Joint Comments of The Climate Center, World Business Academy, Center for Biological Diversity, 350 Bay Area, Microgrid Resources Coalition and California Climate & Energy Collaborative

Following the December 18, 2023 release of *CERI Solicitation Manual - Grant Funding Opportunity Draft Version*

January 19, 2024

The Climate Center, World Business Academy, Center for Biological Diversity, 350 Bay Area, Microgrid Resources Coalition, and California Climate & Energy Collaborative ("Joint Non-Profit Parties" or "Parties") hereby submit these comments to the California Energy Commission ("Commission") regarding the Commission's release of its draft December 18, 2023 Community Energy Resilience Investment (CERI) Program Solicitation Manual ("CERI Solicitation Manual").[1]

The Joint Non-Profit Parties appreciate all the work the Commission Staff have done in preparing the CERI Solicitation Manual and the intention and objectives of the CERI program to invest in projects that increase the electric resiliency of communities in California while also bolstering California's workforce and promoting equity. As originally detailed in joint comments filed on September 29, 2023[2], the purpose of these comments is to

(1) **Recommend that the Commission include Community Choice Aggregation agencies (CCAs) and Local Government agencies as eligible entities** under Section II.A.1 of the CERI Solicitation Manual, exempt from any requirement to submit a DOE eligible entity request form.

(2) **Remove transmission owners and operators as eligible entities**, such that they would fall under the category of "any other relevant entity" subject to said requirement to obtain approval from the Secretary of Energy to gain eligibility.

[1] https://efiling.energy.ca.gov/GetDocument.aspx?tn=253646-1&DocumentContentId=88886
[2] https://efiling.energy.ca.gov/GetDocument.aspx?tn=252446&DocumentContentId=87452

(3) **Exclude transmission/distribution infrastructure projects as "Eligible Activities"** given the low resilience ROI possible from such upstream efforts due to diminishing resilience returns with increasing distance between generation and load.

(3) **Reduce project funding thresholds to ensure a broad and diverse distribution of CERI solutions** and maximize and more evenly distribute projects within LSE service territories located throughout California.

(4) **Reformulate the Resilience Impact Score into a comprehensive, holistic scoring formula** that focuses on all potential risks of a power outage (heat, wildfire, flooding, sea-level rise, mudslides, debris flows, earthquakes, public safety power shutoffs, etc.).

(5) **Align CERI program objectives to incorporate the bottom-up concept of a "Max DG Pathway"** that maximizes the development of distributed generation on built environments located close to load: the only source of true energy resilience.

Inclusion of Community Choice Aggregation agencies (CCAs) and Local Government agencies as Eligible Entities

The exclusion of CCAs raises two substantive concerns. First, CCAs, as quasi-governmental entities consisting of one or more local governments, are optimally suited for local outreach, engagement and accountability. CCAs can also provide invaluable technical expertise to communities within their service areas toward the development of community energy resilience plans that identify and aggregate projects suitable for CERI funding. Second, the IOUs (within whose distribution service areas the CCAs operate) are eligible entities as distribution providers. Unfortunately, the IOUs also operate as LSEs and view CCAs as direct competitors in providing retail electric service. This structural conflict of IOUs being both distribution providers and LSEs incentivizes IOUs to favor CERI projects in non-CCA areas to the detriment of community resilience within CCA service areas. To mitigate this potentially considerable bias in CERI funding, the Joint Non-Profit Parties urge the Commission to include CCAs as eligible entities for CERI funding. While local government agencies are experiencing increasing pressure and requirements to engage in energy resilience planning, there is a desperate lack of local government and CBO capacity to do CER planning, and the Commission ought to invest in the capacity for communities to determine their respective energy futures.

Reduction of Program Award Funding Parameters

Project Group	Available Funding	Minimum Award	Maximum Award	Minimum Match Funding
Group 1: Large Entities	$51,000,000	$15,000,000	$25,000,000	109%
Group 2: Small Entities	$13,000,000	$4,000,000	$9,500,000	33%

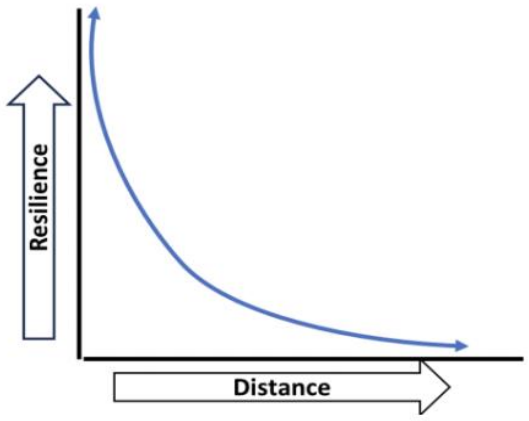
For large Load Serving Entities and small Load Serving Entities (page 4), the minimum and maximum are both too high to ensure a broad and diverse distribution of CERI solutions. The CEC September 2023 staff workshop provided participants with the opportunity to comment on the proposed maximum and minimum award amounts via five poll questions. Despite input from attendees to lower the amounts, the December 2023 guidelines reflect the same minimum and maximum award amounts from the September 2023 workshop.

