



Offshore Wind Panel

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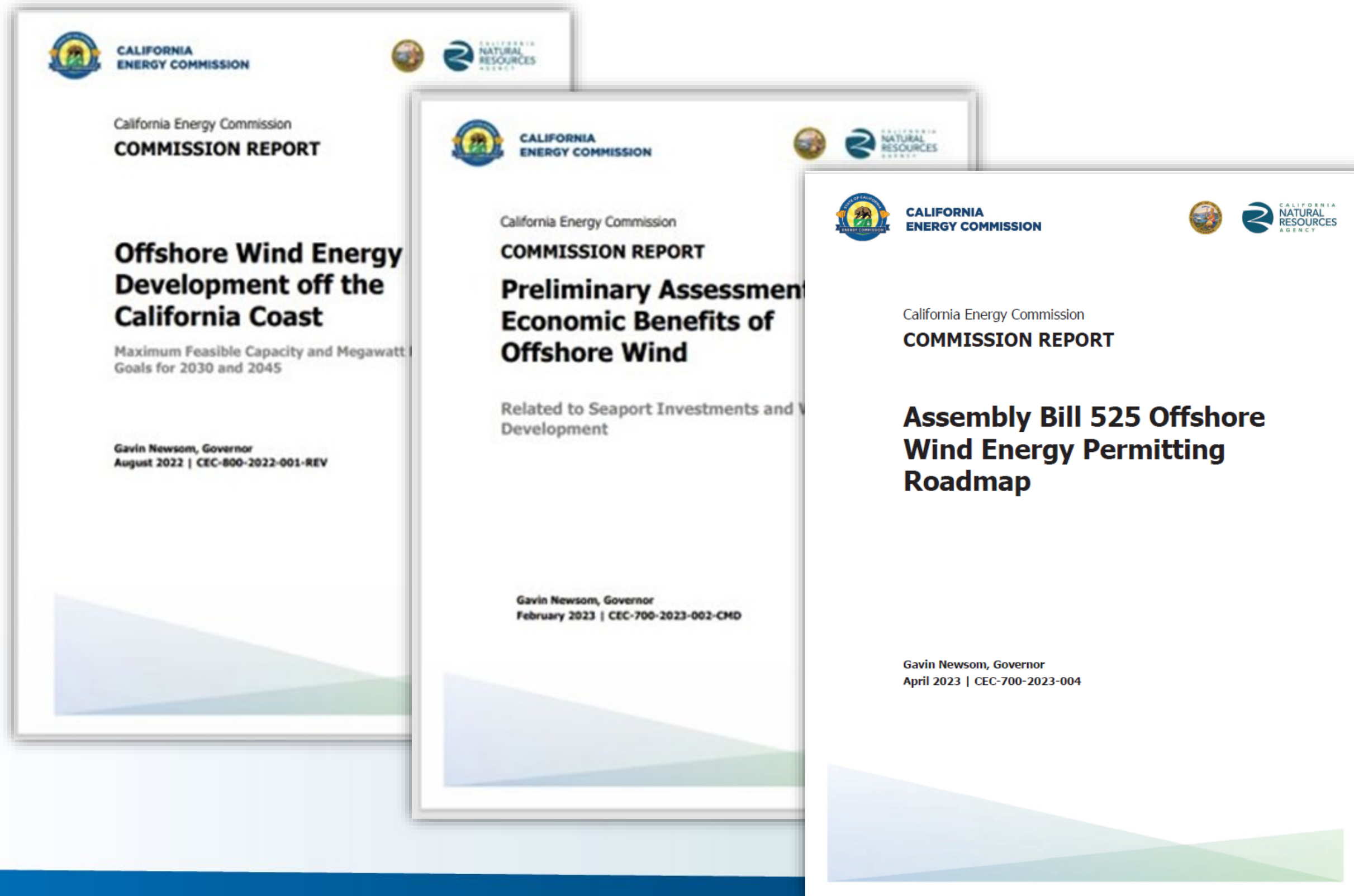


AB 525 Strategic Plan Overview: Offshore Wind in Federal Waters off the Coast of California

Rachel MacDonald, Siting, Transmission, and Environmental Protection Division
September 15, 2023



AB 525 Deliverables



STRATEGIC PLAN

The CEC to develop a five-part strategic plan including:

1. Suitable Sea Space
2. Workforce development and Ports Infrastructure
3. Transmission Assessment
4. Permitting Pathway
5. Identification of potential impacts and develop strategies to address those impacts



Strategic Plan Development

Developing a Strategic Plan:

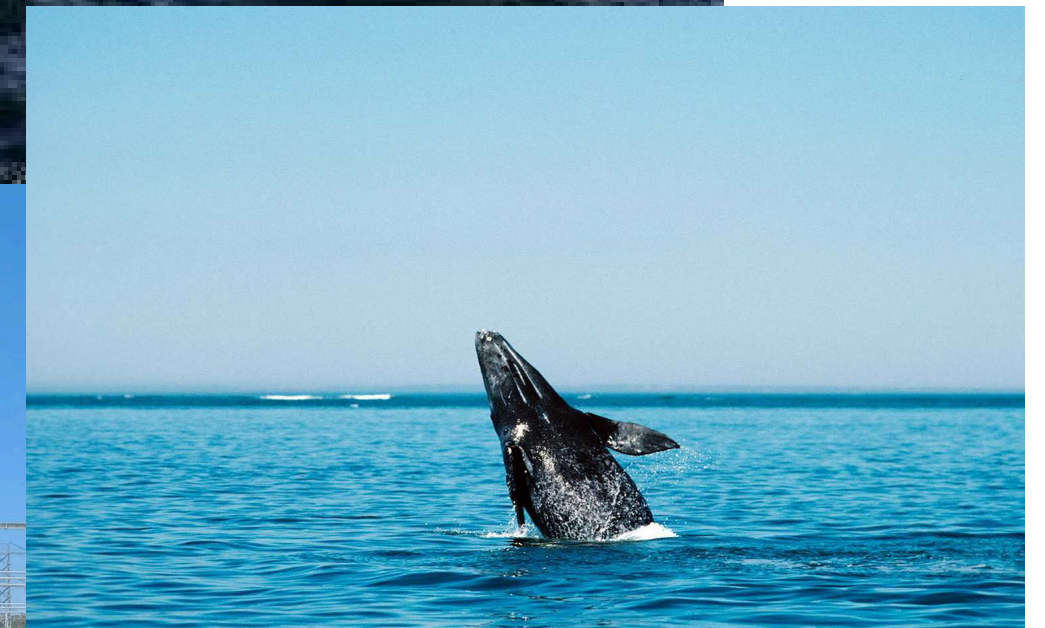
- Sets a Vision
- Establishes Goals
- Designs Action Plans
- Tracks Progress
- Adjusts to New Information and Changing Circumstances





AB 525 Outreach and Coordination

- California's Native Americans/Tribes
- Fisheries and related industry
- Environmental/eNGOs
- Ports and related industry
- Labor and unions
- Department of Defense
- Industry Stakeholders and public





AB 525 Coordinating Agencies



CALIFORNIA
NATURAL
RESOURCES
AGENCY



BOEM
Bureau of Ocean Energy
Management



CALIFORNIA
COASTAL
COMMISSION



**LABOR &
WORKFORCE**
DEVELOPMENT AGENCY



State Licensing Agencies



[California Coastal Commission \(CCC\)](#): implements the California Coastal Act and the Coastal Zone Management Act. The Coastal Zone Management Act provides for Commission review of federal activities or permits outside of the coastal zone, including [offshore wind](#) projects, that could influence California's coastal resources.



[Ocean Protection Council \(OPC\)](#): advises the governor and legislature on ocean and coastal issues and supports assessing the impacts of offshore wind to marine life, fisheries, tribal and cultural resources, and local economies. [OPC's Strategic Plan to Protect California's Coast and Ocean 2020-2025](#) includes a goal to support sustainable commercial offshore wind development.



[California State Lands Commission \(SLC\)](#): manages lands owned by the State, including navigable waterways and submerged lands up to three nautical miles offshore. CSLC considers applications for leases to use State lands, such as applications for [offshore wind development in state waters](#).



[California Department of Fish and Wildlife \(CDFW\)](#): has jurisdiction over conservation, protection and management of fish, wildlife, native plants, and habitats necessary for biologically sustainable populations of the species. CDFW is also responsible for marine biodiversity protection in California's coastal marine waters.



Report Timing

Target: Post Draft Report early Fall

Target: Public Workshop on Draft Report mid Fall

Target: Public Comment Period, continued outreach, and revisions

Target: Adoption of Final Strategic Plan by end of 2023



Thank You!

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Links to:

[AB 525 Report Webpage](#)

[Various Interim and Consultant Reports](#)

[OSW Transmission Technology Assessment Report](#)

A photograph of an offshore wind farm in the ocean. The sky is blue with scattered white clouds. Several white wind turbines with yellow bases are visible, extending into the distance. The water is a deep blue. The image is framed by a blue border.

