BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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Order Instituting Rulemaking to consider policy and implementation refinements to the Energy Storage Procurement Framework and Design Program (D.13-10-040, D.14-10-045) and related Action Plan of the California Energy Storage Roadmap.	Rulemaking 15-03-011

CALIFORNIA ENERGY STORAGE ALLIANCE PETITION FOR MODIFICATION OF DECISION 17-04-039

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Pursuant to Rule 16.4 of the California Public Utilities Commission's ("Commission") Rules of Practice and Procedure, the California Energy Storage Alliance ("CESA") submits this Petition for Modification ("PFM" or "Petition") of Decision ("D.") 17-04-039 (the "Decision") to address a mounting roadblock to the development of energy storage resources in California.

In D.17-04-039, as part of the Commission's broader project of establishing policies to encourage the development of energy storage resources in California, the Commission adopted rules for the treatment of station power for storage resources operating in the state. The Ordering Paragraphs of the Decision adopt a cogent set of rules that establish a workable foundation for the development of these resources. However, a short discussion in the body of the Decision concerning the appropriate station power rules for "idle" battery resources—which was not reflected in the Ordering Paragraphs but was referenced in Finding of Fact 20 and ultimately incorporated into the utilities' station power tariffs—now poses a substantial barrier to utility-scale storage development.[1]

[1] D.17-04-039, pp. 52 and 64.

Now, over eight years after the Commission first considered the appropriate framework for storage resources in California, CESA respectfully requests that the Commission clarify and refine the rules governing station power treatment of "idle" battery resources. CESA's proposed changes to the Decision's current framework would accomplish all the following goals:

(1) **Recognize storage resources' unique ability to provide grid services when "idle"**: the updated rules would appropriately recognize that developers operate storage resources to provide grid services in line with grid needs, and at different points, these needs are served by charging, discharging, and awaiting dispatch or providing uncompensated frequency response and voltage support services while "idling."

(2) **Significantly reduce costs for storage projects that are ultimately borne by ratepayers**: currently, retail charges incurred during periods of energy storage system "idling" represent 15 to 40 percent of annual storage facility operating costs.[2] The updated rules would reduce the direct retail electricity costs, financing costs, and risk premiums for storage projects, resulting in lower energy storage procurement costs for ratepayers.

(3) **Simplify billing**: the updated rules would eliminate the need to bill certain onsite loads differently in any given 15-minute interval according to how much electricity a storage resource has imported from or exported to the grid.

(4) **Eliminate or substantially reduce double billing**: the updated rules would eliminate double billing at facilities in which all defined Station Power[3] loads are served separately by a distribution circuit (because the remaining "wholesale" loads would rarely be billed

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[2] Appendix B (Declaration of Scott Murtishaw), ¶ 9.

[3] The Decision defines "Station Power" uses as information technology and communications, lighting, ventilation, and safety uses. D.17-04-039, Ordering Paragraph 8. As discussed in Section I.B herein, the Decision uses the term "station power" inconsistently, but CESA uses the capitalized term "Station Power" in this PFM to refer to this definition from Ordering Paragraph 8.

at retail) and substantially reduce the extent of double billing at facilities with one or more of the defined Station Power loads served via the wholesale meter.

(5) **Ensure that the Commission's station power rules do not incentivize suboptimal battery operations**: the updated rules would remove the current incentive to avoid "idling"—even when such behavior would be optimal from a grid perspective—to minimize retail charges.

(6) **Fix the internal inconsistencies in the Decision**: the updated rules would restore the Commission's clear categories of "wholesale uses" versus "station power/retail uses" in the Decision.

The Commission can reduce these barriers to storage development and optimization in California and promote the state's ambitious storage deployment goals[4] by simply modifying the Decision's discussion of "idle" battery resources to be consistent with the California Independent System Operator's ("CAISO") understanding and treatment of different resource operational modes. Specifically, the Commission can implement this change by ordering the replacement of the "idle" designation in the utilities' station power tariffs with the CAISO's connectivity status designation (unit connectivity status or "UCON"), and by clarifying that, so long as a storage resource is synchronized with the grid, the operational mode of the resource is irrelevant for purposes of the station power rules. With this change, so long as a storage resource is synchronized with the grid, the definitions of "wholesale uses" and "station power/retail uses" adopted in the Decision would apply to determine the appropriate charges for the resource's load—regardless of

[4] Appendix B (Declaration of Scott Murtishaw), ¶ 3 (citing *Press Release: California Achieves Major Clean Energy Victory: 10,000 Megawatts of Battery Storage*, Governor Gavin Newsom, *available at* https://www.gov.ca.gov/2024/04/25/california-achieves-major-clean-energy-victory-10000-megawatts-of-battery-storage/ (providing that "[t]he state is projected to need 52,000 MW of energy storage capacity by 2045 to meet its clean energy goals.")).

whether the battery is charging, discharging, or "idle" and either awaiting dispatch or actively providing ancillary services. This change would also obviate the need for netting and the complex netting methodologies that have been developed to differentiate "idle" intervals from active charging and discharging intervals, as under CESA's proposed framework, end uses would be charged consistently according to the categories laid out in the Decision regardless of operational mode.

The requests specified herein satisfy each component of Rule 16.4 of the Commission's Rules of Practice and Procedure. As discussed further in Section V herein, this PFM could not have been filed within one year of the Decision because CESA members had no way of knowing the various practical implications—and the magnitude of the associated impacts—of the utilities' treatment of "idle" batteries in 2017 or 2018, before a significant number of projects subject to these rules came online. Prior to 2018, very few utility-scale storage facilities were operational, and many of those that were operational at that time were utility-owned.[5] The substantial growth in the industry has since revealed the major impediments to project development embedded within the Commission's station power framework. These impediments were not, and could not have been, evident to developers or to CESA within a year of the issuance of the Decision.

Appendix A hereto details the wording necessary to carry out the requested modifications. Appendix B hereto includes a sworn declaration from Scott Murtishaw, Executive Director of

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[5] *See* California Energy Commission, *California Energy Storage System Survey* (updated April 3, 2025), https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/california-energy-storage-system-survey ("CEC Storage Survey").

The Commission can take official notice of the data in the CEC Storage Survey pursuant to Rule 13.10 of the Commission's Rules of Practice and Procedure and California Evidence Code Section 452(h). This data qualifies for judicial notice pursuant to California Evidence Code Section 452(h) because, as it is publicly available on an official state government website, it is "not reasonably subject to dispute and [is] capable of immediate and accurate determination by resort to sources of reasonably indisputable accuracy." Cal. Evid. Code § 452(h).

CESA, explaining new facts that were not on the record before the Commission when it last considered these issues in 2017—including financial modeling showing that any "cost shifting" alleged by the investor-owned utilities ("IOUs")[6] from reducing retail station power charges for storage resources would be offset by corresponding reductions in long-term capacity procurement and Resource Adequacy prices.

I. BACKGROUND ON THE COMMISSION'S ADOPTION OF STATION POWER RULES FOR STORAGE RESOURCES

A. Background on the Blended State and Federal Jurisdiction Over Station Power Issues

State and federal agencies retain jurisdiction over different aspects of measuring and assessing charges for station power load. States retain jurisdiction when the provision of station power involves a retail sale or the use of local distribution facilities for the delivery of station power.[7] A retail sale occurs, for example, when station power requirements exceed gross output, and the applicable utility supplies electricity to serve onsite load; this generally results in a sale of electricity, and when this transaction is a sale for *end use* rather than resale, it is subject to state jurisdiction.[8] In terms of determining *when* such sales for end use (*i.e.*, retail sales) occur, states have broad discretion to establish their own rules around how to measure and account for such sales, and they need not use the same netting methodology that the Federal Energy Regulatory Commission ("FERC") uses to determine the amount of station power load that is transmitted in

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6 For purposes of this PFM, the IOUs are Pacific Gas and Electric Company ("PG&E"), Southern California Edison Company ("SCE"), and San Diego Gas & Electric Company ("SDG&E").

7 *AES Somerset, LLC v. Niagara Mohawk*, 110 FERC ¶ 61,032, P 46 (2005) ("A state may approve whatever rate level it deems appropriate . . . when a utility is selling station power at retail or is using local distribution facilities for the delivery of station power."); *PJM Interconnection, LLC*, 95 FERC ¶ 61,333, 62,184 (2001).

