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March 1, 2024

California Energy Commission  
Docket Unit, MS-4  
Docket No. 21-SIT-01  
715 P Street  
Sacramento, California 95814

*Submitted Electronically*

**Re: American Clean Power – California: Comments on the February 16, 2024  
Inputs and Assumptions Workshop and the February 1, 2024 SB 100 Land Use  
Workshop**

American Clean Power – California (“ACP-California”) appreciates this opportunity to provide the following comments and responses to the California Energy Commission’s (“CEC”) February 16, 2024 Inputs and Assumptions Workshop and February 1, 2024 SB 100 Land Use Workshop.<sup>1</sup>

### **Comments on February 16, 2024 SB 100 Inputs and Assumptions Workshop**

Senate Bill (“SB”) 100 is a core state policy that will provide needed direction to public agencies, resource planners, developers and other stakeholders on the State’s plans to meet long-term carbon reduction requirements. ACP-California appreciates the opportunity to participate in the February 16<sup>th</sup> workshop and provide these written comments. We generally support the use of the Plexos model, and we appreciate CEC staff’s overview of the modeling process at the February 16<sup>th</sup> workshop. These comments pose questions regarding how the capacity expansion analysis in this iteration of the SB 100 report will be integrated with other planning processes, such as the California Public Utilities Commission’s (“CPUC”) Integrated Resource Planning (“IRP”) process, and offer several recommendations for further clarification and stakeholder engagement:

1. The Joint Agencies should provide additional opportunity to comment on the raw data inputs for Plexos. The Joint Agencies should also provide opportunity for party comment

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<sup>1</sup> The American Clean Power Association (“ACP”) is the voice of companies from across the clean power sector that provide cost-effective solutions to the climate crisis while creating jobs, spurring massive investment in the American economy, and driving high-tech innovation across the United States. ACP’s mission is to transform the U.S. power grid to a low-cost, reliable, and renewable power system. ACP-California is a state project of ACP, representing companies who develop, own, and operate utility-scale solar, storage, land-based wind, offshore wind, and transmission assets to power a clean and renewable economy for California and the West.

on draft capacity expansion results, such that there is enough time to re-run modeled scenarios before finalizing the SB 100 Report.

2. The Joint Agencies should ensure that all of the modeled scenarios provide information on the benefits of regional market participation.
3. ACP-California supports the use of the 25 GW Assembly Bill (“AB”) 525 target as an input for the modeling in the base case. We recommend updates to the inputs for project density, as discussed in ACP-California’s comments on the February 1, 2024 Land Use Workshop.
4. The Joint Agencies should operationalize SB 100 through coordination with longer-term California Independent System Operator (“CAISO”) transmission planning.

## DISCUSSION

### **1. The Joint Agencies Should Release an Excel File With the Complete Data Set of Inputs / Assumptions, and make sure there is time to Run the Model Again After Collecting Comments on Draft Capacity Expansion Results.**

The inputs and assumptions are a core component of the quantitative analysis that will support the SB 100 process, and it is critical that the CEC account for the recent developments in the market that may affect resource availability, transmission cost adders, generation costs and other key inputs to the modeling. We recommend the Joint Agencies hold additional workshop(s) this year to discuss preliminary modeling results. The Joint Agencies should release detailed modeling inputs and assumptions and provide opportunity to comment on the actual data that will be used in the Plexos model. Providing opportunity to comment on the data, as well as an opportunity to review the capacity expansion results while there’s still time to rerun the model is a key step in the SB 100 implementation process.

### **2. SB 100 Modeling Should Support Evaluation of Benefits of Regional Grid Participation**

In the current and past SB 100 cycles, ACP-California has recommended analysis of the benefits of regional market participation in the west, including cost savings for California ratepayers, reliability benefits, land-use implications and the ability for regional grid participation to facilitate progress towards the SB 100 targets. We support the Geographic Diversification scenario, but it is not clear how the other scenarios will account for benefits that resources throughout the Western Electricity Coordinating Council (“WECC”) can provide to California.

