Docket No.: A.22-05-002, A.22-05-003, A.22-05-004

Exhibit No.: CESA-01

Date: August 5, 2022

Witness: Jin Noh

SUPPLEMENTAL TESTIMONY OF JIN NOH
ON BEHALF OF THE CALIFORNIA ENERGY STORAGE ALLIANCE

Q: Please state your name and business address.

A: My name is Jin Noh. I am Policy Director of the California Energy Storage Alliance ("CESA"). My business address is David Brower Center, 2150 Allston Way, Suite 400, Berkeley, CA 94704.

Q: Please summarize your professional and educational background.

A: In my capacity as Policy Director, I manage CESA's engagements at the California Public Utilities Commission ("Commission"), California Independent System Operator ("CAISO"), California Energy Commission ("CEC"), California Legislature, Federal Regulatory Commission ("FERC"), and other agencies. I have more than 8 years of experience in policy and regulatory work at these agencies. I hold a Bachelor of Arts in Public Policy Studies and Economics from Duke University and a Master's in Public Policy ("MPP") from the University of California, Berkeley.

Q: Have you ever testified before this Commission?

A: Yes.

Q: On whose behalf are you testifying?

A: I am testifying on behalf of CESA. Founded in 2009, CESA is a non-profit membership-based advocacy group committed to advancing the role of energy storage in the electric power sector through policy, education, outreach, and research. CESA's mission is to make energy storage a mainstream energy resource that accelerates the adoption of renewable energy and promotes a more efficient, reliable, affordable, and secure electric power system for all Californians. As a technology-neutral group that supports all business models for deployment of energy storage resources, CESA's membership includes technology manufacturers, project developers, system integrators, consulting firms, and other clean tech industry leaders.

Q: What is the purpose of your testimony?

A: Pursuant to the *Assigned Commissioner's Scoping Memo and Ruling* issued on July 5, 2022, this Supplemental Testimony addresses the limited question of whether to approve the Demand Response Auction

Mechanism ("DRAM") for 2023 solicitations and 2024 deliveries as a continued pilot without further technical refinements. CESA points to key findings and conclusions in the DRAM Evaluation Report submitted by Nexant in partnership with Gridwell Consulting ("Nexant Report") published on May 23, 2022 in support of our Supplemental Testimony.

Q: Please summarize your testimony.

A: In Supplemental Testimony, CESA elaborates on our recommendation in support of continuation of the DRAM with 2023 solicitations for 2024 deliveries. Based on the key findings and conclusions in the Nexant Report and the near-term reliability needs identified by the Commission and other state agencies heading into Summers 2023 and 2024, our comments can be summarized as follows:

- The improving performance of DRAM resources suggest that the enhancements to the program adopted in D.19-07-009 and D.19-12-040 are having some of the intended effect, and the Commission would benefit from additional data on the impact of these enhancements.
- A gap in customer engagement in the DRAM could be disruptive to their long-term participation if the Commission decides to establish DRAM as a permanent program.
- Shortfalls in capacity resources needed to address near- and mid-term reliability shortfalls in extreme and contingency scenarios support the continuation of the DRAM in 2023 to close these supply-side gaps.

The investor-owned utilities ("IOUs") have cited the Nexant Report as a key piece of information guiding their decision on whether to continue the pilot for 2023 and beyond,[1] with only PG&E proposing to discontinue DRAM unless reforms are made.[2] In this Supplemental Testimony, CESA makes the case for

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[1] *See* SCE-01 at p.38, lines 16-18: "SCE plans to submit supplemental testimony to recommend the Commission either continue or 18 terminate the DRAM pilot based on the final DRAM evaluation."
See also SDGE-1B at p.90, lines 6-7, "SDG&E thus does not include any costs for DRAM in this application prior to 7 the final evaluation report being issued."

[2] PG&E-2 at p.5-6, lines 20-22: "If the CPUC decides to pursue a permanent DRAM mechanism or a significant extension, then it needs substantial modifications to address these issues"

why the Nexant Report, to the contrary, supports the case for continuation of the pilot in 2023, along with the policy case that DRAM resources can support capacity shortfalls faced in the near and medium term.

