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The Nature Conservancy Introduction and Slide Deck for June 27 Workshop

Additional submitted attachment is included below.



June 23, 2022

California Energy Commission

Docket #: 17-MISC-01

Project Title: California Offshore Renewable Energy

Subject: Comments on June 27, 2022 Workshop on Offshore Wind (OSW) AB525 Strategic Planning Process

Dear Commissioner Vaccaro and Chair Hochschild,

The Nature Conservancy (TNC) is a science-based organization working throughout the world and in California to achieve better climate outcomes, support thriving economies, advance a clean energy future, protect communities against climate impacts, and advance the conservation of critical lands, waters, and biodiversity. TNC actively supports California's efforts through SB100 to achieve 100% renewable and zero-carbon energy by 2045 and views offshore wind as an important resource to achieve this goal. TNC engages in planning efforts to support the clean energy build-out California must undertake to meet this goal through identification of least conflict and high energy potential areas and appreciates the opportunity to participate in the California Energy Commission's (CEC) upcoming workshop on Monday, June 27th.

As part of our ongoing support for achieving California's decarbonization goals without sacrificing important species and habitats, TNC is publishing a forthcoming report along with research partners Evolved Energy Research, Montara Mountain Energy, and JAS Energies, demonstrating least conflict locations for clean energy in California and throughout the eleven states representing the western interconnect. This forthcoming publication takes a west-wide perspective on optimal resource mixes needed to collectively achieve economy-wide net zero by 2050. We believe this type of modeling represents a realistic picture of our clean energy future and offers efficiency and myriad benefits that an integrated market represents.

Our forthcoming report is an expansion on TNC's peer-reviewed modeling completed in 2019, the [Power of Place California study](#), which includes spatial and techno-economic analysis to inform estimates of the expected need for various clean energy sources and development to meet SB100 goal taking advantage of both in state and out of state resources. This forthcoming report includes considerations of the following "factors of particular importance" noted by the CEC beginning on page 26 of the CEC's [Draft Commission Report: Offshore Wind Energy Development off the California Coast Maximum Feasible Capacity and Megawatt Planning Goals for 2030 and 2045](#): The need for reliable renewable energy that accommodates California's shifting peak load; the generation profile of offshore wind off the California

coast; and potential impacts on coastal resources, fisheries, and national defense, and strategies for addressing those potential impacts.

We look forward to participation in the workshop on Monday, June 27th. Please see the included slides for for the workshop.

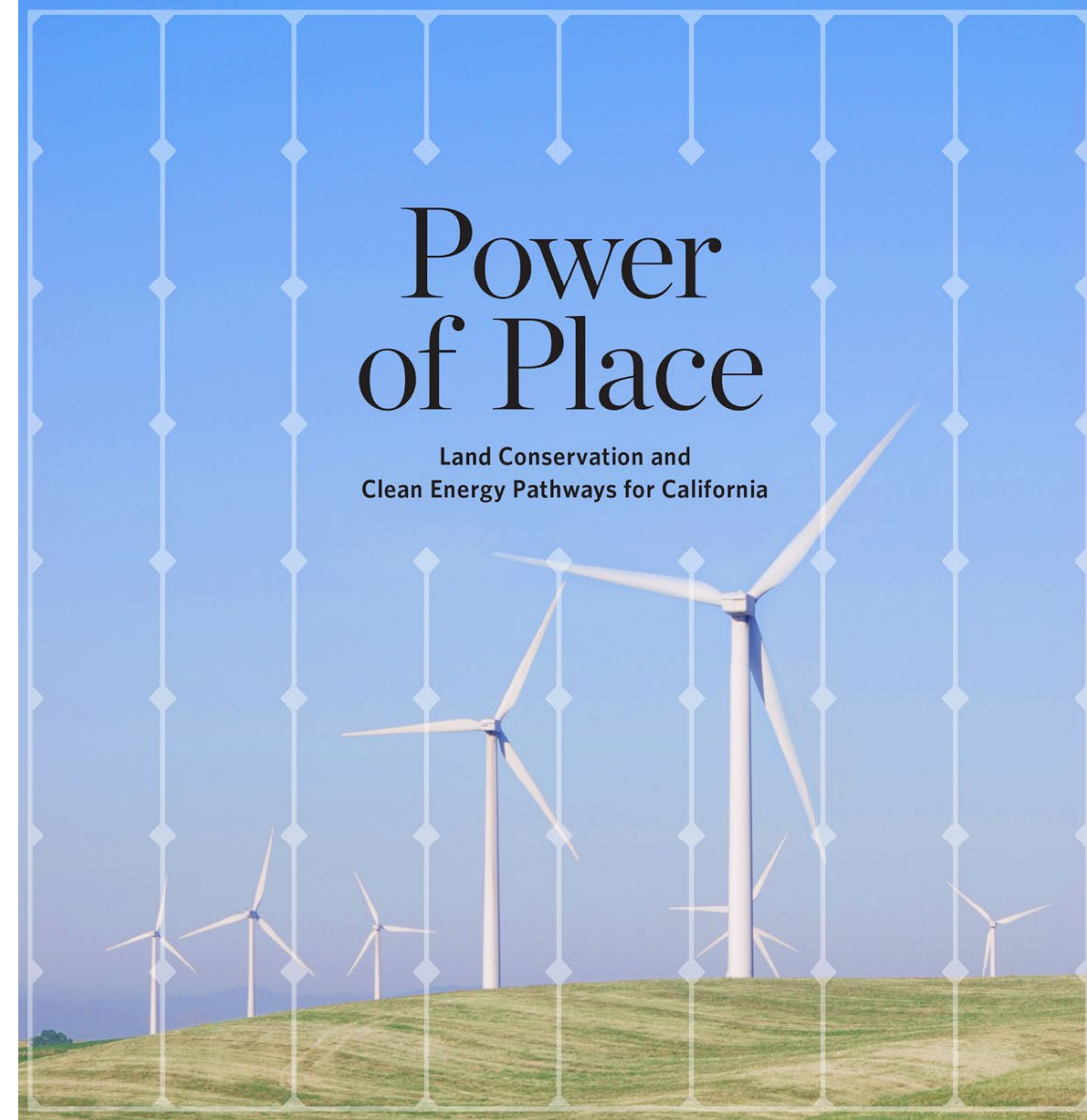
Thank you for your consideration.