The goals and obstacles for implementation of offshore wind projects in CA

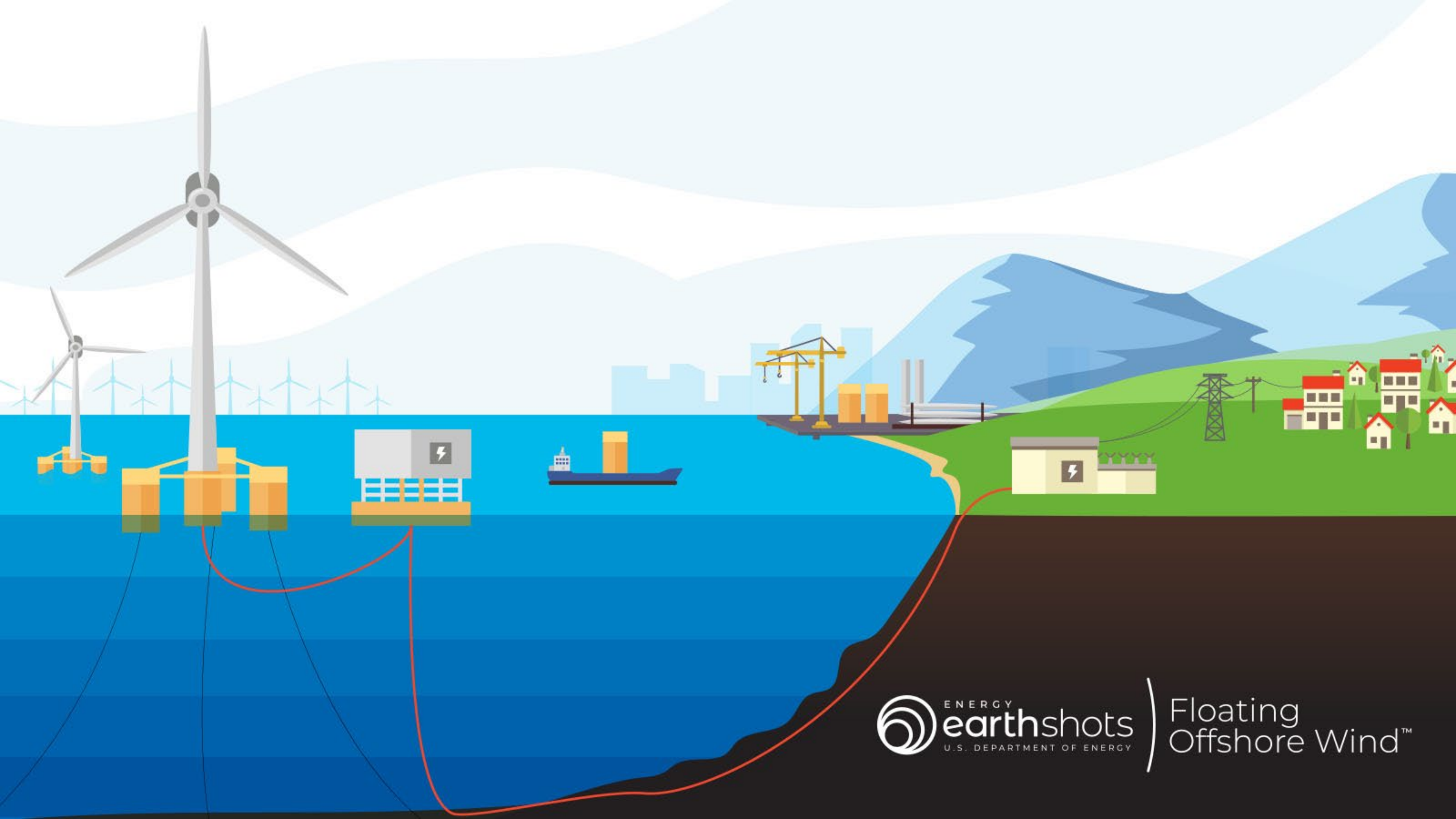
September 15, 2023

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AMERICAN
CLEAN
POWER



APPROXIMATE DIMENSIONS

20-25 MW FLOATING OFFSHORE WIND TURBINE SYSTEM DIMENSIONS

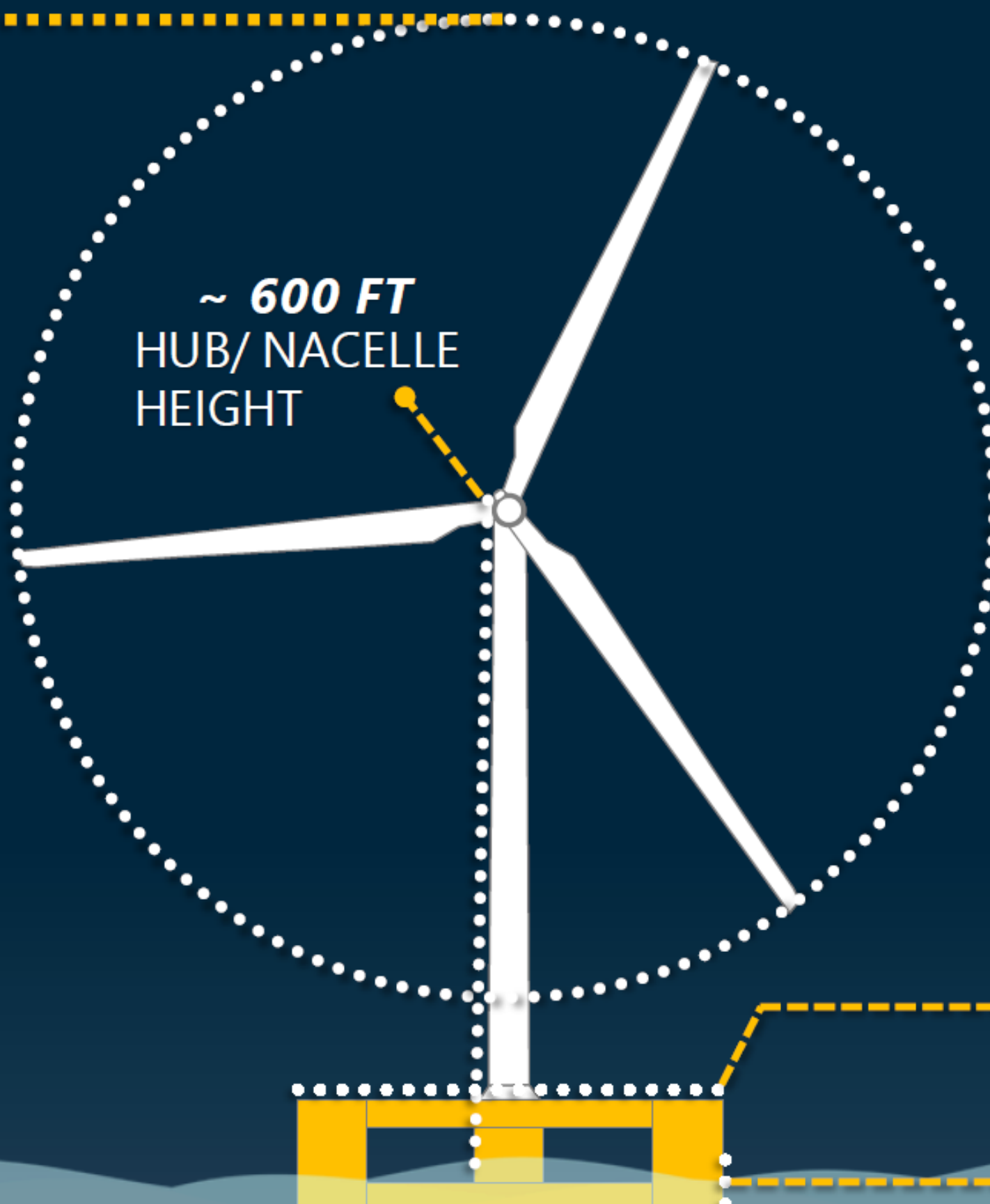
~ 1,100 FT

~ 600 FT
HUB/ NACELLE
HEIGHT

~ 1,000 FT
ROTOR DIAMETER

~ 425 FT x 425 FT
FOUNDATION BEAM / WIDTH

~ 20 - 50 FT
DRAFT



Floating Offshore Wind Globally

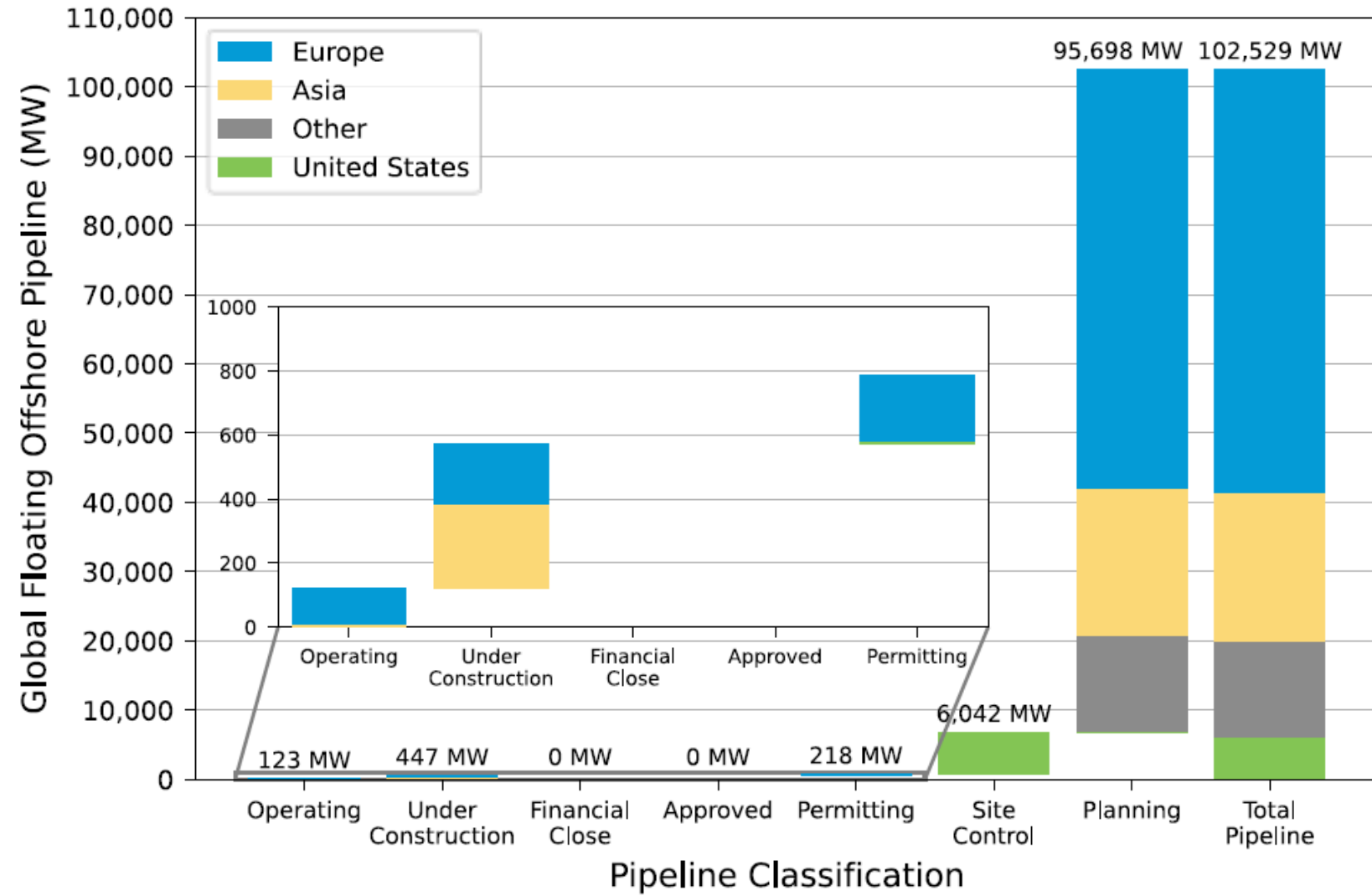


Figure 25. Total global floating offshore wind energy pipeline by regulatory status