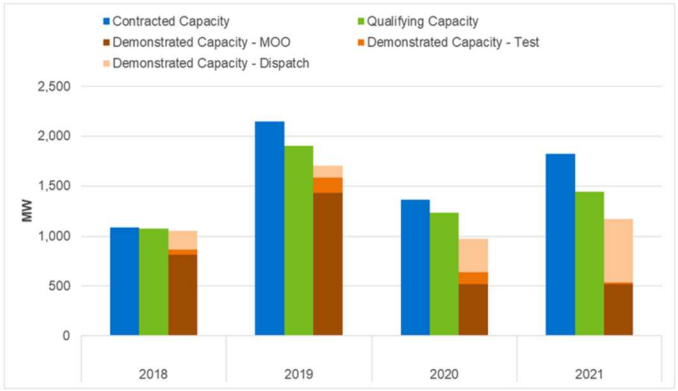
I. Discussion on the Nexant Report

While data challenges present some limitations to the Nexant Report, and though CESA has suggestions or recommendations on how to improve or modify the DRAM evaluation process and methods, At this time, the Nexant Report serves as one of the only significant bases on which to justify continuation or discontinuation of the DRAM pilot for 2023, even though reported data challenges present some limitations to its findings and conclusions, and the redactions make it difficult for certain stakeholders without access to confidential information to make more assertive recommendations. Despite these caveats and while CESA has suggestions or recommendations on how to improve or modify the DRAM evaluation process and methods, the findings and conclusions of the Nexant Report as-is across the six criteria provides sufficient basis to continue the DRAM pilot for 2023.

A. The improving performance of DRAM resources suggest that the enhancements to the program adopted in D.19-07-009 and D.19-12-040 are having some of the intended effect, and the Commission would benefit from additional data on the impact of these enhancements.

Overall, according to the Nexant Report, the DRAM was successful or mostly successful in Criterions 1-3, but the results were "mixed" for Criterions 5-6 and unsuccessful for Criterion 4. Specifically regarding the DRAM market performance criteria (Criterions 4-6), DRAM resources have demonstrated improvement, pointing to how changes adopted in Commission Decision ("D.") 19-07-009 and D.19-12-040 are starting to take effect and may be a contributing factor in these observed trends. Although DRAM resources have higher MW-weighted average bid prices and remain less active compared to IOU DR and other resource types, the Nexant Report highlights how the minimum dispatch requirement may be contributing to an increased percentage of MW being offered at lower

prices in recent years and an increase in the scheduling rate in the day-ahead (3% in Q3 availability assessment hours) and real-time (5-6%) markets.[3] Nexant also reported higher utilization of DRAM resources via market dispatch instead of via must-offer obligations, though the latter still represents a significant portion of demonstrated capacity.[4]



These are all signs that the 2019 enhancements are having some of the intended effect of increasing the utilization of DRAM resources in the market.

Unfortunately, storage-specific DRAM performance is lacking in the Nexant Report, and comparisons are only made to peakers and in-front-of-the-meter ("IFOM") energy storage.[5] Unlike in the previous 2019 DRAM Evaluation Report, any comparison on DRAM sub-categories to DRAM resources with BTM storage customers and Local Capacity Resource ("LCR") behind-the-meter ("BTM") storage aggregation contracts are absent.[6] Detailed performance results are not provided in the 2019 DRAM Evaluation Report, but the past evaluators stated that "[t]he results show that DRAM PDR storage had the highest scheduling rate, followed by DRAM PDR residential, and DRAM PDR non-residential was scheduled at the lowest rate."[7] Recognizing the unique contractual provisions that

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[3] Nexant Report at 89-90 and 96.
[4] Nexant Report at 101.
[5] Nexant Report at 79-80.
[6] *Energy Division's Evaluation of Demand Response Auction Mechanism Final Version [Public Version – Redacted] published on January 4, 2019* Table 8 at 56. https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M254/K771/254771618.PDF
[7] *Ibid* at 59.

guide LCR BTM storage resources, which do not align with DRAM's current design,[8] CESA nonetheless believes that storage-backed DRAM resources likely represent the relatively higher performing resources in the DRAM portfolio despite constituting a small share. A storage-specific DRAM assessment may not be possible because of data challenges or confidentiality, or for both reasons, but storage providers who are participating in the DRAM report that their storage-backed resources are regularly scheduled in both the day-ahead and real-time markets and dispatched by the CAISO.

Additionally, the Nexant Report points to a wide range of performance depending on demand response provider ("DRP"). On an aggregate basis, 70% of the total delivered energy requirement was actually delivered based on metered data, with performance varying across DRPs from less than 20% on the low end to well over 100% on the high end.[9] While the Scoping Memo poses the question on whether the pilot should be continued *without* further technical refinements, there could be minor and incremental adjustments to the solicitation process that screens for and scores DRP performance in executing DRAM contracts to support continuation without *major* technical refinements.

Even without further technical refinements, CESA believes that a strong case could be made that the Commission would benefit from additional data on the effects of these enhancements versus tighter supply conditions[10] to DRAM resource performance to affirm the Nexant's conclusion that observed improvements represent a trend rather than a single-year anomaly. As it stands, there is only one year of data available on DRAM resource performance in 2021 when many of the performance-focused enhancements were made to the DRAM pilot design, such as the minimum dispatch requirement and heightened penalties.