8 *PJM Interconnection, LLC*, 95 FERC ¶ 61,333, 62,182 (2001) ("when a generating facility's station power requirements exceed its gross output (such as during an extended outage), and the source of the station power is a third party, the provision of station power generally is a sale of electric energy for end use that is not subject to this Commission's jurisdiction.").

interstate commerce.[9] States similarly have the discretion to determine when a flow of power involves the use of local distribution facilities.[10] Thus state commissions retain broad authority to establish when flows of power are "retail" or "not retail."

If the state authority determines that no retail service has been provided (*i.e.*, there is no sale for end use according to the applicable state's accounting and netting policy and no distribution facilities are involved in the provision of station power),[11] the FERC jurisdictional tariff alone determines what charges apply to the station power load.[12] FERC alone has the authority to determine the amount of station power load that is transmitted on the FERC-jurisdictional transmission grid.

B. Background on the California Utilities' Station Power Tariffs and the Adoption of the "Idle" Battery Designation

The recent evolution of California's station power rules began with the clarification of the IOUs' station power tariffs for conventional resources, and specifically, the jurisdictional questions raised by those tariffs. A protracted legal battle over the jurisdictional split between federal and state authority over station power methodologies and charges ultimately culminated in a FERC order confirming that states may approve their own station power load-netting methodologies for assessing state jurisdictional retail sales charges.[13] In 2014 the Commission

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9 *Duke Energy Moss Landing LLC v. Cal. Indep. Sys. Operator Corp*., 132 FERC ¶ 61,183, P 2 (2010), *rehearing denied by Duke Energy Moss Landing LLC v. Cal. Indep. Sys. Operator Corp*., 134 FERC ¶ 61,151 (2011); *Calpine Corp. v. FERC*, 702 F.3d 41, 45 (D.C. Cir. 2012).

10 *PJM Interconnection, LLC*, 95 FERC ¶ 61,333, 62,186 (2001) ("[A] generator that is meeting its station power requirements through either remote self-supply or third-party [*i.e.*, utility] supply, to the degree that it does not own or have rights to use the [grid] that connects its facility to the source of the station power, would need to make appropriate arrangements for transmission and/or local distribution services. In either situation, the determination of whether the generator is using another party's resources in a manner that warrants consideration is case-specific.").

11 *PJM Interconnection, LLC*, 95 FERC ¶ 61,333, 62,182 (2001).

12 *AES Somerset, LLC v. Niagara Mohawk*, 110 FERC ¶ 61,032, P 46 (2005).

13 *Duke Energy Moss Landing LLC v. Cal. Indep. Sys. Operator Corp*., 132 FERC ¶ 61,183, P 2 (2010).

approved updates to the utilities' station power tariffs for conventional resources in line with this direction from FERC.[14] Specifically, the Commission established that generators participating in the CAISO's Station Power Protocol ("SPP") will pay retail charges under their otherwise applicable tariffs ("OATs")[15] based on fifteen-minute interval netting (*i.e.*, the load is metered on a fifteen-minute interval basis and treated like any other retail load).[16]

The current IOU station power tariffs for conventional resources reflect these updates and this netting methodology for assessing retail sales.[17] These tariffs also, more generally, maintain relatively straightforward rules for assessing applicable charges; the tariffs do not, for example, establish any distinct treatment based on how electricity is being used on-site, or based on the specific "operational mode" of the generator. All electricity delivered from the grid whenever there is net consumption in a fifteen-minute interval is considered "station power" that is billed at retail.

The Commission expanded this station power framework to address and establish rules for energy storage resources in D.17-04-039.[18] To create an economically viable framework, the Commission needed to differentiate station power rules for energy storage from the rules applicable to other resources, since it would not be feasible for storage resources to pay retail for all energy delivered from the grid and to sell the same energy back to the grid at wholesale prices.[19]

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14 *See* Resolution E-4673 (August 15, 2014) ("Resolution E-4673"); Resolution E-4674 (August 14, 2014) ("Resolution E-4674").

15 Resolution E-4673, p. 2; Resolution E-4674, p. 2.

16 Resolution E-4673, Ordering Paragraph 1; *id.*, Finding 13 ("metering in accordance with the meter's 15-minute reporting interval . . . is more appropriate than the monthly netting methodology in determining the retail service provided by the responsible utility"); Resolution E-4674, Finding 13 (same).

17 SCE Schedule SPSS (Station Power Self-Supply); PG&E Electric Schedule SB (Standby Service), Special Condition 14; SDG&E Schedule SPSS (Station Power Self-Supply).

18 D.17-04-039, Ordering Paragraph 8.

19 D.17-04-39, pp. 28-29.

For generators, station power billing is relatively simple—if an interval has net output, there is no consumption, and thus nothing to bill. The generator self-supplies the loads that would otherwise be billed as retail station power, and those loads are "netted" from gross generation in the sense that they reduce the amount of electricity that can be delivered to the grid and earn wholesale revenues. Conversely, all electricity consumed, regardless of end use, in any interval with net consumption from the grid is defined as "station power" and billed at retail station power rates.[20]

For storage, the Commission had to address the novel question of whether loads could be netted during intervals with net charging or "negative generation." The Commission determined that station power load can be netted by charging as well as discharging. The Decision concluded that, "[i]n instances where the cumulative absolute value of charging plus discharging is greater than station power load, in a 15-minute interval, then the load is wholesale[, whereas] [i]f the cumulative absolute value of charging plus discharging is less than station power load, in a 15-minute interval, then the station power load is retail."[21] Ordering Paragraph 8 ordered the utilities to file tariffs that incorporate this approach to netting.[22]

To complete the framework for determining how to bill storage resources for retail loads, the Commission had to resolve the distinction between which loads are wholesale and which are retail. The Decision notes that "there is consensus that all electric power drawn into storage resources for later resale is not station power."[23] The Commission could have simply decided that the only electricity not billed at retail would be the energy delivered from the grid and stored in the energy storage device, with all other loads considered "station power" and billed at retail. However, the Commission noted that there was also consensus "that energy drawn into the storage

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20 *See* Resolution E-4673, p. 4.
21 D.17-04-039, p. 53.
22 D.17-04-039, Ordering Paragraph 8.
23 D.17-04-039, p. 30.

resource but 'lost' due to the efficiency of the resource (efficiency losses) does not constitute station power."[24] Section 6 of the Decision is dedicated to determining which uses, and under what circumstances, certain loads should be billed at wholesale or retail rates. Throughout the discussion in Section 6, it is difficult to parse if "efficiency losses" are equivalent to uses "supporting a resale of energy back into the wholesales markets,"[25] uses that are essential to battery operation,[26] and to the end uses described as "wholesale."[27]

Ultimately, the Decision broadly defined "wholesale uses" for storage as all energy drawn from the grid to support a resale of energy back into wholesale markets, including charging energy, resistive losses, pumps (flow batteries and pumped hydro), power conversion system, transformer, battery management system, thermal regulation, and vacuum (for flywheels).[28] In contrast, the Decision concluded that all energy drawn from the grid and used for purposes *other than* for supporting a resale is "Station Power," including information technology and communications, lighting, ventilation, and safety uses.[29]

Related to the netting issue, the Decision discusses how electricity consumed by energy storage facilities should be billed according to the facilities' operational status, defined as "idle" (when no netting occurs) or charging/discharging "subject to a dispatch." While some parties in Rulemaking ("R.") 15-03-011 contended that a resource's operational status should not impact the retail/wholesale designation, the IOUs argued that "all loads, including inverter loads for a storage device when idle, but subject to a market obligation, should be categorized as station power, and

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24 D.17-04-039, p. 30.
25 D.17-04-039, p. 33 and Ordering Paragraph 8.
26 D.17-04-039, pp. 34-37.
27 D.17-04-039, p. 37 and Ordering Paragraph 8.
28 D.17-04-039, Findings of Fact 16-19 and Ordering Paragraph 8.
29 D.17-04-039, Ordering Paragraph 8.

thus charged retail."[30] In the Decision, the Commission seemed to agree with the IOUs that "if a storage resource is idle, its onsite station power load is retail."[31] Although this conclusion is not incorporated into the Decision's Ordering Paragraphs, similar language appears in Finding of Fact 20: "if an energy storage resource is idle, its onsite load is retail."[32] Notably, however, Finding of Fact 20 omits the term "station power" found in the corresponding text in the body of the decision.

