

October 20, 2021

CPUC Energy Division Tariff Unit
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Re: Response of the California Energy Storage Alliance to Advice Letter 5875, et al. of the Joint SGIP Program Administrators

Dear Sir or Madam:

Pursuant to the provisions of General Order 96-B, the California Energy Storage Alliance (“CESA”) hereby submits this Protest to the above-referenced Advice Letter 5875 of Southern California Gas Company (“SoCalGas”), Advice Letter 4498-G/6642-E of Pacific Gas and Electric Company (“PG&E”), Advice Letter 4596-E of Southern California Edison Company (“SCE”), and Advice Letter 129-E of Center for Sustainable Energy (“CSE”), *Proposed Self-Generation Incentive Program (SGIP) Handbook Modifications to Pre-installation Monitoring Requirements for Measurement (M&E) of Large Thermal Energy Storage (L-TES) Projects* (“Joint Advice Letter”), submitted jointly by the program administrators (“PAs”) on September 30, 2021.

I. INTRODUCTION & BACKGROUND.

With the issuance of Resolution E-5106 on November 5, 2020, CESA lauded the Commission for affirming that large thermal energy storage (“LTES”) systems should have a site-specific, data-driven, and performance-based incentive (“PBI”) calculation methodology in place to support their participation in the Self-Generation Incentive Program (“SGIP”), in line with Decision (“D.”) 19-08-001 and as comparable to the performance-based measures established for battery energy storage systems. Subsequently, the Commission’s Energy Division issued a Non-Standard Disposition Letter on July 13, 2021 that approved the PAs’ proposed LTES incentive calculation methodology but directed the PAs to engage with industry to develop an alternative proposal for LTES pre-installation requirements.

To this end, the Joint Advice Letter proposes various requirements for the collection of LTES pre-installation data and represents a culmination of significant and helpful collaboration among industry representatives such as CESA and the SGIP PAs, as intended by Resolution E-5106. As such, CESA joined Trane and Nostromo in submitting a support letter to attach to the Joint Advice Letter. However, as expressed in the Joint Advice Letter and in the attached industry letter of support, there was one area of non-consensus that pertains to the appropriate baseline measurement

for LTES projects that involve the replacement of the existing chiller equipment with new, more efficient chiller equipment in tandem with the LTES installation.

To support expeditious resolution, CESA builds off the general position expressed in the support letter and recommends that Energy Division approve the Joint Advice Letter, with the modification to establish the measurement of the existing chiller equipment prior to replacement and LTES installation as the appropriate baseline, where SGIP projects involve such equipment replacements.

II. DISCUSSION.

In the below sections, CESA elaborates on the key reasons that the Joint Advice Letter is in error and is flawed by establishing a baseline using the new equipment, as proposed by the PAs. CESA believes that Resolution E-5106 was clear in expressing the Commission's intent on this matter, but we also offer additional perspective on how chillers and LTES investments are made as an integrated system and how our proposed modifications are consistent with Commission directives and policy goals.

A. Chillers and LTES should be viewed as an integrated system that are co-optimized to maximize customer bill savings and other benefits.

The PAs state that they “do not agree that a less efficient chiller system should be the basis for sizing the SGIP application or establishing the baseline for the performance payments when it is not the chiller that will be in operation during the SGIP performance commitment.”¹ However, the PAs fail to recognize that the LTES is not a standalone technology but is in fact part of an overall system combined with chiller systems, which in many cases may need to be replaced in tandem with the LTES installation to optimize system energy efficiency. For many potential projects, the existing stock of chiller equipment may be older and less efficient, and chillers on their own are typically oversized to provide direct cooling and meet cooling loads on the several hours/days given their reduced efficiency on peak ambient temperature days.

When faced with the prospect of installing LTES, the efficiency of chiller operations can be optimized by upgrading to the latest technologies and sizing the new chiller to operate at its optimally designed set point. Instead of operating the existing oversized chiller equipment to less-efficient part-load settings, the new chiller can operate at a consistent level to charge the LTES, typically by being sized to a smaller

¹ Joint Advice Letter at 4.

level.² In this way, the chiller replacement cannot be divorced from the LTES installation – *i.e.*, the chiller would not otherwise be replaced without its co-optimized configuration and investment with the LTES installation.

Finally, the PAs fail to disclose how they would account for this reduction in chiller sizing that is commonplace in LTES installations. Simply basing calculations on the size of the chiller installed with an LTES would be profoundly unfair to ratepayers, as the baseline equipment used for calculations would never be able to be installed absent the concurrent installation of LTES.