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Power of Place – California (2019)

- Inform the implementation of California’s clean energy goals under SB100
 - CA developing detailed planning framework for technologies, infrastructure, land use, and policy roadmaps
- The findings highlight the scale of infrastructure that may be required to power the electric sector with renewable resources and electrify transportation and buildings
- The findings also highlighted the need to include:
 - Emerging technologies
 - Western economywide net-zero policy implications



Power of Place West Study

To achieve western state's climate commitments, TNC and research partners, including Evolved Energy Research, Montara Mountain Energy, and JAS Energies developed detailed technology, infrastructure, and land use pathways for achieving climate and energy goals across the Western States

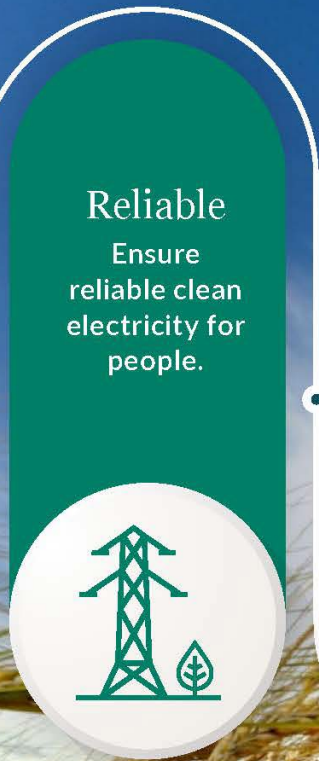
Power of Place

The following principles should guide energy planning and policy to achieve better outcomes for climate, conservation, and communities.



Better for Nature

Advance energy siting policies and solutions that limit negative impacts to natural and working lands.



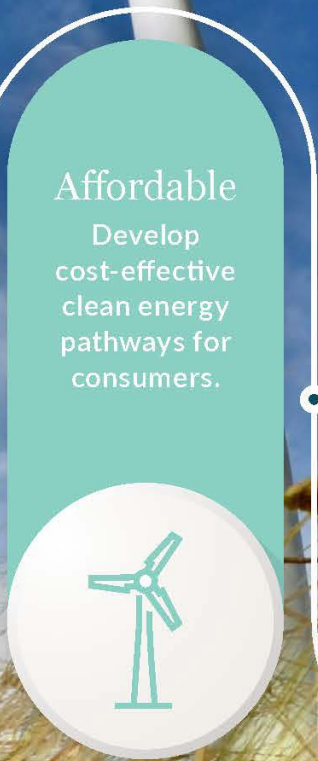
Reliable

Ensure reliable clean electricity for people.