- 123 MW operational
- 7,000- 10,000 MW in development
- 95,000 MW planned
- 300,000 MW Projected globally

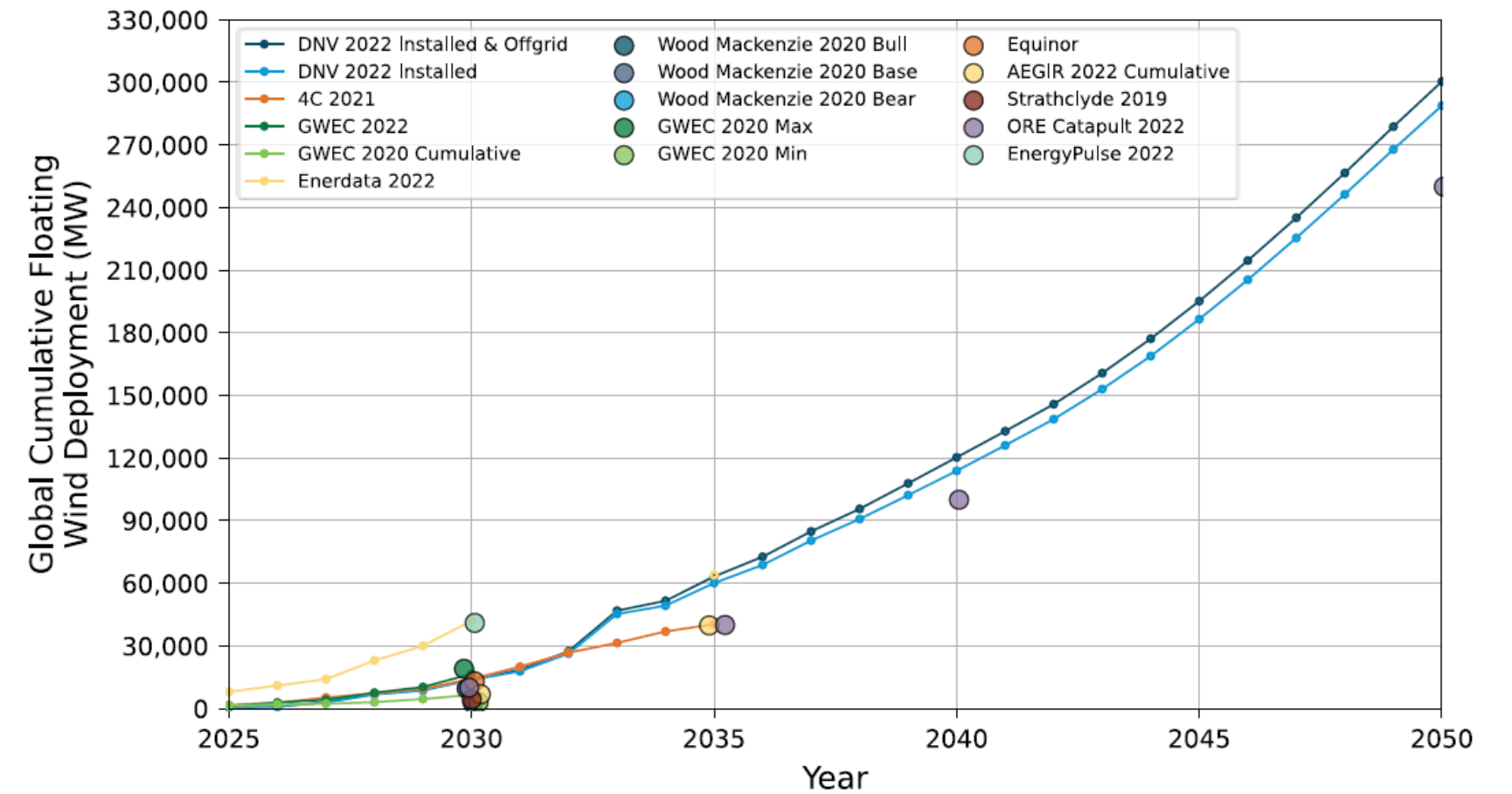


Figure 27. Long-term cumulative floating offshore wind energy deployment projections.



Diablo Canyon = 2,200 MW

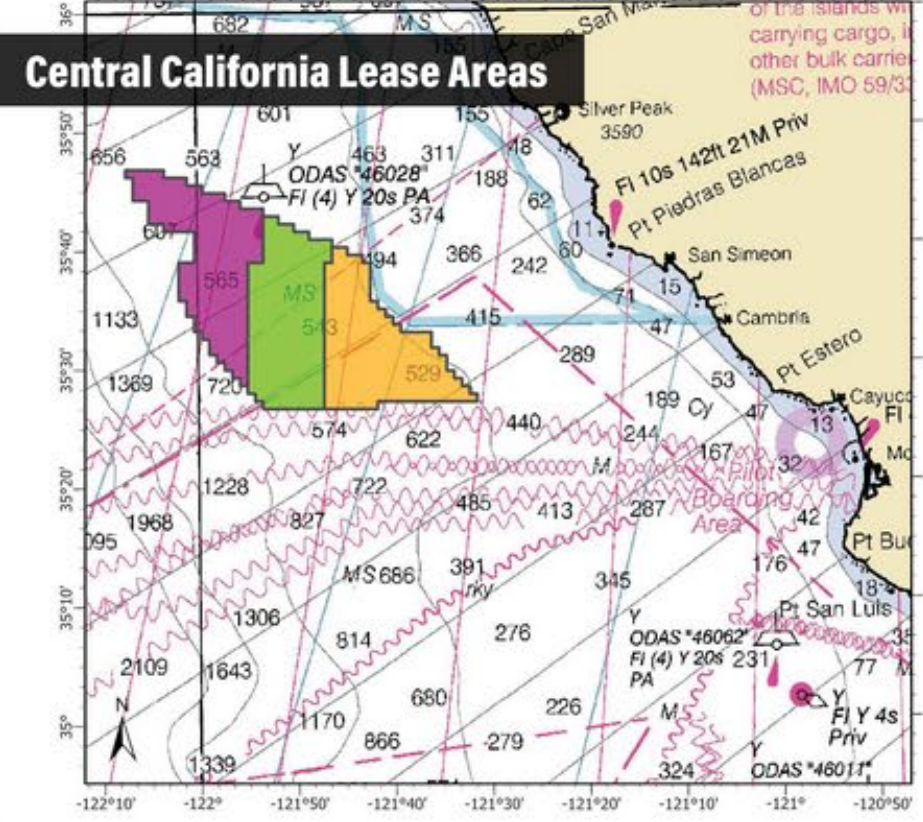
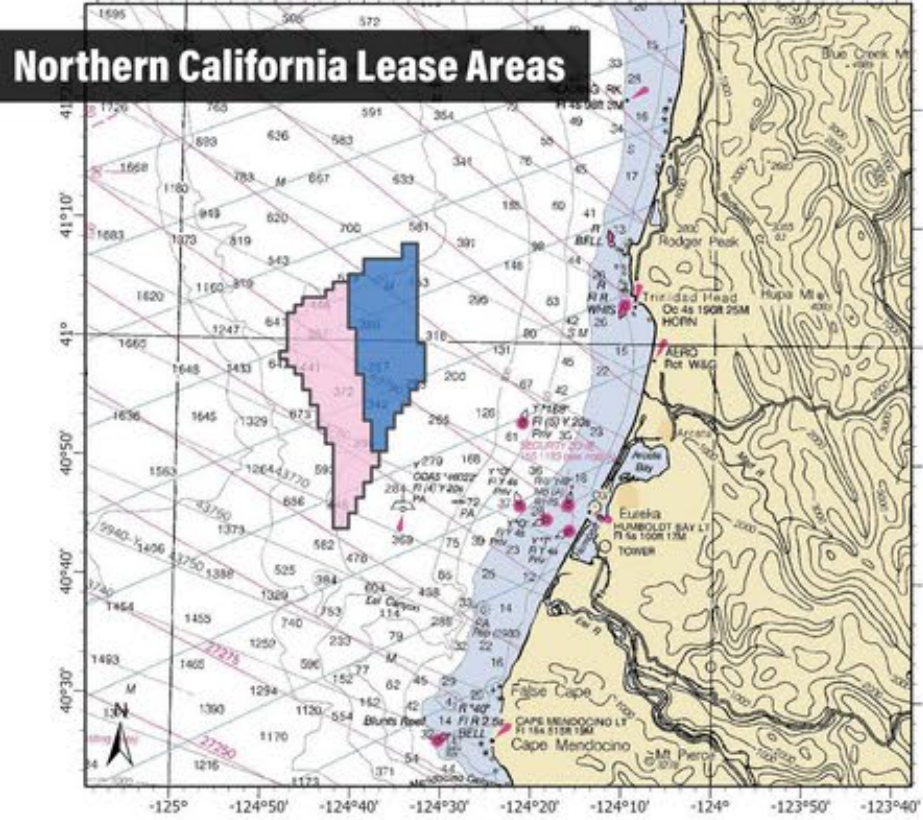
California Leases



LEASE AREA

Winners of the California Lease Areas, \$757,100,000 in High Bids

OCS-P0561	RWE Offshore Wind Holdings, LLC	\$157,700,000
OCS-P0562	California North Floating LLC	\$173,800,000
OCS-P0563	Equinor Wind US LLC	\$130,000,000
OCS-P0564	Golden State Wind, LLC	\$150,300,000
OCS-P0565	Invenergy California Offshore LLC	\$145,300,000