As the Joint Agencies refine the modeling for this cycle, we recommend confirming that the model can fully account for the benefits of greater market participation in the west. The presentation at the February 16, 2024 workshop did not make clear how the Joint Agencies are planning for resource development outside of California. For example, the solar and wind

availability data on slides 35 – 39 only accounted for resource availability within California’s political borders. It is also unclear whether the Plexos model will be able to select out-of-state candidate resources, consistent with the technical availability in out-of-state regions, or whether technical availability will be subject to a severe “hair cut” based on the application of out-of-state land-use screens. We expand on this concern in our comments on the February 1, 2024 Land Use Workshop, below. Finally, the presentation did not include information on how the Joint Agencies will evaluate planned out-of-state transmission that may significantly change the quantity of out-of-state resources that are deliverable to California. As discussed above, ACP-California recommends releasing the raw data inputs for Plexos, including the WECC anchor data set the Joint Agencies intend to use for modeling, and provide stakeholders an opportunity to comment on these inputs.

**3. ACP-California Supports Using The 25 GW Offshore Wind Target As A Starting Point For Modeling Available OSW Resources.**

SB 100 is a key State policy to inform the achievement of the State’s offshore wind (“OSW”) targets. In addition to providing a consistent, long-term vision for OSW development, SB 100 will also serve as a key input in AB 1373 implementation. Analysis in SB 100 that compliments and fulfills the objectives of AB 525 will be critical to meeting both AB 525 and SB 100. We support the use of the AB 525 Planning Goals as an input in the base case and other scenarios. We have also provided input on density factors for OSW resources in our responses to the February 1, 2024 Land Use Workshop (please see below). Finally, in past comments, ACP-California recommended flexibility in the analysis of costs for offshore wind, as well as broader consideration of the benefits of resource diversity.<sup>2</sup> We do not believe that a modeling protocol that prioritizes cost minimization above all can be reasonably expected to meet the State’s requirements for OSW, portfolio diversity, and long-term reliability, and for these reasons, recommend caution in relying on the CPUC’s IRP plans. The SB 100 report should take a broader view of the multiple benefits that OSW can provide to California ratepayers and clearly articulate those benefits through qualitative discussion in the SB 100 Report.

**4. The Joint Agencies Should Use the SB 100 Report to Operationalize the CAISO’s Longer-Term Transmission Plans.**

As discussed in our Land Use comments below and other comments in this docket, transmission planning and timely development remain key barriers to achieving the SB 100 targets. One way to help resolve these concerns is to operationalize longer-term transmission planning through the SB 100 Report. It was not clear from the February 16<sup>th</sup> workshop how the Joint Agencies plan to utilize longer term transmission studies, such as the CAISO’s 20-year outlook and other related long-term studies. Transmission availability appears to primarily account for lines that have already been energized, and it was not clear whether projects that have been approved through the transmission planning process (“TPP”) contribute to transmission cost adders. We recommend accounting for a broader suite of projects and right-

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<sup>2</sup> See R.20-05-003, *Comments of American Clean Power-California on the Administrative Law Judge’s Ruling Seeking Comment On Proposed 2023 Preferred System Plan And Transmission Planning Process Portfolios* (November 13, 2023), available at: <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M520/K853/520853029.PDF>.

sizing opportunities, such as those contemplated in the CAISO's longer-term studies. By including these in the SB 100 Report and supplementing the busbar mapping provided to the CAISO, the Joint Agencies will take a concrete step towards making the SB 100 Report actionable and address a key barrier to the achievement of the targets.

### **Comments on February 1, 2024 SB 100 Land Use Workshop**

At the February 1, 2024 workshop, decisionmakers heard from diverse perspectives, including sister agencies, sovereign tribal nations, utilities, environmental organizations and clean energy developers. We applaud the CEC for bringing these parties together and providing decisionmakers with a meaningful opportunity to hear from a variety of perspectives impacted by the land-use decisions that will occur as a result of the State's ambitious clean energy policies.

