

DOCKETED	
Docket Number:	23-SB-100
Project Title:	SB 100 Joint Agency Report
TN #:	255258
Document Title:	Clean Air Task Force Comments - Clean Air Task Force Comments in Response to SB 100 Inputs and Assumptions Workshop
Description:	N/A
Filer:	System
Organization:	Clean Air Task Force
Submitter Role:	Public
Submission Date:	3/25/2024 4:08:49 PM
Docketed Date:	3/25/2024

*Comment Received From: Clean Air Task Force
Submitted On: 3/25/2024
Docket Number: 23-SB-100*

Clean Air Task Force Comments in Response to SB 100 Inputs and Assumptions Workshop

Additional submitted attachment is included below.

March 25, 2024

California Energy Commission
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RE: Docket No. 23-SB-100 Comments of Clean Air Task Force in Response to SB 100 Inputs and Assumptions Workshop

Dear Commissioners and Staff:

Clean Air Task Force (CATF) is pleased to offer comments in response to the California Energy Commission's (CEC) SB 100 Inputs and Assumptions Workshop.

CATF is a global nonprofit organization working to safeguard against the worst impacts of climate change by catalyzing the rapid development and deployment of low-carbon energy and other climate-protecting technologies.

I. Introduction

Barriers to deploying clean energy are shifting from technical and economic to those including social opposition, environmental considerations, and competing local land use goals and priorities. Yet, current energy modeling often omits these important factors. In failing to incorporate implementation challenges stemming from non-technical barriers to deployment, modeling merely provides a demonstration of technical feasibility and financial optimization and may have limited real-world utility. The SB 100 process presents the opportunity to better incorporate non-technical deployment barriers and account for and align with other State, Tribal, and local planning processes and goals.

CATF appreciates the coordination across CEC, the California Public Utilities Commission (CPUC), and the California Air Resources Board (CARB) through the SB 100 report proceeding and extensive public engagement efforts. We offer the following comments for consideration:

II. Improve engagement processes and collaboration by providing technical expertise



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We strongly recommend robust engagement, discussion, analysis, and deliberation with local communities that are informed by technical analysis. Collaborative community discussions and decision-making can ensure that local concerns, constraints, and cultural resources are adequately considered from the start and can reduce future conflict.

Some communities have already begun considering local goals and strategies for clean energy planning and deployment. Statewide planning processes like the SB 100 Joint Agency Report should incorporate already completed work and use it to inform inputs and evaluations. For example, over the last year, CATF and its project team engaged leaders of local communities in the San Joaquin Valley (SJV) to explore options and opportunities for what a clean energy future might look like in the region. This effort convened knowledge-sharing sessions, supported a detailed quantitative modeling toolkit developed by RAND Corporation (RAND), and coordinated extensively with state agencies. Through this effort, local leaders developed a vision statement and objectives for a clean energy future that puts economic development at its core. The modeling and convening effort served as a catalyst for discussion, offering quantitative data the community could react to and engage with to make informed decisions. Local communities deeply valued the technical expertise the team provided, signaling the benefits of bringing in external expertise. This process helped SJV leaders understand what the opportunity and impacts of clean energy could mean for the region, created genuine local enthusiasm and interest in clean energy, and strengthened relationships across the SJV and with the state.

A forthcoming report from CATF will provide an overview of the process and includes a more detailed set of recommendations for state agencies like CEC, CPUC, and CARB for pursuing this style of engagement. In line with these recommendations, we strongly encourage state agencies to undertake this type of engagement and collaboration as partners to other regions and local governments by providing data, analytical capabilities, and technical expertise. Continuing to invest in structured conversations with state and local representatives can lay the groundwork for expedited clean energy development that meets local goals and objectives. We also encourage the SB 100 process to incorporate the quantitative findings from RAND's modeling, along with other locally developed plans. Separately, a technical analysis from RAND with detailed data, methods, and takeaways will be available in the coming weeks.

III. Coordinate and align with other existing state land use and resource planning efforts



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Coordinating and aligning SB 100 modeling with other planning efforts, such as transmission and groundwater management under the Sustainable Groundwater Management Act (SGMA), is essential. The SGMA may present opportunities for clean energy development to be sited on transitioning agricultural lands. Identifying areas likely to be impacted under SGMA and by a changing climate by utilizing existing GIS datasets and local plans can identify areas that may become more suitable for new generation and/or new transmission in the future. Clear guidance from the state and engagement with local communities on transitioning these lands for renewable energy use would facilitate their repurposing while supporting state energy goals. We encourage further collaboration across energy and resource agencies in this area.

Transmission will also be essential in bringing new energy resources onto the grid. The pace of new clean energy development required to meet California's clean energy goals far exceeds the speed at which transmission projects are currently planned, permitted, sited, and built. Princeton's Net-Zero America study finds that electricity transmission capacity would need to triple by 2050 to decarbonize the grid.¹ However, the reality is that transmission is incredibly difficult to develop, and timelines are riddled with uncertainties and delays.² California's ability to plan and develop transmission will be a critical enabler or blocker of the state's ability to bring new clean energy resources onto the grid in time to meet its climate and clean energy goals. Aligning SB 100 planning efforts with the realities of the development landscape and its current timelines is crucial. In its analysis of scenarios, SB 100 should fully explore transmission expansion to new areas that have significant resource potential. The state should not shy away from rapidly developing new transmission infrastructure and upgrading existing infrastructure to unlock resource-rich areas for clean energy generation.