Many desirable projects within a large load-serving entity (LSE) service territory may not meet the current $15 million minimum threshold. A proposed minimum threshold of $1 million and a maximum threshold of $5 million would allow project sites, designed to be a launch point for investment in concert with the broader objectives of a community energy resilience plan, to be located in disadvantaged communities within the service territory of a large LSE. *CERI-funded projects should be the seed that spurs future growth within a community*, and a reduced minimum/maximum funding threshold would allow between 10 to 50 projects to be distributed more evenly within the large LSE service territories located throughout California.

Reformulation of Resilience Impact Score Calculation

Inclusion of All Outage Risks that Impact Community Energy Resilience. The current Resilience Impact Score considers outage risk, high heat risk, and wildfire risk. While heat and wildfire risk constitute primary threats to California communities, the risk of a power outage resulting from ALL risk sources (heat, wildfire, flooding, sea-level rise, mudslides, debris flows, earthquakes, public safety power shutoffs, etc.) should be factored into a comprehensive, holistic scoring formula where community energy resilience serves as a backstop against disruption from ALL potential risks.

Focus on Achieving Energy Resilience Through Proximity of DERs to Load. From a physical standpoint, true energy resilience can only be achieved through the proximity to load of distributed energy resources ("DERs") that can continue to provide electricity services during grid outages. Community energy resilience projects designed to serve essential community needs during grid outages can remove a community's vulnerability to large stretches of transmission and distribution infrastructure along which one or more segments can act as potential failure points creating a power outage. This inverse relationship between resilience and distance can be viewed as a parabolic curve (see graph below), where on-site or adjacent electricity supply capacity provides a virtually complete level of energy resilience, which decreases rapidly with increased capacity-to-load distance and the addition of intermediate grid infrastructure components that are subject to failure at some point during their expected lifespan. At



some indeterminate point, this precipitous reduction in resilience value flattens out as the level of resilience approaches zero due to the increasing number of potential failure points that inevitably accumulate over longer distances.

Exclusion of Transmission Owners/Operators as "Eligible Entities" and Utility Transmission/Distribution Infrastructure Projects as "Eligible Activities"

Given the inverse physical relationship described above between energy resilience and the distance between capacity and load, the Joint Non-Profit Parties are concerned that the prevalence of transmission and distribution infrastructure activities (hardening power system infrastructure, weatherizing transmission and distribution system components, vegetation and fuel-load management, etc.) as "Eligible Activities" on Page 2, as well as the inclusion of "Transmission owners and operators" as "Eligible Entities" on Page 6), will divert a majority of limited program grant funds to projects that may modestly reduce the risks of upstream grid failure but provide no resilience benefits when grid failure occurs, thus severely limiting the achievable community-level resilience value of the CERI Program. This predilection towards utility-scale infrastructure solutions is symptomatic of California's legacy approach towards energy development, as evidenced in the recent Senate Bill 100 Kickoff Workshop held on August 22, 2023 ("SB 100 Workshop") "to discuss findings and recommendations from the 2021 SB 100 Joint Agency Report and the plan to address these findings and recommendations as the 2025 SB 100 Joint Agency Report is developed." As there are innumerable other programs directed towards funding transmission infrastructure upgrades, including transmission-based stakeholders and projects in CERI solicitations would only serve to reduce available funds for projects that confer true energy resilience through a community energy resilience plan based on the co-location of local energy capacity with demand.

Alignment of CERI Program Objectives to Maximize Distributed Generation

Attached hereto as Exhibits A and B and incorporated herein by reference are comments filed after the SB 100 workshop on September 8, 2023[3] and November 14, 2023[4] by certain joint non-profit parties (collectively, "SB 100 Comments"), expressing serious concerns "based on the record thus far that the Agencies [CEC, CPUC, CARB] are looking exclusively at approaches to SB 100 compliance that rely entirely on procuring utility-scale generation and transmission while limiting the contribution of DERs to various options for load modification using BTM [behind-the-meter] customer deployments." In particular, the CEC should not rely on the CPUC's techno-economic screen, which excludes substantial areas suitable for rooftop solar and other DERs, including urbanized industrial areas. Already developed and industrialized areas present significant rooftop potential for solar generation that poses virtually no land-use concerns and that local jurisdictions have already identified, yet the CPUC, CEC, and CAISO omit this potential resilience resource. Moreover, omitting this potential also ignores significant opportunities for community solar plus storage projects that provide significant benefits to

[3] https://efiling.energy.ca.gov/GetDocument.aspx?tn=252192&DocumentContentId=87198
[4] https://efiling.energy.ca.gov/GetDocument.aspx?tn=253118&DocumentContentId=88320

environmental justice communities. As a corrective measure, the joint non-profit parties in the SB100 proceeding urged the Agencies to "begin an evaluation of a Max DG Pathway with an estimation of the technical potential of installing PV arrays on the built environment ... for deploying renewable energy supply resources that could provide a sizeable portion of the renewable energy production required to comply with SB 100."

