BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE TO THE PROPOSED DECISION ADOPTING PREFERRED SYSTEM PORTFOLIO AND PLAN FOR 2017-2018 INTEGRATED RESOURCE PLAN CYCLE

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In accordance with the Rules of Practice and Procedure of the California Public Utilities Commission ("Commission"), the California Energy Storage Alliance ("CESA")[1] hereby submits these comments on *Proposed Decision Adopting Preferred System Portfolio and Plan for 2017-2018 Integrated Resource Plan Cycle* ("PD"), issued by Administrative Law Judge ("ALJ") Julie A. Fitch on March 18, 2019.

[1] 174 Power Global, 8minutenergy Renewables, Able Grid Energy Solutions, Advanced Microgrid Solutions, Aggreko, Alligant Scientific, LLC, AltaGas Services, Amber Kinetics, Ameresco, American Honda Motor Company, Inc., Avangrid Renewables, Axiom Exergy, Better Energies, Boston Energy Trading & Marketing, Brenmiller Energy, Bright Energy Storage Technologies, Brookfield Renewables, Carbon Solutions Group, Clean Energy Associates, ConEd Battery Development, Customized Energy Solutions, Dimension Renewable Energy, Doosan GridTech, Eagle Crest Energy Company, East Penn Manufacturing Company, EDF Renewable Energy, eMotorWerks, Inc., Enel X North America, Energport, Energy Vault, Engie Storage, E.ON Climate & Renewables North America, esVolta, Fluence, Form Energy, General Electric Company, Greensmith Energy, Gridwiz Inc., Hecate Grid LLC, Highview Power, Ingersoll Rand, Innovation Core SEI, Inc. (A Sumitomo Electric Company), Lendlease Energy Development, LG Chem Power, Inc., Lockheed Martin Advanced Energy Storage LLC, LS Energy Solutions, LS Power Development, LLC, Magnum CAES, NantEnergy, National Grid, NEC Energy Solutions, Inc., NextEra Energy Resources, NEXTracker, NGK Insulators, Ltd., Nuvve, Pattern Energy, Pintail Power, Plus Power, Primus Power, PolyJoule, Quidnet Energy, Range Energy Storage Systems, Recurrent Energy, RES Americas, SNC-Lavalin, Soltage, Southwest Generation, Stem, STOREME, Inc., Sunrun, Swell Energy, Tenaska, Inc., Tesla, True North Venture Partners, Viridity Energy, VRB Energy, WattTime, and Wellhead Electric. The views expressed in these Comments are those of CESA, and do not necessarily reflect the views of all of the individual CESA member companies. (http://storagealliance.org).

I. INTRODUCTION.

The Integrated Resource Planning ("IRP") proceeding as directed by Senate Bill ("SB") 350 is and will continue to be an important process by which resource investment decisions are made to achieve the state's greenhouse gas ("GHG") emissions, criteria pollutant, renewables, reliability, and disadvantaged community goals. With the inaugural 2017-2018 IRP cycle nearing conclusion with the issuance of this PD, CESA, like the Commission and other stakeholders sees opportunities for 'no-regrets' actions as well as for incorporating lessons learned into the next 2019-2020 IRP cycle.

CESA strongly supports the determinations made in the PD, especially around recognizing the need for a procurement track to begin in the summer of 2019 and considering the unique procurement challenges and pathways needed for different resource types. Though gaps, areas for improvement, and/or discrepancies in modeling results and in the interrelated load-serving entity ("LSE") IRP filings were highlighted by the process, the 2017-2018 IRP cycle should not be just positioned as a 'trial run' of the IRP process and modeling tools. Instead, the 2017-2018 IRP should accept key takeaways from the modeling results and direct appropriate least-regrets actions (*e.g.*, procurement, policy changes), while awaiting additional enhanced modeling information, procurement frameworks are established, etc. In addition, the Commission appropriately recognizes the potential near-term and long-term reliability value of long-duration energy storage, long lead-time bulk energy storage, and hybrid storage configurations, which may be needed but require some focus from the Commission in this procurement track, as proposed in the PD,[2] to determine procurement entities, pathways, and allocation of costs and benefits.

[2] PD, pp. 135-136.

