

DOCKETED

Docket Number:	23-MISC-01
Project Title:	Offshore Wind Waterfront Facilities Improvement Program
TN #:	253217
Document Title:	Presentation - Staff Workshop on AB 209 Offshore Wind Waterfront Facilities Improvement Program
Description:	This is the general workshop presentation from November 3, 2023. Most of the presentations from the workshop are included in this slide deck with the exception of presentations by the Humboldt Bay Harbor District, Port of Long Beach, and Crescent City Harbor District. Due to their file size, those 3 presentations are separately available in this docket.
Filer:	Eli Harland
Organization:	California Energy Commission
Submitter Role:	Commission Staff
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Docketed Date:	11/17/2023



Staff Workshop on AB 209 Offshore Wind Waterfront Facilities Improvement Program

Siting, Transmission, and Environmental Protection Division

November 3, 2023



Housekeeping

1. Webinar is being recorded via Zoom and there is a court reporter.
2. For help with zoom,
 - Type your questions into the chat window.
3. Presentations will be available in **23-MISC-01** docket at:
<https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=23-%20MISC-01>
4. Public Comment at the end of the workshop.
5. Written comments are due by 5:00 pm on December 1, 2023.
Submit through the e-commenting system (23-MISC-01) at
<https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=23-MISC-01>
6. Subscribe to the Offshore Wind Waterfront Facility Improvement Program List Serve <https://www.energy.ca.gov/programs-and-topics/programs/offshore-wind-waterfront-facility-improvement-program>



Workshop Schedule

1. Welcome and Introduction
2. Opening Remarks
3. AB 209 Offshore Wind Port and Harbor Infrastructure Improvements
4. Panel: Perspectives from Ports and Harbors
5. Break
6. Panel: Perspectives from Private Sector Participants
7. Public Comments
8. Closing Remarks



Opening Remarks

- David Hochschild, Chair, California Energy Commission
- Patty Monahan, Commissioner, California Energy Commission
- Jennifer Lucchesi, Executive Director, State Lands Commission



Developing Solicitations for AB 209 Offshore Wind Port and Harbor Infrastructure Improvements

Eli Harland, Offshore Wind Federal Programs & Outreach Liaison

Siting, Transmission, and Environmental Protection Division

November 3, 2023



Assembly Bill 209 Clean Energy Programs

General Provisions

- Public Resources Code (PRC) Section 25660: definitions
- PRC Section 25660.2.: CEC's reporting requirements
- PRC Section 25660.4.
- PRC Section 25661.: additional allowable uses of funding
- PRC Section 25661.5.: not applicable

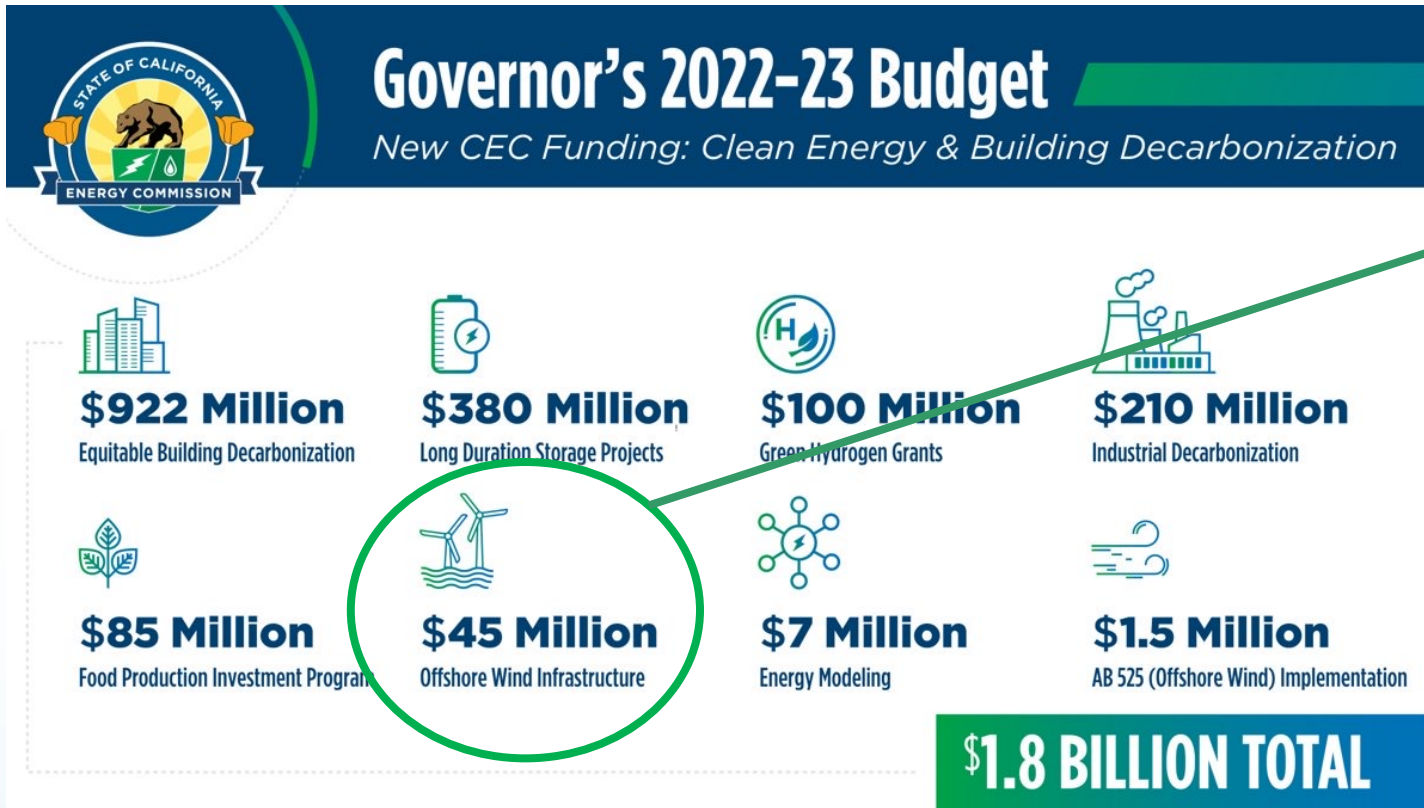
PRC Section 25660.4

- (a) The Industrial Grid Support and Decarbonization Program
- (b) The Food Production Investment Program
- (c) The Hydrogen Program
- (d) The Equitable Building Decarbonization Program.

(e) The program to support offshore wind infrastructure improvements in PRC Section 25666



PRC Section 25666 and Budget Act



- Establishes the Program to Support Offshore Wind Infrastructure Improvements to be administered by the CEC. Public Resources Code Section 25666.
- Advances the capabilities of California ports, harbors, and other waterfront facilities to support planning for offshore wind.
- Appropriates \$45 Million to provide incentives to support offshore wind infrastructure improvements.
- Requires the CEC to encumber the funds by June 30, 2025, and to make available for liquidation until June 30, 2029.



Purpose and Applicants

PRC Section 25666. (a)

The commission shall establish and administer a program to support offshore wind infrastructure improvements in order to advance the capabilities of California ports, harbors, and other waterfront facilities to support the buildout of offshore wind facilities and maximize the economic and environmental benefits of an offshore wind industry in California.

PRC Section 25666. (b)

The commission may develop guidelines for purposes of this article. Eligible applicants shall include California port authorities, port operators, port commissions, and their respective authorized agents, other California waterfront facilities, and other entities that demonstrate a commitment to California offshore wind energy investments and are partnered with a California waterfront facility.



Grant Program: Category I

Category I activities support developing individual or regional retrofit concepts and investment plans.

- Planning, feasibility analysis, business case development,
- Environmental analyses, engineering and design work, and
- Other offshore wind energy related planning and development activities.



Grant Program: Category II

Category II activities support final design, engineering, environmental studies and review, and construction of retrofits and may support a range of retrofit activities, including

- Land expansion for component assembly, staging, and transportation, facility updates such as adding laydown and storage areas, increasing heavy-lift crane weight and height capabilities, and
- Other improvements to support the long-term operation and maintenance of offshore wind generation facilities,
- Other offshore wind energy related design and development activities.



Grant Program: Category III + Environmental*

Category III funds allow for providing cost share funding to an eligible applicant that receives a federal award for purposes consistent with Category I or Category II activities.

*Additional use of funds includes preliminary engineering and environmental review work, including taking actions and preparing material to comply with the California Environmental Quality Act or federal environmental laws.



What is a Grant Funding Opportunity?

Some general attributes of a Grant Funding Solicitation

1. Applicants respond to the requirements of the solicitation with their own projects.
2. Applications include applicant prepared project narrative, scope of work and supporting budgets.
3. Solicitation establishes the rules of the grant opportunity, such as who is eligible to apply, a schedule, minimum/maximum funding, application requirements, application evaluation criteria.
4. Often include a pre-bid workshop in which the CEC will present the solicitation and receive questions from potential bidders and the CEC typically provides written answers.
5. Applications typically evaluated by a scoring committee using the criteria published in the solicitation and once applications are evaluated CEC staff will issue a Notice of Proposed Awards.
6. Final agreement is then taken to the full CEC in a publicly noticed business meeting for consideration by the commissioners.

CEC's Main Funding Webpage: <https://www.energy.ca.gov/funding-opportunities>



Grant Program: Solicitation Requirements

Potential requirements* to be included in solicitation:

Category I includes “planning” and “environmental analyses”

- identifying potentially impacted communities (e.g. adjacent, under-resourced, fishing, tribal)
- creating communication and engagement plans with those communities
- identifying potential impacts of the proposed project or concept
- identifying strategies to address those impacts
- to develop a labor and workforce strategy
- identify opportunities for “green” manufacturing, movement, construction
- include in business plan measures of investment worthiness (such as Return on Investment or Net Present Value) to a level that public and private investors can make informed investment decisions

**These are examples of potential requirements under consideration for a grant funding opportunity*



Grant Program: Solicitation Requirements

Potential requirements* to be included in solicitation:

Category II includes more advanced preparations of design, engineering, and environmental studies.