The Joint Non-Profit Parties urge the Commission to incorporate the above perspective articulated in the parties' SB 100 comments into the CERI program. As the primary focus of the CERI Program should involve promoting investment in community energy resilience based on co-location of capacity with load, the above concerns and suggested approach are central to achieving these critical objectives. Moreover, the eligibility of any grid infrastructure investments for CERI funds should be limited to only those local facilities needed to connect and manage the DERs operating within the affected areas of the DER-based projects.

Prioritization of Technical Assistance Through Community Energy Resilience Planning

The Joint Parties are glad to see The CEC is providing a team of technical assistants to support applicants with this new process. The Joint Parties suggest the CERI program go further by providing community energy resilience plan development grants. This type of robust technical assistance provided early in the process to affected communities will be essential for CERI project ROI, particularly in communities of need that lack planning resources. Such assistance should focus on developing solutions within the community's energy landscape covering both natural and built environments, and how that landscape can utilize distribution infrastructure to best serve the community's energy needs. In addition, funds should be allocated for the development of an online community energy resilience portal that provides universal access to existing and future community energy resilience plans, with the objective of creating replicable templates addressing common elements affecting community energy resilience.

Conclusion

For the reasons discussed in these comments, the Joint Non-Profit Parties urge the Commission to:

1. Include CCAs and local government agencies and remove transmission owners and operators as eligible entities for CERI funding.
2. Reduce the minimum and maximum grant amounts as recommended above;
3. Include the development of community energy resilience planning as a CERI "eligible activity" and a project prerequisite for incentivizing local investment in community energy resilience;
4. Place greater emphasis on DER-based projects that will provide resilient electricity to communities when grid outages occur, rather than over-emphasizing upstream

infrastructure measures that may reduce the risk of grid outages but provide no community benefits when outages occur; and

5. Align and coordinate program objectives with the Max DG pathway scenario described in the attached SB 100 Comments as a foundational principle underlying the CERI program.

CERI's over-arching objective should be to invest in resilient DERs created by and for the community. In all cases, investment efforts in developing community energy resilience must start and end with identifying and serving the needs of all communities through development of local energy systems serving local energy markets.

Respectfully submitted,

/s/ Robert Perry, on behalf of The World Business Academy
/s/ Kurt Johnson on behalf of The Climate Center
/s/ Roger Lin, Center for Biological Diversity
/s/ Claire Broome, 350 Bay Area
/s/ Allie Detrio, Microgrid Resources Coalition
/s/ John Vandervort, California Climate & Energy Collaborative (CCEC)

Exhibit A

Joint Comments of

The Climate Center, Center for Biological Diversity, Local Government Sustainable Energy Coalition, 350 Bay Area, and Local Clean Energy Alliance

Following the August 22, 2023 SB 100 2025 Joint Agency Report Kickoff Workshop

DOCKETED	
Docket Number:	23-SB-100
Project Title:	SB 100 Joint Agency Report
TN #:	252192
Document Title:	The Climate Center Comments - Joint Non-Profit Parties Comments on SB 100 2025 Joint Agency Report Kickoff Workshop
Description:	N/A
Filer:	System
Organization:	The Climate Center
Submitter Role:	Public
Submission Date:	9/8/2023 3:05:58 PM
Docketed Date:	9/8/2023

Comment Received From: The Climate Center
Submitted On: 9/8/2023
Docket Number: 23-SB-100

Joint Non-Profit Parties Comments on SB 100 2025 Joint Agency Report Kickoff Workshop

Additional submitted attachment is included below.

Docket 23-SB-100
SB 100 2025 Joint Agency Report

Comments of The Climate Center, Center for Biological Diversity, Local Government Sustainable Energy Coalition, 350 Bay Area, Local Clean Energy Alliance Following the August 22, 2023 SB 100 2025 Joint Agency Report Kickoff Workshop

September 8, 2023

The Climate Center, Center for Biological Diversity, Local Government Sustainable Energy Coalition, 350 Bay Area, and Local Clean Energy Alliance ("Joint Non-Profit Parties" or "Parties") hereby submit these comments to the California Energy Commission, California Public Utilities Commission and California Air Resources Board ("Agencies") regarding the August 22, 2023 SB 100 2025 Joint Agency Report Kickoff Workshop ("Workshop").