Floating OSW Wharf-side Assembly & Loadout

1) Fabrication



2) Loadout onto semi sub



3) Float off



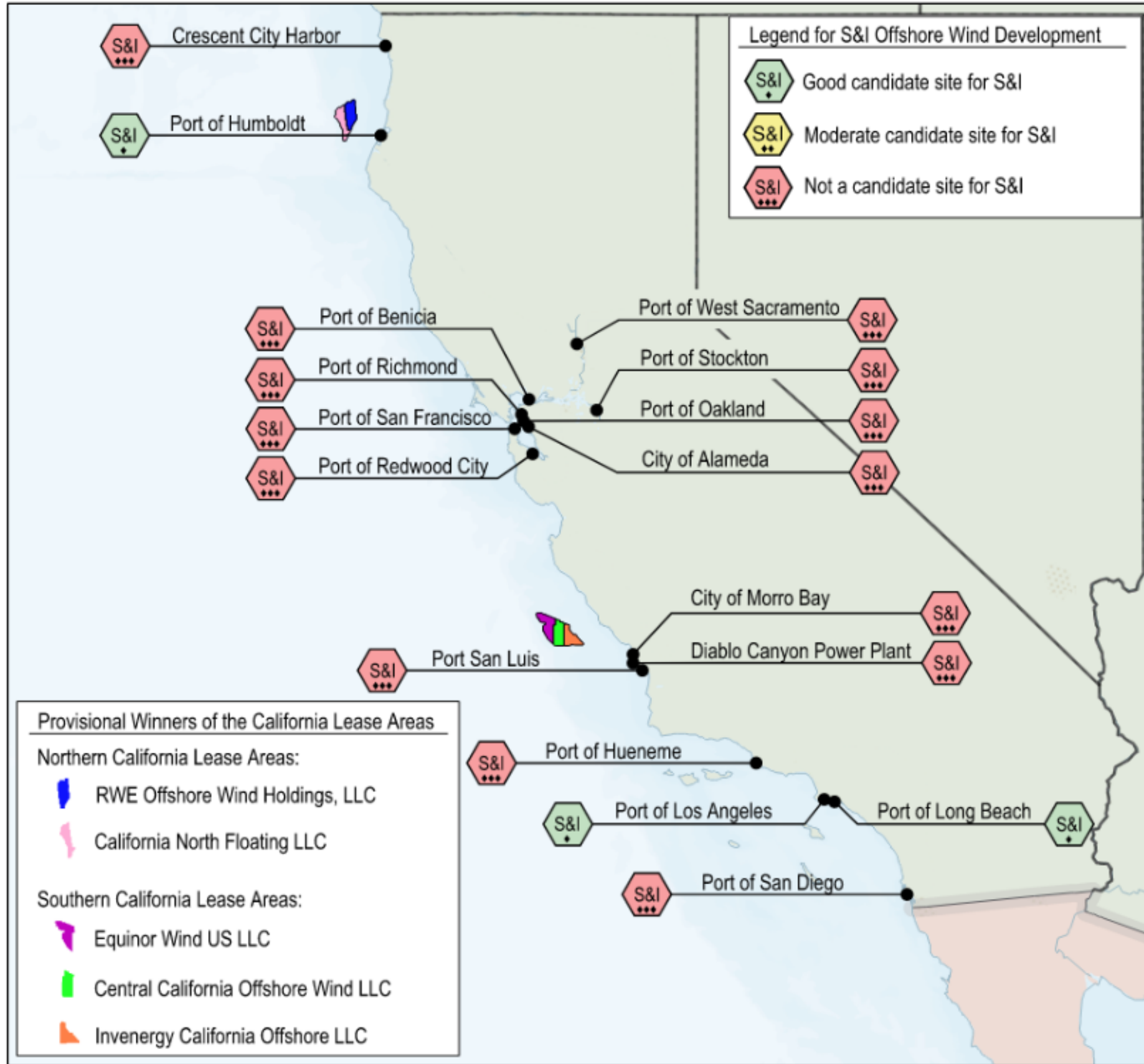
4) WTG Integration



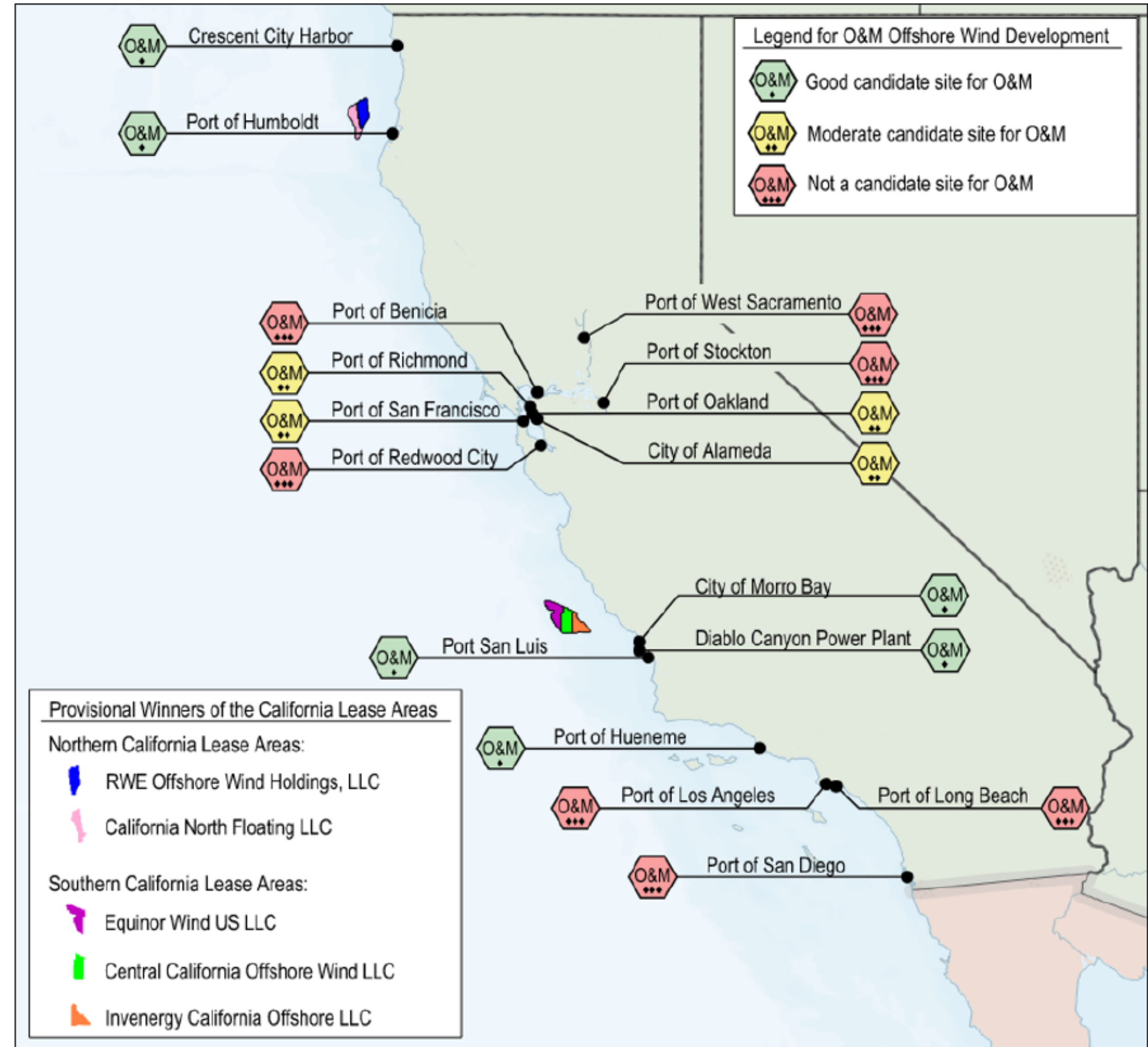
5) Tow to Installation Site



Ports

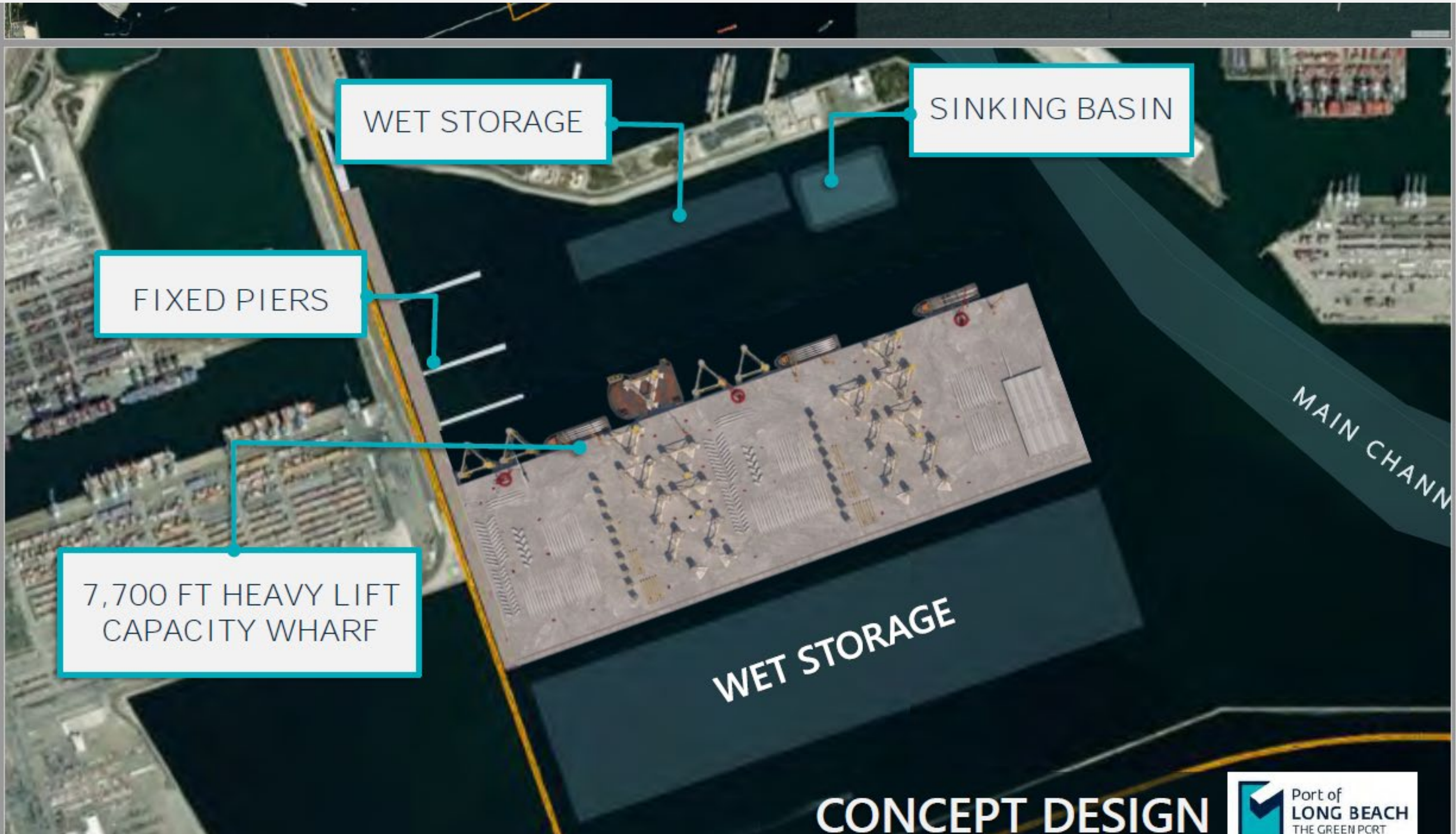


Staging & Integration