- some of the Category I examples
- working with Original Equipment Manufacturers and offshore wind developers, especially current lease holders, in a purposeful way such as through a Technical Advisory Committee.
- availability of federal awards and plan for applying to federal programs

**These are examples of potential requirements under consideration for a grant funding opportunity*



Grant Program: Potential Evaluation Criteria

Potential* Considerations for Criteria:

- **Cost effectiveness**
- **Consistency with existing studies (e.g. key parts of the AB 525 strategic plan)**
- **Benefitting an under resourced community (bonus points are a potential?)**
- **Ability to meet the requirements of the first 5 BOEM PACW-1 leases**
- **Match commitment (bonus points?)**
- **AB 3 (2023) directs the Energy Commission to prepare a second-phase plan and strategy for seaport readiness that builds upon the AB 525 strategic plan. We may use the ideas developed under the near-term solicitation to inform the second phase seaport readiness plan and consider additional criteria that would help us in that effort, to be determined.**

**These are examples of potential criteria under consideration for a grant funding opportunity*



Other Potential Aspects of the Solicitations Where We Invite Comments

- Does the solicitation need to differentiate between OSW port types?
- Are there other important factors that the solicitation should promote/address that fall within the statutory language but are not explicitly called for in the statutory language?
 - Example, how should applicants demonstrate how community concerns will be addressed (e.g. environmental justice, fishing, residents, and businesses)?
 - Example, how should applicants demonstrate how the project will contribute to transitioning ports to “electrification” or “green ports”?
 - Example, how should applicants address potential impacts?
- Is there interest or plans for CA ports seeking federal funding (U.S. DOT)? Do they need match support?
- Are there federal programs besides Port Development Improvement Program that the program should target for match support? Mega or others?
- Is there a sense of timing for when match commitments would be required? Are there other key considerations for the CEC in terms of federal match funding?



Next Steps

- Engaging a state agency team to advise on program development
- Informal outreach to ports, harbors, OSW industry, OEMs
- Developed webpage, listserve, and public record docket

<https://www.energy.ca.gov/programs-and-topics/programs/offshore-wind-waterfront-facility-improvement-program>

- Possible future additional workshop and/or solicitation concept
- Develop one or more funding opportunities (Q1 2024)
- Make first grant awards (Q2 2024)
- Continue to have a public and transparent process
- AB 525 Strategic Plan to inform program priorities

Public Comments Following the Workshop are Requested by December 1, 2023



Thank You!

Eli Harland, Offshore Wind Federal Programs & Outreach Liaison

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Lizzie Barminski, Offshore Wind Federal Programs & Outreach Liaison

Elizabeth.Barminski@energy.ca.gov

<https://www.energy.ca.gov/programs-and-topics/programs/offshore-wind-waterfront-facility-improvement-program>



Perspectives from Ports and Harbors

- Matthew Trowbridge, Moffatt and Nichol
- Rob Holmlund, Director of Development, Humboldt Bay Harbor, Recreation and Conservation District
- Suzanne Plezia, Chief Harbor Engineer, Port of Long Beach
- Mike DiBernardo, Deputy Executive Director of Marketing and Customer Relations, Port of Los Angeles
- Simon Betsalel, Capital Projects Manager, Port of San Francisco
- David Yow, Government & Civic Relations, Port of San Diego
- Miguel Rodriguez, Community Relations Director, Port of Hueneme
- Mike Rademaker, Assistant Harbormaster, Crescent City Harbor District
- Jason Garben, Manager, Project Management Services, Port of Oakland

CEC Workshop AB 209 OSW Waterfront Facility Improvement Program

Port Readiness Study Summary

November 3, 2023



moffatt & nichol

Presentation Agenda

1. Introduction / Background
2. CA Port Readiness Studies
3. AB 525 Port Readiness Plan
4. Key Takeaways from Studies to Date



Who We Are



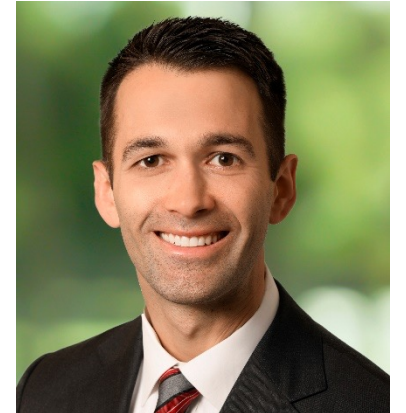
moffatt & nichol

Creative People, Practical Solutions.®

- › Port Infrastructure Consultant
- › Since 1945, Naval Shipyards in Long Beach
- › Experts where land meets water
- › California coastline
- › California Ports & Harbors
- › All Maritime Business Lines
 - › Offshore wind, containers, bulk cargo, marinas, etc.

Matt Trowbridge, PE, SE, PEng

- › Marine Structural Engineer
- › Port Infrastructure Expert
- › Offshore Wind Ports



OSW Port Studies US West Coast

› Bureau of Ocean Energy Management

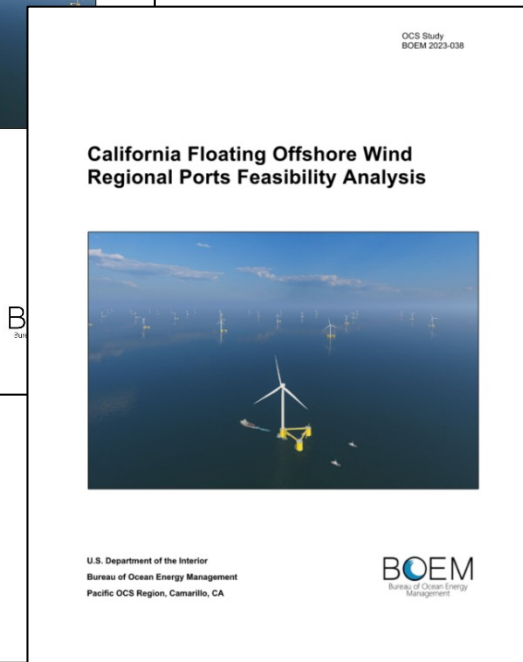
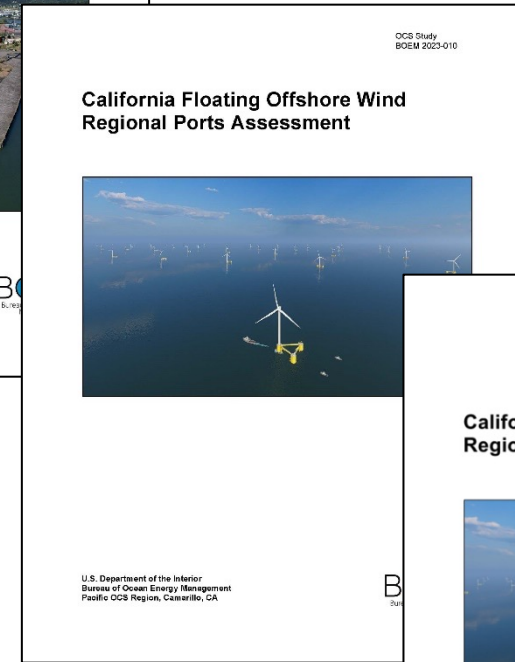
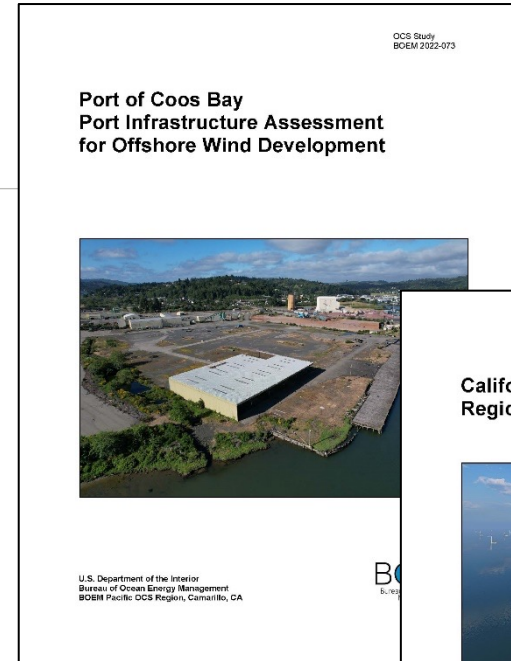
- Port of Coos Bay, Port Infrastructure Assessment for OSW Development, BOEM 2022-073
- California Floating OSW Regional Ports Assessment, BOEM 2023-010
- California Floating OSW Regional Ports Feasibility Analysis, 2023-038

› California State Lands Commission

- Alternative Port Assessment to Support Offshore Wind, January 2023
- AB 525 Port Readiness Plan, July 2023

› National Renewable Energy Laboratory

- West Coast Port Strategy Study, September 2023



OSW Port Studies US West Coast

› Bureau of Ocean Energy Management

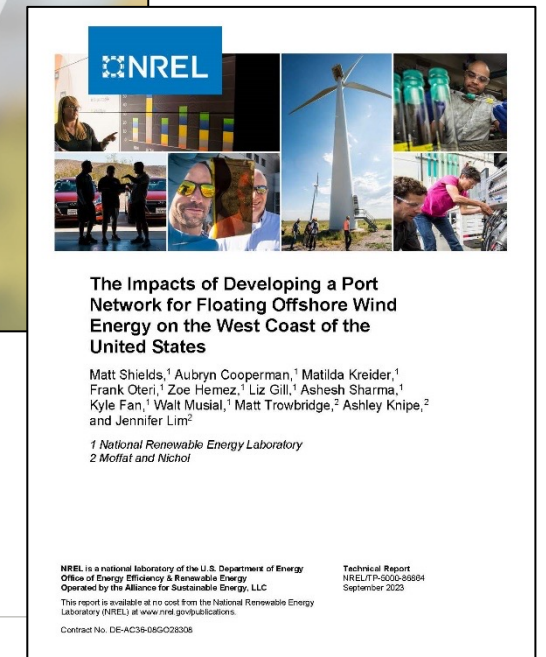
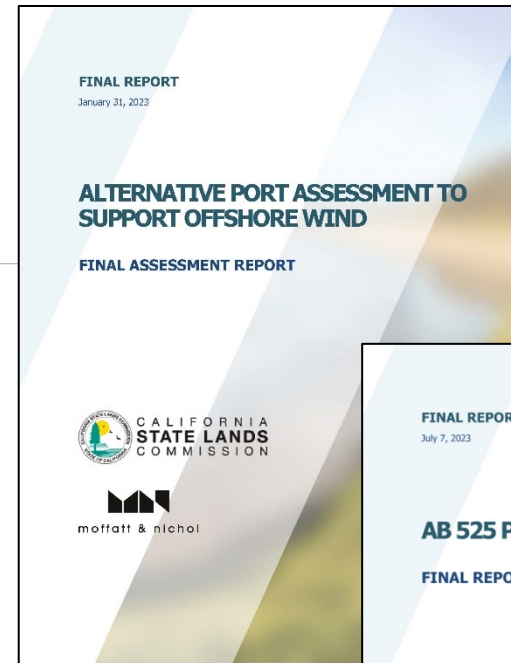
- Port of Coos Bay, Port Infrastructure Assessment for OSW Development, BOEM 2022-073
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- California Floating OSW Regional Ports Feasibility Analysis, 2023-038

› California State Lands Commission

- Alternative Port Assessment to Support Offshore Wind, January 2023
- AB 525 Port Readiness Plan, July 2023

› National Renewable Energy Laboratory

- West Coast Port Strategy Study, September 2023



Offshore Wind Requires Ports

› What is needed for Offshore Wind?