This omission raises the question of whether "station power" thus has two conflicting meanings within the Decision. Does "station power" mean "Station Power" as defined in the Decision, or does it mean "all loads, including inverter loads for a storage device when idle"? Ordering Paragraph 8 instructs the IOUs to file tariffs that "[a]llow consumption to be netted… subject to a dispatch at a greater absolute value of energy than its **station power** consumption."[33] If "station power consumption" means the four end uses defined as "Station Power," then the consumption that the IOUs should bill when energy storage resources are idle should be limited to the consumption by the four end uses defined as "Station Power."

Following these ambiguous directives from the Decision, the utilities filed Advice Letters with station power tariffs for storage resources that defined energy consumed (not simply "Station Power" consumption, as defined) during periods when the storage device is "idle" as subject to the retail rate.[34] These implementation Advice Letters reflected the inconsistent and self-contradictory use of the term "station power" from the Decision. For example, PG&E's E-STORE tariff defines "Retail Station Power" as both "All energy that is consumed (and not resold)" and "all energy consumed during periods when the storage device is idle . . . which includes information

30 D.17-04-039, p. 43.
31 D.17-04-039, p. 52. *See also id.*, Finding of Fact 20.
32 D.17-04-039, Finding of Fact 20.
33 D.17-04-039, Ordering Paragraph 8.
34 PG&E Schedule E-STORE, Sheets 2 and 7; SCE Schedule SPESD, Sheets 2 and 3; SDG&E Schedule SPES, Sheets 1-2.

technology, lighting, ventilation, and safety." Adding to the confusion, E-STORE also includes a separate definition of "Station Power": "All energy used for purposes other than for supporting a resale of energy back to the wholesale markets."[35]

The Office of Ratepayer Advocates (since renamed the Public Advocates Office or "PAO") protested the utilities' Advice Letters on the grounds that they had misinterpreted the Decision by billing the end uses specifically defined in the Decision as "wholesale" as retail station power during "idle" intervals. As discussed above, it is understandable that there was some ambiguity about exactly how certain loads should be treated during "idle" periods, as Ordering Paragraph 8 of the Decision defines specific end uses as "station power" and then allows "consumption" to be netted during intervals when the absolute value of the charging/discharging subject to a dispatch is greater than its "**station power** consumption."[36] Read together, these two bullets could be interpreted to mean that only the defined "Station Power" end uses can be netted when energy storage devices are dispatched, and that by implication, "wholesale" end uses should always be billed at wholesale.

In disposition letters resolving PG&E's and SDG&E's Advice Letters, the Energy Division disagreed with PAO's interpretation and affirmed that "storage devices must pay retail for **any load** while sitting idle."[37] The Commission subsequently confirmed Energy Division's position in a Resolution addressing SCE's Advice Letter in which it stated that "storage devices must pay retail for any load incurred while sitting idle and neither charging nor discharging."[38]

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35 PG&E Schedule E-STORE, Sheet 2; SCE Schedule SPESD, Sheets 1 and 2; SDG&E Schedule SPES, Sheets 1 and 2.

36 D.17-04-039, Ordering Paragraph 8 (emphasis added).

37 *See* Energy Division's July 17, 2017 disposition letters approving PG&E Advice Letter 5076-E and SDG&E Advice Letter 3084-E (emphasis added).

38 Resolution E-4876, p. 4 (August 24, 2017) ("Resolution E-4876").

II. THE RECENT PROLIFERATION OF STORAGE RESOURCES IN CALIFORNIA NECESSITATES A FRESH REVIEW OF THE COMMISSION'S TREATMENT OF "IDLE" BATTERIES IN ITS STATION POWER RULES

The growth in utility-scale storage projects in California over the past several years has exposed the ways in which D.17-04-039's "idle" station power tariff provisions complicate and ultimately hinder storage development. By the end of 2016, when stakeholders began developing these station power policies for storage resources,[39] California had *only eight* utility-scale storage projects, with a total capacity of 87 megawatts ("MWs").[40] Most of these projects were utility-owned and were not procured or operated as capacity resources in the wholesale market.[41] Additionally, the IOUs' tariffs were not approved until three or four months after the Commission issued the Decision. In 2017, as these station power tariffs were being implemented, only six more utility-scale storage projects came online.[42] Thus the station power rules adopted in D.17-04-039 were developed at a time when the nascent storage industry had little practical understanding of how developers might operate storage resources in the market, and how and to what extent certain station power policies might impact those project operations and economics. In particular, developers had no practical understanding of the extent to which distinct station power rules for "idle" batteries might impact their project economics and incentives for operations.

From 2018 through April 2025, California added 200 utility-scale energy storage projects with over 13,000 MW of capacity.[43] As a point of comparison, the increase in storage development in California since the adoption of D.17-04-039 is comparable to the capacity of approximately six new Diablo Canyons.[44]

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39 *See* D.17-04-039, p. 6.
40 *See* CEC Storage Survey.
41 Appendix B (Declaration of Scott Murtishaw), ¶ 4.
42 *See* CEC Storage Survey.
43 *See* CEC Storage Survey.
44 Appendix B (Declaration of Scott Murtishaw), ¶ 6.

This industry growth has allowed for greater insight into how the Commission's station power rules for "idle" storage resources impact development. According to data provided by CESA's members, batteries in California utility-scale storage projects are "idle", per the Commission's definition, between 20 and 50 percent of the time.[45] Given these standard operational patterns in California, the utilities' station power tariff provisions requiring that "idle" resources pay the retail rate result in substantial additional operating costs. Specifically, CESA member companies report that between 15 to 40 percent of their total annual operating costs result from these "idle" resource rules.[46]

Developers' growing experience with storage deployment and operations in California has illuminated the practical implications of the Commission's distinct treatment of "idle" batteries: storage projects in California pay retail rates during substantial portions of their operations, and as a result incur significant additional operating costs. These implications for the California storage market necessitate a fresh review of this discrete element of the Commission's station power rules.

III. THE COMMISSION SHOULD MODIFY THE STATION POWER RULES FOR STORAGE RESOURCES TO RECOGNIZE THE GRID SERVICES PROVIDED BY THESE RESOURCES IN "IDLE" MODE, REDUCE COSTS FOR THESE RESOURCES THAT ARE BORNE BY RATEPAYERS, SIMPLIFY BILLING, REMOVE PERVERSE OPERATIONAL INCENTIVES, AND IMPROVE THE LOGICAL CONSISTENCY OF THE DECISION

A. The Current Station Power Rules Fail to Recognize the Grid Services Provided by "Idle" Energy Storage Resources

While the Commission acknowledged in the Decision that energy storage resources are "participating in the market" while "idle"[47] and may provide ancillary services to the grid while

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45 Appendix B (Declaration of Scott Murtishaw), ¶ 8. As discussed further in Section III.A herein, when a resource is "idle", this does not mean it is not providing a grid service. In fact, when energy storage projects are "idle", they are generally awaiting dispatch by the CAISO in response to energy market awards, Residual Unit Commitment, or ancillary services.

46 Appendix B (Declaration of Scott Murtishaw), ¶ 9.

47 D.17-04-039, p. 52.

"idle",[48] it nonetheless concluded that "storage devices must pay retail for any load incurred while sitting idle and neither charging nor discharging."[49] The Commission should reconsider this determination in light of the distinct nature of energy storage resources as compared to generation resources, and in particular, storage resources' unique ability to provide substantial value to the grid when "idle."

Energy storage resources are distinctive in that they can provide services to the grid regardless of whether they are charging, discharging, or "idle," so long as they are connected to the grid. This fact is clearly reflected in the CAISO's Business Practice Manual ("BPM"). The BPM's definition of non-generator resources ("NGRs") and related descriptions make clear that the CAISO does not recognize an "idle" status analogous to that in the Commission's station power rules.[50] Instead, the CAISO defines NGRs as having continuous operation unless on outage, explaining that "[b]ecause of the continuous operating range, NGRs do not have minimum load operating points, state configurations, forbidden operating regions, or offline status (unless on outage)."[51] Thus, there is no such thing as an "idle" battery from the CAISO's perspective; the battery is either synchronized or on outage. The CAISO's indicator of resource operational status—unit connected (*i.e.*, UCON) status[52]—can either reflect the resource is "on" (*i.e.*, the unit is synched with the grid) or "off" (*i.e.*, the unit is not synched with the grid).[53]

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48 D.17-04-039, p. 42.

