

DOCKETED	
Docket Number:	23-SB-100
Project Title:	SB 100 Joint Agency Report
TN #:	253127
Document Title:	The Nature Conservancy (TNC) of California Comments - TNC Comments on SB 100 Analytical Framework Workshop
Description:	N/A
Filer:	System
Organization:	The Nature Conservancy (TNC) of California
Submitter Role:	Public
Submission Date:	11/14/2023 6:34:37 PM
Docketed Date:	11/15/2023

*Comment Received From: The Nature Conservancy (TNC) of California
Submitted On: 11/14/2023
Docket Number: 23-SB-100*

TNC Comments on SB 100 Analytical Framework Workshop

Additional submitted attachment is included below.



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November 14, 2023

California Energy Commission
1516 9th Street
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RE: Comments on Senate Bill 100 Analytical Workshop (Docket 23-SB-100)

Submitted via electronic comment system

Dear Commissioners and Staff,

The Nature Conservancy (TNC) is a global, science-based organization working to protect biodiversity, improve climate outcomes for people and nature, and advance a clean energy future. TNC actively supports California's efforts to achieve 100% renewable and zero-carbon energy by 2045. Through work including [Power of Place West](#), TNC has demonstrated how decarbonization can be achieved in California and the West while preserving important species, habitat, and natural and working lands.

TNC appreciates the engaging start to the Senate Bill 100 process. We submit the following comments in response to the Analytical Framework Workshop for consideration by the Commissioners and Staff:

Capacity Expansion

With the move from RESOLVE to EPRI's REGEN model and the PLEXOS Long Term model for SB 100, TNC recommends that the CEC share information about any notable changes in the approaches or capabilities associated with the new models for use in SB 100. This information can guide stakeholder feedback on data that should be incorporated post capacity expansion model. For example, when looking at the documentation for REGEN, it is not clear whether the model includes unique transmission zones within California.¹ TNC also commends the upfront use of the CEC Land Use Screens in capacity expansion modeling as a critical input that provides sophisticated information about available land for energy use in California.

Modeling Non-Energy Benefits

TNC applauds the CEC's investment to consider non-energy benefits as part of this SB 100 cycle.² As the CEC has recognized, non-energy benefits "represent the array of

¹ "Existing renewable capacity is also represented by a single block per technology per region, with blocks representing onshore wind, utility PV, rooftop PV, concentrated solar, hydro, geothermal, and biomass." From https://us-regen-docs.epri.com/v2020/2-electric/3-architecture.html#_2-3-1-existing-fleet

² "Each SB100 pathway will be evaluated to explore multiple factors including reliability, affordability, non-energy benefits, social costs, and land use. The pathway analysis will highlight tradeoffs, commonalities, and other factors." [Senate Bill 350 Advisory Group Meeting Presentation: Presentation](#) Item 5 by CEC Staff.

diverse impacts of energy programs and projects beyond the generation, conservation, and transportation of energy" and include important benefits such as "land use, public health and air quality, water supply and quality, economics, and resilience."³ In response to the question of: **"What additional social costs, metrics, or preferred approaches should inform the scoping of the NEB analysis beyond the broad categories listed above?"** TNC offers the following recommendation:

- Avoided transmission costs to ratepayers is a social benefit that should be considered in this step and potentially in other pathway analysis steps. As the cost of infrastructure to transport and deliver renewable energy can exceed the cost of generation, transmission costs should be central to the modeling approach.

TNC also looks forward to the results of the NEB analysis for which the CEC recently issued a Notice of Proposed Award, and recommends that the CEC share preliminary results as that information becomes available.

Modeling Land Use Impacts

TNC offers the following comment on modeling land use impacts in response to the CEC's questions: **"How might the CEC structure the land-use and environmental evaluation to be able to evaluate tradeoffs across multiple land-use objectives?"** and **"What land-use and environmental metrics could be reported for each pathway?"**

- TNC acknowledges the complexity of prioritizing among multiple land-use objectives, and recommends that pathways are evaluated based on degree of alignment with the CEC's Land Use Screens. Specifically, the pathway(s) that are most likely achievable with respect to the Land Use Screens should be favored.
- New resources, including GIS datasets, produced through initiatives such as 30x30 should be incorporated as they become available.
- The same metrics should be reported for each pathway to ensure each pathway can be fully evaluated for land use and environmental impacts.
- Land use and environmental metrics could include the following: total area impacted by new generation and transmission infrastructure (acres), total area sensitive habitat, total area of each land use type (forest, wetland, agricultural land, areas of low, medium and high existing development intensity per the National Land Cover Dataset).