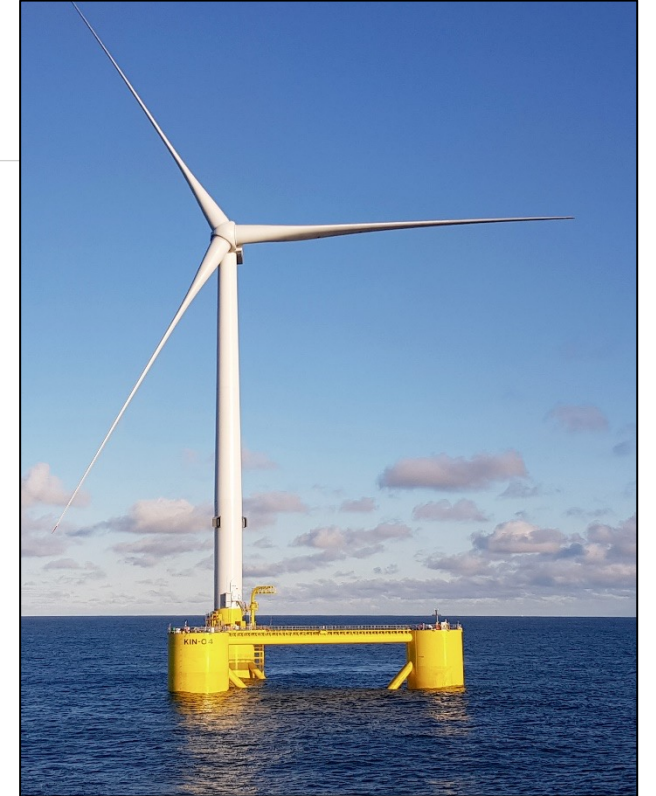
- Wind Resource
- Electrical Grid
- Ports and Port Terminals

› Construction, Operations, and Maintenance of OSW farms requires Ports:

- Sheltered harbor areas
- Large laydown areas
- Deep, navigable water
- Heavy load capacity

› There are no existing port terminals on the US West Coast that can currently support OSW

- Requires significant investment and development
- Requires a multi-port strategy
- Adding a new maritime industry without displacing or replacing existing maritime uses



Summary of OSW Industry Port Needs

› General

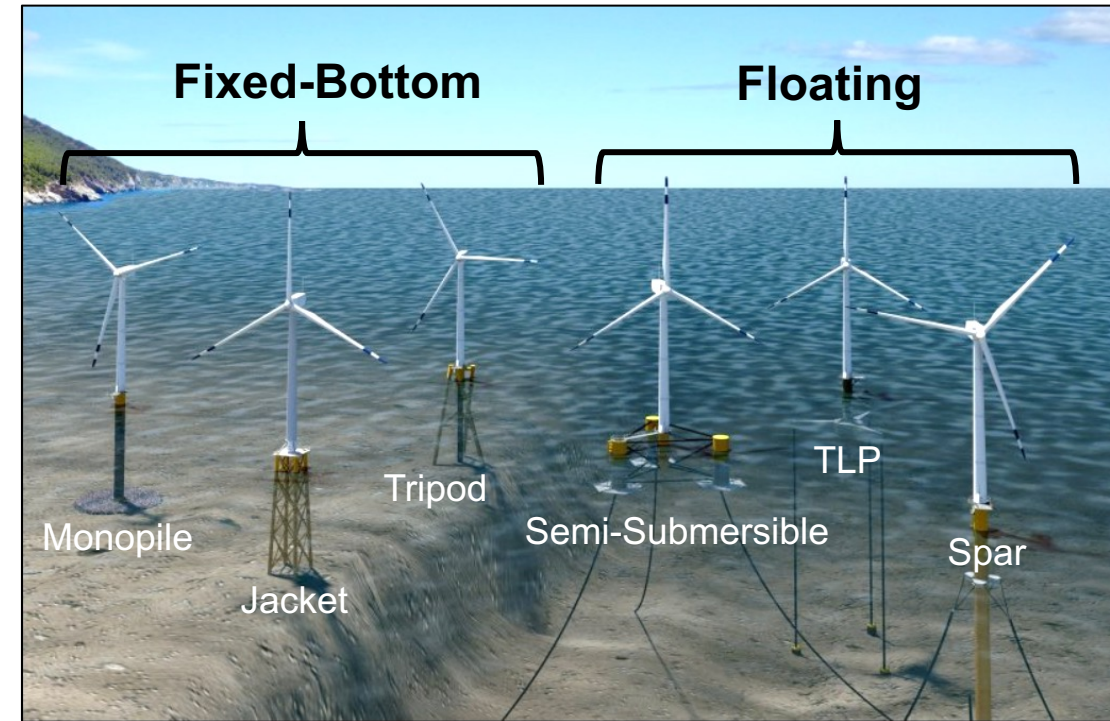
- Location of WEAs, port sites, and electrical demand (population centers) would ideally be located as close as possible
- Co-locate as many supply chain items in the same location as possible
- US West Coast ports must plan for >15 MW turbines (up to 25 MW turbines)

› Floating Foundations

- Likely to be semi-submersible floating foundation (concrete, steel, or hybrid) or tension leg platform (TLP)
- Semi-sub barge with sinking basin, ramp, or direct transfer methods required to move floating foundation from land to water

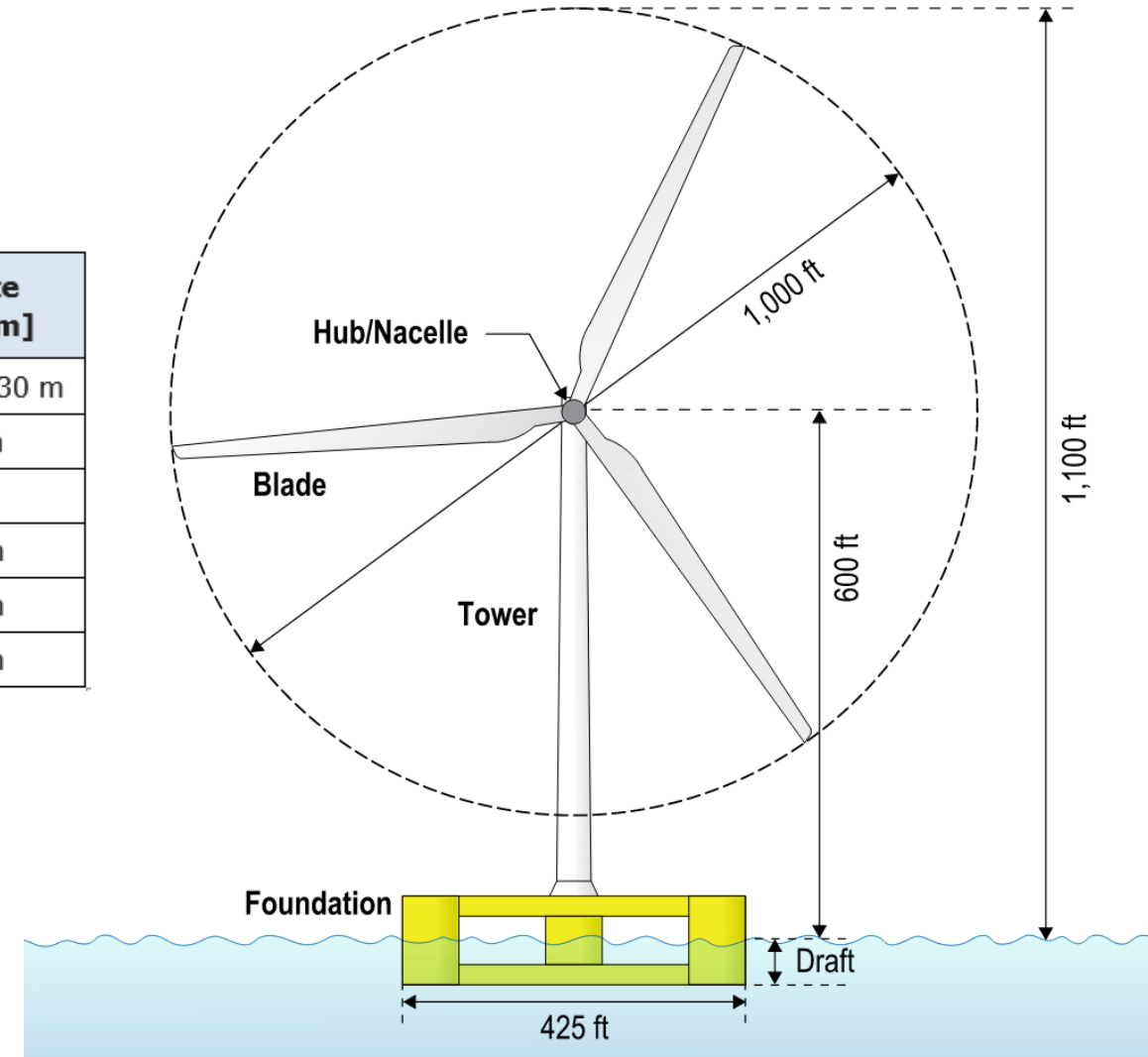
› Wet Storage

- Required to safely moor floating foundations or integrated turbines to mitigate risk of weather downtime, vessel traffic, entrance channel downtime, etc.