ACP-California has been an active participant in the SB 100 process and broadly supports the State's efforts to integrate responsible land-use policies with the State's long-term clean energy planning. This process provides an important opportunity for State regulators to clarify their vision for an orderly build-out of clean energy resources. SB 100 is a core State policy that can operationalize transmission planning, and as discussed below, we recommend using the next SB 100 Joint Agency report to provide clear direction on how the State can build transmission at the pace and scale needed to meet the SB 100 targets while minimizing land-use impacts.

ACP-California's recommendations and responses to CEC staff's workshop questions<sup>3</sup> are summarized as follows:

1. Proactive transmission planning and regional market development will minimize land-use impacts and lead to more efficient processes for permitting authorities. The SB 100 Report should facilitate transmission planning and signal the State's support for a regional market as part of the State's SB 100 policies.
2. ACP-California generally agrees with the Land Use Goals stated in the CEC presentation, but it is not clear from the presentation that a significant margin of available land will be identified as part of this process. The State should plan for more land than will be needed. Doing so will ensure there is a high margin of availability, such that developers and permitting authorities can make micro-siting decisions for specific projects and not be forced to curtail the total transmission and generation capacity needed to meet the SB 100 targets.
3. The responsible agencies should update the density factors for offshore wind to reflect technology advancement and current design assumptions for floating offshore wind. ACP-California provides a detailed analysis of density factors in Attachment 1 to these comments.

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<sup>3</sup> See CEC Presentation for SB 100 Land Use Workshop (February 1, 2024), Slide 20, available at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=254242&DocumentContentId=89603>.

4. The responsible agencies should use the base case busbar mapping results for the current and forthcoming TPP cycle, but augment the mapped results consistent with the findings in the AB 525 Report, and also adjust the out-of-state land-use screens, which were not fully vetted in the 2022-23 IRP cycle.

## DISCUSSION

### 1. What are the land-use-related challenges to SB 100 implementation?

Timely transmission development is one of the main barriers to SB 100 implementation. ACP-California recommends the SB 100 responsible agencies focus on how the SB 100 Report can provide clear direction for transmission planning by accounting for land-use impacts associated with different modeling scenarios. Put differently, timely transmission planning and development can minimize land use impacts provided that decisionmakers ensure there is timely and forward-looking development of new, large policy-driven network upgrades. Strategies such as “right-sizing” transmission to meet longer-term needs (e.g., 20 years) can minimize land use impacts. Right-sizing can also minimize overall administrative requirements for permitting. Similarly, providing clear guidance to new-project developers on where transmission will be located can help ensure developers focus their development efforts.

Land use geo-spatial tools should inform the agencies’ analysis in the SB 100 process and the SB 100 Report should be a tool to plan and operationalize long-term transmission decisions. Specifically, the SB 100 Report should inform the inputs and assumptions for the 2025-26 TPP and later cycles with 20-year transmission needs. The SB 100 Report should also be a tool to track development of new policy-driven network upgrades. There is still much uncertainty about where and when transmission will be built given that there is often a four-year or longer timeframe from the approval of a project in the TPP and the filing of permit applications.<sup>4</sup> These delays and uncertainties create challenges for various stakeholders impacted by land-use decisions (i.e., permitting entities, developers, landowners, and other interests).

Thus, while we commend the CEC for developing robust and publicly available geo-spatial tools, the tools have yet to be used in a way that creates transparency and certainty for transmission development in the busbar mapping process. These new geo-spatial tools have the capability of applying successive, overlaying screens, but the application of these screens to busbar level inputs for the TPP is ever-evolving. This was the case in the development of the portfolios for the 2024-25 TPP cycle, when out-of-state screens were applied for the first time in the context of a Proposed Decision and not during the extensive workshop process. This is just one example of the ongoing moving targets associated with transmission planning and development.