Operations & Maintenance

Ports



Permitting



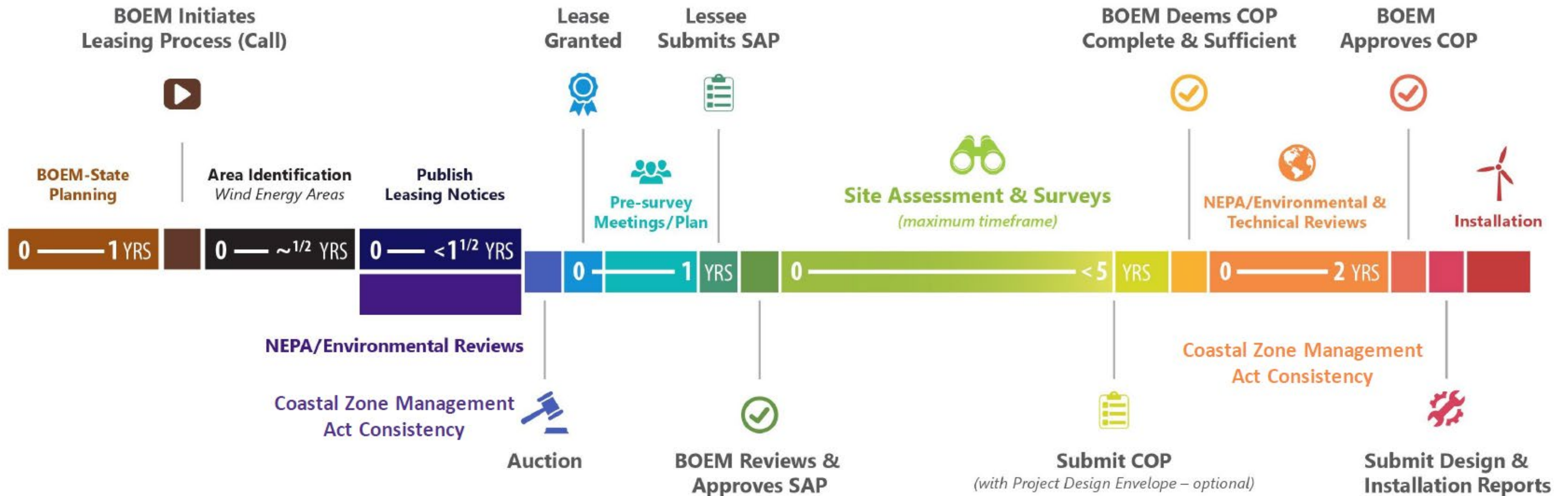
BOEM Offshore Wind Process Milestones

[Planning & Analysis]

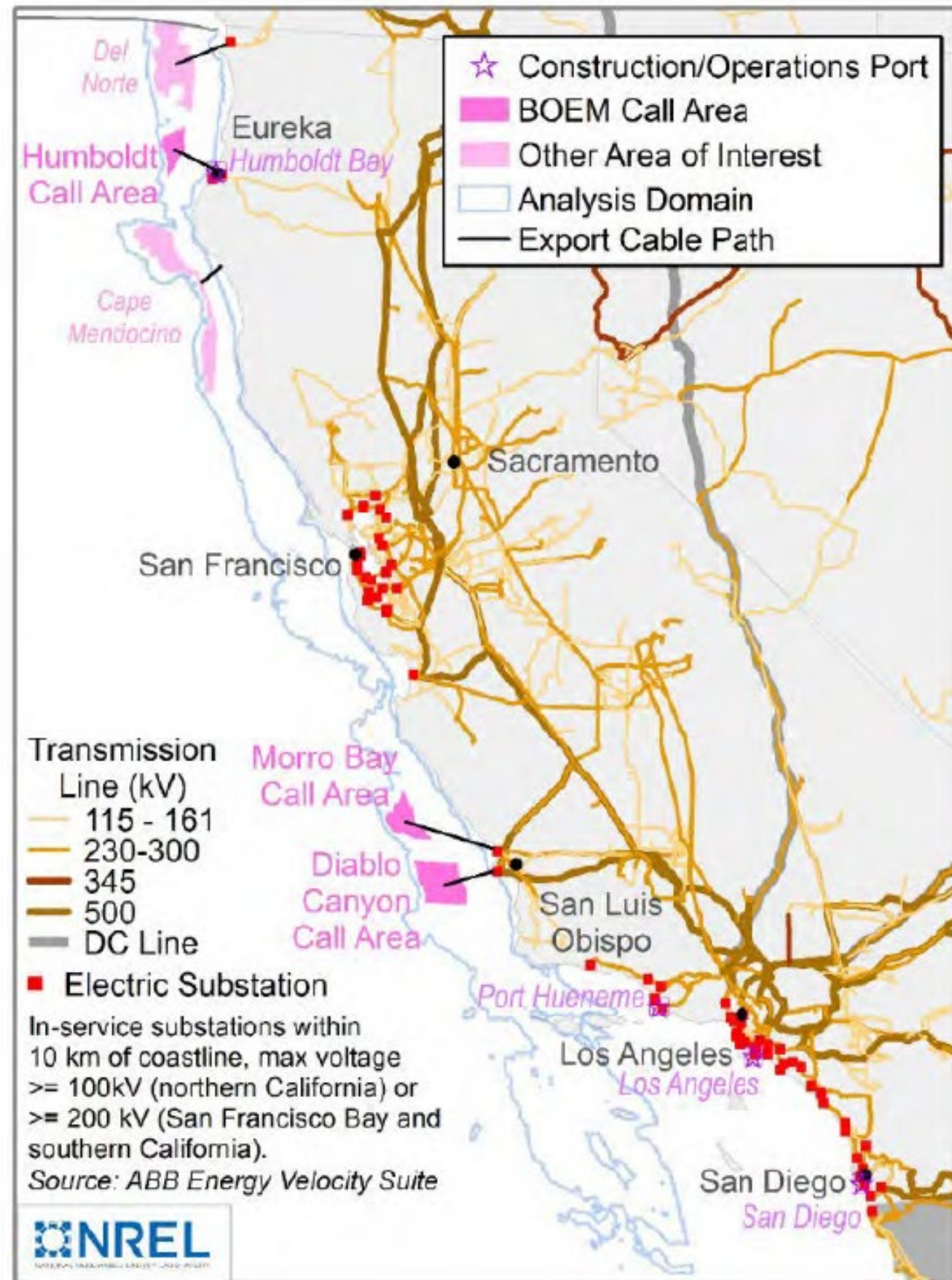
[Leasing]

[Site Assessment]

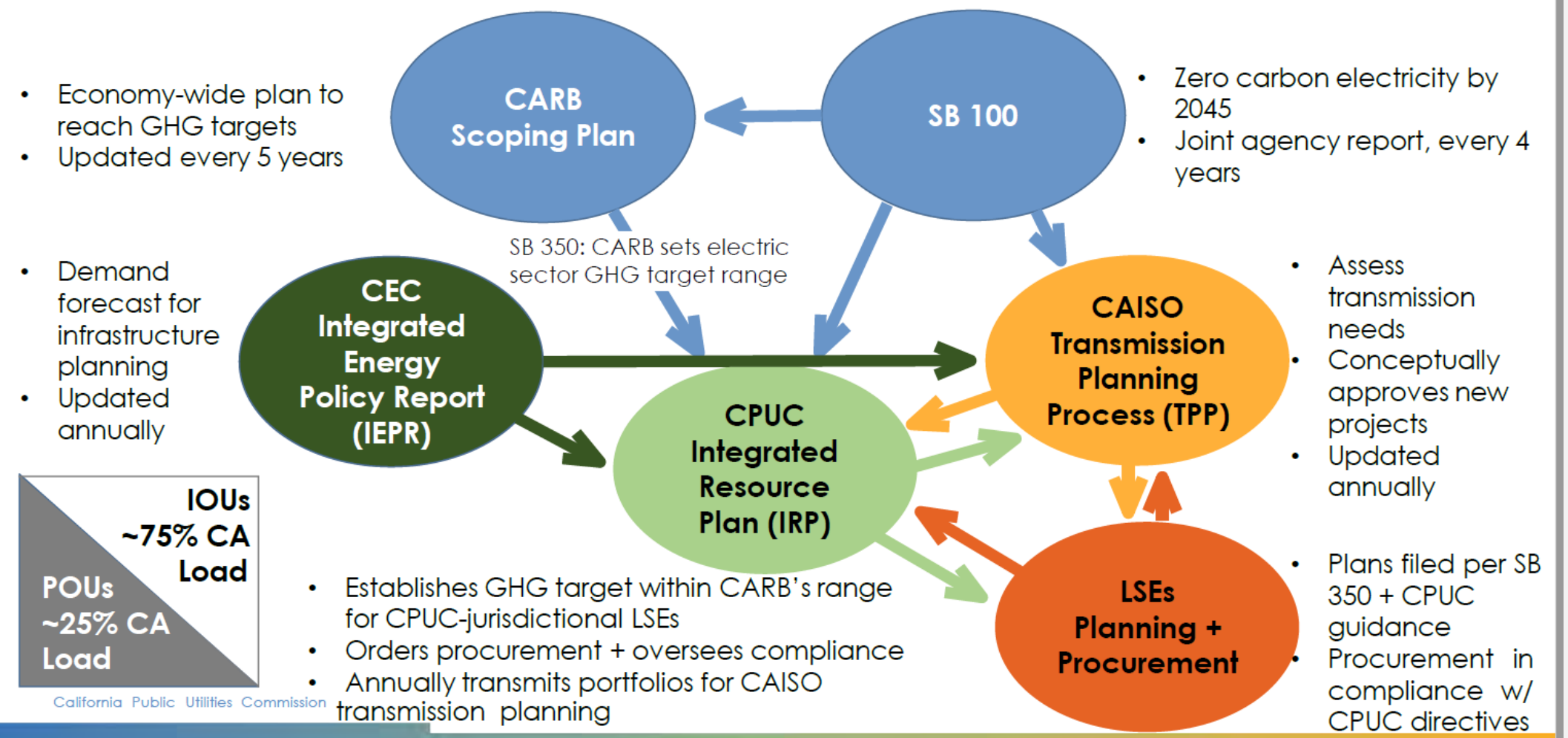
[Construction & Operations]