In these comments, CESA thus supports and recommends enhancements to the procurement track while also supporting or recommending key actions that are in line with the PD:

- The procurement track is urgently needed to develop procurement pathways and frameworks for different resource types that may be needed for reliability and renewables integration, including possibly the Reliability Threshold Mechanism.
- The procurement track should identify policy actions needed in the appropriate proceeding if barriers are identified.
- Streamlined energy storage approval processes are needed to ensure timely and cost-effective deployment of energy storage to meet reliability needs.
- LSEs should be given the information and the incentives to procure for local and system reliability.
- Implementation of SB 1136 should inform IRP portfolios to align long-term with shorter-term capacity planning and procurement of resources needed for reliability.
- The Reference System Portfolio ("RSP") should be adopted as the Preferred System Portfolio ("PSP").

II. THE PROCUREMENT TRACK IS URGENTLY NEEDED TO DEVELOP PROCUREMENT PATHWAYS AND FRAMEWORKS FOR DIFFERENT RESOURCE TYPES THAT MAY BE NEEDED FOR RELIABILITY AND RENEWABLES INTEGRATION, INCLUDING POSSIBLY THE RELIABILITY THRESHOLD MECHANISM.

CESA strongly supports the procurement track to address near-term and medium-term reliability issues while keeping the state on trajectory to meet GHG and criteria pollutant goals. CESA also supports the PD's reasonable recognition of the reliability value from long-duration energy storage (*e.g.*, flow batteries, compressed air energy storage, cryogenic energy storage), long lead-time bulk energy storage (*e.g.*, pumped hydro storage, compressed air energy storage), and hybrid storage resources (*i.e.*, solar-plus-storage, gas-plus-storage). CESA agrees that the development of the procurement pathways and frameworks for these resources will require a focused effort from the Commission, *a.k.a.* a procurement track, and cannot wait until the next IRP cycle. In particular, CESA supports the consideration of joint procurement pathways by

multiple LSEs. For large, infrastructure-like system resources such as pumped hydro storage ("PHS"), multiple off-takers are likely required and a mechanism to allocate the system-wide costs and benefits (*e.g.*, GHG emissions, renewables integration, capacity) needs to be developed.

CESA further recommends that the procurement track be bifurcated into two sub-tracks, with Sub-Track 1 focused on short-term, least-regrets procurement opportunities to address near-term reliability issues and policy objectives, and with Sub-Track 2 focused on medium- and long-term reliability issues as well as policy directives. For Sub-Track 1, CESA recommends that the procurement track consider the development of the Reliability Threshold Mechanism as proposed by Southern California Edison Company ("SCE") as well as to identify potential least-regrets resource investments that could be pursued. The procurement track, as proposed in the PD, appears to focus on medium-term and long-term resources needed to provide reliability and renewables integration (*e.g.*, three- to four-year timeframe).[3] While CESA fully supports this effort, the procurement track should also include development and adoption of procurement mechanisms and thresholds for expedited procurement to address near-term reliability issues that may arise unexpectedly or earlier than expected. Otherwise, the procurement track may miss important short-term procurement opportunities to reduce GHG emissions and criteria pollutants that also maintain grid reliability. Finally, the procurement track should allow for 'cures' proposed by LSEs so long as the timing of these efforts meets or exceeds efforts, in timing, reliability, and in GHG reductions, directed by a procurement track.

In identifying near-term actions, CESA has identified hybridization of gas units with energy storage as delivering significant reliability and environmental benefits and should be

[3] PD, pp. 135-136.

considered as a least-regrets investment for both the near- and long-term needs. These findings are based on previously submitted modeling and analyses.[4] These findings should be reconciled with the PD's observation that existing natural gas facilities are needed to maintain system reliability even as the Commission focuses on minimizing the operation of fossil-fueled resources to the extent possible.[5] *Minimizing operations through hybridization* of energy storage with gas resources achieves likely can prudently balance reliability needs with other key IRP goals, by allowing the paired energy storage resource to allow the combined facility to minimize operations (*e.g.*, provide reserves while not operating at Pmin) while still keeping the gas unit as 'backup' to address any contingencies. Such a least-regrets investment should be explored for short-term procurement opportunities as near-term reliability issues arise as well as for long-term opportunities as the Commission takes a broader look at what to do with the broader gas fleet transition. Within Sub-Track 1, the Commission should thus identify opportunities to hybridize existing gas and then create a procurement pathway to ensure that the state has the "right" type of gas plants through the near-term transition period that can provide the additional ramping and load following required. As such, CESA recommends modifications to the Conclusions of Law and Order that should be made to expand the focus of the procurement track around not only existing gas but also hybridizing existing gas.