Resiliency

Plan for an energy system that can withstand the impacts of climate change by minimizing vulnerability to wildfires, flooding, and drought.



Affordable

Develop cost-effective clean energy pathways for consumers.



Equitable

Ensure front line communities have a lead role in our clean energy future as beneficiaries and decision-makers.



Clean

Accelerate clean energy deployment to reduce emissions and pollution.

Power of Place West Study Questions

1. What are the land-use implications from pursuing an economy-wide, net-zero emissions target in all eleven Western States?
2. In a net-zero transition, what are the costs and benefits from increasing land-use protections in the Western States?
3. How sensitive are #1 & #2 to alternate decarbonization pathways?
Examples for today:
 - High-electrification
 - 100% Renewable

Two Primary Scenarios

Economy-wide High Electrification

- Assumes we accelerate electrification of most transportation, buildings, and some industrial activities by 2050.
- Assumes we use low and no carbon fuels for some remaining hard to decarbonize activities; biomass, gas with carbon capture and direct air capture are in use in 2050.
- Some existing nuclear remains.

Economy-wide Renewable Only

- Assumes we accelerate electrification of transportation and buildings and all industrial activities by 2050.
- Assumes renewables (hydro, geothermal, on & offshore wind, and solar) support all our energy needs in 2050.

Power of Place West Study Area

- Includes eleven western states comprising the western interconnect
- The western grid was modeled to optimize resource sharing