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[8] For example, LCR BTM storage contracts have the utilities control market dispatch. DRAM is preferred over LCR BTM storage contracts given the greater operational flexibility for third parties to co-optimize with customer load and needs.
[9] Nexant Report at 120-122.
[10] Nexant Report at 90.

B. A gap in customer engagement in the DRAM could be disruptive to their long-term participation if the Commission decides to establish DRAM as a permanent program.

CESA highlights how a discontinuation of the pilot would be highly disruptive to engaged customers, especially if the Commission opts to establish a more permanent and/or non-pilot future for the DRAM. The Nexant Report concludes that new customers are being successfully engaged as part of this pilot (Criterion 2), including from customers with electric vehicle ("EV"), energy storage, and solar + storage technologies – a still small but growing share[11] – that present significant opportunity to improve the collective performance of DRAM resources. Customers with energy storage and EV chargers, as physical capacity separate from the customer load, are well-positioned to meet the minimum dispatch requirements, and as such, the potential for continued growth of this high-performing sub-class of DRAM resources should be allowed to be realized. Without DRAM, CESA members also report few or no options for demand response ("DR") participation outside of bilateral contracts, which are one-off opportunities with high transaction costs. The current portfolio of IOU DR programs has very limited participation from customers with energy storage systems.

At the same time, to fully capture the performance and capabilities of storage-backed devices, alternative performance calculation methods are needed using the Meter Generator Output ("MGO") method, inclusive of exports, as recommended in the Nexant Report and commented by several DRPs.[12] Again, CESA acknowledges that the Scoping Memo in this proceeding limited the scope of the question on the continuation of the DRAM with some authorized budget amount *without* any changes to the program design, but a small incremental change in this regard would advance new and

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[11] Nexant Report at 5, 40, and 51-52. The percentage of customers with battery storage increased from 0.5% in the 2018 DRAM to 0.9% in the 2020 DRAM. Similarly, those with EVs on an EV rate increased from 2% to 3% over the same time period.

[12] Nexant Report at 32-33, 38, and 162. *See, e.g.*, comments by one DRP at 33: "A market rule barrier that is significantly challenging for companies controlling battery storage is that net exports are not counted as demand response performance. This limits the number of customers that are willing to participate, especially those that pair solar and battery storage, because net exports often occur in the early evening during typical dispatch hours and they can't get credit."

continued customer engagement, in line with DRP testimonials in the Nexant Report that highlighted this as a key barrier to their participation in DRAM.

Beyond the increase in participation from asset-backed DRAM resources, the Nexant Report highlights positive growth in key target customer segments, evidenced in the growing percentage of customer enrollments among the highest energy users and low-income customers on CARE rates.[13] Respectively, these customers present the greatest opportunity for energy reductions via economic DR and enable customers with the least means to achieve critical bill savings.

Importantly, these positive customer enrollment trends are highlighted because the discontinuation of the pilot in 2023 would potentially create a gap in customer engagement and run the risk of customers losing trust in participating in this program in the future if established on a more permanent basis. Even though the pilot is a year-by-year auction and contract, DRPs and customers have become accustomed to or familiar with the DRAM as a market participation way to provide DR services, representing one of many DR program options that are also similarly available with some level of flexible enrollment/disenrollment and customer participation. Already, the perpetual nature of the DRAM as a pilot deters some participation, but a discontinuation would do more harm to future participation in the program.

II. Discussion on Near-Term Reliability Need

In the face of capacity shortfalls in the near and medium term, the Commission would be remiss to not leverage an existing procurement mechanism to bring significant capacity online on the order of 150 MW to 200 MW (based on previous rounds of DRAM procurement) with real performance obligations and requirements. A continuation of the $14 million budget for a 2023 solicitation in line with previous DRAM procurement budgets represents a reasonable means to bring online incremental capacity in the immediate term – a preferred clean and preferred alternative to many of the other options that could be deployed in

[13] Nexant Report at 49-50.

this short time frame. Analysis provided by the California Energy Commission and the California Independent System Operator ("CAISO") have identified capacity shortfalls in extreme weather and contingency scenarios supporting the case for doing "all of the above" in procuring incremental capacity, including from DRAM resources, to mitigate reliability risks in the near- and mid-term periods.

A. Shortfalls in capacity resources needed to address near- and mid-term reliability shortfalls in extreme and contingency scenarios support the continuation of the DRAM in 2023 to close these supply-side gaps.

