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CESA's Comments on the SB 100 Next Steps Workshop

Additional submitted attachment is included below.

CESA
CALIFORNIA ENERGY STORAGE ALLIANCE

June 23, 2021

Email to: docket@energy.ca.gov
Docket Number: 19-SB-100
Subject: CESA's SB 100 Implementation Workshop Comments

Re: Comments of the California Energy Storage Alliance Regarding June 2, 2021 Senate Bill (SB) 100 Next Steps Workshop

Dear Sir or Madam:

The California Energy Storage Alliance ("CESA") appreciates the opportunity to comment on the Senate Bill ("SB") 100 Next Steps Workshop held on June 2, 2021. CESA recognizes the leadership of the California Energy Commission ("CEC"), the California Public Utilities Commission ("CPUC"), and the California Air Resources Board ("CARB") in assembling a vast group of stakeholders and listening to their concerns and proposals regarding the challenges the state will face in its transition to a zero-carbon electric grid by 2045.

CESA is a 501(c)(6) organization representing over 100 member companies across the energy storage industry. CESA is involved in a number of proceedings and initiatives in which energy storage is positioned to support a more reliable, cleaner, and more efficient electric grid. Moreover, CESA has actively engaged in first-in-class modeling studies to better understand the need and opportunity for energy storage, particularly long duration energy storage ("LDES") given SB 100 targets. As such, our background and experience providing technical and policy insights are of particular relevance to this subject.

I. INTRODUCTION & SUMMARY.

CESA appreciates the Joint Agencies hosting this workshop after finalizing and preparing the first of many SB 100 Reports. In discussing implementation and next steps, this report will not just "sit on the shelf" but may actually be used to support Joint Agency coordination efforts, more detailed roadmapping, and other actions necessary to realize the resource procurement and buildout necessary to meet the state's long-term decarbonization goals. While recognizing the directional nature of these reports, these reports are helpful to inform longer-term planning through 2045 and identify key barriers and issues that may require Joint Agency coordination to resolve. For example, the resource buildout rates identified in the SB 100 Report to achieve our 2045 goals have anchored and calibrated the discussion regarding new resource procurement, transmission infrastructure buildout, and long lead-time resource development, which may be overlooked in 10-year forward planning processes such as the CPUC's Integrated Resource Planning ("IRP") process and the CAISO's Transmission Planning Process ("TPP"). As a result, CESA finds these SB 100 Reports to

be extremely valuable to inform the individual Joint Agency proceedings, dockets, and initiatives where direct action will be undertaken, and thus offers comments to continue to improve upon this important directional study. Our comments focused on the following areas:

- **SB 100 modeling should be done every two years in a stepped fashion relative to the IRP process:** CESA agrees with the verbal comments made by SDG&E during the workshop with regards to the regularity of modeling to enable more frequent decision points and pivots as needed. Prices and characteristics of candidate resources should be updated regularly to provide a clear picture of available pathways.

- **The CPUC and the CEC should closely collaborate to ensure the version of RESOLVE used in the SB 100 and IRP processes is as aligned as possible:** CESA urges the commission to align the version of RESOLVE across the planning venues to ensure consistency regarding inputs assumptions and model formulation. To further this alignment, the CPUC's IRP process should extend its planning horizon from 2030 to 2045.

- **The Joint Agencies should prioritize production cost modeling verification of the selected SB 100 portfolio over power flow and cost-benefit modeling:** This would minimize the potential for effort duplication across planning venues.

- **When considering resource portfolios for the 20-Year Transmission Outlook initiative, the CAISO should not characterize LDES as exclusively pumped hydro:** This will recognize the variety of technologies that could provide LDES without limiting the potential options for interconnection due to geographic constraints.

- **Key actions that require Joint Agency coordination should be identified and pursued:** As an important follow-up to the report, CESA recommends increased focus from the Joint Agencies on strategic initiatives to streamline permitting processes, reform transmission interconnection and planning, consider modifications to deliverability allocation, develop land-use plans, among other actions.

II. COMMENTS.

Overall, CESA is generally pleased with the clarifications and perspectives shared during the Joint Agency workshop held on June 2, 2021. We agree with the sentiments from many stakeholders on the need to conduct iterative modeling that takes into account reliability studies and ensures that the portfolio is both clean and reliable on an 8,760-hour basis.

1. SB 100 modeling should be done every two years in a stepped fashion relative to the IRP process.

CESA agrees with the verbal comments made by SDG&E during the workshop with regards to the regularity of modeling to enable more frequent decision points and pivots as needed. The reasoning behind this is for the joint agencies to provide clear pathways with up-to-date information from the different input assumptions that can change before the next IRP process. This has been observed to be true in many inputs from the RESOLVE assumptions. Examples of this changes include technology improvements that reduce the levelized cost of energy ("LCOE") of candidate technologies like different types of short-duration and long-duration energy storage, hydrogen (electrolysis), and more[1]. Similarly, previously unmodeled candidate technologies (*e.g.*, many LDES technologies) may become commercially available and deployed, providing actual data that could be used to directly model them as candidate resources instead of through proxy variables, such as pumped hydro storage ("PHS") for all "similar" LDES technologies. Since technology costs and commercially available technology types can change drastically from year to year,[2] these inputs should be incorporated on a more frequent basis.