49 Resolution E-4876, p. 4.

50 Appendix B (Declaration of Scott Murtishaw), ¶ 10 (citing CAISO Business Practice Manual for Market Operations, Version 97, Section 2.1.13).

51 Appendix B (Declaration of Scott Murtishaw), ¶ 10 (citing CAISO Business Practice Manual for Market Operations, Version 97, Section 2.1.13).

52 Appendix B (Declaration of Scott Murtishaw), ¶ 10 (citing CAISO Business Practice Manual for Direct Telemetry, Version 19.0, Section 14.2.2).

53 Appendix B (Declaration of Scott Murtishaw), ¶ 10 (citing CAISO Business Practice Manual for Direct Telemetry, Version 19.0, Section 14.2.2). The CAISO determines the UCON status for both conventional and storage resources from the breaker status points, and for storage resources, it also determines UCON status from the inverter ready status.

Further, the BPM recognizes that maintaining a particular state of charge (*i.e.*, "idling") is one of the core functionalities an NGR must deliver if it is to provide grid services.[54] In other words, what the Commission describes as "idling", the CAISO defines as a grid service. Whether actively charging/discharging or not, storage resources are always waiting for a market dispatch by CAISO.[55] At some times of day, CAISO operators seek a low state of charge to maintain sufficient empty capacity to capture intermittent renewables and avoid curtailment.[56] At other times, CAISO operators seek a high state of charge to meet needs when variable renewables are not available.[57] CAISO operators may also need to call an exceptional dispatch and direct storage resources to achieve a certain state of charge and then stay idle until some later time when the storage is critically needed, forcing the storage into an extended idle period.[58] These are all services provided to the grid by storage resources, and the CAISO BPM recognizes them as such.

Conventional and other inverter-based generation resources do not share this ability to provide value to the grid while "idle" or while consuming electricity.[59] Instead, these generation resources must export electricity to the grid to provide grid services.[60] Thus, it is reasonable for all net consumption of these generators to be billed at retail. In contrast, the Commission has identified many types of energy storage loads as essential to supporting a resale of energy back

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54 Appendix B (Declaration of Scott Murtishaw), ¶ 11 (citing CAISO Business Practice Manual for Market Operations, Version 97, Section 2.1.13 ("[t]he dispatch of a NGR providing AS must employ a stored energy management scheme to manage the state of charge and ensure that there is sufficient stored energy in the device to dispatch to satisfy the AS when they are called upon.")).

55 Appendix B (Declaration of Scott Murtishaw), ¶ 12 (citing CAISO Business Practice Manual for Market Operations, Version 97, Section 2.1.13).

56 Appendix B (Declaration of Scott Murtishaw), ¶ 12.

57 Appendix B (Declaration of Scott Murtishaw), ¶ 12.

58 Appendix B (Declaration of Scott Murtishaw), ¶ 12.

59 Appendix B (Declaration of Scott Murtishaw), ¶ 14.

60 Appendix B (Declaration of Scott Murtishaw), ¶ 14.

into wholesale markets.[61] It makes sense for the Commission to treat this set of energy storage loads as wholesale, and to do so regardless of whether the storage device is charging, discharging, or "idle"—given that "idle" resources are either providing uncompensated services (*e.g.*, frequency response or voltage support),[62] or simply prepared to provide grid services at a moment's notice.[63]

In sum, it is reasonable for the Commission to treat energy storage resources differently from generation resources because these two resource types have distinct functionalities and abilities to deliver grid services in different operational modes. As long as an energy storage resource has UCON status, it is either actively providing or available to instantly provide services to the grid, and therefore should be billed accordingly.

B. The Current Station Power Rules Impose Significant Costs that are Ultimately Borne by Ratepayers

The current station power rules also impose significant costs for storage projects that are ultimately borne by ratepayers. According to CESA members, retail charges incurred during periods of energy storage system "idling" can range from $4,000/MW-yr to $10,000/MW-yr, which represents between 15 and 40 percent of annual facility operating costs.[64]

These costs disadvantage storage projects relative to conventional resources for a few reasons. First, because most forms of energy storage must draw significant amounts of energy at all times, primarily for thermal regulation, they end up paying substantially more for station power

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61 D.17-04-039, Finding of Fact 19 ("Elements essential to battery operation – namely the battery management system, thermal regulation, and vacuum (for flywheels) – are wholesale loads, not station power.").

62 Appendix B (Declaration of Scott Murtishaw), ¶ 13 (citing the CAISO tariff Appendix BB – Standard Large Generator Interconnection Agreement as of September 1, 2022).

63 Appendix B (Declaration of Scott Murtishaw), ¶ 13.

64 Appendix B (Declaration of Scott Murtishaw), ¶ 9.

than conventional generators since they are "idle" in 20 to 50 percent of intervals in a given day.[65] In contrast, conventional gas-fired generators only have significant parasitic loads billed as station power during start-up, which may last as little as five minutes.[66] Second, while conventional generators can receive "uplift payments" for startup costs when daily revenues are insufficient to cover those startup costs, the CAISO does not consider charges imposed on "idling" energy storage projects to be "startup" costs.[67] Therefore, storage projects do not receive any offsetting uplift payments for startup or other commitment costs for which thermal generation is eligible. Finally, unlike conventional generators, energy storage facilities can incur all these costs while actively providing services to the grid, some of which are uncompensated, as discussed in Section III.A herein. This dynamic compounds the inequities of the Commission's station power rules for "idle" storage resources.

The IOUs have argued in the past that allowing energy storage facilities to pay wholesale rates for certain end uses would shift costs to other ratepayers.[68] However, this argument rests on the false premise that additional retail charges imposed on storage projects are simply absorbed by energy storage operators. This is not the case.

The practical reality is that these costs are passed on to ratepayers. Since costs incurred in "idle" intervals are not marginal costs associated with charging and discharging activity, bids are not marked up to recuperate these costs.[69] However, the costs associated with retail charges levied during "idle" periods, like all other project costs, are estimated and factored into the overall financial analysis when project developers and operators prepare bids for long-term or short-term

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65 Appendix B (Declaration of Scott Murtishaw), ¶ 15.
66 Appendix B (Declaration of Scott Murtishaw), ¶ 15.
67 Appendix B (Declaration of Scott Murtishaw), ¶ 16.
68 R.15-03-011, *Reply Comments of SCE on ALJ's Ruling Seeking Comments on Joint Report and Staff Proposal*, pp. 3-5 (January 31, 2017).
69 Appendix B (Declaration of Scott Murtishaw), ¶ 17.

capacity offers.[70] Underwriters for project finance consider these station power costs when assessing the total revenue projects must earn to cover debt and assure a reasonable return on investment.[71] In other words, ratepayers already pay, and will continue to pay, for energy storage facilities' additional retail power costs, and the uncertainty associated with the long-term trajectory of those costs, via long-term power purchase agreement and short-term capacity prices.[72]

Financial modeling using a CESA member's estimates of project lifetime electricity costs using the status quo station power rules compared to CESA's proposed alternative, as well as standard assumptions of market financing terms, indicates that ratepayers could save more than $5 million net present value per 100 MW/400 MWh of storage resource capacity if the IOUs' station power tariffs were to consistently charge wholesale rates for all "wholesale uses" defined in the Decision.[73] This estimate is premised on the fact that lifetime retail electricity charges are effectively financed via the debt and equity used to build the projects.[74] The higher the non-marginal costs that must be recovered via capacity payments, the higher the additional financing cost to cover the direct cost plus debt and equity costs.[75] In a competitive energy storage market, reducing the direct retail electricity costs, financing costs, and the risk premiums associated with rising retail rates will contribute to maintaining lower energy storage procurement costs for ratepayers.[76]

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70 Appendix B (Declaration of Scott Murtishaw), ¶ 18.
71 Appendix B (Declaration of Scott Murtishaw), ¶ 19.
72 Appendix B (Declaration of Scott Murtishaw), ¶ 19.
73 Appendix B (Declaration of Scott Murtishaw), ¶ 20.
74 Appendix B (Declaration of Scott Murtishaw), ¶ 20.
75 Appendix B (Declaration of Scott Murtishaw), ¶ 20.
76 Appendix B (Declaration of Scott Murtishaw), ¶ 20.