Floating OSW Turbine Dimensions

Floating Offshore Wind Turbine	Approximate Dimension [ft]	Approximate Dimension [m]
Foundation Beam / Width	Up to 425 ft x 425 ft	Up to 130 m x 130 m
Draft (Before integration)	15 to 25 ft	4.5 to 7.5 m
Draft (After integration)	20 to 50 ft	6 to 15 m
Hub/Nacelle Height (from Water Level)	Up to 600 ft	Up to 183 m
Tip Height (from Water Level)	Up to 1,100 ft	Up to 335 m
Rotor Diameter	Up to 1,000 ft	Up to 305 m



Floating OSW Wharf-side Assembly & Loadout

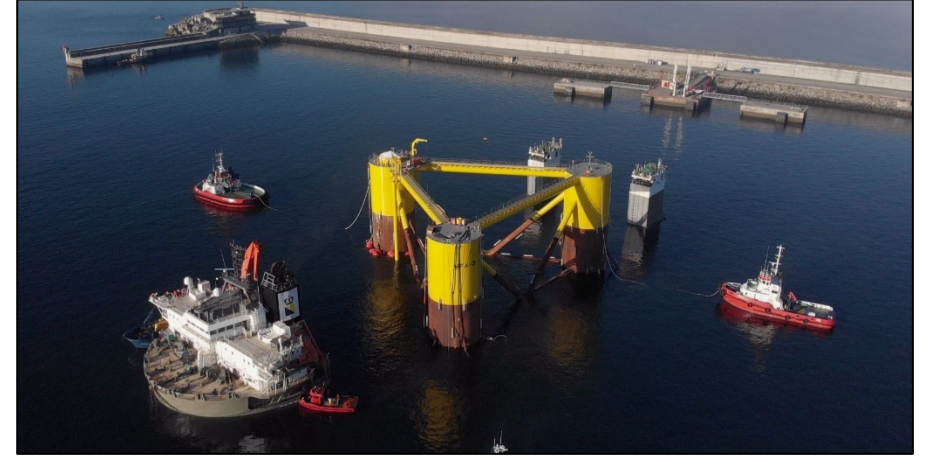
1) Fabrication



2) Loadout onto semi sub



3) Float off



4) WTG Integration



5) Tow to Installation Site



Types of OSW Port Terminals

- › **Staging and Integration (S&I) Site:** a port site to receive, stage, and store offshore wind components and to assemble the floating turbine system for towing to the offshore wind area.
- › **Turbine Maintenance Site:** a facility to perform major maintenance on a fully assembled turbine.
- › **End of Life Decommissioning Site:** a site to decommission, disassemble, recycle, and dispose of turbine systems that are at end of life.
- › **Manufacturing/Fabrication (MF) Site:** a port site that receives raw materials via road, rail, or waterborne transport and creates larger components in the offshore wind supply chain.
- › **Operation and Maintenance (O&M) Site:** a base of wind farm operations with warehouses/offices, spare part storage, and a marine facility to support O&M vessels for crew transfer
- › **Construction Support Facilities:**
 - › **Installation Support Site:** a base of construction operations for the fleet of construction vessels necessary for construction and commissioning of the offshore wind farm.
 - › **Mooring Line, Anchor, and Electrical Cable Laydown Site:** a site to receive and stage mooring lines, anchors, and electrical cables



Staging and Integration



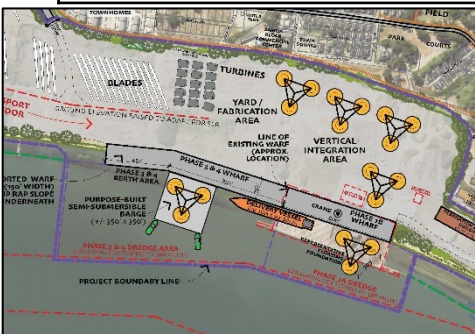
Manufacturing Port (Foundations Shown)



Operations & Maintenance

Floating OSW Port Requirements

Design Requirement	Staging and Integration (S&I) and Foundation Assembly	Manufacturing (MF)	Operations & Maintenance (O&M)	Anchor & Mooring Line Storage, Construction Support	Electrical Cable Laydown
Acreage, minimum	30 – 100 acres	30 – 100 acres	2 – 10 acres	10 – 30 acres	20 – 30 acres
Wharf Length	1,500 ft	800 ft	300 ft	300 ft	500 ft
Minimum Draft at Berth	38 ft	38 ft	20 – 30 ft	20 – 30 ft	30 – 35 ft
Draft at Sinking Basin	40 – 100 ft	40 – 100 ft	Not Required	Not Required	Not Required
Wharf Loading	> 6,000 psf	> 6,000 psf	100 – 500 psf	500 psf	1,000 psf
Uplands / Yard Loading (for WTG components)	2,000 – 3,000 psf	2,000 – 3,000 psf	100 – 500 psf	500 psf	1,000 – 2,000 psf



S&I



MF



O&M



Anchor Storage



Cable Laydown

Multi-Port Strategy to Achieve State Offshore Wind Planning Goals

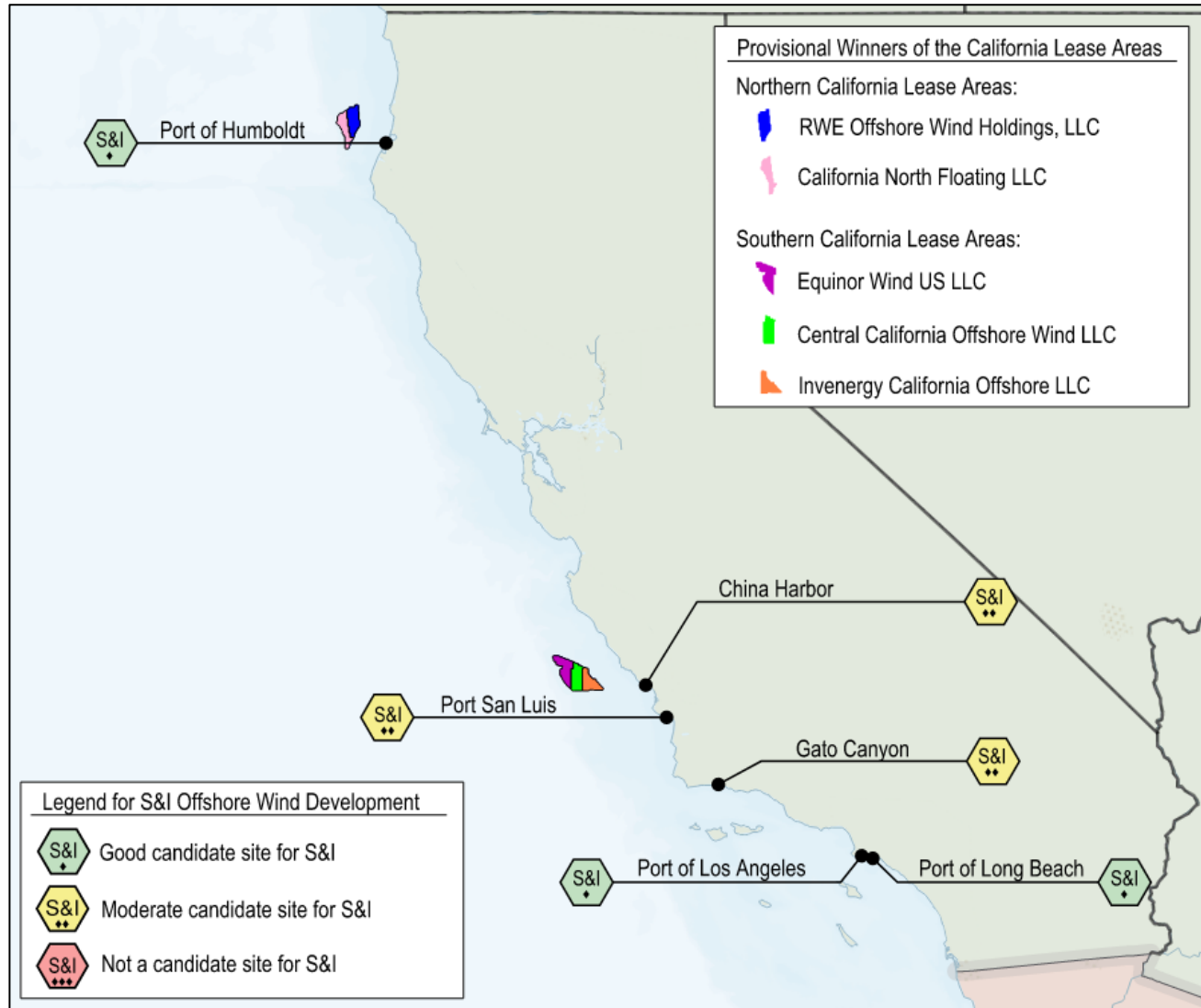
Type of Site	Medium (25 GW)
S&I Sites	3 to 5
MF Site (Blade)	2
MF Site (Tower)	1
MF Site (Nacelle Assembly)	1
MF Site (Foundation Assembly)	4
MF Site (Foundation Subcomponents)	4
SOV berths for O&M Activities	9 to 16
Mooring Line & Anchor Storage Sites	20 to 65 ac
Electrical Cable Laydown Sites	9 to 35 ac

- › Number of sites required if all the Tier 1 Manufacturing sites (blades, towers, nacelle assembly, foundation assembly, foundation subcomponents) are located within California
- › California ports and harbors are positioned to support the State's goal of 25 GW by 2045 with timely and adequate funding
- › S&I and Foundation Assembly sites are 80 acres each

CA OSW Ports - Key Takeaways (Overall)

- › California ports need to plan for floating wind turbine systems 15-25 MW capacity
- › Floating offshore wind projects are not commercially viable based on traditional port business and financing models, therefore state and federal funding sources will be critical
- › With adequate investment, California ports can support the State Goals of 25 GW by 2045
- › Staging and Integration (S&I) sites are the most critical sites that require urgent funding to support the State Goals
- › Manufacturing (MF) sites are also important as they would maximize economic benefits and job creation to the state

Best CA Port Sites – Staging & Integration



- › Without these type of sites, OSW development is not possible
- › Port of Humboldt and Port of Long Beach are in the environmental document and preliminary engineering phase of their projects

CA OSW Ports - Key Takeaways (S&I Ports)