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<sup>4</sup> See R.20-05-003, *Comments of American Clean Power-California on the Administrative Law Judge’s Ruling Seeking Comment On Proposed 2023 Preferred System Plan And Transmission Planning Process Portfolios* (November 13, 2023), p. 4, available at: <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M520/K853/520853029.PDF>.

The State should use this process and the CEC's expertise on land-use issues to identify and prioritize longer-term network transmission investments. By providing clear direction for the State's transmission-related priorities and understanding how transmission decisions affect other stakeholders impacted by land-use decisions, the CEC will enable a more orderly transition to a clean energy future.

**2. Do you agree with staff's proposed goals (slides 10 and 19)? If not, what would you recommend?**

Slides 10 and 19 identify four goals that thoughtfully outline a process for evaluating land-use impacts and analyzing modeled resource development scenarios. We do not disagree with the process, but would encourage the CEC to operationalize the four-step process in a way that identifies a greater amount of land than is actually needed for development. In other words, the agencies should be flexible in this analysis and avoid overly restricting the State's analysis of what constitutes sufficient land for clean energy development. Actual land-use impacts will be governed by micro-siting decisions made by permitting authorities and developers, but if the land analysis is overly restricted now and sized to be "just enough," the SB 100 Report will fail to account for the uncertainty inherent in long-term planning.

The responsible agencies should avoid applying successive and overlapping land-use screens that lead to exclusions of available land. To the extent that the responsible agencies' analysis of planning scenarios results in exclusions of land, the agencies should ensure that the analysis still maintains a high margin of availability (i.e., three to five times as much land as would be needed for a given portfolio). As part of the prioritization process, lands that the State already identified by the Desert Renewable Energy Conservation Plan as available, particularly development focus areas, should be accepted by the State as appropriate for development without a land-use score handicap, and the State should ensure sufficient transmission to these areas.

The agencies' scenario analysis will become increasingly uncertain as the State evaluates longer and longer planning horizons. If not enough land is identified, the State will not achieve its goals. The concept of excluding land should be distinguished from prioritizing certain areas for development. Prioritization is appropriate, particularly in the context of identifying new network upgrades.

In past comments, we have recommended that the CEC use the SB 100 process to align transmission planning and implementation. Specifically, we have recommended reporting by transmission owners of their plans and timelines for permitting new policy-driven upgrades. The time between a transmission project being approved in a TPP and actual permitting occurring can vary significantly. According to a recent filing by Cal Advocates in the CPUC's General Order 131-D rulemaking:

Cal Advocates' analysis suggests that the long period of time spent by transmission developers in a project's planning stage prior to filing an application at the Commission contributes to the lengthy transmission development timelines. Following approval by the CAISO, the onus for initiating a project's development falls on the project developer electric utility. Based on a review of 14 projects, it generally takes the electric

utilities between 2.4 and 4 years to begin designing a project, conducting environmental assessments, and preparing a project application to file at the Commission, which often comprises the longest portion of the project development timeline...<sup>5</sup>

We recommend the responsible agencies discuss these delays in the SB 100 Report and discuss ways that transmission owners can be encouraged to commence permitting in a more timely fashion once the CAISO has identified new policy-driven upgrades.

Finally, we recommend that the responsible agencies acknowledge that broadening wholesale power markets can reduce land-use-related challenges because a broader regional market minimizes barriers to developing new clean capacity outside the physical footprint of a balancing authority. As part of the SB 100 Report, the responsible agencies should acknowledge the linkage between wholesale power markets and land-use decisions and use the SB 100 Report as an opportunity to signal the State's support for regionalizing power markets.