C. The Current Station Power Rules Create Complex Double-Billing Issues

The Commission's "idle" designation in the IOUs' station power tariffs, coupled with current CAISO and IOU station power accounting methods, also introduce complex double-billing issues. While the CAISO BPM includes an option that enables a CAISO meter to both send data to and receive data from the IOUs, both PG&E and SCE have pushed back against the coordination necessary to prevent double billing.[77] Specifically, the IOUs have refused to receive signals reflecting CAISO dispatch that could be used to uniformly define when a battery is in discharge/charge mode.[78] Without this signal, the IOUs instead rely on various estimation methodologies to approximate onsite loads during times of resource "idling."[79] SCE uses a kilowatt threshold below which load is billed at the retail rate, whereas PG&E's formula produces an estimate of energy use while "idling" based on the attributes of the asset.[80]

There are several issues with the use of these methodologies in practice. First, there is often a long delay between project energization and IOU finalization of the project-specific billing methodology parameters that will dictate billing treatment.[81] During the months in which these parameters are being finalized, there is no reliable way to avoid double billing.[82] Second, for some older storage resources, metering was established prior to the implementation of the station power rules, and re-programming of the meters is not possible given the limitations of the meter models used by the IOUs, which can result in double billing.[83] Third, because the IOUs do not configure the CAISO meter to compensate for retail load themselves, a CAISO representative must make

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77 Appendix B (Declaration of Scott Murtishaw), ¶ 21.
78 Appendix B (Declaration of Scott Murtishaw), ¶ 21.
79 Appendix B (Declaration of Scott Murtishaw), ¶ 21.
80 Appendix B (Declaration of Scott Murtishaw), ¶ 21.
81 Appendix B (Declaration of Scott Murtishaw), ¶ 22.
82 Appendix B (Declaration of Scott Murtishaw), ¶ 22.
83 Appendix B (Declaration of Scott Murtishaw), ¶ 22.

their best effort to configure the meter appropriately.[84] As the IOUs' statistical billing methodologies are highly complex and not entirely transparent, it is difficult, if not impossible, for CAISO representatives to do so with a high degree of accuracy.[85] Finally, these methodologies do not meaningfully allow for true-up opportunities, even when storage system operators are able to demonstrate instances of double billing.[86] The CAISO's window for submitting meter adjustments is too limited to be useful, and the IOUs do not offer any opportunities for true-up.[87]

One illustrative example of how the use of different approaches at the CAISO and IOU levels can result in double billing is when storage resources are dispatched to provide ancillary services at levels below the estimated station power baseline. For example, say the baseline station power inflow for a storage resource is -2 MW. During an interval in which the resource is dispatched up and down between 0 MW and -2 MW, the electricity drawn from the grid over the 15-minute interval will lie between 0 MW and -2 MW, within the baseline threshold. CAISO will bill the storage resource for all inflows that occurred pursuant to its dispatch instructions and the utility will bill the resource at the retail rate for the total inflows during the interval.[88]

These issues could be eliminated by simply removing the additional rules for "idle" resources and netting and instead relying on the CAISO's UCON status designation to determine the proper billing treatment. In CESA's proposed framework, when a storage resource has UCON status, the Decision's "wholesale" and "retail/station power" definitions would dictate billing treatment. Conversely, when a storage resource does not have UCON status, all load served

84 Appendix B (Declaration of Scott Murtishaw), ¶ 22.
85 Appendix B (Declaration of Scott Murtishaw), ¶ 22.
86 Appendix B (Declaration of Scott Murtishaw), ¶ 22.
87 Appendix B (Declaration of Scott Murtishaw), ¶ 22.
88 Appendix B (Declaration of Scott Murtishaw), ¶ 23.

would be billed as retail. In other words, as long as a resource has UCON status, the operational mode of the resource would be irrelevant.

Because the end uses enumerated as "Station Power" in the Decision are often served by a lower voltage distribution circuit, and not via the high voltage point of interconnection, they are usually metered and billed separately and thus do not benefit from the netting rules in the Decision.[89] Thus these end uses are often billed at retail regardless of the dispatch of the energy storage facilities. Under CESA's proposed framework in which the "wholesale" end uses defined by the Decision would always be billed at wholesale rates, the only estimation that would be necessary would be for any defined Station Power loads that are served via the wholesale meter, which is relatively uncommon.[90] This would greatly reduce the amount of grid-delivered electricity that could potentially be double billed.

D. The Current Station Power Rules Incentivize Suboptimal Battery Operations that Reduce the Capacity Available for Dispatch

The Commission's distinct treatment of "idle" batteries also incentivizes developers to operate projects in ways that are suboptimal from a grid perspective. Developers are motivated to avoid "idling" as much as possible to minimize retail charges, regardless of what operational mode would be optimal from a grid perspective.

Specifically, CESA members report that some developers respond by discharging at non-optimal times to avoid "idling."[91] For example, an operator may consistently self-schedule a small percentage of its battery into the market to avoid "idling", despite the fact that this discharge is not

89 Appendix B (Declaration of Scott Murtishaw), ¶ 24.
90 Appendix B (Declaration of Scott Murtishaw), ¶ 24.
91 Appendix B (Declaration of Scott Murtishaw), ¶ 25.

responsive to any grid needs and may in fact hinder the developer's ability to discharge during a subsequent period when that capacity *is* needed.[92]

"Idling" while awaiting dispatch is often the operational state that is most beneficial for the grid. Projects are "idle" between 20 and 50 percent of the time,[93] and this figure would likely be higher if all projects were operating optimally from a grid perspective, rather than trying to avoid "idling" and the associated retail charges.[94] The Commission should not maintain a tariff provision that disincentivizes optimal battery operation at the expense of California's grid.

E. The Current Station Power Rules Regarding "Idle" Batteries Obfuscate and Effectively Render Meaningless the Core End-Use Distinctions Drawn by the Commission in D.17-04-039

Removing the Commission's station power rules regarding "idle" batteries will also improve the logical consistency of the Decision and the resulting station power rules. The extensive discussion in the Decision regarding whether particular end uses should be designated as "retail" or "wholesale" is effectively rendered meaningless by the Decision's additional, overriding conclusion that "any load" of idle resources is subject to retail charges.

The practical result of the current framework is that all end uses, except charging energy and resistive losses, are retail when an energy storage system is "idle", and wholesale when charging and discharging exceed the baseline level of station power (meaning all load, not "Station Power," as defined) consumption. To use specific examples, thermal regulation—which the Decision defines as a "wholesale" end use—is considered station power and billed at retail when a storage resource is idle, but in intervals when the absolute value of charging energy exceeds the baseline, it is billed at wholesale.[95] Similarly, lighting load (assuming it is served via the wholesale

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92 Appendix B (Declaration of Scott Murtishaw), ¶ 25.
93 Appendix B (Declaration of Scott Murtishaw), ¶ 8.
94 Appendix B (Declaration of Scott Murtishaw), ¶ 26.
95 Appendix B (Declaration of Scott Murtishaw), ¶ 27.

meter and not metered and billed separately), which the Decision defines as "Station Power," is billed at retail when a storage resource is idle, but in intervals when the absolute value of charging energy exceeds the station power baseline, it is billed at wholesale.[96]

It is perplexing why the Commission would go to such pains to categorize these various end uses into "wholesale" and "Station Power" categories if it intended the billing treatment to be identical. A simpler way to achieve the same outcome would have been to designate all end uses (besides charging energy and associated resistive losses, which all parties agreed should be charged wholesale) as retail uses that are only billed wholesale pursuant to the netting rules, since that is what happens in practice under the current idle and netting rules.

By removing the additional layer of rules around "idle" resources, the Commission will streamline its station power rules and remove these internal inconsistencies in the Decision.