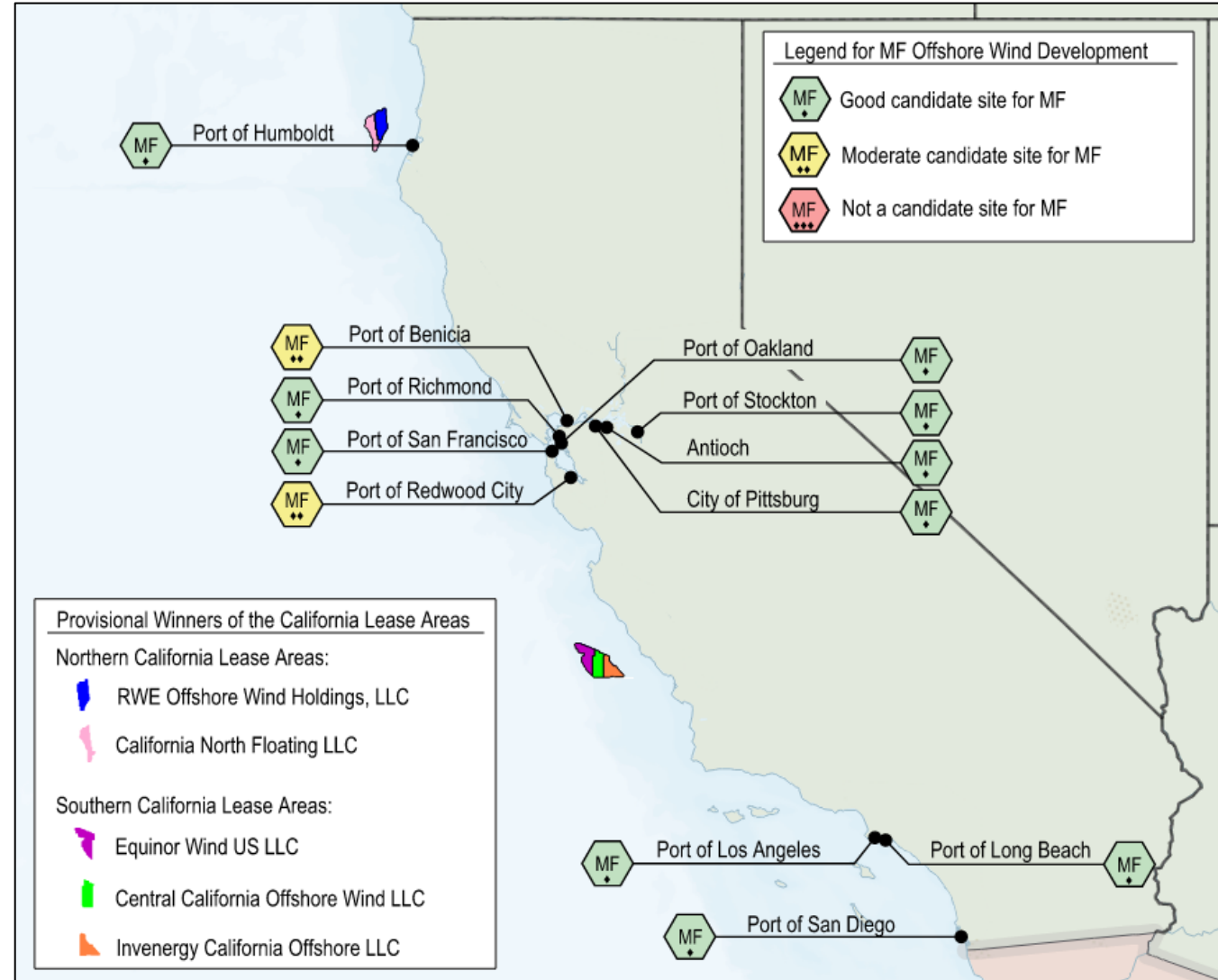
- › To achieve 25 GW by 2045:
 - › Estimated to require 3-5 S&I Sites and 4 Foundation Assembly Sites (80 acres each)
 - › Both Port of Humboldt (~180 acres) and Port of Long Beach (~400 acres) projects are required – it is not possible to meet the state goals without both projects
- › While it may be feasible to build a new port in Central California, it would require more investment, pose greater environmental impacts, and have longer development schedules compared to working in existing Ports for S&I

CA OSW Ports - Key Takeaways (S&I Towing)

- › A detailed towing assessment was completed in AB 525
- › It is feasible to tow fully assembled floating turbine systems from all CA ports to all WEAs
 - › Turbine systems can be towed from Port of Humboldt to both northern and central CA WEAs
 - › Turbines systems can be towed from Port of Long Beach to both central and northern CA WEAs
- › Not only is it feasible, but it will be required for Ports to be able to tow fully assembled floating turbine systems from all CA ports to all WEAs in order to meet the State Goals:
 - › Port of Humboldt's project is anticipated to be operational first and may tow to Morro Bay WEA until Port of Long Beach is built
 - › Port capacity from Port of Long Beach is required to build out all of the north coast WEAs as Port of Humboldt will not be able to solely build all the north coast WEAs by 2045 by itself

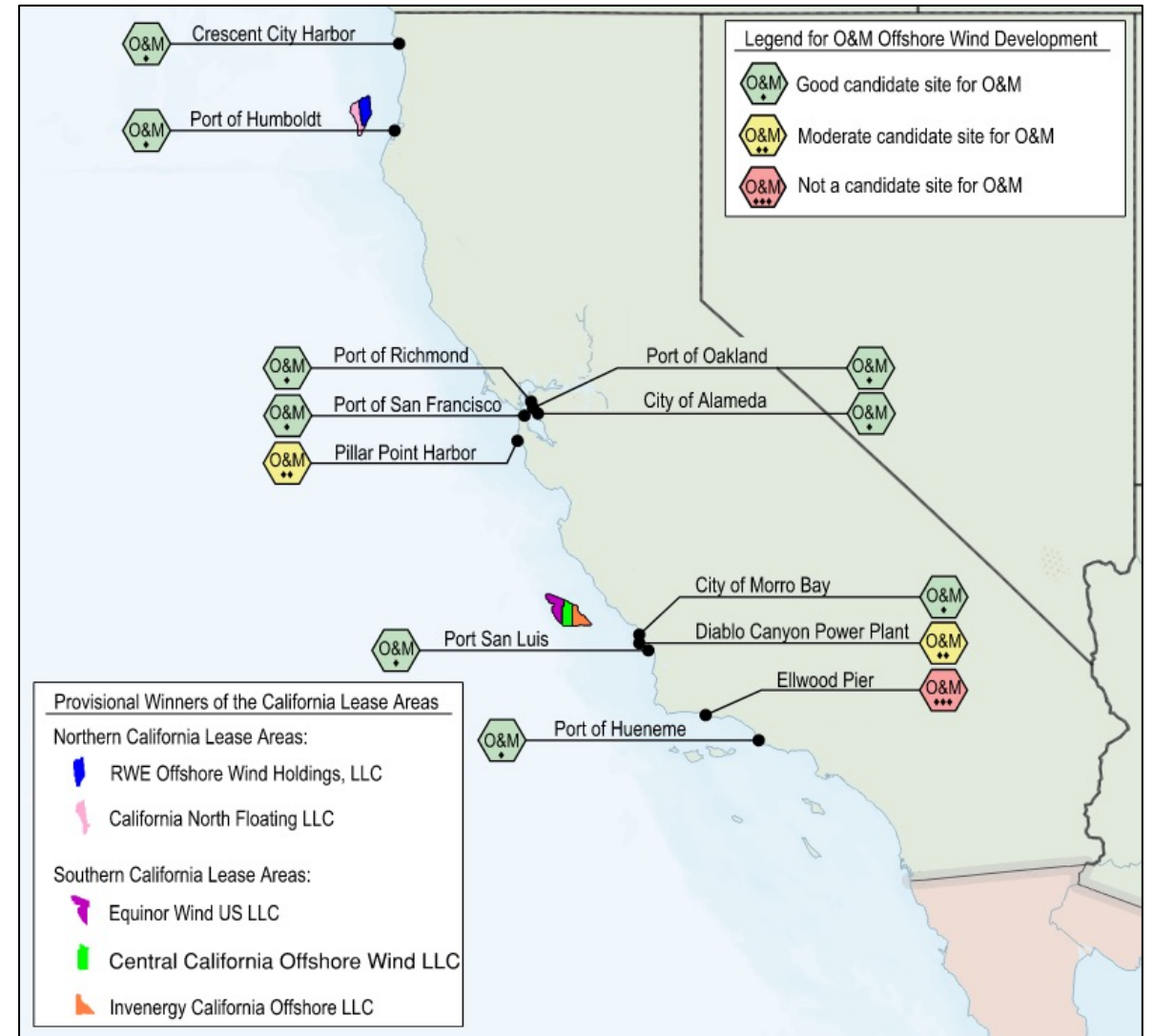
CA OSW Ports - Key Takeaways (MF Ports)

- › These type of sites provide significant job creation and economic impact
- › It is possible for CA ports to provide all the MF sites required to support the state goals (blades, towers, nacelle assembly, foundation subcomponents)
 - › San Diego
 - › Long Beach
 - › Los Angeles
 - › Bay Area Ports
 - › Port of Humboldt
- › The State will need to determine how much MF will occur in CA and how it will incentivize or drive this investment (50-65% per AB 3?) to maximize economic development and job creation in CA



CA OSW Ports - Key Takeaways (O&M Ports)

- › Estimated to require 9-16 O&M sites to support the State Goals
- › Sites required both on North Coast and Central Coast



CA OSW Ports - Key Takeaways (Cost)

- › If state incentivizes all investment into CA ports:
 - › S&I = \$3B-\$4B
 - › Foundation Assembly = \$3B-\$4B
 - › MF = \$3B-\$4B
 - › O&M = \$0.5B
 - › Construction Support Sites = <\$0.5B
 - › **Total Cost = \$11B - \$12B**

- › Key Cost Estimate Assumptions
 - › 2023 US dollars
 - › Includes 50% contingency
 - › AACE 18R-97 Class 5 Estimate with accuracy -30% / +50%
 - › Only considers port improvements (dredging, sinking basin, wharf, land creation, etc) – does not include equipment or above grade improvements (cranes, SPMTs, buildings, etc.)
 - › For other assumptions refer to AB 525 Port Readiness Plan report dated July 7, 2023

CA OSW Ports – Remaining Items to be Studied

- › Need to confirm capacity of US shipyards to build required vessel fleet (tugs, O&M vessels, barges, semi-sub, cable-laying vessel, CTVs, SOVs, etc.)
- › Port space required for home port services for tugs
- › Port capacity required for end of life decommissioning
- › Port capacity required for flexible laydown, Tier 2 and Tier 3 MF / supply chain needs
- › Port capacity required for construction and installation of offshore electrical substations
- › How much supply chain / MF will occur in CA and how will it be incentivized?

An aerial photograph of an offshore wind farm. In the foreground, a large white wind turbine with a yellow tripod-style foundation is prominent. Three small service vessels are positioned around its base. In the background, a vast array of similar turbines stretches across the horizon under a blue sky with scattered clouds. The water is a deep blue.