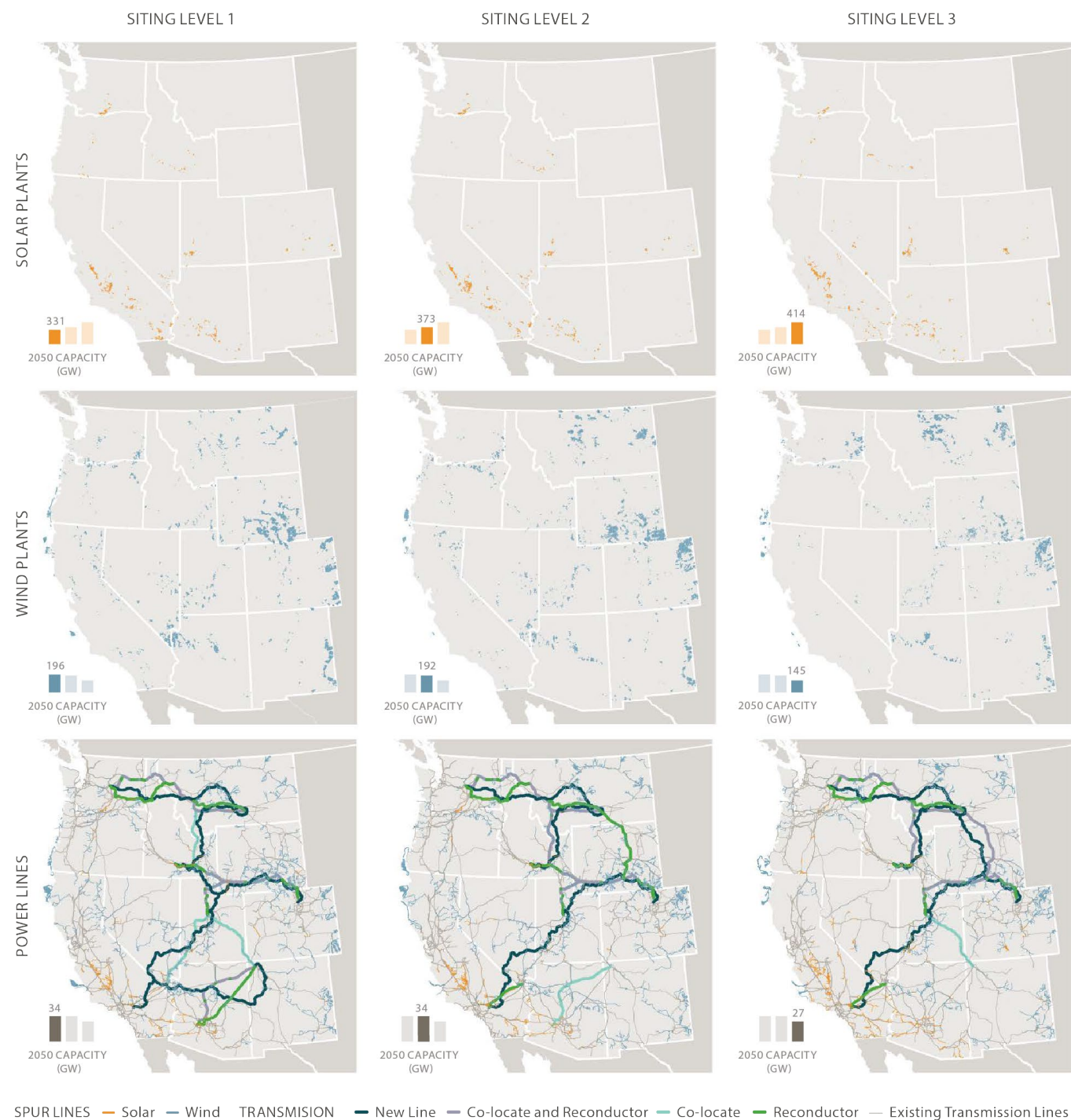
Mental Framework

“Scenarios are not supposed to be predictive. They are meant to be provocative, challenging planners’ assumptions, shaking up their mental models of how the world works, and giving them the cognitive flexibility to better sense, shape, and adapt to the emerging future.”

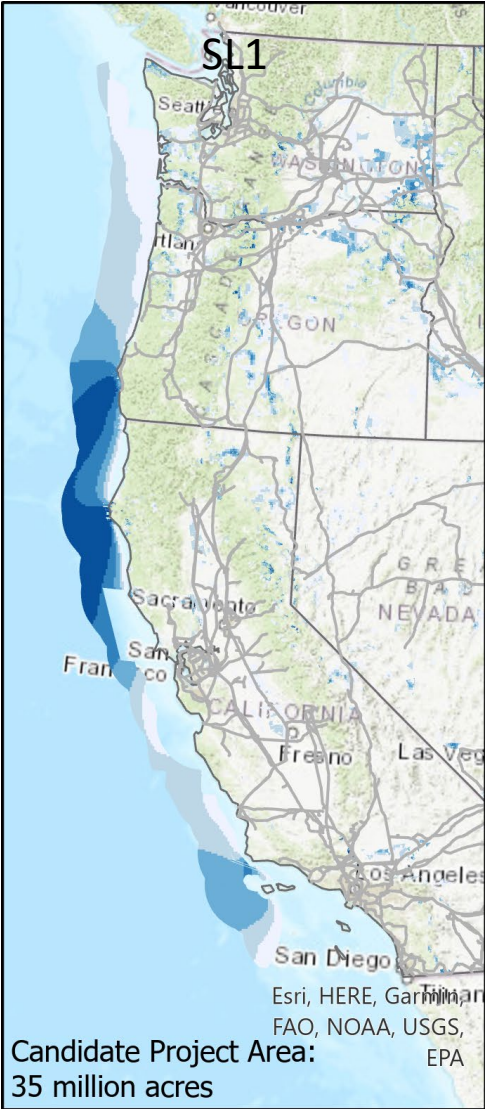
“A Better Crystal Ball: The Right Way to Think About the Future,” Scoblic & Tetlock (2020)