The Joint Non-Profit Parties appreciate the detailed presentations offered at the Workshop and all the work the Agencies are doing to determine the most effective pathway to achieve the mandates of SB 100. The purpose of these comments is to urge the Agencies to include a "maximum distributed generation" ("Max DG") pathway in the 2025 Report pathway analysis. The analysis of this pathway should include estimates for the technical potential of maximizing solar photovoltaic installations on developed sites such as warehouse roofs, parking lots, shopping centers, highway rights-of-way and irrigation canals, and assess the extent to which realizing the technical potential would reduce the need to build additional utility-scale renewable generation and high-voltage transmission while providing local energy and non-energy benefits and avoiding problematic land-use issues. This pathway should also be adaptable for inclusion in each pathway the Agencies develop and assess, and not be isolated to only the proposed DER Focus pathway.

In the following comments the Parties express our concern that the analysis approaches the Agencies have taken to date, as well as the approach outlined at the Workshop, exclude a Max DG pathway from consideration. As we explain below, the structure of the Pathway Analysis presented at the Workshop will preclude the possibility of a Max DG pathway being identified as a candidate Capacity Expansion Resource Portfolio, due in large part to the positioning of Non-Energy Benefits/Impacts and Land Use Analysis in the analysis process flow. The approach presented at the Workshop inappropriately relegates Non-Energy Benefits/Impacts and Land Use Analysis to an inferior subsidiary position, applying them as an afterthought to the portfolio formation. Based on several prior analyses cited below, the Parties believe that a Max DG pathway would be extremely beneficial for achieving the SB 100 mandates cost-effectively and with due consideration of non-energy benefits/impacts and land use concerns and should be explicitly included in the SB 100 2025 Report analysis.

Contact
Kurt Johnson
The Climate Center
1275 – 4th St. #191
Santa Rosa, CA 95404
kurt@theclimatecenter.org
970-729-5051

Missing from the SB 100 Analysis: A Maximum Distributed Generation Pathway

The SB 100 activities to date and the study plan described at the Workshop focus primarily on the need to build bulk system assets, i.e., utility-scale generation and transmission, to meet SB 100's 2045 mandates. Estimates of the need for bulk system assets assume that most if not all distributed energy resources ("DERs") will be deployed on end-use customer premises, behind the meter ("BTM"), and will provide services and benefits to the state's power system only in the form of conventional demand response and its newer variations such as load shifting and load flexibility services. In other words, there seems to be no consideration of locally-deployed DERs, particularly front-of-meter ("FOM") distributed renewable generation and storage, as a significant contributor to the supply of renewable energy to meet the SB 100 mandates.

The 2021 SB 100 Joint Agency Report issued in March 2021, for example, includes only two types of solar PV generation, "customer solar" and "utility-scale solar," in its core and study scenarios.[1] The companion Inputs and Assumptions document states, in its discussion of candidate resources: "Candidate solar photovoltaic resources are represented as either utility-scale or distributed."[2] The Inputs & Assumptions document offers no definition of distributed solar, but the discussion of solar profiles later in that document considers only utility-scale and behind-the-meter solar.[3]

The 2021 Report frequently mentions concerns about land-use impacts, but only in terms of "balance[ing] clean electric grid infrastructure needs with efforts to restore, conserve, and strengthen natural and working lands."[4] The 2021 Report's extensive discussion of land use and environmental impacts[5] lays out a number of important considerations that must be taken into account in siting utility-scale generation and transmission, but there is no suggestion to explore the potential of maximizing solar installations on the built environment, which would avoid land-use issues.

Perhaps most tellingly, the Governor's May 2023 Clean Energy Transition Plan includes only utility-scale solar in its projections for clean electricity resources by 2030 and 2045.[6] The Plan also notes the lack of "significant procurement of certain diverse resources – such as offshore wind, geothermal generation, and long-duration energy storage – needed to meet the state's clean and reliable portfolio" and attributes the lack of results to the development complexities of those resource types and the "fragmentation among [CPUC-jurisdictional retail] sellers."[7] Here again, by excluding solar installations on the built environment in the potential resource mix, the Plan eliminates resources that are inherently local, use conventional resource types, avoid land-use concerns, and can be scaled to serve the renewable portfolio needs of California's diverse load-serving entities.

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[1] 2021 Report, pp 9-15.
[2] Inputs & Assumptions: CEC SB 100 Joint Agency Report, issued June 2020, p 34.
[3] Id., pp 68-69.
[4] 2021 Report; see recommendation 3, p 20.
[5] Id., pp 111-114, and recommendation 3, p 134.
[6] Building the Electricity Grid of the Future: California's Clean Energy Transition Plan; May 2023; p 7.
[7] Id., p 15.