Extreme weather events and delays related to supply chains and interconnection have contributed to near- and mid-term reliability risks that have spurred caution and concern among state policy leaders, planners, and regulators. According to the CAISO, there is an estimated 1,700 MW capacity gap of contingency measures to meet planning standards in 2022, with the greatest risks being posed in the net peak hours (*i.e.*, the 7-8pm post-solar hours in particular) in September. Additional climate-induced load, supply chain delays, and wildfire risks could create as much as 5,000 MW in capacity shortfalls across the entire 2022-2025 period.[14] Large shortfalls are also forecasted in the CEC's Summer Stack Analysis, showing a maximum shortfall of 2,700 MW under a 22.5% planning reserve margin ("PRM"), which accounts for higher demand variability (9% instead of 4%) and higher set of unplanned outages (7.5% instead of 5%).[15] Notwithstanding the limitations of stack analyses or certain issues with the inputs and assumptions, the message is clear that more capacity is needed.

Based on these assessments, state policy leaders, planners, and regulators have undertaken multiple actions to address these reliability risk concerns. In Rulemaking ("R.") 20-11-003, among other things, the Commission established the Emergency Load Reduction Program ("ELRP") as a five-

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[14] "CAISO Reliability Workshop Summer Analysis" presentation at May 20, 2022 workshop in CEC Docket No. 21-ESR-01 at Slide 2. https://efiling.energy.ca.gov/GetDocument.aspx?tn=243174&DocumentContentId=76875

[15] "Staff Paper - Revised Summer Stack Analysis for 2022-2026" filed by CEC staff on July 19, 2022 in CEC Docket No. 21-ESR-01 at 21. https://efiling.energy.ca.gov/GetDocument.aspx?tn=244116&DocumentContentId=78009

year pilot, directed incremental procurement by the investor-owned utilities ("IOUs") to meet an "effective" PRM requirement, modified various IOU DR programs in line with these needs, among other things.[16] The CAISO also established emergency generation procedures to allow for the interconnection of temporary resources if the Governor issues an emergency order – a proposal that is currently pending before the Federal Energy Regulatory Commission ("FERC").[17] Most recently, the Legislature passed Assembly Bill ("AB") 205 that established the Strategic Reliability Reserve and the Demand Side Grid Support ("DSGS") Program[18] – a corollary to the ELRP but for municipal utilities. Altogether, these actions provide reasonable insurance measures to mitigate these reliability risk concerns, but the DRAM represents another tool in the toolkit for the Commission to leverage as a means to procure incremental capacity that is integrated in the CAISO market and can be shown in IOU RA supply plans, better supporting advanced planning in contrast to some of the aforementioned insurance measures that are only utilized when the CAISO issues a Flex Alert or Energy Emergency Alert ("EEA") due to insufficient regular RA capacity. As discussed above, DRAM resources have exhibited improved performance with the new minimum dispatch requirements and penalty mechanisms in place, such that they can support reasonable RA planning and reduce the risk that the state approaches the emergency stages in the first place and require out-of-market insurance-like resources.

Several parties, including CESA, proposed DRAM continuation as one of the Phase 1 and 2 proposals in R.20-11-003, but it was not addressed on its merits in either D.21-03-056 or D.22-12-015. Yet, the lack of consideration or discussion of DRAM continuation proposals should not be viewed as dismissal of the value of DRAM but rather one that can be addressed in this proceeding, using the Nexant Report as one of the main pieces of supporting evidence. Moreover, CESA stresses that the

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[16] *See* D.21-03-056 and D.21-12-015.
[17] *Tariff Amendment to Implement Interconnection Process Enhancements* filed by CAISO on June 2, 2022 (ER22-2018) at 22-26.
[18] *See* https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202120220AB205

view that *all* performance issues must be fixed before pursuing a particular resource type should not ground the Commission's decision on the matter – a unique, unfair, and unreasonable standard placed on DRAM resources. Capacity valuation, procurement, and performance of other resource types face similar needs for continuous improvement over time. Acknowledging that much can still be improved regarding DRAM resource performance in comparison to other RA resource types, as highlighted in the Nexant Report, CESA believes that DRAM nonetheless represents a source of incremental capacity on short notice that is clean and preferred and can provide regular capacity, especially with the program design modifications adopted in D.19-12-040 starting to take effect.

Q: Does this conclude your testimony?

A: Yes. I appreciate the opportunity to submit this Supplemental Testimony on behalf of CESA.

Appendix A:
Declaration in Support of Supplemental Testimony of Jin Noh on Behalf of the California Energy Storage Alliance

DECLARATION IN SUPPORT OF SUPPLEMENTAL TESTIMONY OF JIN NOH ON BEHALF OF THE CALIFORNIA ENERGY STORAGE ALLIANCE

I, Jin Noh, am the Policy Director for the California Energy Storage Alliance (CESA). Having worked for CESA for over seven years, I am currently managing policy and regulatory affairs for CESA and its over 120 member companies. My business address is 10265 Rockingham Drive, Suite #100-4061, Sacramento, CA 95827. I declare under penalty of perjury that the foregoing facts in this document are true and correct to the best of my knowledge.

Executed on August 5, 2022 at Sacramento, California.

Jin Noh