Modeling DERs

TNC commends the CEC for taking on a bigger commitment to considering DERs as part of California's energy future. TNC's work at the intersection of land use and energy planning informs our understanding of the important role of and challenges associated

³ CEC 2022 IEPR Update: A-9.

with utility-scale energy resources. While utility-scale resources are critical to achieving decarbonization, they cannot be the only solution that we collectively bet on. *Power of Place West* identifies the need for more than 150 GW of distributed energy resources (DER) West-wide by 2050. The amount of DERs identified as needed in planning cycles continues to increase with advances in energy modeling. Energy models are powerful tools that consider a significant range of factors to estimate future energy needs; however, modeling to-date has not been able to fully account for important benefits of DERs, such as preserving California's unique biodiversity and habitat, realizing transmission cost savings, providing flexibility for responding to extreme weather events, minimizing fire risk, and avoiding difficult-to-quantify costs associated with transmission interconnection time, permitting challenges, and social and environmental conflicts.

For all of those reasons, TNC shares the following DER-related recommendations:

- In general, minimize as many altered variables among pathways as possible. Currently several variables are modified in the DER Focus pathway, which renders comparison across pathways less reliable.
- Consider including the Climate Resilience Land Use scenario in creation and evaluation of the other pathways, beyond the DER pathway.
- Further, increase DER deployment in all pathways. DER continues to pace ahead planning, so there are few reasons to expect that we should not maximize DERs. This is also important to avoid encouraging an over-build of utility-scale resources.
- Account for externalities of utility-scale resources listed above (biodiversity loss, transmission cost, less flexible/resilient) in order to accurately capture the total resource cost/benefit equation for DERs.
- Include and account for increased technology innovations such as increases in long-duration storage in all scenarios to fully take advantage of available and expected technology.
- Identify an approach to include FTM distributed resources. Without that information, our understanding of the optimal level of utility-scale resources will be distorted.

Modeling Transmission

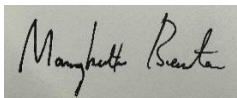
The Department of Energy's (DOE) new [National Transmission Needs](#) study highlights the unique confluence of factors that California faces that will shape energy affordability and reliability over the coming years. California's clean energy transformation, driven by high renewable energy and transportation electrification targets, evolving regional demand, and increasingly extreme weather events must all be accommodated by the future power grid.

The DOE study highlights several factors that will be active forces on the energy system, including the need for load curtailment during extreme weather events, wildfires, and earthquakes. This suggests that the most transmission-heavy pathways could be more challenging to achieve or manage. TNC strongly recommends that the CEC consider the scale of new transmission needed for each pathway as an evaluation criteria, in addition to considering avoided transmission as part of non-energy benefits. Any pathway that is especially transmission heavy poses risk beyond direct electricity costs. For example, an expected increase in power safety shutoffs means that a transmission-heavy pathway is less resilient in providing energy to Californians, including those in remote rural areas with well water that runs on electricity.

While SB 100 focuses largely on the energy resources themselves, the precision of the underlying transmission assumptions will be critical to guiding information, planning, and decision-making on in-state and out-of-state resources. TNC applauds the coordination among California's energy agencies represented in the [Memorandum of Understanding](#), and recommends that future workshops address how other State transmission research, like the [CAISO Transmission Capability White Paper](#), will be incorporated into SB 100. Additionally, TNC recommends that the CEC confirm downscaled alignment with the [CPUC IRP Modeling Assumptions](#) for the Transmission Planning Process, as any long-term solar and wind portfolios that contradict each other would be counterproductive.

TNC congratulates the Commissioners and Staff on a positive and robust start to SB 100 planning, and looks forward to being an active participant in the SB 100 process.

Best regards,

A rectangular box containing a handwritten signature in black ink that reads "Marybeth Benton".

Marybeth Benton
Energy Director
The Nature Conservancy