Turning to the Workshop presentations, the 2025 Report Vision proposes five pathways or scenarios that will be evaluated for purposes of the 2025 Report. It describes the "DER Focus" scenario as "Higher levels of local resources, including distributed energy and community solar"[8] but offers no explanation of what types of distributed resources will be considered. Later the presentation indicates that the DER Focus pathway, compared to the "Reference Pathway," will feature a Climate Resilience Land Use Scenario; Demand Assumptions: DER Sensitivity; Increased DER; and More DR and Load Flexibility.[9] The Parties understand, based on an email response from Erica Brand at the CEC, that further details about the DER Focus Pathway and the other pathways are not yet determined and will be defined by the Agencies through an Inputs & Assumptions workshop this fall.

The Parties look forward to participating in the upcoming SB 100 workshop process. At the same time, we are seriously concerned based on the record thus far that the Agencies are looking exclusively at approaches to SB 100 compliance that rely entirely on procuring utility-scale generation and transmission while limiting the contribution of DERs to various options for load modification using BTM customer deployments. We believe that this represents a serious blind spot in the SB 100 analytical approach by excluding from the start, with no opportunity for consideration, an entire field of resources that could accomplish SB 100's mandates faster, more cost-effectively and without the problematic land-use issues inherent in an approach that relies almost entirely on bulk system resources and load management.

Prior Estimates of the Technical Potential of Solar PV on the Built Environment

Maximizing solar PV installations on the built environment is not a new or particularly innovative idea, nor does its assessment require new analytical techniques. The following are examples of rigorous assessments of distributed PV technical potential which demonstrate the importance and feasibility of examining this potential carefully in the SB 100 2025 Report process.

The first rigorous analysis we point to is the January 2016 report from the National Renewable Energy Laboratory (NREL), which provides a "detailed data-driven analysis of the U.S. (national, state, ZIP-code level) rooftop PV availability and technical electricity-generation potential." One important finding of their state-by-state analysis is that "California has the greatest potential to offset electricity use — its rooftop PV could generate 74% of the electricity sold by its utilities in 2013." This was based on estimated potential installed capacity of 129 GW and annual generation of 194 TWh. For the whole United States, NREL found the technical potential of rooftop PV to be 1,118 GW of installed capacity and 1,432 TWh of annual energy generation, which equates to 39% of total national electricity sector sales.[10] More recently, in June 2019 Google's Project Sunroof estimated a rooftop PV technical potential for California of 168 GW installed capacity and 249 TWh annual generation.[11]

[8] 2025 SB 100 Report Vision, slide 9.
[9] Id., slide 11.
[10] NREL, Rooftop Solar Photovoltaic Technical Potential in the United States: A Detailed Assessment; January 2016; for state-level totals see Table 6, pp 35-36; for breakdown by building size see Table 3, pp 26-27, and Table 5, pp 32-33. https://www.nrel.gov/docs/fy16osti/65298.pdf
[11] Google Project Sunroof: https://sunroof.withgoogle.com/data-explorer/place/ChIJPV4oX_65j4ARVW8IJ6IJUYs/

Looking at a different component of the built environment, a March 2021 paper in Nature, "Energy and water co-benefits from covering canals with solar panels," reported techno-economic simulations of solar photovoltaic panels covering California's 6,350 km canal network. While it focused on avoided evaporation (a potentially large non-energy benefit in a more water-scarce future) it found that "The net present value of over-canal solar exceeds conventional over-ground solar by 20–50%, challenging the convention of leaving canals uncovered and calling into question our understanding of the most economic locations for solar power."[12]

Focusing only on US warehouse roof capacity as of 2019, not considering all sites of the built environment that might host solar PV, an article published in April 2023 by Environment America Research & Policy Center estimated 185.6 TWh annual generation potential from rooftop PV, of which California warehouses could account for 32.2 TWh annually.[13]
The June 2022 Los Angeles County Community Solar Map report by UCLA's California Center for Sustainable Communities estimated 2,762 MW of rooftop solar PV capacity potential, plus between 704 and 1408 MW of parking lot potential, all combined will produce 5.44 TWh annual generation. The UCLA analysis showed that 2.1 million of LA County's 3.3 million households' energy consumption could be offset by this generation capacity. The analysis was based on shared distribution circuit associations, to link residential electricity consumption values to nearby eligible PV sites in order to estimate how much nearby residential electricity use could be offset by solar PV generation at each site. This approach was used to minimize the potential for reverse power flows along any particular circuit in the event of a temporary excess of PV supply over demand.[14]

The Parties offer these prior studies as indicators that the technical potential of a Max DG pathway utilizing the built environment could be game changing for California, and therefore deserves explicit definition as a candidate SB 100 Pathway and careful assessment in the 2025 SB 100 Report process.