Drivers of offshore wind selection in the West

- Access and Construction Cost
- Transmission Cost
- Demand for Renewables



Off-Shore Wind Suitable Area: 14-35 million acres



Offshore Wind Capacity Factor

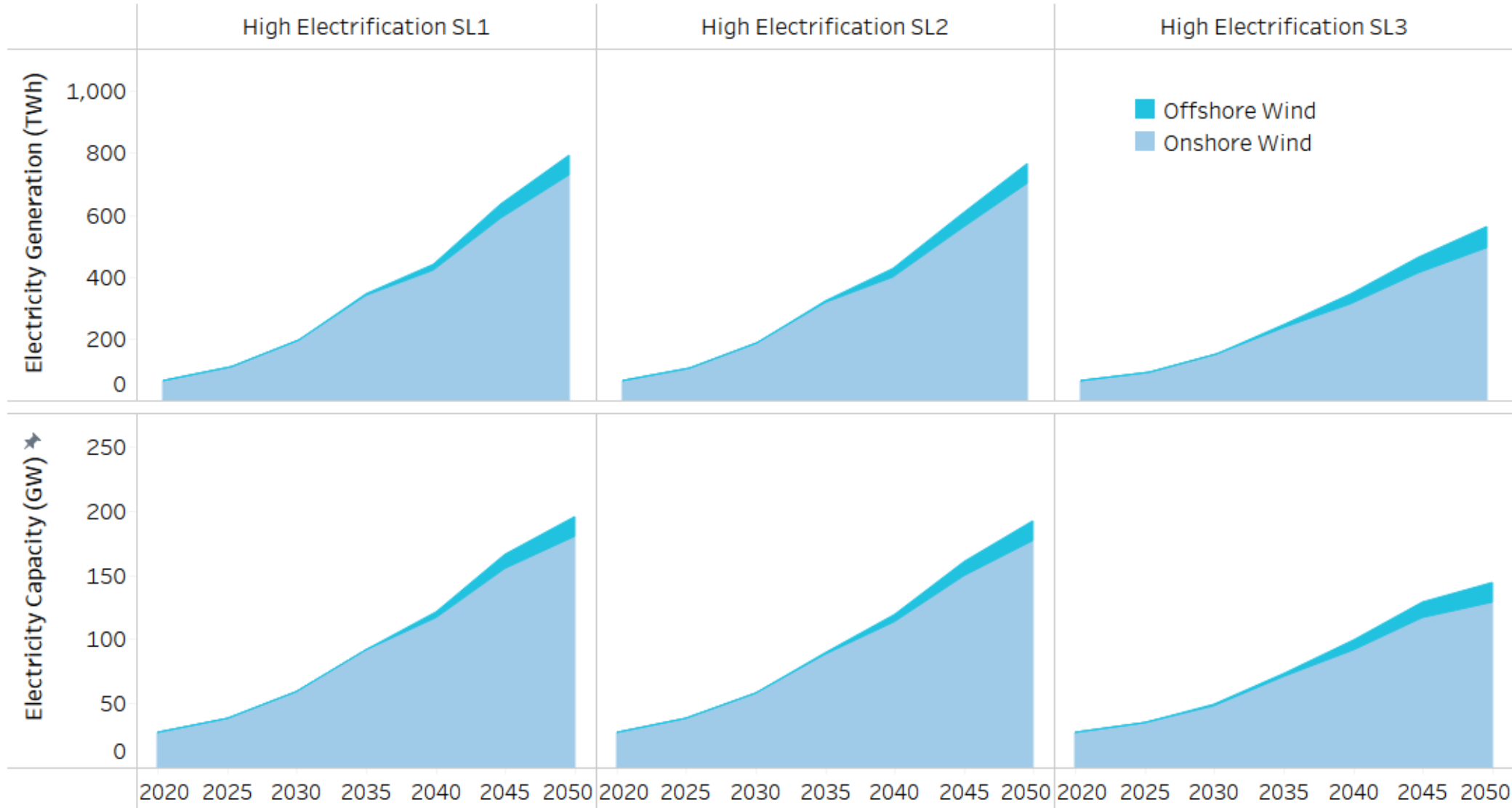
- $\leq 34\%$
- 34% - 37%
- 37% - 41%
- 41% - 45%
- 45% - 51%