IV. THE COMMISSION CAN REMEDY THE SHORTCOMINGS OF THE CURRENT STATION POWER RULES BY ADOPTING CESA'S PROPOSED FRAMEWORK CHANGE

CESA recommends that the Commission modify D.17-04-039 to clarify that the utilities' station power tariffs should rely on the CAISO's grid synchronization terminology (*i.e.*, UCON status) to uniformly define the operational states of all resources—both storage and conventional.

This update would require the following minor changes to the Decision, to be ultimately reflected in the IOUs' station power tariffs:

(1) Removal of the discussion of the "idle" resource designation and distinct treatment of "idle" batteries for purposes of the station power rules;

(2) Removal of the discussion regarding netting, which is not necessary under CESA's proposed framework;

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96 Appendix B (Declaration of Scott Murtishaw), ¶ 27.

(3) Addition of language adopting the CAISO's terminology regarding unit connectivity status to describe the relevant operational modes of battery resources; and

(4) Addition of language confirming that, so long as a storage resource is synchronized with the grid, the definitions of "wholesale uses" and "retail/station power uses" adopted in the Decision apply to determine the appropriate charges for the resource's load—regardless of whether the battery is charging, discharging, or "idle" and awaiting dispatch.

The specific wording changes necessary to implement these recommendations are included in Appendix A hereto.

With this minor set of changes, the Commission would address each of the problems with the current policy discussed in this Petition. Specifically, these changes would:

(1) **Recognize storage resources' unique ability to provide grid services when "idle"**: the updated rules would appropriately recognize that developers operate storage resources to provide grid services in line with grid needs, and at different points, these needs are served by charging, discharging, and awaiting dispatch or providing uncompensated frequency response and voltage support services while "idling."

(2) **Significantly reduce costs for storage projects that are ultimately borne by ratepayers**: currently, retail charges incurred during periods of energy storage system "idling" represent 15 to 40 percent of annual storage facility operating costs.[97] The updated rules would reduce the direct retail electricity costs, financing costs, and risk premiums for storage projects, resulting in lower energy storage procurement costs for ratepayers.

[97] Appendix B (Declaration of Scott Murtishaw), ¶ 9.

(3) **Simplify billing**: the updated rules would eliminate the need to bill certain onsite loads differently in any given 15-minute interval according to how much electricity a storage resource has imported from or exported to the grid.

(4) **Eliminate or substantially reduce double billing**: the updated rules would eliminate double billing at facilities in which all defined Station Power loads are served separately by a distribution circuit (because none of the remaining "wholesale" loads would ever be billed at retail) and substantially reduce the extent of double billing at facilities with one or more of the defined Station Power loads served via the wholesale meter.

(5) **Ensure that the Commission's station power rules do not incentivize suboptimal battery operations**: the updated rules would remove the current incentive to avoid "idling"—even when such behavior would be optimal from a grid perspective—to minimize retail charges.

(6) **Fix the internal inconsistencies in the Decision**: the updated rules would restore the Commission's clear categories of "wholesale uses" versus "station power/retail uses" in the Decision.

Overall, these updates and the resulting tariff changes would reduce key barriers associated with storage development and optimization in California. CESA respectfully requests that the Commission take this opportunity to streamline its station power policies and align them with the state's broader storage deployment goals.[98]

V. THIS PFM COULD NOT HAVE BEEN FILED WITHIN ONE YEAR OF D.17-04-039

[98] Appendix B (Declaration of Scott Murtishaw), ¶ 3 (citing *Press Release: California Achieves Major Clean Energy Victory: 10,000 Megawatts of Battery Storage*, Governor Gavin Newsom, *available at* https://www.gov.ca.gov/2024/04/25/california-achieves-major-clean-energy-victory-10000-megawatts-of-battery-storage/ (providing that "[t]he state is projected to need 52,000 MW of energy storage capacity by 2045 to meet its clean energy goals.")).

Pursuant to Rule 16.4(d), this PFM could not have been filed within one year of D.17-04-039. This is because, as discussed in Section II herein, utility-scale storage projects were exceedingly rare in California in 2017 and 2018, and installations only really began to accelerate in the state starting in 2021.[99] Therefore, in 2017 when D.17-04-039 was decided, and during the year immediately following the Decision, CESA members had no practical understanding of the extent to which the IOUs' distinct station power rules for "idle" batteries might impact their utility-scale storage projects.[100]

Now that California's utility-scale storage market has matured, CESA members have much greater insight into the time periods for which these projects in California tend to be "idle", as well as the extent to which the current station power rules for "idling" batteries impact project economics, operational incentives, and billing complexity.[101] Since members were not, and could not have been, aware of these practical implications within a year of the Decision, CESA was not in a position at that time to submit this PFM.[102] As CESA has gained a clearer understanding of the impacts of these station power "idling" rules as the California utility-scale storage market has developed, it is now equipped to raise these issues for the Commission's consideration.[103]

VI. CONCLUSION

For the foregoing reasons, CESA respectfully requests that the Commission grant this PFM and modify its station power rules for "idle" storage resources, thereby eliminating unnecessary barriers to storage deployment in California. CESA's specific requested modifications to D.17-

99 *See* CEC Storage Survey.
100 Appendix B (Declaration of Scott Murtishaw), ¶ 5.
101 Appendix B (Declaration of Scott Murtishaw), ¶ 7.
102 Appendix B (Declaration of Scott Murtishaw), ¶ 7.
103 Appendix B (Declaration of Scott Murtishaw), ¶ 7.

04-039 are included in Appendix A hereto, and the supporting Declaration of Scott Murtishaw is included in Appendix B hereto.

Dated: November 17, 2025

Respectfully submitted,

/s/ Scott Murtishaw

Scott Murtishaw
Executive Director
CALIFORNIA ENERGY STORAGE ALLIANCE

APPENDIX A: Proposed Changes to Decision 17-04-039

CESA recommends the following changes to *Decision 17-04-039*, including proposed changes to the body of the Decision, Findings of Fact, Conclusions of Law, and Ordering Paragraphs. Additional provisions are numbered "XX". CESA's proposed revisions appear in underline and strike-through.

Body of Decision

6.5.3. Discussion

~~We agree that the station power rules should apply to a storage resource while sitting idle and participating in the market, but are not convinced that the resource should pay wholesale for these loads. It is inconsistent with the netting policy we set forth here to simply allow for all station power to pay wholesale simply because the storage operator cannot self-supply from its own generation, as there is no generation – negative or positive – against which to net station power usage while a device is idle. Further, in our review of the utilities' station power self-supply tariffs, we note that there are multiple options for self-supply of station power loads, including contracting for remote resources, or having other generation on-site. Thus, we concur with the utilities that if a storage resource is idle, its onsite station power load is retail~~.

~~With regard to netting station power against charging activity, we retain the treatment in the original proposal. We adopt the amendment proposed by CESA to clarify that station power must be netted against the absolute value of a storage device charge and discharge, thus effectively adding the positive generation and negative generation together in a manner consistent with the intent of the Proposed Rule. In instances where the cumulative absolute value of charging plus discharging is greater than station power load, in a 15-minute interval, then the load is wholesale. If the cumulative absolute value of charging plus discharging is less than station power load, in a 15-minute interval, then the station power load is retail. Under this approach, station power is always charged at either wholesale or retail rates, and is never "free" as asserted by PG&E and SDG&E in their comments on the Proposed Decision.~~

~~In comments on the Proposed Decision, SCE and TURN both fear that netting will result in gaming and perverse incentives for energy storage operators. We note that adoption of any rule results in incentives for operators, whose goal is to maximize their revenues, however CESA provided compelling arguments in its reply comments on the Proposed Decision that there are negative operational issues that would occur if the energy storage operator constantly modified their profile in the manner that SCE and TURN theorize. Thus we do not find SCE and TURN's arguments convincing. In comments on the Proposed Decision, SCE also expresses concerns that utilities will not have access to the information necessary to accomplish the adopted netting treatment. If utilities have this concern, they may include a provision in their station power tariffs to ensure an energy storage resource that utilizes a non-utility scheduler provides information to the utility that is necessary to perform the netting established by Rule 5. We anticipate that the results of our forthcoming program evaluation will help inform whether our station power rules should be refined.~~