Thank you



Rob Holmlund Director of Development Humboldt Bay Harbor Recreation and Conservation District

Presentation slides posted separately in Docket 23-MISC-01:

<https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=23-MISC-01>



Suzanne Plezia

Senior Director, Chief Harbor Engineer

Port of Long Beach

Presentation slides posted separately in Docket 23-MISC-01:
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Mike DiBernardo

Deputy Executive Director of Marketing and Customer Relations

Port of Los Angeles

Potential Wind Production Sites - POLA

**Former
Southwest
Marine
Approx 27 acres
Est \$350 million
36' water depth
1100 LF wharf**



**Pier 500
Landfill
Approx 160
acres
Est \$2.1
billion
Landfill
Currently 15'
below water**



Simon Betsalel

Capital Projects Manager

Port of San Francisco



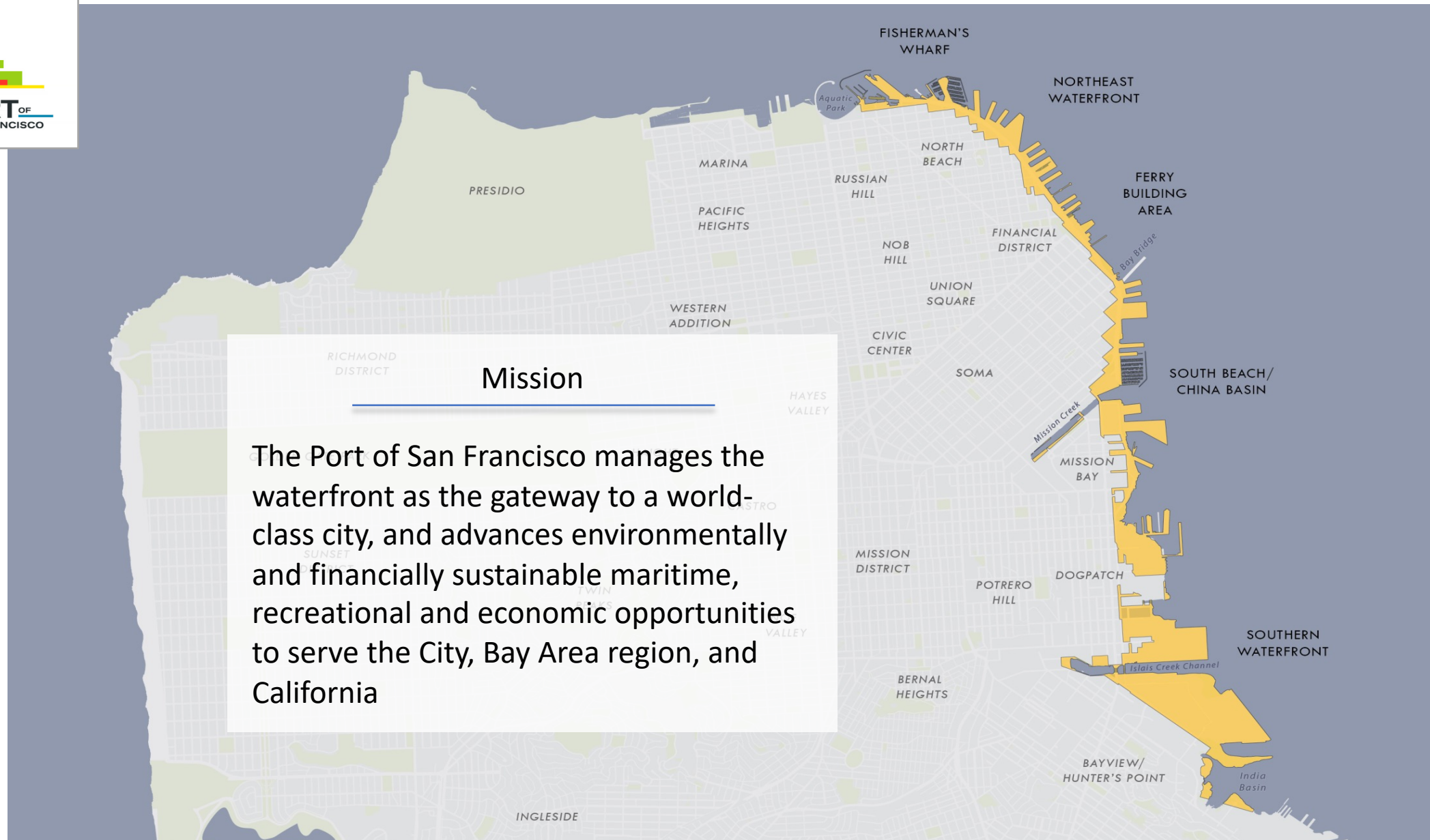
The Port of San Francisco

Offshore Wind Development



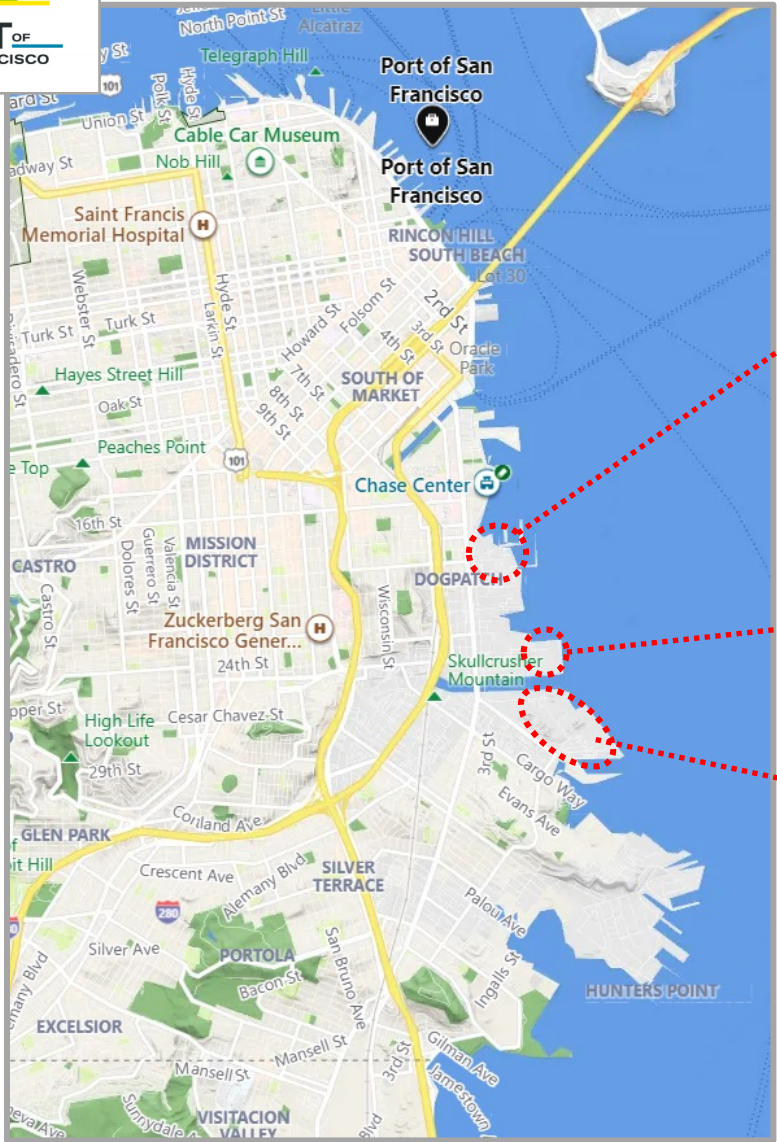
Mission

The Port of San Francisco manages the waterfront as the gateway to a world-class city, and advances environmentally and financially sustainable maritime, recreational and economic opportunities to serve the City, Bay Area region, and California





Potential OSW Areas



Piers 70 – Former Shipyard
POSF currently seeking tenant and could be a support **storage, secondary fabrication site, or workforce training site for OSW**

Pier 80 – Breakbulk Terminal
Mixed use and can support ships **discharging components for OSW**. Has on-dock rail for heavy, oversized components.

Pier 94/96 and Uplands
The primary site for OSW **construction, fabrication, and sea launch**.

Pier 70 and Pier 80



Potential Uses:

- O&M/Administrative offices
- Component fabrication and assembly



Potential Uses:

- Offloading of OSW components from vessels
- Indoor and outdoor storage of components



Pier 94/96 and Uplands

- 5 acre, 6000psf wharf
- 90 acre, 3000psf uplands
- 40' water depth, self scouring
- Proximity to transportation networks
- Adjacent concrete batch plant





Current Project Status

- Pier 94/96 OSW Concept Report
- Preparing RFP for design
- Port Commission presentation on November 14, 2023
- Maritime and Legislative Affairs staff continue to engage with OSW stakeholders





David Yow

Government & Civic Relations

Port of San Diego



Miguel Rodriguez

Community Relations Director

Port of Hueneme



Mike Rademaker Assistant Harbormaster Crescent City Harbor District

Presentation slides posted separately in Docket 23-MISC-01:
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SEAPORT FACILITIES





BREAK

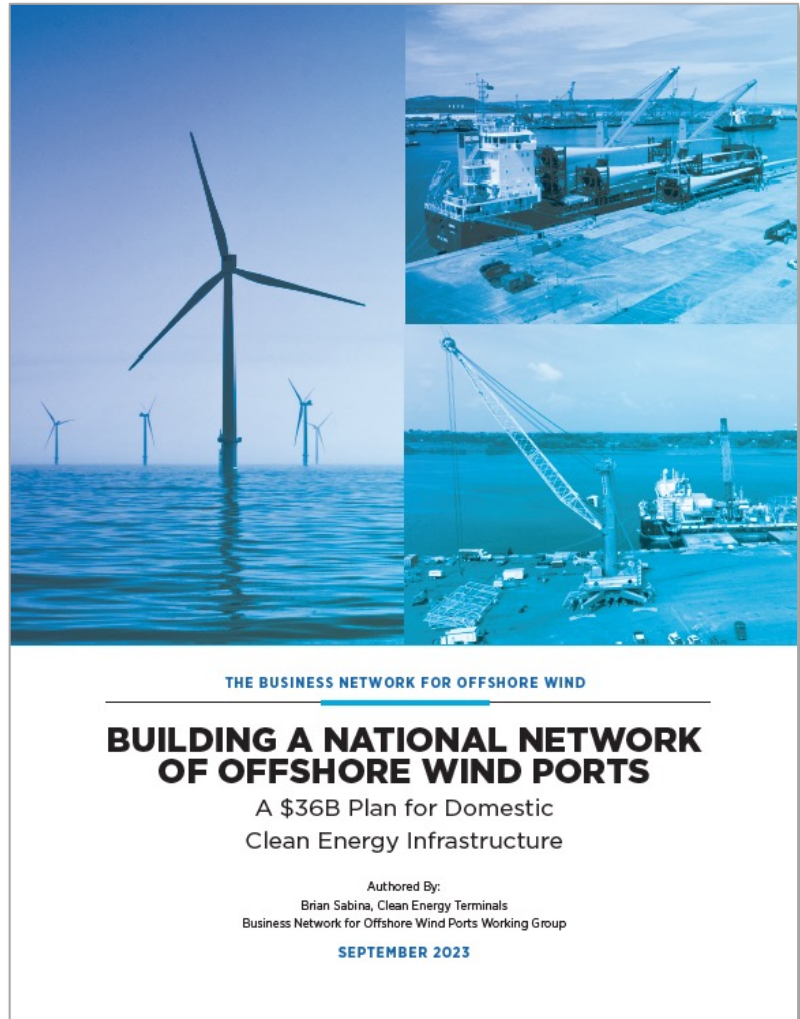


Perspectives from Private Sector Participants

- Brian Sabina, CEO, Clean Energy Terminals
- Sean Boyd, Managing Director, Ernst & Young Infrastructure Advisors
- Sloane Perras, Vice President, Foss Offshore Wind
- Molly Croll, Pacific Offshore Wind Director, American Clean Power