Moreover, important policy and regulatory changes could be overlooked in the interim years between modeling if shorter modeling cycles are not implemented for SB 100. For example, in the aftermath of the August and September 2020 heat waves and rolling outage events, the CPUC will be actively tackling potential revisions to the planning reserve margin ("PRM") to better reflect climate-induced weather events, latest forced outage rates, and/or specific hours of potential loss-of-load risk, among other considerations. In turn, the CEC may be considering adjustments to load forecasting methodologies to reflect the new normal of more frequent extreme weather events. Taken together, these important planning assumptions may be overlooked without shorter modeling cycles and more frequent runs of the 2045 modeling.

Similarly, policy may also change that impact the makeup of the resource portfolio mix, such as with the high likelihood of the adoption of a standalone energy storage investment tax credit ("ITC").[3] Granted, it is too early to speculate on its adoption as it proceeds through the legislative process at Congress, but if passed and adopted, it could greatly impact the SB 100 portfolios identified as a foundational change that impacts storage deployment levels (*i.e.*, resulting from lower costs) and operations (*e.g.*, away from requirements to charge from ITC-eligible renewable generation as it stands today). There

[1] CESA base its comment using the data available from the comparison between 2019 and 2020 ATB for different technologies available at https://tinyurl.com/2rzz7aja.
[2] CESA calculated a 23% decrease of the maximum LCOE expected for In-Front-of-the-Meter energy storage from year 2019 to 2020 using LAZARDS cost projection available at https://tinyurl.com/3uns6jre.
[3] CESA is actively working on standalone storage ITC advocacy, and the prospects of its passage are higher than ever. Given these strong prospects, it will be important to reflect its inclusion in core scenarios to more accurately reflect optimal resource portfolios and buildout rates.

may be similar policy changes at the federal or state level that may be overlooked and represents an important pivot that should be reflected in our long-term planning.

2. The CPUC and the CEC should closely collaborate to ensure the version of RESOLVE used in the SB 100 and IRP processes is as aligned as possible.

Even if directional in nature, CESA believes that the 2030 planning and procurement being overseen and directed by the CPUC should be aligned with the 2045 directional planning and guidance identified through the SB 100 Joint Agency modeling process. A good example of this alignment occurred with the CPUC expressing its intent to adopt a 38 million metric ton ("MMT") compliant Preferred System Portfolio ("PSP") as part of the IRP proceeding, R.20-05-003. In doing so, the CPUC better aligns the 2030 planning and procurement with the Joint Agencies' modeled trajectory through 2045.

In the same vein, the SB 100 and IRP model and the assumptions and inputs incorporated into the model should be aligned as well. The version of RESOLVE used for the recent IRP differs from that of SB 100, in addition to the inputs and assumptions. Though both planning venues consider long-term resource additions, the model formulation for the geographical representation of California is different, creating disconnects and inconsistencies on how 2030 and 2045 planning should be informed and directed. Under the SB 100 model, fewer load zones are included compared to the IRP. This ultimately creates confusion among parties as, from CESA's perspective, there is not a clear explanation if this action improved or simplified the optimization. Hence, CESA urges the Joint Agencies to maintain comparability across their planning venues to ensure replicability, consistency regarding assumptions of candidate resources, their availability, and the geographical scope utilized in the model.

Furthermore, the results from both IRP and SB 100 modeling shows that, to reach the state goals, an unprecedent build rate of clean technology is required. With the high levels of new capacity required, California will require the use of new inter-regional transmission lines; however, this is not currently in the scope of any of both planning venues. The lead time of this new transmission needs to be reflected in the resulting build rates. To this end, lead times for transmission buildout may need to be better reflected in build rates.

3. The Joint Agencies should prioritize production cost modeling verification of he selected SB 100 portfolio over power flow and cost-benefit modeling.

As part of the core modeling capabilities, the Joint Agencies should prioritize the use a combination of capacity expansion and production cost modeling. Using a production cost model will verify the technical feasibility of the selected portfolio, avoid potential duplication of effort across planning venues, and provide additional information about

locational needs (*e.g.*, charging energy needs, congestion). Regarding locational needs, the retention of gas generation may be tied to the lack of granular locational constraints and optimization to replace key fossil capacity resources in particular local capacity areas. Absent more locational guidance, the SB 100 models may be overestimating the need for their retention and not identify the appropriate facilities for retention, hybridization, and/or blending.