~~This treatment is not in violation of the Public Utilities Code or the Federal Power Act, as suggested by SCE, because "comparable" treatment need not be precisely the same treatment, particularly when there is good cause to deviate from the precise treatment afforded another resource. Indeed, conventional generation does not possess the physical ability to produce negative generation. Storage and demand response loads are the only resources that can move in both directions, thus creating negative generation. It is well established that there is value to negative generation, and this value will increase as more solar generation is interconnected. The Resource Adequacy rules for calculating qualifying capacity of storage and demand response resources recognize the value of negative generation, or charging load, for storage resources.~~

~~Finally, we do not adopt CESA's suggestion to expand the netting period to an interval larger than 15 minutes. We do not have sufficient record to support such a change, and agree with parties that it would be inconsistent with the rules for conventional resources with no clear benefit.~~

> ~~We modify this Proposed Rule as follows:~~
>
> ~~Insofar as a storage resource withdraws energy (charges) or injects energy (discharges) subject to a dispatch at a greater absolute value of energy capacity than its station power consumption, that consumption should be able to be netted against the response to the dispatch, within a fifteen-minute settlement period, just as it is for conventional generators.~~

We agree that the station power rules adopted in this decision should apply to a storage resource while it is neither actively charging nor discharging, but still synchronized with the grid and participating in the market. For clarity, we adopt the CAISO's terminology regarding unit connectivity status (or "UCON") to describe the relevant operational modes of battery resources. This terminology recognizes two operational modes of storage resources: a battery is either synchronized with the grid (and charging, discharging, or awaiting dispatch), or it is on outage.[104] So long as a storage resource is synchronized with the grid, the "wholesale uses" and "retail (or station power) uses" definitions adopted in this decision should apply to determine the appropriate charges for the resource's load—regardless of whether the battery is charging, discharging, or awaiting dispatch. This policy is consistent with the CAISO's treatment of storage resources, and it appropriately recognizes the grid services provided by storage resources in all operational modes, whether the resource is actively charging, discharging, or awaiting dispatch. When a storage resource does not have UCON status, all consumption from the grid should be billed at retail.

Under this framework, adopting a storage-specific netting policy is not necessary. When storage resources are synchronized with the grid, end uses will be charged in accordance with the definitions of "wholesale uses" and "retail (or station power) uses" adopted in this decision. There is therefore no need for netting or any storage-specific netting methodologies that differentiate "idle" intervals from active charging and discharging intervals.

Findings of Fact

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[104] CAISO Market Operations Business Practice Manual, Section 2.1.13.

20. ~~There are multiple options for self-supply of station power loads, including contracting for remote resources, or having other generation on-site, thus, if an energy storage resource is idle, its onsite load is retail~~. The CAISO's terminology regarding unit connectivity status recognizes two operational modes of storage resources: a battery is either synchronized with the grid (UCON) or it is on outage.

XX. The CAISO's terminology regarding unit connectivity status describes the relevant operational modes of battery resources for purposes of the Commission's station power policy.

Conclusions of Law

XX. So long as a storage resource is synchronized with the grid (*i.e.*, it has UCON status), the "wholesale uses" and "retail (or station power) uses" definitions adopted in this decision should apply to determine the appropriate charges for the resource's load—regardless of whether the battery is charging, discharging, or awaiting dispatch. This policy is consistent with the CAISO's treatment of storage resources, and it appropriately recognizes the grid services provided by storage resources in all operational modes, whether the resource is actively charging, discharging, or awaiting dispatch.

XX. When a storage resource does not have UCON status, all consumption from the grid should be billed at retail.

Ordering Paragraphs

8. No later than 30 days after the effective date of this decision, Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company must file advice letters to establish energy storage station power tariffs to:

- ~~Confirm that all energy used for purposes other than for supporting a resale of energy back into wholesale markets is station power and inherently retail, subject to California Public Utilities Commission rules regarding netting of energy consumption;~~
- ~~Confirm that all energy drawn from the grid to charge energy storage resources for later resale, including efficiency losses, should be subject to a wholesale rate;~~
- Define ~~w~~Wholesale uses as charging energy, resistive losses, pumps (flow batteries and pumped hydro), power conversion system, transformer, battery management system, thermal regulation, and vacuum (for flywheels);
- Define Station Power uses as information technology and communications, lighting, ventilation, and safety; and
- ~~Allow consumption to be netted against the response to the dispatch within a fifteen-minute settlement period, when a storage resource withdraws energy (charges) or injects energy (discharges) subject to a dispatch at a greater absolute value of energy than its station power consumption.~~
- Confirm that, so long as a storage resource is synchronized with the grid (*i.e.*, the resource has UCON status), the Wholesale and Station Power definitions adopted herein should apply to determine the appropriate charges for the resource's load—regardless of whether

the battery is charging, discharging, or awaiting dispatch. When a storage resource does not have UCON status, all consumption from the grid should be billed at retail.

APPENDIX B: DECLARATION OF SCOTT MURTISHAW IN SUPPORT OF PETITION FOR MODIFICATION

I, Scott Murtishaw, declare as follows:

1. I am the Executive Director at the California Energy Storage Alliance ("CESA"). My business address is 808 R Street, #209, Sacramento, California 95811. I have a personal knowledge of the facts and representation herein and, if called upon to testify, could and would do so, except for those facts expressly stated to be based upon information and belief, and as to those matters, I believe them to be true.

2. I provide this declaration in support of the Petition for Modification ("PFM") of Decision ("D.") 17-04-039 (the "Decision") filed on behalf of CESA.

3. The state of California has ambitious storage deployment goals.[105]

4. By the end of 2016, when stakeholders began developing station power policies for storage resources, California had only eight utility-scale storage projects, with a total capacity of 87 megawatts ("MWs"). Most of these projects were utility-owned and were not procured or operated as capacity resources in the wholesale market.

5. In 2017 when D.17-04-039 was decided, and during the year immediately following the Decision, CESA members had no practical understanding of the extent to which the IOUs' distinct station power rules for "idle" batteries might impact their utility-scale storage projects.[106]

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[105] *Press Release: California Achieves Major Clean Energy Victory: 10,000 Megawatts of Battery Storage*, Governor Gavin Newsom, *available at* https://www.gov.ca.gov/2024/04/25/california-achieves-major-clean-energy-victory-10000-megawatts-of-battery-storage/ (providing that "[t]he state is projected to need 52,000 MW of energy storage capacity by 2045 to meet its clean energy goals.").

[106] For purposes of this Declaration, the IOUs are Pacific Gas and Electric Company ("PG&E"), Southern California Edison Company ("SCE"), and San Diego Gas & Electric Company ("SDG&E").

6. From 2018 through April 2025, California added 200 utility-scale energy storage projects with over 13,000 MW of capacity. This increase in storage development in California since the adoption of D.17-04-039 is comparable to the capacity of approximately six new Diablo Canyons.

7. Now that California's utility-scale storage market has matured, CESA members have much greater insight into the time periods for which these projects in California tend to be "idle", as well as the extent to which the current station power rules for "idling" batteries impact project economics, operational incentives, and billing complexity. Since members were not, and could not have been, aware of these practical implications within a year of the Decision, CESA was not in a position at that time to submit this PFM. As CESA has gained a clearer understanding of the impacts of these station power "idling" rules as the California utility-scale storage market has developed, it is now equipped to raise these issues for the Commission's consideration.

8. According to data provided by CESA's members, batteries in California utility-scale storage projects are "idle", per the Commission's definition, between 20 and 50 percent of the time.

9. CESA member companies report that between 15 to 40 percent of their total annual operating costs result from the Commission's "idle" station power rules for storage resources. According to CESA members, retail charges incurred during periods of energy storage system "idling" can range from $4,000/MW-yr to $10,000/MW-yr, which represents between 15 and 40 percent of annual facility operating costs.