[4] See Attachment 1 of *Comments of the California Energy Storage Alliance on the Ruling of Assigned Administrative Law Judge Seeking Comment on Proposed Preferred System Portfolio and Transmission Planning Process Recommendation*, filed on January 31, 2019 in R.16-02-007. http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M263/K645/263645344.PDF

[5] PD, p. 133.

III. THE PROCUREMENT TRACK SHOULD IDENTIFY POLICY ACTIONS NEEDED IN THE APPROPRIATE PROCEEDING IF PROCUREMENT BARRIERS ARE IDENTIFIED.

As an 'umbrella proceeding' to other proceedings, the procurement track of the IRP should not only focus on directed or guided procurement, but also on completion or resolution of any policy work required for the achievement of procurement goals, or of related barrier-removal efforts. CESA recommends this important policy work addressed in CESA's proposed Sub-Track 2 of the procurement track. CESA's goals are to ensure successful procurements related to meeting IRP, GHG, and reliability goals. Policy or market barriers may impede the realization of goals underlying resource procurement, as identified in IRP modeling. These barriers may include, for example, the lack of capacity value for energy storage durations beyond four hours,[6] or the lack of an effective load carrying capability ("ELCC") capacity 'boost' for pairing energy storage systems to solar and/or wind resources. To create the appropriate incentives for LSEs to procure the resource types needed to achieve our IRP objectives and goals.

The PD identifies one example of such policy actions – *i.e.*, Renewable Portfolio Standard ("RPS") Program reforms to ensure resource diversity.[7] Certain RPS program reforms may be needed to encourage greater paired energy storage procurement, for example, which is one form of "diversifying" the renewables portfolio to align renewable generation with grid capacity needs. CESA has identified some of these barriers in comments in the RPS proceedings and should be considered in the discussions around RPS program reforms.[8] More importantly, CESA

[6] CESA recommends that the Commission also take time to consider the appropriate definition of "long duration" as it may affect the policy recommendations coming out of Sub-Track 2.

[7] PD, p. 132.

[8] CESA identified all the barriers for paired storage procurement in the RPS Program. See *Comments of the California Energy Storage Alliance on the Assigned Commissioner and Assigned Administrative Law Judge's Ruling Identifying Issues and Schedule of Review for 2018 Renewables Portfolio Standard*

recommends that any policy action focus on factors that drive procurement incentives for all LSEs, as certain RPS program reforms may only affect the investor-owned utilities ("IOUs"), which the PD has identified as being less and less the driver of new resource procurement.[9] For example, rather than focusing on reforms to the ELCC valuation in the least-cost best-fit criteria for the IOUs' RPS Programs, a focus on ELCC reforms in the Resource Adequacy ("RA") proceeding would more appropriately broaden the impact to all LSEs in incentivizing RPS procurement that better meets the grid's capacity needs.

Sub-Track 2 of the procurement track, as recommended by CESA, should thus identify a set of critical policy actions needed to ensure pathways to procurement of all high-potential resource types that may be needed to realize the modeled 2030 benefits. Some of these policy actions may need to remain in the IRP proceeding (*e.g.*, joint procurement authority and mechanisms) while others may need to be directed to resource-specific proceedings (*e.g.*, successor Energy Storage proceeding to transform the market for long-duration and other "diverse" energy storage technologies)[10] or the appropriate policy proceeding (*e.g.*, the RA proceeding to address ELCC values for hybrid storage and capacity values for storage durations

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Procurement Plans, filed on August 17, 2018 in R.15-02-020. http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M225/K059/225059922.PDF

In addition, CESA provided our views on the ELCC Staff Proposal. See also *Comments of the California Energy Storage Alliance on the Administrative Law Judge's Ruling Requesting Comments on Staff Proposal on Effective Load Carrying Capability, Time of Delivery Factors, and Project Viability*, filed on October 15, 2018 in R.18-07-003. http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M234/K096/234096533.PDF

[9] PD, p. 131.

[10] CESA proposed an Energy Storage Emerging Technology Procurement Plan ("ES-ETPP") as a means to focus the IOUs on "emerging" energy storage technologies, such as long-duration storage, which have not been a major focus in the Assembly Bill ("AB") 2514 procurements due to various barriers but may be needed in the state's SB 350 and SB 100 futures. See *Comments of the California Energy Storage Alliance to the Assigned Commissioner's and Assigned Administrative Law Judges' Ruling Requesting Comments on Issues Pertaining to Energy Storage Technology Diversity*, filed on August 28, 2018 in A.18-02-016, *et al*. http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M229/K724/229724855.PDF

beyond four hours). With the IRP identifying what is needed in the optimal resource mix to achieve our 2030 and 2045 goals, CESA believes this procurement track may be well-positioned to help guide policy priorities and scope in other proceedings.