IV. Consider land implications of clean energy resources

Highlighted in CATF's 2022 *Growing the Grid* report, diversifying energy resources to include clean firm power can and will minimize

¹ E. Larson et al. (2021). Net-Zero America: Potential Pathways, Infrastructure, and Impacts. Unpublished California transmission data sheet. Princeton University. <https://netzeroamerica.princeton.edu>

² Clean Air Task Force. (2023). Transmission Development in California – What's the slowdown? <https://www.catf.us/resource/transmission-development-california-slowdown/>



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the land area impacted by energy while increasing reliability and affordability.³ Clean firm power from sources like geothermal, generation with carbon capture and storage, clean fuels (such as hydrogen in high-value applications), or existing nuclear can provide multiple advantages. For instance, geothermal energy, specifically next-generation geothermal systems like superhot rock energy, promises to be energy-dense, generating large amounts of energy beneath a small surface footprint.⁴ The land footprint of these resources is often much smaller than renewable sources like wind and solar per unit of energy generated and can reduce development pressure on California's natural and working lands. This is supported by research that found excluding clean firm power from California's energy future could use up to ten times as much land as a decarbonized electricity system that relies on variable renewable energy and batteries.⁵

Distributed energy resources (DER) will play an important, if limited, role in providing clean electricity and reducing the need for new transmission lines. However, the technical potential for DER capacity in the state is far below what would be required to meet all the state's current and future electricity needs. CEC should consider the role of DER within the scope of technical feasibility by comparing the generation and land area requirements of a suite of scenarios representing different technology pathways and a range in clean firm power capacity to assess these trade-offs. Optimizing the impact of clean energy on land area impact, among other tradeoffs, will contribute to more effective energy and land use planning.

V. Incorporate non-technical barriers and social costs

Although previous modeling efforts have demonstrated that achieving the goals of SB 100 is technically feasible, many non-technical barriers impact energy and infrastructure development in California. These limiting factors reduce the land available for development. Defining and quantifying non-energy impacts, including health, air quality, water, climate resilience, cultural, and economic considerations, is essential. Incorporating these impacts

³ Breckel, A., Colvin, M., Herter, J., Cohen, A., & Souder, J. (2022). Growing the Grid: A Plan to Accelerate California's Clean Energy Transition. Clean Air Task Force and Environmental Defense Fund.

<https://www.catf.us/resource/growing-grid-plan-accelerate-californias-clean-energy-transition/>

⁴ Hill, L. Bruce, Rogers, Terra. (2022) Superhot Rock Energy: A Vision for Firm, Global Zero-Carbon Energy. Clean Air Task Force. <https://www.catf.us/resource/superhot-rock-energy-a-vision-for-firm-global-zero-carbon-energy/>

⁵ Long, Jane C.S., Ejeong Baik, Jesse D. Jenkins, Clea Kolster, Kiran Chawla, Arne Olson, Armond Cohen, Michael Colvin, Sally M. Benson, Robert B. Jackson, David G. Victor, and Steven P. Hamburg. "Clean Firm Power is the Key to California's Carbon-Free Energy Future." Issues in Science and Technology (March 24, 2021). <https://issues.org/california-decarbonizing-power-wind-solar-nuclear-gas/>



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into modeling and evaluation processes from the outset, rather than treating them as an afterthought, will lead to more comprehensive and informed decision-making and can reduce future potential conflicts at the project level.

SB 100 modeling should utilize pre-existing geospatially explicit datasets as inputs for those barriers with directly quantifiable and geographic data. One prime example is the Department of Conservation's Land Use Tool, which is still under development. It is distinct from but informed by RAND's SJV Clean Energy modeling efforts mentioned previously, demonstrating how state modeling efforts can incorporate local planning. This tool models future agricultural scenarios, taking into account various conservation priorities and energy-related considerations developed through RAND's modeling. Other readily available inputs related to conservation include the Department of Fish and Wildlife's Areas of Conservation, which has geospatially explicit data on areas of high biodiversity and habitat that will be critical refuges for species in the face of climate impacts.⁶ Information on parcel size suitability for projects like utility-scale solar could also be useful. Modeling land use impacts should also incorporate cultural resources, particularly areas of cultural significance to tribes.

Modeling inputs should, where possible, also include non-geospatial economic impacts, such as the potential workforce impacts and associated infrastructure and supply chain challenges of each modeled scenario. We recognize that many of these barriers, such as social opposition, are hard to quantify. Yet, accounting for social opposition, community interests, and competing land-use priorities such as conservation or alternative land-use developments is crucial for successful implementation. We encourage the CEC to incorporate qualitative assessments to further evaluate and screen modeling outputs when these assessments cannot be incorporated as inputs. Acknowledging and mitigating conflicts early in the planning process can enhance project viability, and incorporating qualitative assessments can result in a better vetted group of potential lands for development.

VI. Conclusion

CATF appreciates the CEC's commitment to its efforts to incorporate land use and non-energy impacts as part of future SB 100 inputs and assumptions. We thank you for your consideration

⁶ California Department of Fish and Wildlife. (2019). Areas of Conservation Emphasis. <https://wildlife.ca.gov/Data/Analysis/Ace#523731769-overview>

of these comments and look forward to future opportunities to participate in the SB 100 planning process.



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Sincerely,

A handwritten signature in black ink that reads 'Ashley Arax'.

Ashley Arax, Senior California Policy Manager
Clean Air Task Force