**3. Do you agree with staff's resources under consideration (slides 12 and 16)? If not, what would you recommend?**

Slide 16 identifies scenario analysis resources that are largely derived from the CPUC IRP process, CEC land-use screens, and other resources. The Inputs and Assumptions for the 2022-23 IRP Cycle included a 3-5 MW/km<sup>2</sup> density factor for offshore wind resources.<sup>6</sup> The wind turbine manufacturing industry has made tremendous strides over the last decade increasing the size and productivity of wind turbines in both onshore and offshore applications. We expect these trends to continue. Based on discussions with leaseholders on how they are planning projects, as well as most recent industry analysis,<sup>7</sup> we believe a higher density factor of 7 MW/km<sup>2</sup> is achievable. We recommend adjusting this assumption as it has significant impacts on the total sea-space requirements to achieve the State's OSW goals. Our summary analysis supporting this higher density assumption is provided in Attachment 1 to these comments. We would further refer the CEC to a recent report from Energy Innovation which concluded that the overall sea-space and land-use requirements for a renewable transition will be lower if OSW is a significant component of a clean energy portfolio.<sup>8</sup> The report further highlights the relatively small footprint of OSW as compared to total sea-space occupied.<sup>9</sup> In addition to integrating

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<sup>5</sup> See R.23-05-018, *Public Advocates Office Opening Comments On The Administrative Law Judges' Ruling Inviting Comment On Phase 2 Issues* (February 5, 2024), p. 13, available at: <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M524/K929/524929448.PDF>.

<sup>6</sup> See R.20-05-003, *Final 2023 Inputs and Assumptions* (October 5, 2023), available at: <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/long-term-procurement-planning/2022-irp-cycle-events-and-materials>.

<sup>7</sup> See Enevoldsen, Peter & Jacobson, Mark. (2021). Data investigation of installed and output power densities of onshore and offshore wind turbines worldwide. *Energy for Sustainable Development*. 60. 40-51. 10.1016/j.esd.2020.11.004.

<sup>8</sup> See <https://energyinnovation.org/publication/2035-offshore-wind-technical-report/>, p. 35.

<sup>9</sup> *Ibid*, p. 34.



these assumptions into the SB 100 modeling, we also recommend acknowledging these factors in the qualitative discussion of the SB 100 report.

**4. Do you agree with staff’s proposed approach to resource mapping for the scenario analysis (slide 18)? If not, what would you recommend?**

ACP-California does not support using the busbar mapping from the 2023-24 TPP base case and 2024-25 TPP base case, without further modification. As noted above, ACP-California is concerned that the portfolios and busbar mapping process were modified at the eleventh hour to substantially reduce the out-of-state resource potential. Our comments to the CPUC discussed this issue:

While we applaud the ambition in the PD, it remains unclear how the resource planning, transmission planning, interconnection and procurement processes will come together to achieve the State’s climate, reliability, and affordability objectives.

These questions are especially acute in relation to the latest busbar mapping results that parties received on January 11, 2024, only nineteen days before the comment deadline for the Proposed Decision. We appreciate that the busbar mapping is complex and that the Commission and the CAISO are grappling with significant challenges in coordinating iterative transmission planning processes, managing evolving data sets, and providing direction to the market on how interconnection and procurement processes will be managed going forward. We also acknowledge that the Commission and the California Energy Commission (“CEC”) have made significant strides in publishing geographic information systems data on land use screens. However, this PSP decision is too important to revise the final outputs without meaningful stakeholder review and an informed record.

In particular, the out-of-state land use screens came as a surprise and pose serious questions about the legitimacy of some of the assumptions contained in the January 11, 2024, results. For example, the January 11 busbar mapping dashboard appears to limit out-of-state wind resources based on assumed distances from existing substations (e.g., 10 or 20 miles). This screening limitation is inconsistent with how many large wind farms are developed. Often, new switchyards and transmission facilities are developed to build new wind capacity over a geographic area that is much larger than the proposed screen. In addition, there were material changes in shown capacity at certain mapped locations, such as the Redbluff and Colorado River substations. The fact that interconnection requests for new renewable energy development at these and other locations on the grid are far greater than the capacity reduced by the application of out-of-state land-use screens is concerning. These are a handful of many possible examples of why application of multiple overlapping land-use screens for climate change impacts, development assumptions and many other factors requires further record development before applying them to the base case for the CAISO Transmission Planning Process (“TPP”).