IV. STREAMLINED ENERGY STORAGE APPROVAL PROCESSES ARE NEEDED TO ENSURE TIMELY AND COST-EFFECTIVE DEPLOYMENT OF ENERGY STORAGE TO MEET RELIABILITY NEEDS.

One of the key policy actions that should be taken as part of the IRP proceeding or the successor Energy Storage proceeding is to develop streamlined energy storage approval processes. Experience from AB 2514 related energy storage procurement has standardized the contracts for energy storage resources and developed familiarity of the IOUs, developers, and other stakeholders on how energy storage is contracted, developed, and operated, such that streamlined approval processes should be developed or authorized as part of the procurement track and/or directed to the appropriate venue for continued discussion. If storage is needed as part of a potential Reliability Threshold Mechanism, streamlined approval processes can better assure that storage is deployed in a timely manner to address an urgent reliability issue. Even if not needed for an urgent, short-term reliability issue, streamlining and standardization of approval processes support lower-cost bids and offers from industry due to the reduced regulatory and contracting risk uncertainty. All in all, like RPS resources many years ago, energy storage resources are ready for implementation of streamlined approval processes.

V. LOAD SERVING ENTITIES SHOULD BE GIVEN THE INFORMATION AND THE INCENTIVES TO PROCURE FOR LOCAL AND SYSTEM RELIABILITY NEEDS.

The PD asserts that the IRP process should be able to accommodate some variation in LSE resource choices but should also ensure a reasonable "balance" to the grid to ensure reliability and

renewables integration needs are met.[11] CESA agrees and finds that the PD establishes a reasonable balance that preserves an LSE's self-procurement authority and procurement preferences/strategies while also asserting the Commission's role in the IRP process to ensuring grid reliability. As such, the PD outlines a potential change in the next IRP cycle to require LSEs to demonstrate how it will meet local capacity needs in 10 years.

CESA supports this change but believes that greater guidance may be needed from the Commission on potential longer-term capacity needs. The annual Local Capacity Technical Analysis report from the California Independent System Operator ("CAISO") provides insights on planning capacity needs for the upcoming RA year as well as for a five-year look-ahead, which are implemented and enforced through the RA Program that ensures that LSEs have contracted with resources that can address these RA needs, now on a multi-year basis. Some special studies in the Transmission Planning Process ("TPP") of early gas retirements have also looked at potential local capacity needs, assuming that some uneconomic gas units providing local capacity and operating reserves may be forced to retire. However, none of the current studies is well-suited to ensure that new or replacement resources are procured for RA needs for long-term needs, which the IRP models are better positioned to do by analyzing the feasibility and costs of such new or replacement resources.

CESA thus believes that this proceeding will be better positioned in the next IRP cycle to provide this guidance as the RESOLVE model incorporates economic gas retirement functionality and greater coordination is pursued between the CAISO and the Commission on studying local capacity needs. By identifying specific at-risk thermal generators for economic or policy (*e.g.*, GHG emissions, criteria pollutant) reasons, LSEs should be directed to develop their preferred

[11] PD, p. 103.

resource mix to ensure new or replacement resources are able to reduce GHG emissions and criteria pollutants while maintaining or enhancing grid reliability. Without this guidance, CESA finds that it may be challenging for LSEs to understand whether to and how to procure for long-term reliability needs.

VI. IMPLEMENTATION OF SENATE BILL 1136 SHOULD INFORM IRP PORTFOLIOS TO ALIGN LONG-TERM WITH SHORT-TERM CAPACITY PLANNING AND PROCUREMENT OF RESOURCES NEEDED FOR RELIABILITY.

The PD should be modified to direct consideration and implementation of SB 1136 requirements to have shorter-term planning (RA requirements) be well aligned with long-term planning (IRP) and the state's clean energy and GHG emissions reduction goals. SB 1136 represents a potential and helpful linkage where procurement and contracting for RA and reliability in the short term can be linked to IRP planning for new and continued resource investments in the long term that achieve the state's GHG emissions reduction and other goals. Through this linkage, the Commission's oversight of all LSEs long-term plans (*e.g.*, through certification or approval) can be smart and aligned with approvals for short-term RA portfolios. Without consideration of SB 1136 requirements, CESA believes that IRP planning may be less grounded in physical procurements and showings, becoming an exercise that may not provide all LSEs with clear signals and incentives to procure for long-term reliability needs. How SB 1136 requirements should be implemented and incorporated into procurement directives or guidance should be discussed in the procurement track, which can take many different forms that have its advantages and disadvantages (*e.g.*, loading order, carve-outs).