BOEM Wind Planning Areas

Electric power transmission

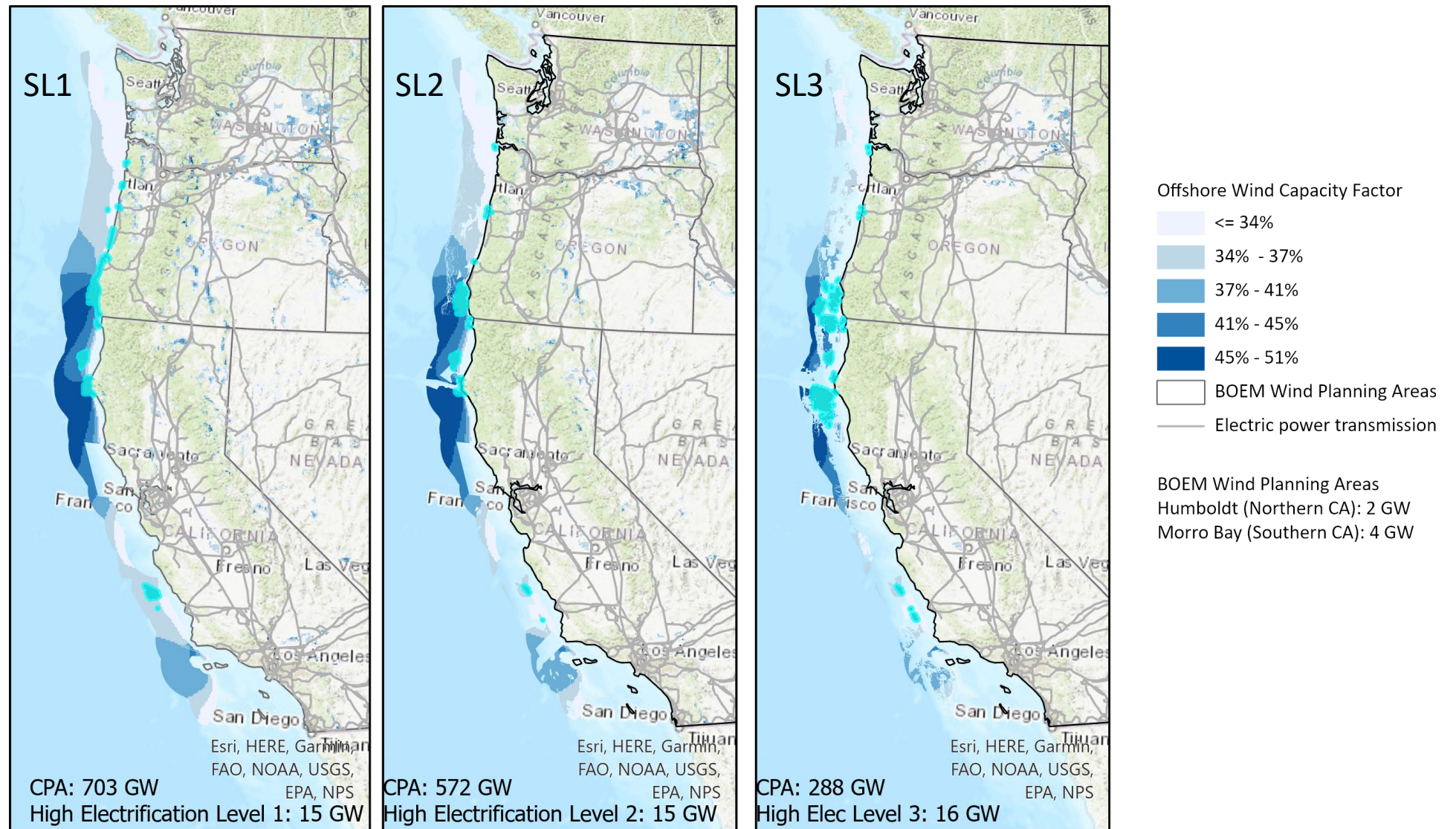
BOEM Wind Planning Areas
Humboldt (Northern CA): 2 GW
Morro Bay (Southern CA): 4 GW

High Electrification scenario, focus on wind development (150-200 GW)