Transmission



California's Electricity Planning Ecosystem



- **Integrated Resource Planning (CPUC)**
- **Transmission Planning Process (CAISO)**
 - **Transmission environmental review (CPUC)**
 - **Construction (IOUs or competitive)**
- **Interconnection Process (CAISO)**
 - **Interconnection request & award of deliverability (Developer + CAISO)**

Procurement: Who buys the power?

- Very large-scale projects
- Long lead time
- Financial and development risk
- New technology, above-market costs
- Limited “pre-development” capabilities
- Procurement as the tip of the spear

Entity

Mechanism

Cost allocation

Bid review



East Coast Procurement Patterns

Year	MW Procurement			
	New York	New Jersey	Massachusetts	Maryland
2017			800	390
2018	1,700	1,100		
2019			800	
2020	2,400	2,600		
2021			1,600	1,655
2022	2,000+			
2023		1,200 - 4,000	3,600	
2024		1,200		
Selected project sizes for completed solicitations to date	816 - 1,260 MW	1,100 – 1,500	400 - 1,200	~800 MW
State Goal	9 GW by 2035	11 GW by 2040	5.6 GW by 2027	8.5 GW by 2031

AB 1373: CENTRAL PROCUREMENT OF DIVERSE NEW CLEAN ENERGY SOURCES

Lawmakers must act now or miss out on offshore wind



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AMENDED IN SENATE SEPTEMBER 07, 2023

AMENDED IN SENATE AUGUST 31, 2023

AMENDED IN ASSEMBLY MAY 22, 2023

AMENDED IN ASSEMBLY APRIL 13, 2023

CALIFORNIA LEGISLATURE— 2023–2024 REGULAR SESSION

ASSEMBLY BILL

NO. 1373

Introduced by Assembly Members Garcia and Ting and Senator Becker
~~(Coauthor: Assembly Member Wood)~~ (Principal coauthor: Assembly Member Wood)
(Coauthors: Assembly Members Addis, Robert Rivas, and Zbur)
(Coauthors: Senators Atkins, Laird, Min, Rubio, and Stern)

February 17, 2023

Local Impacts, Benefits and Equity

- Fishing industry
- Tribes
- On-shore infrastructure
- Job Creation
- Environmental Justice
- Coastal vs. central valley development





The State Lands Commission & the Future of Offshore Wind In California

BPC 2023 Energy & Water Nexus | September 15, 2023

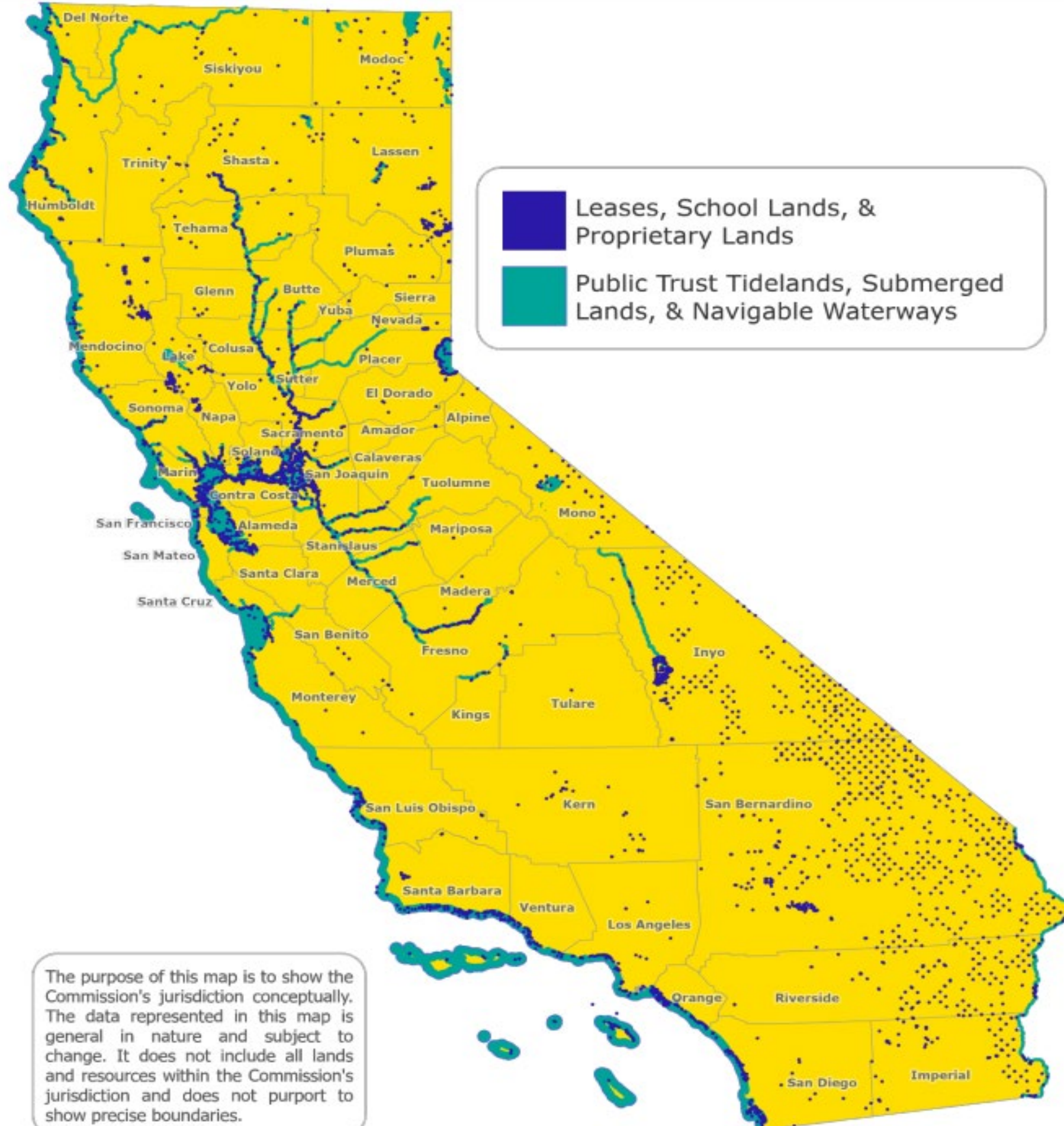
Jennifer Lucchesi, Executive Officer



California State
Lands Commission



The State Lands Commission



Jurisdiction & Renewable Energy

- Manages/Oversees 4 million acres of public tidelands and submerged lands, including ports and harbor trustees
- Manages nearly 500,000 acres of “school land” throughout the State
- Our current renewable energy portfolio: solar, geothermal, onshore wind, nuclear
- ***Next: Offshore Wind***

OFFSHORE WIND GENERATION GOALS

- SB 100 (De León, 2018)
- Biden Administration: 30 GW of offshore wind by 2030



Departments of Energy, Interior, Commerce, and Transportation Launch Initiatives on Floating Offshore Wind to Deploy 15 GW, Power 5 Million Homes, and Lower Costs 70% by 2035

Today, the Biden-Harris Administration is launching coordinated actions to develop new floating offshore wind platforms, an emerging clean energy technology that will help the United States lead on offshore wind. In tandem with President Biden’s economic and clean energy agenda, these actions will create good-paying jobs, lower energy costs for families, and strengthen U.S. energy security. Since taking office, President Biden’s vision and leadership has jumpstarted the American offshore wind industry and made America a magnet for clean energy investments. The President set a **bold goal** of deploying 30 gigawatts (GW) of offshore wind by 2030, enough to power 10 million homes with clean energy, support 77,000 jobs, and spur private investment up and down the supply chain.