Building a National Network of Offshore Wind Ports

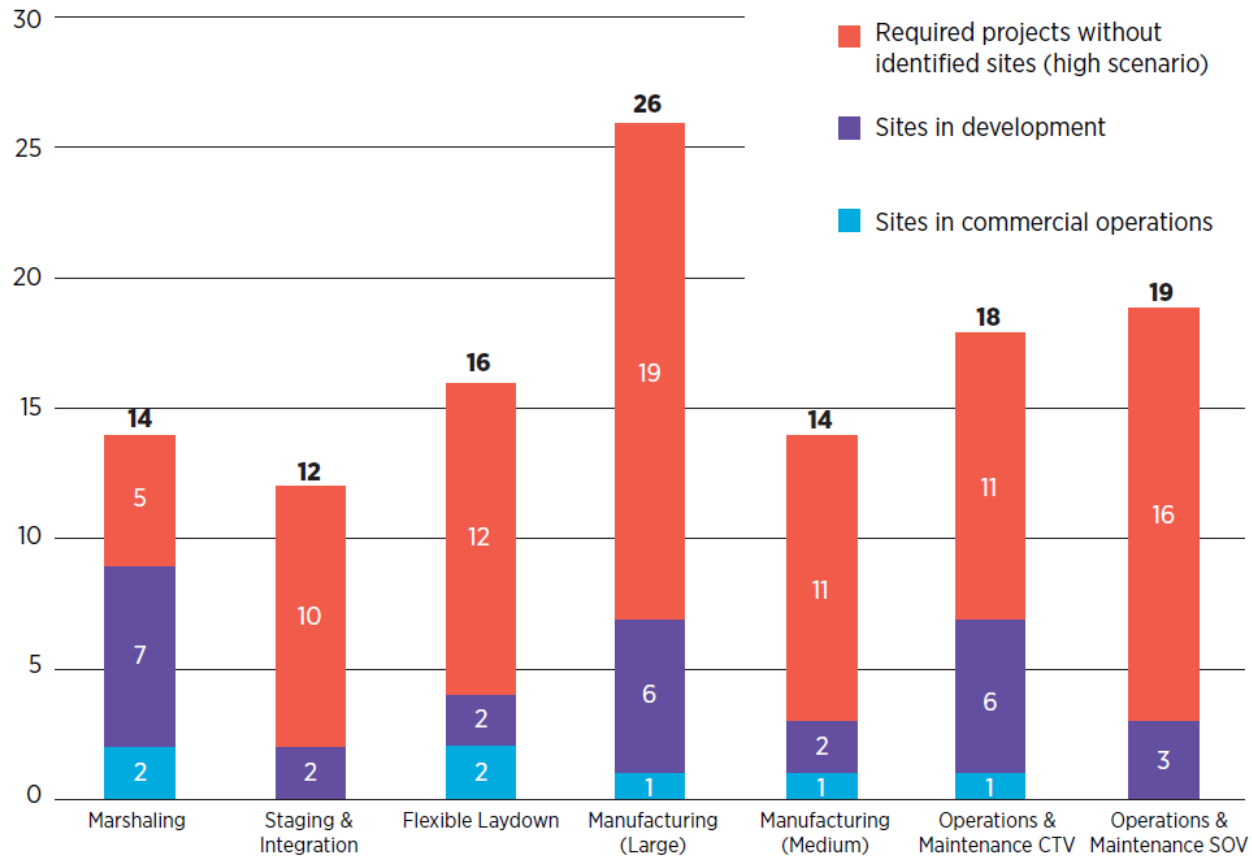
A \$36B Plan for Domestic Clean Energy Infrastructure



- Developed in partnership with the **Oceantic Network's** Ports Working Group and **published in September 2023**
- Objectives:
 - **New national baseline for the amount of funding required** to support offshore wind port development
 - **Realistic timeline for when that funding is needed** to help state and federal governments better plan
 - **Set of state and federal solutions** that could accelerate both **public and private sector capital** for offshore wind port development
- Scope:
 - **East, West, and Gulf Coast**
 - Anchored in 30GW by 2030, but...
charting a pathway to 110 GW by 2050

Bottom-up assessment for how many ports will be needed for each port project type in each U.S. regional market / component type

Graphic 1: Offshore wind port infrastructure requirements by port type and project status



- **U.S. needs 99 to 119 port development sites** across the East Coast, the West Coast, and the Gulf of Mexico
- **35 offshore wind port projects in operations or under development**, mostly in the Northeast and Mid-Atlantic
- The **vast majority of projects under development have material funding gaps** that are slowing down development
- **Typical funding gap range is \$50-150 M**, but can be much higher
- **Offshore port infrastructure gap of 64 to 84 projects**

CA numbers are fully aligned with AB 525 Port's Readiness Plan

Top-down approach to estimate the national construction funding gap for offshore wind ports

Table 9: *Current offshore wind construction funding gaps (unescalated \$ 2023)*

Port type	In-development construction funding gap (\$M 2023)	Unidentified project construction funding gap (\$M 2023)		Total construction funding gap (\$M 2023)	
		Low	High	Low	High
Marshaling	\$1,050	\$1,500	\$2,500	\$2,550	\$3,550
Staging & Integration	\$1,584	\$7,200	\$8,000	\$8,784	\$9,584
Flexible Laydown	\$24	\$320	\$480	\$344	\$504
Manufacturing (Large)	\$1,050	\$5,250	\$6,650	\$6,300	\$7,700
Manufacturing (Medium)	\$45	\$600	\$825	\$645	\$870
Operations & Maintenance CTV	-	\$540	\$660	\$540	\$660
Operations & Maintenance SOV	\$375	\$3,000	\$4,000	\$3,375	\$4,375
Total	\$4,128	\$18,410	\$23,115	\$22,538	\$27,243

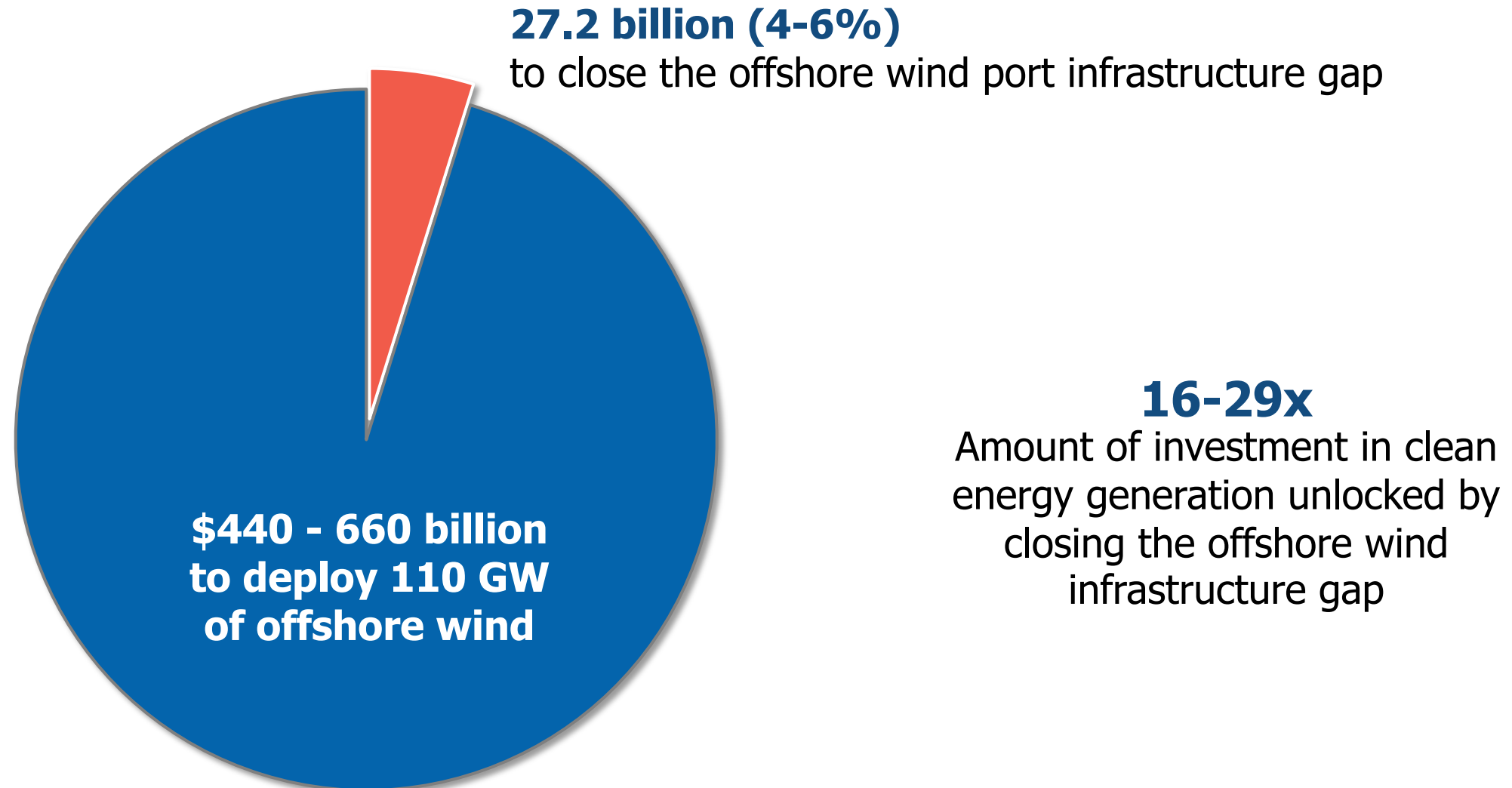
Numbers are *largely* aligned with
AB 525 Port's Readiness Plan