As a process improvement, CESA recommends that the Joint Agencies consider the approach utilized by Los Angeles Department of Water and Power ("LADWP") that conducted an iterative modeling process. Specifically, the LA100 Study[4] conducted by the National Renewable Energy Laboratory ("NREL") first ran capacity expansion modeling that was verified for feasibility and reliability using both production cost modeling and power flow modeling. If discrepancies or shortfalls are identified, the key constraints can be fed back into the capacity expansion model as exogenous factors to develop a new resource portfolio, which is then run through production cost and power flow modeling. This feedback loop and iterative process have been helpful in giving better assurances of the feasibility and reliability of the resulting portfolios. In addition, if the Joint Agencies are able to either refine the RESOLVE model or consider the utilization of additional tools, CESA recommends consideration of currently-available capacity expansion models that provide both capacity expansion and production cost functionalities. Examples of this available tools are: Breakthrough Energy,[5] WIS:dom-P from Vibrant Clean Energy ("VCE"),[6] GenX,[7] to mention but a few.

4. Key actions that require Joint Agency coordination should be identified and pursued.

As an important follow-up to the report, CESA recommends increased focus from the Joint Agencies on strategic initiatives to streamline permitting processes, reform transmission interconnection and planning, consider modifications to deliverability allocation, develop land-use plans, among other actions. To achieve the resource build rates required to meet our SB 100 goals, the Joint Agencies must not only direct timely procurement actions to avoid just-in-time procurement challenges, but it also must rethink and potentially reform processes to support the timely deployment of the procured resources.

For example, strategic and timely siting and permitting is an important factor that will impact whether we are able to successfully procure and build the resources needed by 2045. Current siting and permitting has been streamlined for solar but it has yet to be extended to energy storage – a resource type that is featured prominently in the state's decarbonized and reliable grid of the future. For lithium-ion storage, permitting processes

[4] LA100 report available at https://tinyurl.com/ys3bpwt5
[5] Available documentation at https://science.breakthroughenergy.org/model
[6] Available documentation at https://www.vibrantcleanenergy.com/products/wisdom-p/
[7] Available documentation at https://genxproject.github.io/GenX/dev/

are inefficient and inconsistent, with different authorities having jurisdiction ("AHJs") having different requirements and/or processes. Furthermore, for non-lithium-ion storage technologies, permitting is becoming a potential issue for storage technologies that may trigger CEQA and/or CEC permitting requirements for the use of thermal combustion in its electric-to-thermal conversion and storage processes. To address these challenges, development and implementation of the energy storage permitting guidebook, pursuant to AB 546, must be completed as soon as possible. This will foster standardization of the key documentation and standards requirements to secure construction and electrical permits. Furthermore, where possible, online submissions instead of hard-copy paper submissions as well as virtual inspections can improve the permitting process. Greater resources may also be needed for permitting offices to handle the volume of applications. Where applicable, permitting authorities should meet any deadlines set out in statute or regulation. Overall, streamlining the permitting process is the key to minimizing project failure rates. Importantly, streamlining of permitting should extend not just to electrochemical storage but all storage technologies.

Furthermore, land use and transmission interconnection considerations will play a key role in supporting the state's resource buildout goals, as highlighted in Session 2 of the public comments of the workshop. CESA is pleased to see the CAISO look beyond the current 10-year TPP process and consider 20-year outlooks as well. To the same extent, land use considerations may also need to be coordinated with transmission interconnection and deliverability considerations with the creation of "development zones" like Texas' Competitive Renewable Energy Zones ("CREZ"), which could facilitate resource development where grid planners have identified where new resource buildout is needed by sending signals regarding "good locations" for development. To this end, there may be benefit to restarting the RETI 2.0 Initiative where advanced environmental review and transmission implications could be conducted to guide new resource development and support more effective and efficient consideration of land use issues to guide resource development.

Finally, greater consideration of distributed energy resources ("DERs") are needed to leverage the built environment as much as possible given the high loads and high land costs in dense urban areas. To our knowledge, DERs are considered to meet policy objectives and goals around building and transportation electrification and other end-use decarbonization, but DERs are not sufficiently utilized in planning practices to optimize both investment and operationalization decisions to support the clean energy transition. The benefit of using the built environment, being located at or near load centers, and utilizing its full capabilities (*i.e.*, not just demand reduction but also export capability in the case of behind-the-meter battery storage). Thermal storage technologies such as those from HVAC and water tanks are also overlooked despite their significant techno-economic potential. In spite of these limitations, the Joint Agencies should collaborate where possible to consider how DERs can be more fully procured, utilized, and valued as both supply-side and load-modification resources, including for the export capabilities of behind-the-meter ("BTM") energy storage and vehicle-to-grid ("V2G") resources.

III. CONCLUSION.

CESA appreciates the opportunity to provide these comments and feedback on the SB 100 Next Steps workshop. We look forward to collaborating with the CEC, CPUC, CARB, and other stakeholders in this docket.

Respectfully submitted,

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