Including a Max DG Pathway in the 2025 SB 100 Report Analysis

The Joint Non-Profit Parties urge the Agencies to begin an evaluation of a Max DG Pathway with an estimation of the technical potential of installing PV arrays on the built environment, including warehouses, shopping malls, parking lots, highway rights-of-way, irrigation canals, and other structures whose on-site electricity demand is likely to consume little or none of the energy produced at those sites. In other words, these structures would serve as sites for deploying renewable energy supply resources that could provide a sizeable portion of the renewable energy production required to comply with SB 100. The energy produced by these resources would be procured in much the same way as energy from utility-scale generators is procured, that is, by load-serving entities in their supply portfolios to serve their customers. In addition, energy from some of these facilities could be procured directly by customers if and when California adopts

[12] McKuin, B., Zumkehr, A., Ta, J. *et al.* Energy and water co-benefits from covering canals with solar panels. *Nat Sustain* **4**, 609–617 (2021). https://doi.org/10.1038/s41893-021-00693-8
[13] https://environmentamerica.org/center/resources/solar-on-warehouses/
[14] https://solar.energyatlas.ucla.edu/methods.html

workable rules for community energy, a topic which is currently being considered in a CPUC proceeding.[15]

The Parties recognize that estimating technical potential has not been part of the SB 100 study methodology to date and appears not to be under consideration for the Pathway analysis for the 2025 Report, which proposes to rely on capacity expansion and production cost modeling.[16] The Parties are concerned that the "Pathway Analysis" flowchart presented at the Workshop[17] will never produce a Max DG pathway for consideration, because the "Pathway Definition" portion of the flowchart will formulate candidate capacity expansion portfolios prior to considering the non-energy benefits/impacts and land-use analysis. In other words, under the analysis proposed at the Workshop, the non-energy benefits/impacts and land-use analysis will be used to evaluate the alternative pathways *only after the candidate pathways have been formulated without considering those benefits and impacts*.

Moreover, the flowchart makes no provision for feedback from the non-energy benefits/impacts and land-use analysis to the portfolio formulation step, though it does provide for feedback and potential portfolio modification from the reliability modeling, which places non-energy and land-use benefits in an inferior subsidiary position. As a result, following the flowchart presented at the Workshop will treat non-energy benefits/impacts and land-use analysis as afterthoughts rather than building them into the portfolio formulation. The appropriate remedy for this omission would be to formulate a Max DG pathway as described in these comments at the beginning of the analysis and assess it fully alongside the other pathways.

Conclusion

For the reasons discussed in these comments, the Joint Non-Profit Parties urge the Agencies to include a Max DG pathway as described above as a candidate SB 100 Pathway at the beginning of the 2025 Report process, starting with a quantitative assessment of the technical potential of such a pathway and its impact in reducing the need for utility-scale generation and transmission additions.

Respectfully submitted,

/s/ Lorenzo Kristov, PhD, on behalf of The Climate Center
/s/ Roger Lin, Center for Biological Diversity
/s/ Marc Costa, Board Chair, Local Government Sustainable Energy Coalition
/s/ Claire Broome, 350 Bay Area
/s/ Elsa Wefes-Potter, Local Clean Energy Alliance

[15] See California Assembly Bill 2316 (2022) and CPUC Docket A.22-05-022.
[16] 2025 SB 100 Report Vision, slides 17-18.
[17] Id., slide 16.

Exhibit B

Joint Comments of

The Climate Center, Center for Biological Diversity, Local Government Sustainable Energy Coalition, 350 Bay Area, Vote Solar and Local Clean Energy Alliance

Following the October 31, 2023 SB 100 Analytical Framework Workshop

DOCKETED	
Docket Number:	23-SB-100
Project Title:	SB 100 Joint Agency Report
TN #:	253118
Document Title:	Joint Parties SB 100 Workshop Comments
Description:	SB 100 Workshop Comments by The Climate Center, Center for Biological Diversity, Local Government Sustainable Energy Coalition, 350 Bay Area, Vote Solar and Local Clean Energy Alliance
Filer:	Kurt Johnson
Organization:	The Climate Center
Submitter Role:	Public
Submission Date:	11/14/2023 3:41:30 PM
Docketed Date:	11/14/2023

Docket 23-SB-100

SB 100 2025 Joint Agency Report

Comments of Joint Non-Profit Parties on the October 31, 2023 SB 100 Analytical Framework Workshop

November 14, 2023

The Climate Center, Center for Biological Diversity, Local Government Sustainable Energy Coalition, 350 Bay Area, Vote Solar and Local Clean Energy Alliance ("Joint Non-Profit Parties" or "Parties") hereby submit these comments to the California Energy Commission, California Public Utilities Commission and California Air Resources Board ("Agencies") regarding the October 31, 2023 SB 100 Analytical Framework Workshop ("Workshop").

