had an Alert, Warning, and Emergency ("AWE") system with different names and stages. Looking at historical events under the new EEA definitions, one EEA 2 event and seven EEA 3 events have occurred in the CAISO BA since 2017, six of which occurred in 2020 alone.[11] Given the proposed triggers, only one DSGS event would have been called from CAISO in 2021.[12] Additional standby events would have been called, with twelve EEA 1 events occurring since 2017, four of which occurred in 2021.[13] Yet, as the program is currently designed, Option 1 and 2

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[9] Western Cooling Efficiency Center at University of California, Davis, *Valuation of Thermal Energy Storage for Utility Grid Operators* at 1: "Since most building cooling systems use vapor-compression cooling cycles, the system efficiency decreases as outdoor air temperature increases. The result is an elevated electrical demand to meet a given thermal load at hotter ambient air temperatures. Thus, as the outdoor air temperature increases, the value of stored thermal energy increases."
Available at: https://wcec.ucdavis.edu/wp-content/uploads/2017/11/Thermal-Energy-Storage-Case-Study.pdf

[10] *See* SGIP Handbook at Appendix E. Available at: https://www.selfgenca.com/home/resources/

[11] *See* "Grid Emergencies History Report" published by CAISO at Page 3. Available at: http://www.caiso.com/Documents/Grid-Emergencies-History-Report-1998-Present.pdf
Modifications were made to align previous AWE events with updated EEA definitions. See modifications below:

- Alerts were converted to EEA Watch
- Warnings were converted to EEA 1
- Stage 1 Emergencies were converted to EEA 2
- Stage 2 and 3 Emergencies were converted to EEA 3

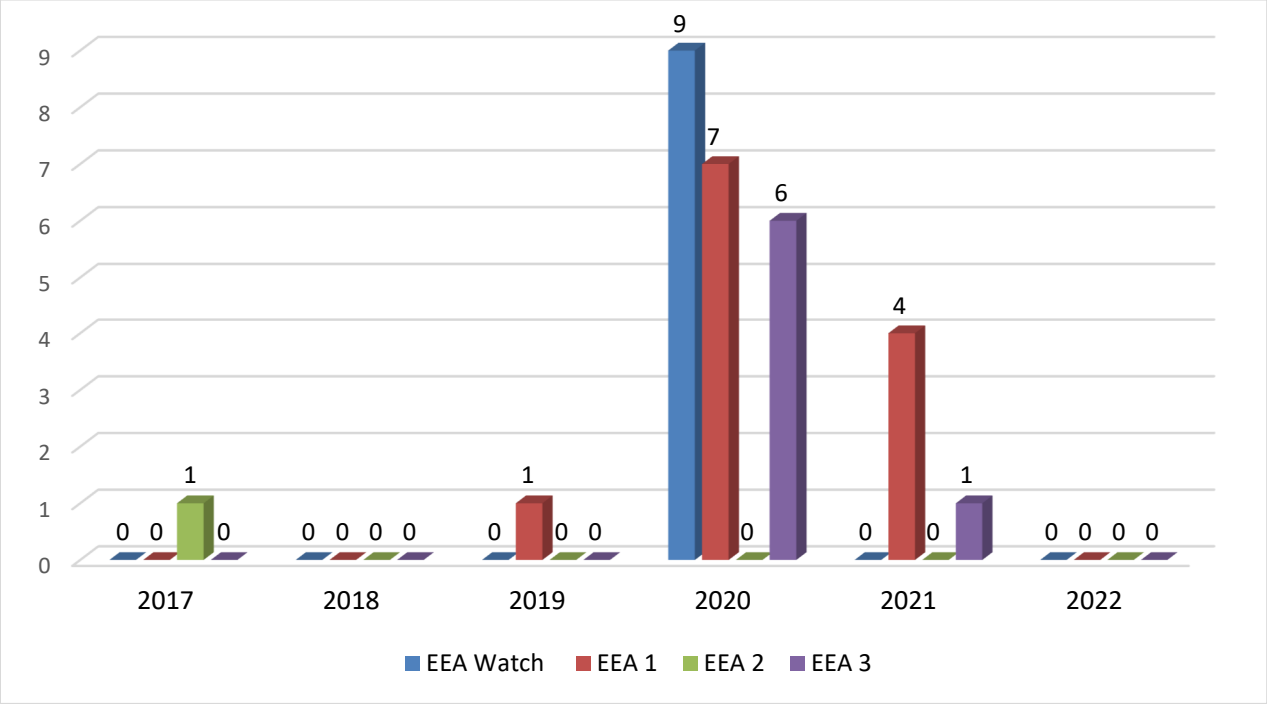
Each Stage 3 event occurring in 2020 was combined with the preceding Stage 2 event to create one EEA 3 event.

[12] *Ibid.*

[13] *Ibid.*

participants are expected to be able to dispatch during at least 12 DSGS events during each summer season.[14]

Table 1: CAISO Energy Emergency Alerts during 2017-2022[15]



Given that EEA 2 and 3 events represent active grid emergencies and have been rare, it is very unlikely that the maximum dispatch limits for Options 1 and 2 customers would be hit. CESA recommends that the CEC consider whether to lower the dispatch trigger to EEA 1 to prevent or obviate grid emergencies in the first place and allow these resources to provide additional value during times of grid stress. Storage-backed DR, especially, can dispatch more often with lower concerns surrounding customer fatigue and attrition and can be more than a last-resort resource. Understanding that future grid conditions are uncertain, and that the new EEA system has yet to be used by CAISO, CESA recommends that the event dispatch triggers be revisited before the 2023 DSGS Season.

[14] Taking the maximum 60 hours of dispatch per year and 5-hour maximum event duration means that participants could be dispatched for 12 maximum duration events.

[15] Ibid.

VII. PROCESSES FOR PROGRAM REFINEMENT SHOULD BE OUTLINED AND THE CEC SHOULD COMMIT TO SUCH UPDATES FOLLOWING THE 2022 DSGS SEASON.

Given that Summer 2022 is already here, CESA understands CEC urgency behind getting the DSGS program launched as soon as possible. With August 10, 2022 as the desired launch date, there is very little time for implementation of substantial changes, and the CEC or DSGS providers may view it infeasible to include all elements suggested by CESA in these comments and recommendations from other parties.

However, since DSGS is set to continue in 2023 and even beyond, it is important that the CEC takes elements that can be incorporated in the future, as well as lessons learned from this year (if any) to ensure the most effective and efficient use of available funds going forward. To this end, CESA recommends that the CEC continue to use this docket with associated workshops and comment opportunities to iterate on and refine the DSGS Program, including around the number and nature of DSGS events, performance of DSGS resources, the appropriateness of dispatch triggers and baselining methods, the reasonableness of market bid cap for Option 3 resources, among others. Quarter 4 of 2022 could provide opportunities for more extensive stakeholder engagement and program modifications, while still allowing time for the program to be marketed and customers to enroll before the Summer 2023 season.

VIII. CONCLUSION.

CESA appreciates the opportunity to provide these comments and feedback on the workshop and draft guidelines and looks forward to collaborating with the CEC and other stakeholders in this docket.

Respectfully submitted,

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