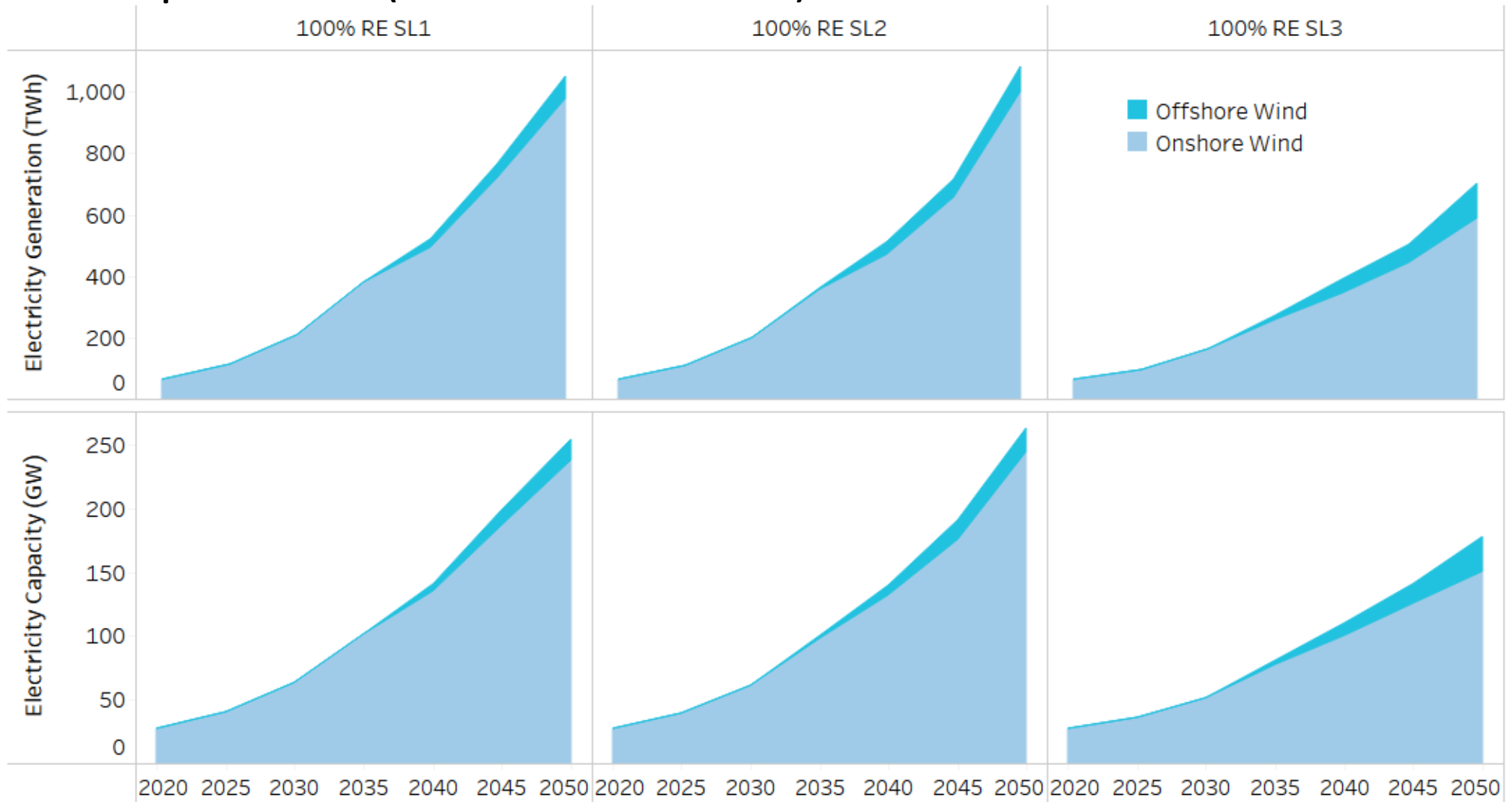


High Electrification scenario by 2050

The total demand for Offshore Wind is steady across all scenarios.