The Joint Non-Profit Parties appreciate the detailed presentations offered at the Workshop and the diligent and thoughtful work the Agencies are doing to identify the most effective pathway to achieve the mandates of SB 100. The present comments expand on proposals we offered in our September 8 comments on the August 22 kick-off workshop in light of the October 31 workshop presentation, and propose modifications to the October 31 Analytical Framework which we believe will result in a more complete set of options and more robust evaluation of the options for achieving SB 100 goals.

Introduction

In comments we submitted on September 8, 2023 following the August 22 workshop, we argued that widespread deployment of solar PV on the "built environment" in California — i.e., roofs of warehouses, shopping malls, schools, parking lots, irrigation canals, highway rights-of-way, etc. — could supply a substantial amount of the renewable electricity required to meet SB 100 goals without triggering land-use concerns or other sources of public opposition, while reducing costs due to thermal losses and required transmission upgrades, and while providing valuable local benefits that more distant bulk generation would not provide.[1] On that basis we argued that the Agencies should construct a "Maximum Distributed Generation" ("Max DG") scenario based on the technical potential for such deployment and assess its benefits and costs against the other pathways that result from the Agencies' proposed capacity expansion scenario definition.

We referred to these types of resource deployments as "front-of-the-meter" (FTM) distributed generation (DG), based on the expectation that they would be deployed specifically as stand-alone renewable energy supply resources rather than as customer-sited resources to offset a customer's demand, and that their sizes would generally be appropriate for distribution-system

[1] September 8, 2023 comments by the Joint Non-Profit Parties on the August 22, 2023 SB 100 Kickoff Workshop; pp 4-5.

interconnections. We introduced the term “Max DG Pathway” to refer to an SB 100 pathway constructed in this manner that maximizes solar PV deployments on the built environment.[2]

Our September 8 comments raised the concern that the Pathway Analysis methodology presented at that workshop, by design, would not identify such a Max DG Pathway due to the nature of the capacity expansion modeling approach used to develop alternative scenarios. We noted in particular that the specific benefits of locating supply close to load, which would include economic and resilience benefits to the communities where the resources are sited, are not considered in the scenario definition portion of the proposed analysis, but are only applied as comparison criteria after the scenarios are formulated.[3]

The Parties appreciate the approach presented at the October 31 workshop to incorporate FTM DG more substantially into the analytical framework. We find, however, that the concerns we described in the September 8 comments remain unaddressed. Therefore, in the present comments we expand on our proposal for formulating a Max DG Pathway and describe how it could be incorporated into the Agencies’ proposed analytical framework.

The Max DG Pathway

The proposal we offered in our September 8 comments, which we reiterate here, is to construct a Max DG Pathway based on fully utilizing the technical potential to deploy solar PV on the built environment. The built environment would include all types of built facilities and sites with suitable solar exposure, including warehouses, shopping malls, schools, parking lots, irrigation canals and highway rights-of-way. In the September 8 comments, we identified some studies of technical potential that already exist which could serve as a starting basis for estimating technical potential for purposes of the 2025 SB 100 Report.

The built environment as we characterize it in the Max DG Pathway is essentially a type of land on which a small-to-medium-size utility-scale PV array (probably with co-located storage) could be deployed. Even though the structure supporting the PV array may already be an electricity end-use customer, such as a warehouse, school, shopping mall or government building, the PV array would not be electrically connected to the end-use load but would have its own FTM utility interconnection and meter. Hence it would truly be a FTM resource by virtue of its metering arrangement even though it is physically located on the premises of an end-use electricity customer. The PV developer would have a contractual or ownership arrangement for use of the “land” as well as a power-purchase agreement (PPA) with a load-serving entity or other business model for earning revenues from power generation and grid services, as would a developer of most any other type of renewable generation resource.

The October 31 Workshop Approach

The concern we raised in the September 8 comments, which remains a concern after the October 31 workshop, is that capacity expansion modeling as proposed would never construct a

[2] To be clear, we do not expect that FTM PV deployments would be comprised exclusively of PV to the exclusion of co-located or nearby energy storage. In fact, we expect that most such deployments would include storage optimized to shift the PV energy generation to the hours when it would be most valuable to the power system while minimizing adverse impacts on the grid. We focus on PV in this discussion only to recognize that PV would likely be the main source of renewable electricity generation in this Max DG scenario.

[3] September 8, 2023 Joint Non-Profit Parties comments; p 1.

Max DG scenario as we propose, so the analysis framework would never evaluate such a scenario. The basis for this concern is the description offered in the October 31 workshop presentation, the "DER Focus Scenario FTM Resources" (slide 31), which states the following:

"Include an ambitious, but feasible level of FTM distributed energy resources based on:

- Current state policies and programs
- Economic selection in the Reference Pathway
- Resource feasibility, economic impact and diminishing returns of adding additional resources

"Modeled as utility-scale resources and allocated in post-processing as a in front of the meter distributed energy resource."