VII. THE REFERENCE SYSTEM PLAN SHOULD BE ADOPTED AS THE PREFERRED SYSTEM PLAN.

By comparison to the RSP, the PD found that the Hybrid Conforming Portfolio ("HCP") – though it reflects LSE resource preferences – was found to not be reliable or as environmentally beneficial. In previous comments, CESA expressed general support for the HCP based on how it reflects LSE resource preferences but offered this support with the understanding that the adopted PSP would mostly be used for more informational purposes to identify potential reliability and policy driven reliability transmission investment needs as well as to benchmark the results of any of the IRP portfolios through production cost modeling and power flow modeling to be conducted in the Transmission Planning Process ("TPP"). In future IRP cycles, CESA believes it is appropriate to have the adopted PSP reflect LSE resource preferences, especially as the Commission creates incentives for LSEs to procure for resources that address long-term reliability issues while also ensuring that the GHG emissions target is met at a system level, as noted in the previous section. With these incentives in place, LSEs should be allowed to achieve these clear and defined reliability objectives with some flexibility in both the planning and procurement stages, where the market may reveal innovative resource types and/or different resource costs than what was reflected in the IRP modeling efforts.

CESA thus supports the adoption of the RSP as the PSP for the 2017-2018 IRP cycle. Like many others, CESA is concerned that the HCP exceeded the state's 2030 GHG emissions target, fell short of the state's 2030 RPS requirement, and did not result in a reliable portfolio (*i.e.*, at least according to the CAISO's PLEXOS modeling on reliability).[12]

[12] PD, pp. 105-106 and 108-109.

VIII. CONCLUSION.

CESA appreciates the opportunity to submit these comments to the PD. CESA looks forward to working with the Commission and stakeholders in this proceeding.

Respectfully submitted,

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Date: April 8, 2019

Attachment A:
CESA's Proposed Modifications to the Proposed Decision's Findings of Fact, Conclusions of Law, and Orders

Findings of Fact

31. Renewable and storage resources alone are not sufficient, at present, based on existing technologies and costs, as modeled, to provide enough renewable integration services to result in electric system reliability at the system level.

34. Renewable resources, longer-duration storage resources, and hybrid ~~resources~~technologies may be able to provide additional ramping, ~~and~~ load following, and ancillary services to decrease renewable integration and reliability challenges at the system level while advancing the clean RA goal of SB 1136.

Conclusions of Law

17. The Commission should continue to explore the ability and facilitate the development of new generating, non-generating, and hybrid capacity pursuant to SB 1136 ~~renewable resources and hybrid technologies~~ to provide clean RA, ramping, ~~and~~load following, hourly or intra-hour renewables integration, and ancillary service to decrease renewable integration and reliability challenges.

19. The Commission should focus a procurement track of the IRP proceeding, with a sub-track focused on short-term, least-regrets procurement needs and another sub-track on policy actions needed to ensure medium- and long-term procurement, on the following types of SB 1136 compliant resources: diverse renewable resources in the near term at levels sufficient to reach the 2030 optimized portfolio, in coordination with the RPS program; near-term resources with ramping, load following, ~~and~~ hourly or intra-hour renewable integration capabilities, and ancillary services; hybridization of existing natural gas resources; ~~and~~ longer duration (greater than 4~~8~~ hours) storage resources; and long lead-time and infrastructure-like resources.

Orders

11. The Commission hereby institutes a procurement track, with a sub-track focused on short-term, least-regrets procurement needs and another sub-track on policy actions needed to ensure medium- and long-term procurement, alongside the planning activities in this proceeding, in order to evaluate the need for the following types of SB 1136 compliant resources: diverse renewable resources in the near term at levels sufficient to reach the 2030 optimized portfolio, in coordination with the RPS program; near-term resources with ramping, load following, ~~and~~ hourly or intra-hour renewable integration capabilities, and ancillary services; hybridization of existing natural gas resources; ~~and~~ longer duration (greater than 4~~8~~ hours) storage resources; and long lead-time and infrastructure-like resources.