B. The Commission has already affirmed the use of the existing equipment as the baseline for incentives and measurement.

The PAs argue that their “proposal aligns with the Commission when noting the current SGIP rules for calculating incentives for energy storage are based on the reduction in a facility’s existing load and not what the load would have been using a more (or in this case less) efficient system than what will actually be in operation.”³ The interpretation of the specific language in dispute is as follows:⁴

“In addition, we note that the current SGIP rules for calculating incentives for battery storage technologies are based on the actual performance of the system in kWhs, which corresponds to a reduction in a facility’s existing load and not what the facility’s load would be using new efficient equipment that complies with current building code standards. Likewise, we determine that **the SGIP LTES incentive calculation methodology shall be based on site-specific monitoring and data collection and the actual performance of the LTES being paired with existing equipment**. However, at this time, we decline to adopt Trane’s methodology as proposed in its December 2017 Program Modification Request because it was never formally submitted to the CPUC for review. Instead, the PAs shall propose, via a joint Tier 2 Advice Letter, a “dynamic” methodology, the same or

² See, e.g., Trane’s Jephtha Creed Distillery case study: “Instead of using a 200 to 250-ton chiller to handle the load that the process might require over a one-hour period, the thermal storage system spreads out demand loads, allowing the use of a smaller 40-ton chiller.”

https://www.trane.com/commercial/north-america/us/en/about-us/newsroom/case-studies/community/Jephtha-Creed_Distillery.html

See also Hyman, Lucas and Shaw Gentry. “Thermal Energy Storage Benefits And Sensible Systems” *Engineered Systems* on July 1, 2011. <https://www.esmagazine.com/articles/94912-thermal-energy-storage-benefits-and-sensible-systems>; and *EVAPCO Ice Storage Application and Design Guide* at 4-5 and 10.

<https://www.evapco.com/sites/evapco.com/files/2017-03/Thermal%20Ice%20Storage%20Application%20%26%20Design%20Guide.pdf>

³ Joint Advice Letter at 4.

⁴ Resolution E-5106 at 16-17.

similar to Trane’s PMR methodology, that uses project-specific data to calculate LTES systems’ initial performance estimation for determining the total estimated incentive amount, which is then updated with actual site data during the PBI period.” **[emphasis added]**

In CESA’s view, the Commission was clear in its intent to use the measurement of the existing equipment to establish the baseline and to calculate the PBI payments. The “existing equipment” is clearly the existing chiller prior to its replacement upon installing an LTES system, which, as explained in Section II.A above, is developed in tandem and where the chiller replacement would not occur otherwise. The plain language of the Resolution makes clear that a new chiller replacement would not constitute “existing equipment” at the time of SGIP application. Fundamentally, it is critical for the Commission to recognize that LTES and chiller systems are co-optimized investments that operate as an integrated system.

Furthermore, the comparison to the incentive calculation for battery storage systems is not appropriate or accurate since capacity and kWh operations of battery storage systems can be installed and measured as incremental and distinct load and generation. Rather, LTES systems should be treated consistently with the Commission’s consideration of other thermal storage systems, such as heat pump water heaters (“HPWHs”), where program rules and requirements are being developed.⁵ For HPWHs, staff proposed an incentive structure based on the equivalent storage capacity of the new HPWH equipment, not narrowly based on the load shifting potential of HPWHs net of the efficiency gains or load impacts,⁶ as being proposed by the PAs in the Joint Advice Letter.

Notwithstanding the above concerns, if the Commission wishes to assess the impact of storage-related load shifting for measurement and verification (“M&V”) purposes, the Commission should direct Verdant to do so in order to better understand the contributions of the LTES versus the efficiency gains from the new chiller replacement; however, the delineation of energy efficiency versus load shifting benefits for M&V purposes is distinct from the incentive calculation and payment methodology in dispute.

C. Due to the lack of any existing applicable energy efficiency incentives for chillers, there is no issue with double counting to consider.

Although the PAs do not specifically raise potential concerns of double payment of incentives or attribution of GHG emissions benefits, they argue that existing chiller

⁵ *SGIP HPWH Staff Proposal* issued on April 19, 2021 in R.20-05-012.
<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M377/K729/377729072.PDF>

⁶ *Ibid* at 48-50.

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replacements should not be included in the incentive calculation for SGIP payments, suggesting that such energy efficiency investments do not have a place in SGIP. However, as discussed above, absent the LTES installation as part of an integrated system, there are no applicable energy efficiency incentives currently available for chiller equipment. Even assuming *arguendo* that SGIP should differentiate efficiency investments and only fund the LTES portion of the project (*i.e.*, not the existing chiller), CESA questions whether it is the Commission's intent to disincentivize customers to promote improved energy efficiency from an integrated system investment, especially as the Commission has expressed desires and goals to more holistically consider distributed energy resource ("DER") investments rather than in silos.⁷

III. CONCLUSION.

CESA appreciates the opportunity to submit this response to the Joint Advice Letter and looks forward to collaborating with the Commission and PAs to better enable program participation from LTES projects pursuant to D.19-08-001 and Resolution E-5106.

Respectfully submitted,



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⁷ See, e.g., Order Instituting Rulemaking in R.20-08-022 at 29-30: "From research and experience particularly with financing energy efficiency projects at customer premises, it is clear that customers do not approach investments in the same resource-specific manner that the Commission uses to make funding decisions. Customers may want to invest in some energy efficiency upgrades at the same time they install a solar system or a battery storage system and an electric vehicle. Currently, they may have some PACE options that will allow all of these investments to be rolled into one loan, but otherwise our offerings are specific to energy efficiency, or may come in the form of a lease from a solar or storage company. Viewing these projects holistically can also benefit the customer when it comes to accurate system sizing for both generation and storage." <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M346/K361/346361154.PDF>