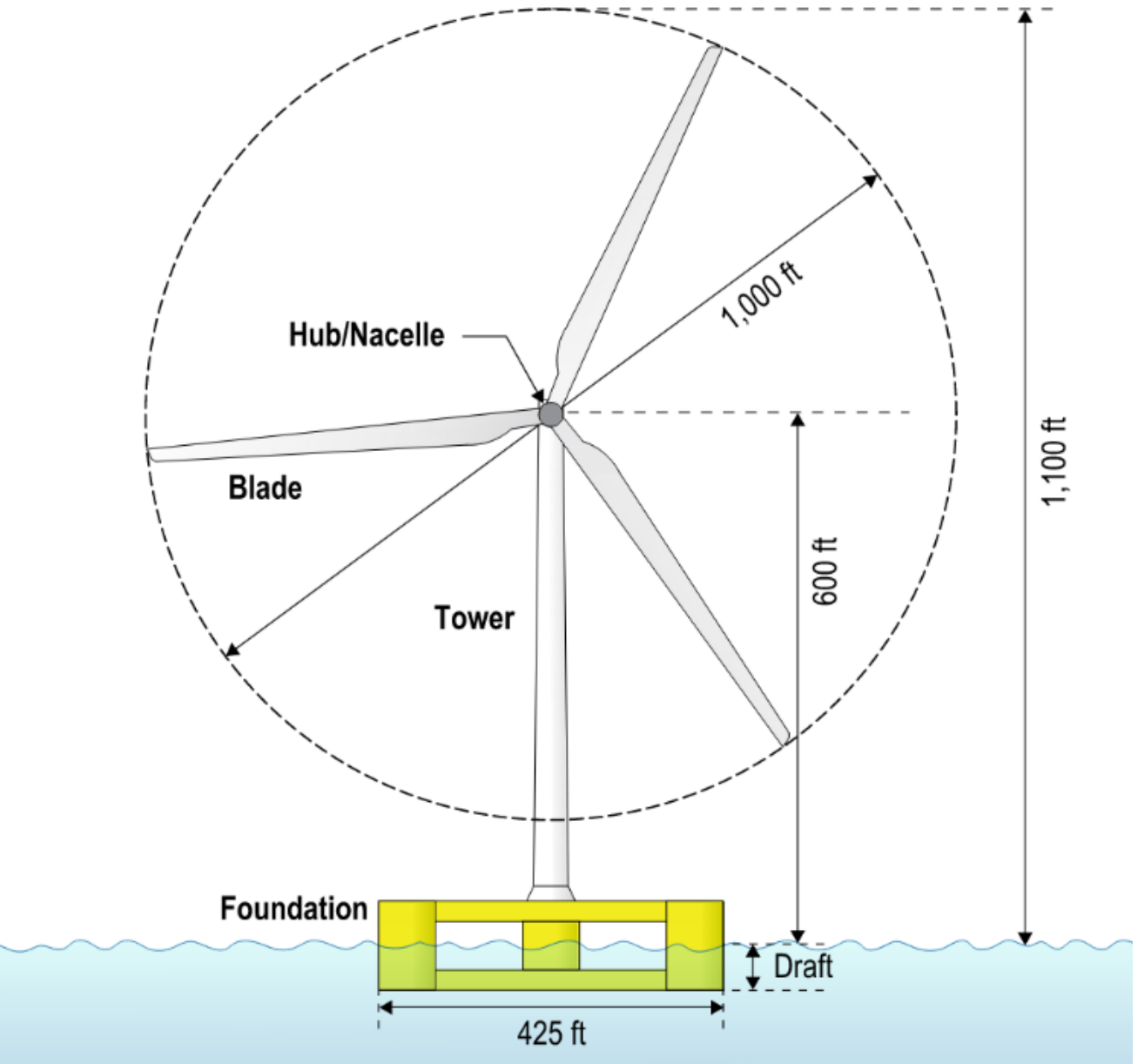
AB 525 (CHIU, 2021)

Requires the CA Energy Commission, in coordination with other state agencies to:

1. Evaluate and quantify the maximum feasible OSW energy generation capacity in waters off the California coast.
2. Establish OSW planning goals for 2030 and 2045; 2-5GW and 25GW.
3. Develop a five-part strategic plan for OSW development off the California coast in federal waters

AB 525 STRATEGIC PLAN COMPONENTS

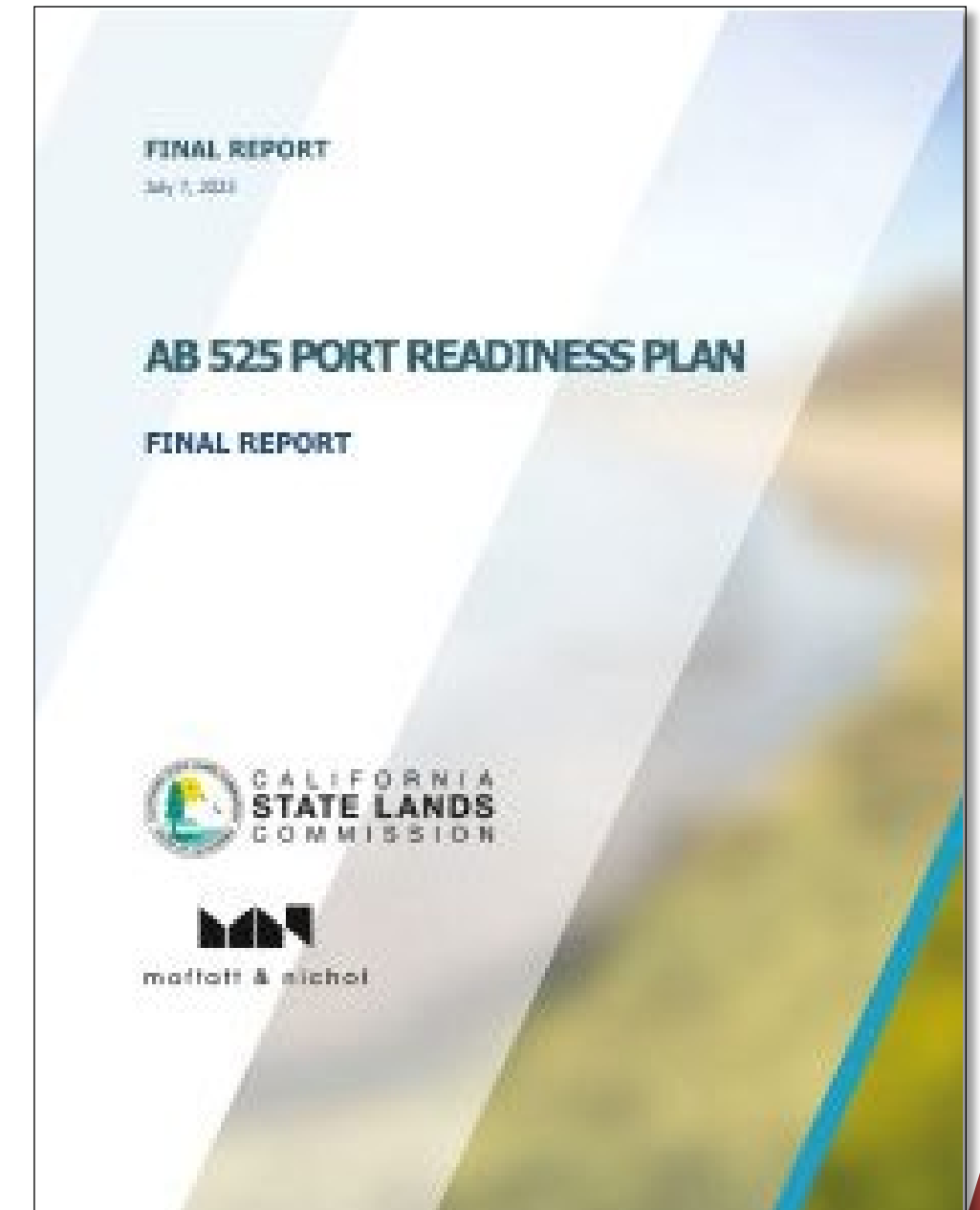
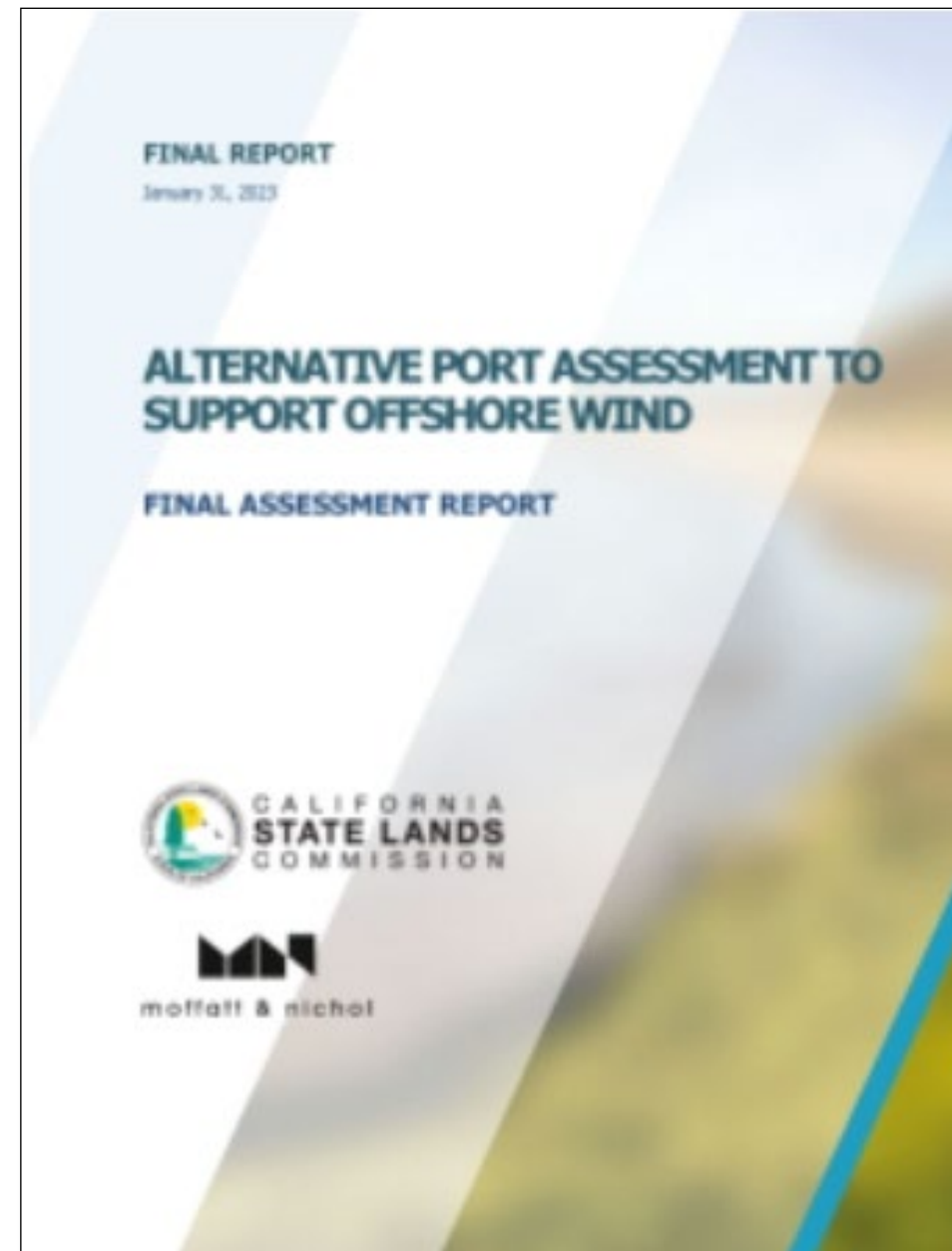
1. Identify suitable **sea space** for future projects
2. Develop plans so **ports and the workforce** can be ready.
3. Assess the **transmission** investments, upgrades and associated costs
4. Produce a **permitting** roadmap
5. Identify potential **impacts** on coastal resources, fisheries, Native American and Indigenous Peoples, and National Defense, and strategies for addressing those impacts