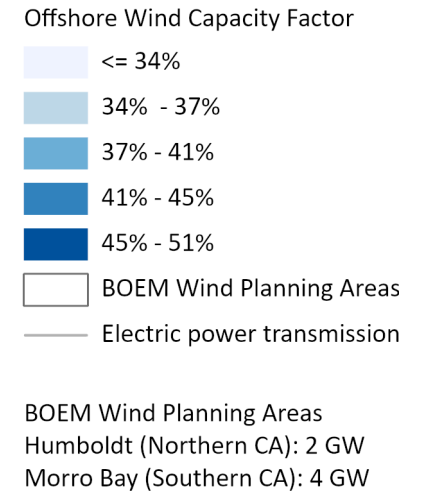
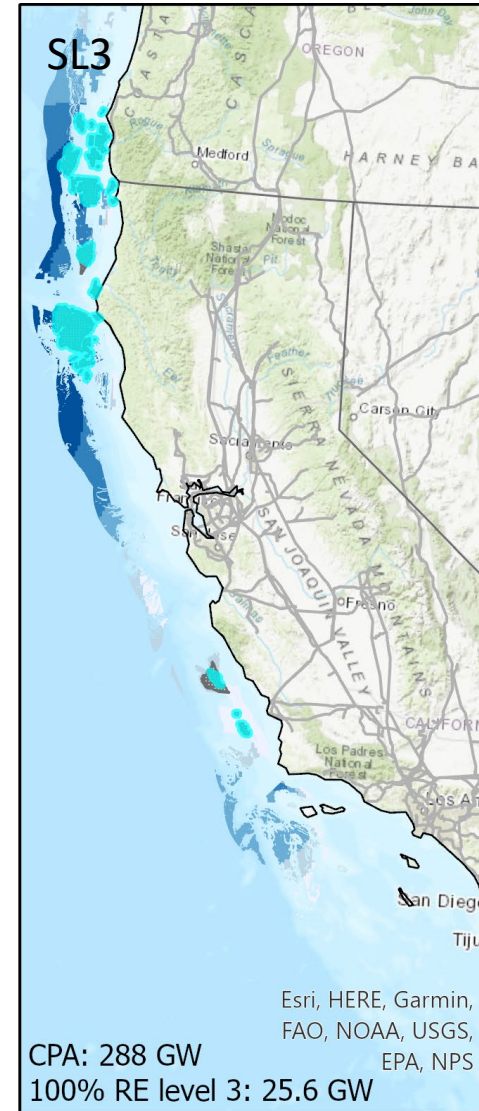
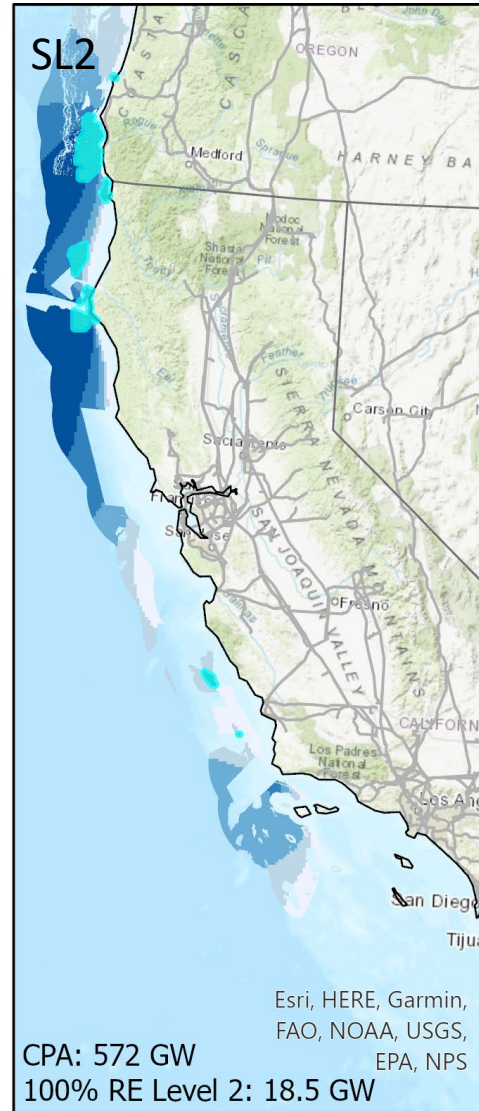
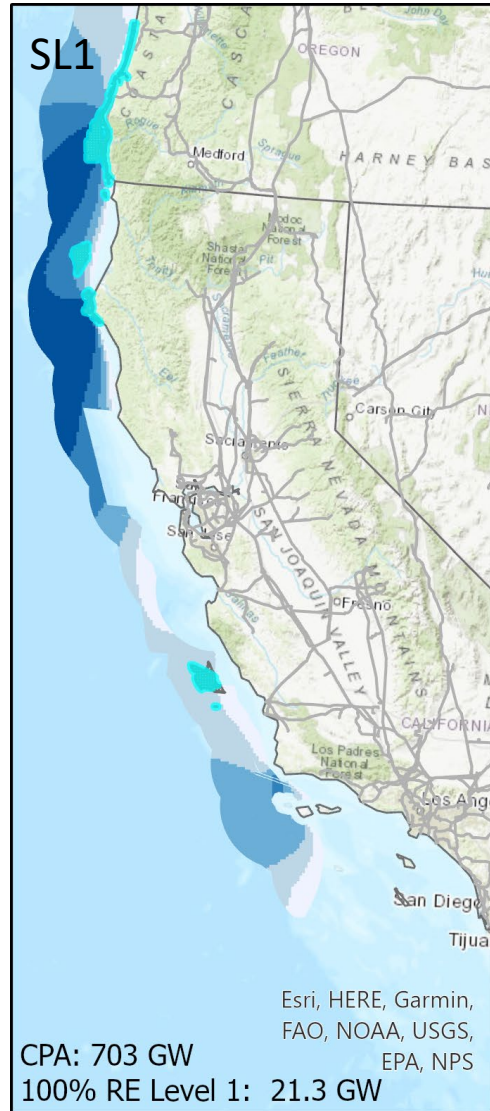


Renewables Only scenarios, focus on wind development (175-250 GW)



Up to 26 GW may be needed for the West Coast (out of 300-700 available)

For
**renewables
only**, the
2050 need
ranges from
21-26 GW



Offshore wind scenario West Coast vs CA

	2030 (GW)	2035 (GW)	2040 (GW)	2045 (GW)	2050 (GW)
High Electrification (West Coast)	0.1	2.2	7.3	12.6	16
High Electrification (California-only)	0.0	0.1	3.2	6.5	10
100 Renewable (West Coast)	0.1	3.0	10.0	15.8	26
100 Renewable (California-only)	0.0	0.1	4.4	8.7	20



Thank You!

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