10. The California Independent System Operator's ("CAISO") Business Practice Manual ("BPM") definition of non-generator resources ("NGRs") and related descriptions make clear that the CAISO does not recognize an "idle" status analogous to that in the Commission's

station power rules.[107] Instead, the CAISO defines NGRs as having continuous operation unless on outage, explaining that "[b]ecause of the continuous operating range, NGRs do not have minimum load operating points, state configurations, forbidden operating regions, or offline status (unless on outage)."[108] Thus, there is no such thing as an "idle" battery from the CAISO's perspective; the battery is either synchronized or on outage. The CAISO's indicator of resource operational status—unit connected (*i.e.*, UCON) status[109]—can either reflect the resource is "on" (*i.e.*, the unit is synched with the grid) or "off" (*i.e.*, the unit is not synched with the grid).[110]

11. The BPM recognizes that maintaining a particular state of charge (*i.e.*, "idling") is one of the core functionalities an NGR must deliver if it is to provide grid services.[111]

12. Whether actively charging/discharging or not, storage resources are always waiting for a market dispatch by CAISO.[112] At some times of day, CAISO operators seek a low state of charge to maintain sufficient empty capacity to capture intermittent renewables and avoid curtailment. At other times, CAISO operators seek a high state of charge to meet needs when variable renewables are not available. CAISO operators may also need to call an exceptional dispatch and direct storage resources to achieve a certain state of charge and then stay idle until some later time when the storage is critically needed, forcing the storage into an extended idle period.

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107 CAISO Business Practice Manual for Market Operations, Version 97, Section 2.1.13.

108 CAISO Business Practice Manual for Market Operations, Version 97, Section 2.1.13.

109 CAISO Business Practice Manual for Direct Telemetry, Version 19.0, Section 14.2.2.

110 CAISO Business Practice Manual for Direct Telemetry, Version 19.0, Section 14.2.2. The CAISO determines the UCON status for both conventional and storage resources from the breaker status points, and for storage resources, it also determines UCON status from the inverter ready status.

111 CAISO Business Practice Manual for Market Operations, Version 97, Section 2.1.13 ("[t]he dispatch of a NGR providing AS must employ a stored energy management scheme to manage the state of charge and ensure that there is sufficient stored energy in the device to dispatch to satisfy the AS when they are called upon.").

112 CAISO Business Practice Manual for Market Operations, Version 97, Section 2.1.13.

13. "Idle" resources are either providing uncompensated services (*e.g.*, frequency response or voltage support),[113] or simply prepared to provide grid services at a moment's notice.

14. Conventional and other inverter-based generation resources do not share this ability to provide value to the grid while "idle" or while consuming electricity. Instead, these generation resources must export electricity to the grid to provide grid services.

15. Because most forms of energy storage must draw significant amounts of energy at all times, primarily for thermal regulation, they end up paying substantially more for station power than conventional generators since they are "idle" in 20 to 50 percent of intervals in a given day. In contrast, conventional gas-fired generators only have significant parasitic loads billed as station power during start-up, which may last as little as five minutes.

16. While conventional generators can receive "uplift payments" for startup costs when daily revenues are insufficient to cover those startup costs, the CAISO does not consider charges imposed on "idling" energy storage projects to be "startup" costs.

17. Since costs incurred in "idle" intervals are not marginal costs associated with charging and discharging activity, bids are not marked up to recuperate these costs.

18. The costs associated with retail charges levied during "idle" periods, like all other project costs, are estimated and factored into the overall financial analysis when project developers and operators prepare bids for long-term or short-term capacity offers.

19. Underwriters for project finance consider these station power costs when assessing the total revenue projects must earn to cover debt and assure a reasonable return on investment. In other words, ratepayers already pay, and will continue to pay, for energy storage facilities'

[113] CAISO tariff Appendix BB – Standard Large Generator Interconnection Agreement as of September 1, 2022.

additional retail power costs, and the uncertainty associated with the long-term trajectory of those costs, via long-term power purchase agreement and short-term capacity prices.

20. Financial modeling using a CESA member's estimates of project lifetime electricity costs using the status quo station power rules compared to CESA's proposed alternative, as well as standard assumptions of market financing terms, indicates that ratepayers could save more than $5 million net present value per 100 MW/400 MWh of storage resource capacity if the IOUs' station power tariffs were to consistently charge wholesale rates for all "wholesale uses" defined in the Decision. This estimate is premised on the fact that lifetime retail electricity charges are effectively financed via the debt and equity used to build the projects. The higher the non-marginal costs that must be recovered via capacity payments, the higher the additional financing cost to cover the direct cost plus debt and equity costs. In a competitive energy storage market, reducing the direct retail electricity costs, financing costs, and the risk premiums associated with rising retail rates will contribute to maintaining lower energy storage procurement costs for ratepayers.

21. While the CAISO BPM includes an option that enables a CAISO meter to both send data to and receive data from the IOUs, both PG&E and SCE have pushed back against the coordination necessary to prevent double billing. Specifically, the IOUs have refused to receive signals reflecting CAISO dispatch that could be used to uniformly define when a battery is in discharge/charge mode. Without this signal, the IOUs instead rely on various estimation methodologies to approximate onsite loads during times of resource "idling." SCE uses a kilowatt threshold below which load is billed at the retail rate, whereas PG&E's formula produces an estimate of energy use while "idling" based on the attributes of the asset.

22. Practical issues with the IOUs' estimation methodologies include:

(1) There is often a long delay between project energization and IOU finalization of the project-specific billing methodology parameters that will dictate billing treatment. During the months in which these parameters are being finalized, there is no reliable way to avoid double billing.

(2) For some older storage resources, metering was established prior to the implementation of the station power rules, and re-programming of the meters is not possible given the limitations of the meter models used by the IOUs, which can result in double billing.

(3) Because the IOUs do not configure the CAISO meter to compensate for retail load themselves, a CAISO representative must make their best effort to configure the meter appropriately. As the IOUs' statistical billing methodologies are highly complex and not entirely transparent, it is difficult, if not impossible, for CAISO representatives to do so with a high degree of accuracy.

(4) These methodologies do not meaningfully allow for true-up opportunities, even when storage system operators are able to demonstrate instances of double billing. The CAISO's window for submitting meter adjustments is too limited to be useful, and the IOUs do not offer any opportunities for true-up.

23. One illustrative example of how the use of different approaches at the CAISO and IOU levels can result in double billing is when storage resources are dispatched to provide ancillary services at levels below the estimated station power baseline. For example, say the baseline station power inflow for a storage resource is -2 MW. During an interval in which the resource is dispatched up and down between 0 MW and -2 MW, the electricity drawn from the grid over the 15-minute interval will lie between 0 MW and -2 MW, within the baseline threshold. CAISO will

bill the storage resource for all inflows that occurred pursuant to its dispatch instructions and the utility will bill the resource at the retail rate for the total inflows during the interval.

24. Because the end uses enumerated as "Station Power" in the Decision are often served by a lower voltage distribution circuit, and not via the high voltage point of interconnection, they are usually metered and billed separately and thus do not benefit from the netting rules in the Decision. Thus these end uses are often billed at retail regardless of the dispatch of the energy storage facilities. Under CESA's proposed framework in which the "wholesale" end uses defined by the Decision would always be billed at wholesale rates, the only estimation that would be necessary would be for any defined Station Power loads that are served via the wholesale meter, which is relatively uncommon.

25. CESA members report that some developers respond to the incentives set by the current station power rules by discharging at non-optimal times to avoid "idling." For example, an operator may consistently self-schedule a small percentage of its battery into the market to avoid "idling", despite the fact that this discharge is not responsive to any grid needs and may in fact hinder the developer's ability to discharge during a subsequent period when that capacity *is* needed.

26. Projects are "idle" between 20 and 50 percent of the time, and this figure would likely be higher if all projects were operating optimally from a grid perspective, rather than trying to avoid "idling" and the associated retail charges.

27. Under the current station power rules, thermal regulation—which the Decision defines as a "wholesale" end use—is considered station power and billed at retail when a storage resource is idle, but in intervals when the absolute value of charging energy exceeds the baseline, it is billed at wholesale. Similarly, lighting load (assuming it is served via the wholesale meter

and not metered and billed separately), which the Decision defines as "Station Power," is billed at retail when a storage resource is idle, but in intervals when the absolute value of charging energy exceeds the station power baseline, it is billed at wholesale.

I declare under penalty of perjury of the laws of the State of California that the foregoing is true and correct. Executed on this 17th day of November, 2025 in Berkeley, California.

/s/ Scott Murtishaw

Scott Murtishaw
Executive Director
CALIFORNIA ENERGY STORAGE ALLIANCE