Depictions by Moffatt & Nichol

PORT REPORTS

- 16 large, 10 small port sites needed
- Existing ports are preferable over undeveloped sites
- \$11-12 billion in port upgrades

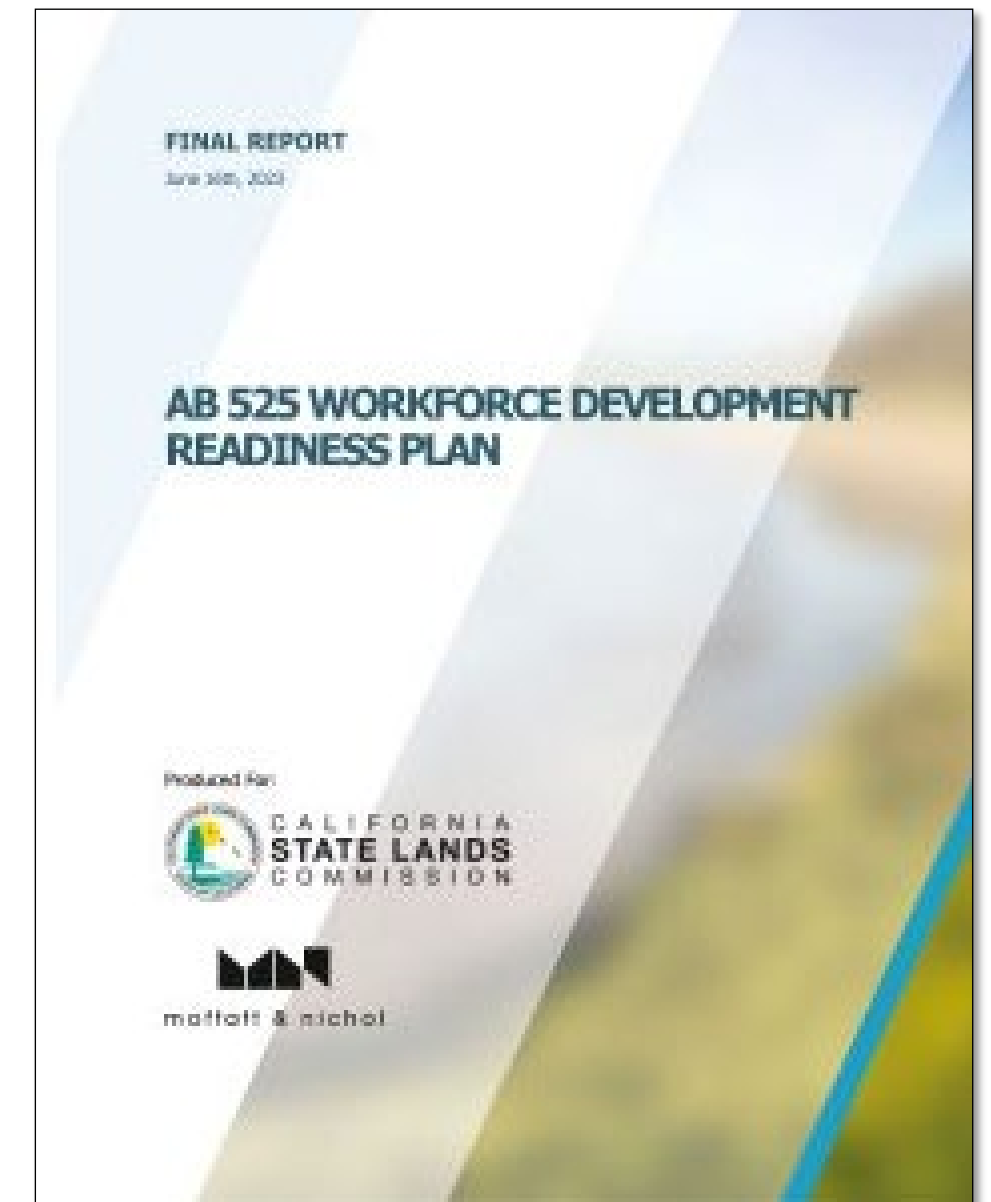


Types of Offshore Wind Facilities

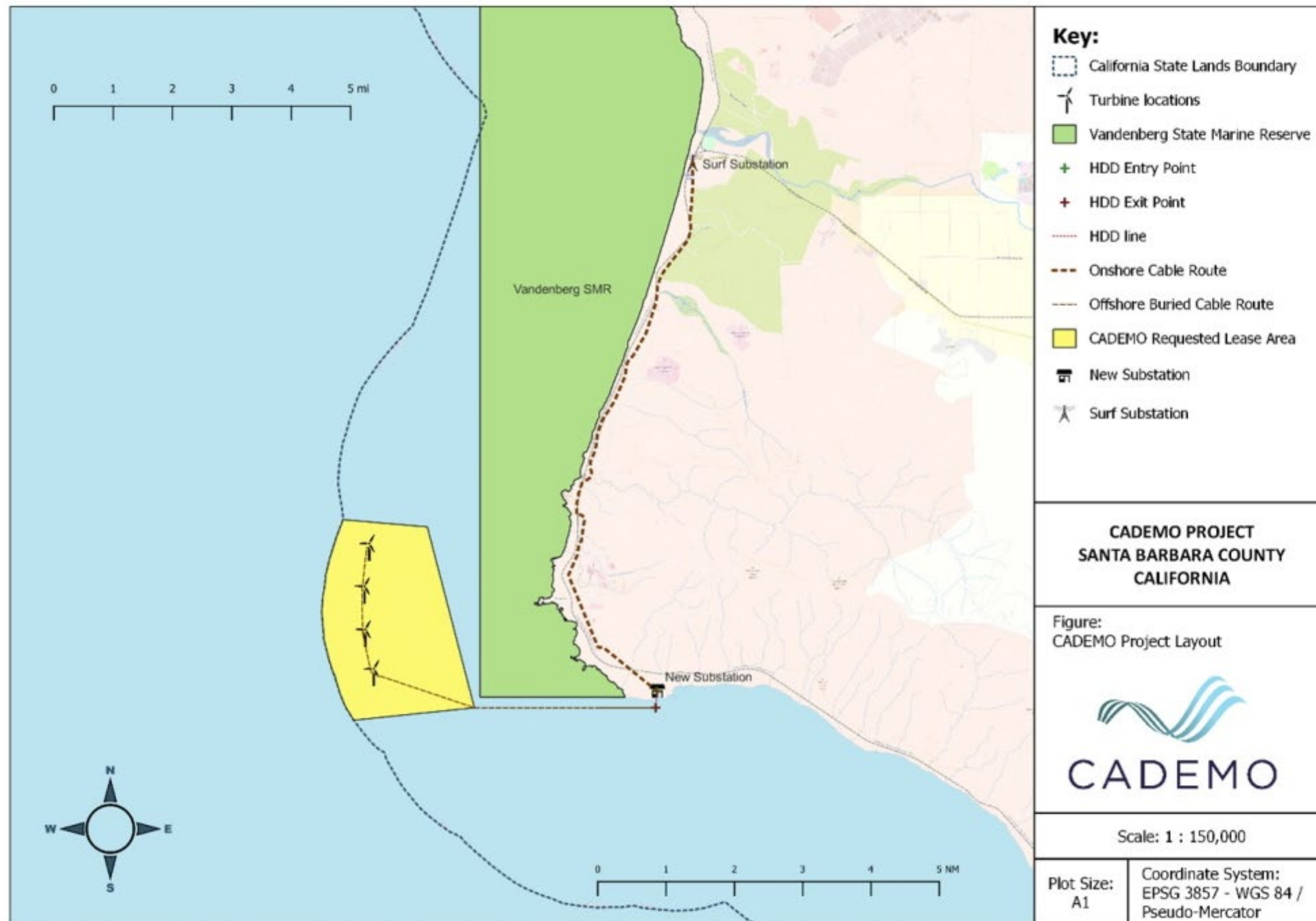
- **Staging and Integration:** a site to receive, stage, and assemble components on a floating platform
 - ❖ Humboldt, Long Beach, and Los Angeles
- **Manufacturing Sites:** a site that receives raw material and creates the larger components in the supply chain. Completed components are transported via water
 - ❖ Humboldt, Benicia, Stockton, Richmond, San Francisco, Redwood City, Los Angeles, Long Beach, San Diego
- **Operations and Maintenance Facility:** a home port of the fleet of construction vessels necessary for construction, commissioning, and repair of the offshore wind farm
 - ❖ Crescent City Harbor District, Humboldt, Morro Bay, Diablo Canyon, Port San Luis, San Diego

WORKFORCE REPORT

- Identify a primary state agency for the economic development of California's OSW industry.
- Align workforce investments with regional port strategies as well as the strengths and needs of each region.
- Develop training programs and curriculum sequentially, according to workforce demands.
- Engage early with unions, trade organizations, universities, and technical schools.
- Invest in research and innovation for manufacturing, assembly, staging, and port logistics.



CADEMO PROJECT IN STATE WATERS



- Self-described demonstration project; 4 turbines
- Preliminary Environmental Assessment completed in 2022
- Recent agreement between State Lands Commission and Dept. of the Air Force on joint EIS/EIR

NEAR-TERM NEXT STEPS

- AB 525 Strategic Plan will soon be released for public comment
- Commission may receive applications for geophysical survey permits to assess the siting of components in state waters
- BOEM intends to pursue a Programmatic Environmental Impact Statement; coordination currently beginning
- Port upgrades will likely occur on granted lands; staff will coordinate with trustees

www.slc.ca.gov

THANK YOU & QUESTIONS

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California State
Lands Commission



