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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,

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