The first problem with this approach is that the technical potential for and benefits of FTM DG on the built environment will not in any way enter into the scenario definition process. The capacity expansion model simply includes utility-scale generation as a general category without distinguishing whether it would be transmission-connected or distribution-connected, and then, by a method yet to be determined, assigns some share of the resulting utility-scale selection to the FTM DG category. This means that the amount of FTM DG is dependent on the amount of utility-scale generation selected by the capacity expansion model, with no consideration of the benefits of locating supply resources close to load. This will create a bias that under-values and therefore under-selects FTM DG.

The second problem is that the "feasible" level of FTM DG will be dependent on "current state policies and programs." From a policy perspective, this is backwards logic. If a particular energy technology is shown to be beneficial and cost-effective, then the policy maker's mission is to devise policies to facilitate its deployment. If FTM PV on the built environment, located close to load, particularly where electrification load growth may be the greatest, is shown to be beneficial relative to more distant generation resources, then the policy maker's mission is to develop new policies and programs that will facilitate higher levels of FTM PV deployment. Moreover, for reasons beyond the scope of these comments, current policies and programs are not conducive to FTM DG deployment. Therefore, setting FTM DG levels based on current policies and programs will further depress their selection in the pathways.

Integrating the Max DG Pathway into the Analytic Framework

To address the above concerns and enrich the scope of options for consideration, we propose the following approach.[4]

Step 1. Develop a Max DG scenario based on the technical potential of deploying PV on the built environment, based on solar irradiance and physically suitable area on the built environment categories identified earlier.

[4] We believe that the approach outlined here also provides our perspectives on the question posed on slide 31: "What assessments, reports, policies and/or programs should the joint agencies consider when determining what level of FTM distributed energy resources to include in the DER Focus Scenario?" For implementing our proposed approach, it will be essential to consider all available reports estimating the technical potential for deploying DG on the built environment.

Step 2. Assuming such PV deployments will include energy storage to shift produced energy to the most valuable production times while minimizing any adverse grid impacts (e.g., to avoid creating local “ducklings”), determine the residual amount of new capacity, net of the Max DG deployment, that will be needed to achieve SB 100 mandates.

Step 3. Apply the analysis framework proposed at the October 31 workshop (slides 16 and 43) to these residual amounts.

Step 4. For at least some of the pathways proposed in the October 31 presentation — hopefully all of them if possible — perform the analysis as originally proposed on October 31 without pre-specifying the Max DG component.

Step 5. Perform the remaining analyses, including reliability modeling, non-energy benefits and impacts, land-use assessment and the subsequent evaluations, to all scenarios and pathways.

The essential logic of this approach is to go beyond the constraints of a single “DER Focus Scenario” and, instead, expand the generation capacity to meet SB 100 starting from the bottom and building up, building on the BTM DER incorporated into the demand scenarios,[5] and then supplying as much renewable generation as possible at locations close to load that will avoid or minimize land-use concerns and need for new transmission capacity.

For the final and most comprehensive evaluation of all the pathways, characterizing the non-energy benefits will be crucial. The Parties believe that the benefits of locating supply resources close to customers will have significant resilience benefits, because FTM PV plus storage resources can readily be incorporated as grid-forming resources in community microgrids. Moreover, FTM DG resources can be developed under local, municipal or tribal ownership models that provide economic benefits, help build community wealth and advance Energy Justice. An aspect of DER technologies that is too often overlooked is the potential to advance Energy Justice through democratization of the ownership of electricity assets to build sustainable healthy communities.

Conclusion

The Parties appreciate the intelligence and hard work the Agency staff have been putting into the analysis for the 2025 SB 100 report. We hope the Agencies will consider adopting the proposal described above, and we are willing and ready to collaborate with you to help make this effort a success.

[5] The CEC Demand Scenarios are indicated as inputs to the Scenario Definition portion of the Analytical Framework (slides 16 and 43). We understand that the Demand Scenarios are intended to capture the effects of BTM DER adoption by customers and various aspects of electrification of other energy uses in California. The Parties look forward to discussions of the methodologies that will be used to develop the Demand Scenarios, which we understand will be presented at a workshop in Q1/2024.

Respectfully submitted,

/s/ Lorenzo Kristov and Kurt Johnson

The Climate Center

/s/ Roger Lin

Center for Biological Diversity

/s/ Marc Costa

Local Government Sustainable Energy Coalition

/s/ Claire Broome

350 Bay Area

/s/ Elsa Wefes-Potter

Local Clean Energy Alliance

/s/ Andrea Leon-Grossman

Vote Solar