As set forth in the attached Proposed Changes to the Findings of Fact, Conclusions of Law, and Ordering Paragraphs, we recommend rectifying this process deficiency by authorizing Energy Division to fine tune the busbar mapping results following the

receipt of stakeholder input. The Commission should then authorize Energy Division to submit the results into the CAISO's 2024-2025 TPP cycle. Any such authorization should be limited to this IRP cycle. In the next IRP cycle, busbar mapping results should not be materially modified between the record development and decision phases. Further, ACP-California reiterates a request it has made in numerous IRP cycles to explicitly update the busbar mapping methodology to detail the steps the Commission uses to establish maximum import capability assumptions and how the Commission then maps capacity from out-of-state balancing authorities to specific intertie locations.<sup>10</sup>

The Commission declined to integrate this recommendation, but the responsible agencies have time and discretion to further evaluate the application of the out-of-state land use screens. We recommend the agencies enable adjustments to the portfolios to avoid overly restricting the availability of out-of-state resources.

## CONCLUSION

ACP-California appreciates the opportunity to provide these comments on the Workshop. ACP-California encourages the CEC, CPUC and CAISO to continue to expand their efforts to address the transmission planning and approval needs that will be necessary for California to achieve a diverse, reliable, clean energy portfolio.

Sincerely,

/s/

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<sup>10</sup> R.20-05-003, *American Clean Power – California Opening Comments On Proposed Decision Adopting 2023 Preferred System Plan And Related Matters, And Addressing Two Petitions For Modification* (January 30, 2024), pp. 3-5, available at: <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M524/K511/524511365.PDF>.

## ATTACHMENT 1

### ACP-California Sea Space Analysis for Offshore Wind

	Area (km <sup>2</sup> )	Potential Capacity (MW)			Additional Space Required to achieve AB 525 Goals (km <sup>2</sup> )
		Low (AB 525)	High (AB 525)	Industry Corrected (7MW/km <sup>2</sup> )	
Humboldt Leases	536	1,608	2,680	3,752	
North Coast Sea Space	8950	26,850	44,750	62,650	2,060
Morro Bay Leases	975	2,925	4,875	6,825	
South-Central Coast Sea Space	1462	4,386	7,310	10,234	

#### Sources

DNV [https://topsectorenergie.nl/documents/334/20220519\\_RAP\\_DNV\\_Optimal\\_Offshore\\_Wind\\_Turbine\\_Size\\_and\\_Standardisation\\_F.pdf](https://topsectorenergie.nl/documents/334/20220519_RAP_DNV_Optimal_Offshore_Wind_Turbine_Size_and_Standardisation_F.pdf)

NREL <https://efiling.energy.ca.gov/GetDocument.aspx?tn=243707&DocumentContentId=77539>

CPUC I&A doc [https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-tpp/2023-irp-cycle-events-and-materials/draft\\_2023\\_i\\_and\\_a.pdf](https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-tpp/2023-irp-cycle-events-and-materials/draft_2023_i_and_a.pdf)

GE [March 2023 Investor Conference, Cincinnati- GE CEO disclosed expectations of 18 MW turbines by 2025. 2023 turbine, p. 101 https://www.ge.com/sites/default/files/2023-ge-investor-conference-presentation.pdf](https://www.ge.com/sites/default/files/2023-ge-investor-conference-presentation.pdf)

DOE [See P.87 @ https://www.energy.gov/sites/default/files/2022-09/offshore-wind-market-report-2022-v2.pdf](https://www.energy.gov/sites/default/files/2022-09/offshore-wind-market-report-2022-v2.pdf)

#### Additional notes

1. Turbine growth will drive increased capacity
2. Developers know that the spacing will be tighter in CA because they won't use catenary systems given depth of water. This will in turn allow for greater density within the lease areas.
3. In Mendocino and Del Norte, likely COD is 2040 so can assume technology and spacing adjustments upward as well.