Step 1

Step 2

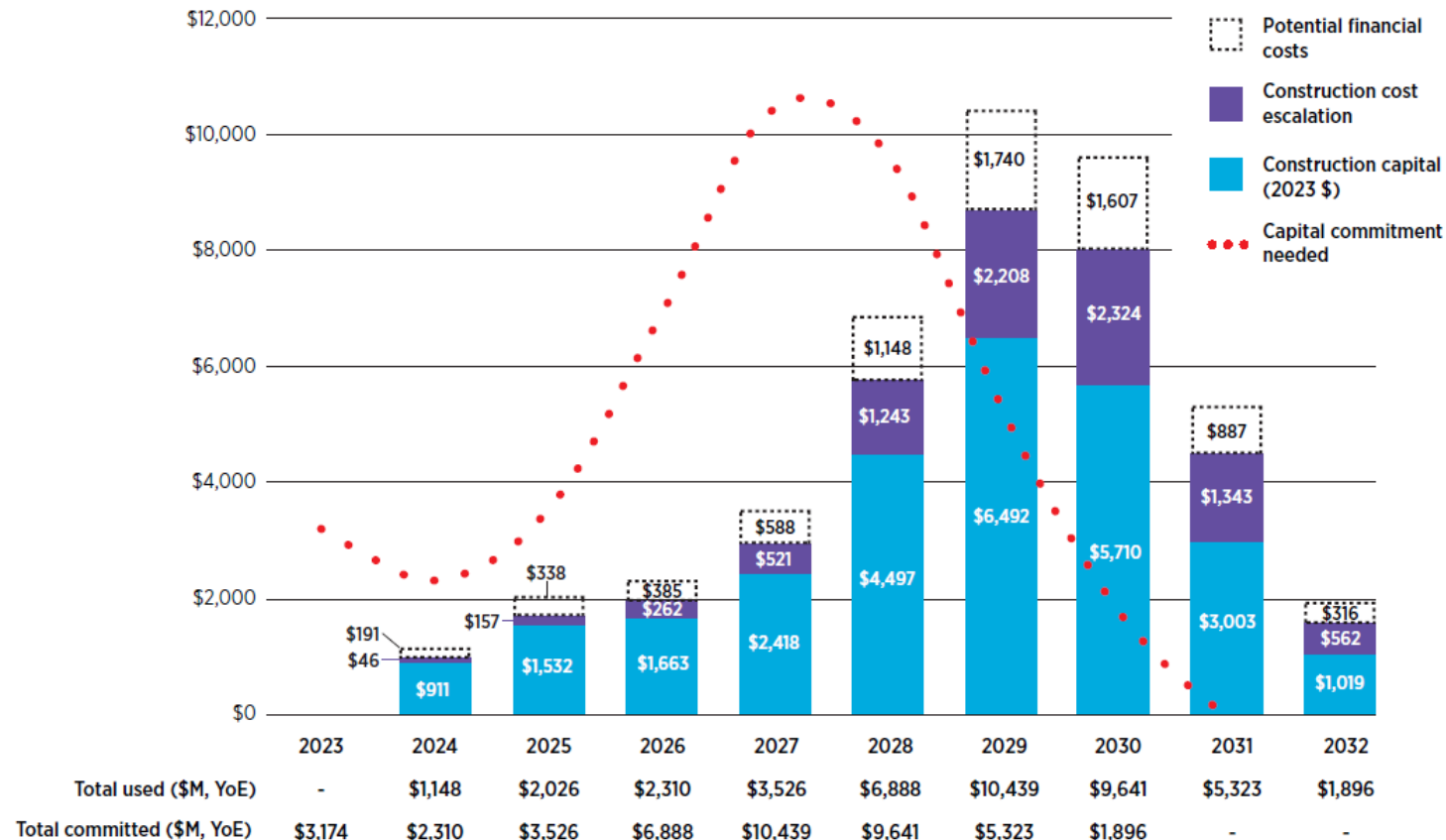
Step 1 + Step 2

Put into context, investing in offshore wind infrastructure is a common-sense policy approach to unlocking clean energy and jobs

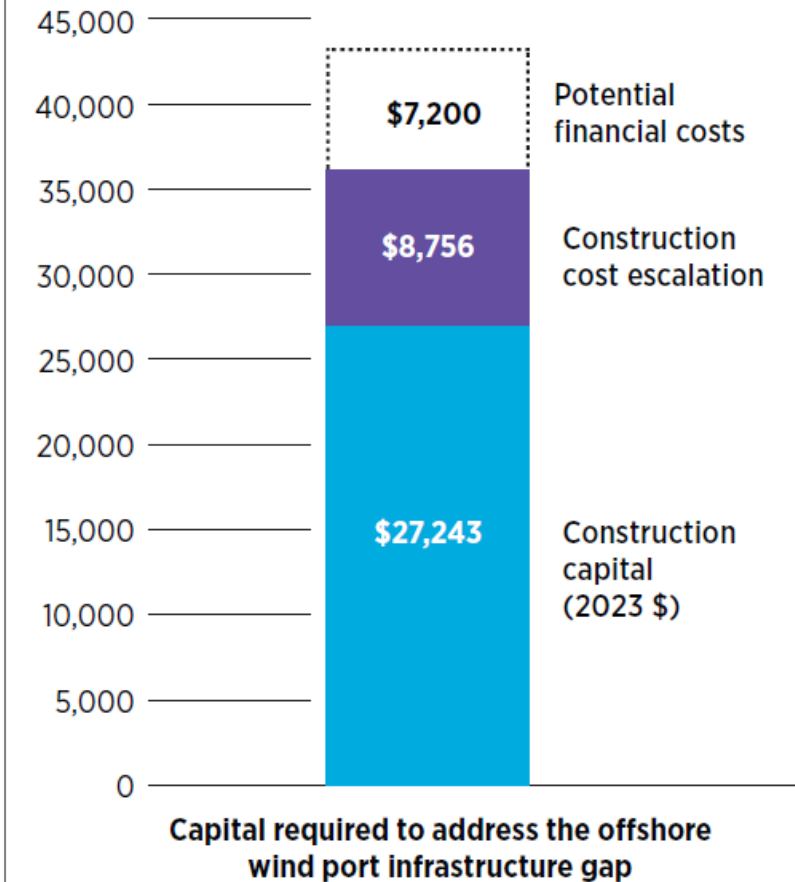


Understanding when this funding needs to be committed and used is very important

Graphic 3: Escalated offshore wind port development capital needed (\$ M, YoE)



Graphic 2: Total capital needed to address the offshore wind infrastructure gap (\$ M, YoE)



We used typical distributions for project capital needs over the course of four-to-six-year development timelines, and then mapped out when each project would likely be needed

Two complementary categories of solutions for the policy makers to consider, both of which help “crowd in” private investment

Subsidize

1. Set aside a **dedicated portion of Port Infrastructure Development Program (PIDP)** funding and **increase typical award sizes** for offshore wind port projects.
2. Create **dedicated offshore wind port funding programs at the local, state, and federal levels** that can provide significantly increased levels of grant funding.
3. Consider the **issuance of government-backed Climate Bonds** financing as a low-cost source of debt capital for port projects.
4. Add offshore wind generation and enabling infrastructure as a **policy priority for Department of Energy (DOE) Major Demonstration and Deployment Financial Assistance**.
5. Explore issuing **state tax credits for successful offshore wind infrastructure developments**.

Substantially derisk

6. Broaden the **authorities of the DOE’s Loan Program Office (LPO)** to support the financing and derisking of offshore wind port and vessel development.
7. Accelerate commitments and actions to **build an unfragmented, long-term offshore wind project market**.
8. Investigate **state and local mechanisms to reduce commercial offtake risk for offshore port projects**.
9. Accelerate the **permitting process** for maritime construction projects that enable offshore wind deployment and operations.

Learnings relevant to the AB 209 Grant Program

- Funding **port development through offshore wind generation projects** is at best **inefficient and risky**; at worst it's **regressive**
- Given the scale of offshore wind port development required, **California needs public and private investment into offshore wind port infrastructure**; where possible **private project sponsors should both be eligible applicants too**
- **Funding major projects that are already underway** sends a strong market signal and ultimately **derisks the overall offshore wind port market** for all projects sponsors
- Equally important is **funding a breath of early-stage development work** at lower grant amounts that can **derisk additional projects across the state** (think portfolio approach)
- The scale of the **funding needed is significant and the timelines are long**: where possible **build programs that can be scaled in the future**, even if additional funding isn't available today
- Grant funding should be **paired with action on other subsidy and derisking solutions** that will help “crowd-in” more private capital



Sean Boyd

Managing Director

Ernst & Young Infrastructure Advisors

ORIGINAL EVERSOURCE POWER TERMINAL



FOSS
OFFSHORE WIND

INDUCTION CENTER

Induction Building 10000sq ft - Ground floor

- Reception area
- Induction Centre/Room with power for TVs and projector – Suitable for 50 people at one time
- Storage room for PPE and general equipment
- Changing room with seating for 20 people
- Welfare – Toilets M/F/D, Shower, small kitchen with seating area
- 50 people in one session. Total 100 people per day
- Primary Entrance / Exit on front of building complete with security system (Access card or similar)
- Secure Entrance / Exit into Marsec zone on back of building
- Extensive (350) parking short and long term

Induction Building 5000sq ft - First floor

- Multiple offices for two people in each plus meeting rooms and corridors
- Toilets M/F/D and small kitchen area (electrical goods provided by FOSS).
- Internal stairs

Induction Building Spec

- HVAC Heating supply
- Fresh water supply for toilets and kitchen
- Power supply with standard power sockets
- Lighting
- Toilets M/F/D
- Internet



WAREHOUSING SPEC

Warehouse 10000sq ft Spec

- Max height 18ft
- Empty shell building provide for customers to outfit
- Heating system TBC
- Comply with fire regs – (fire extinguishers preferred over sprinkler system)
- Personnel access door (1 at each end)
- 2 x roller shutter doors 15/20 ft – 1 at each end (enough for a 15t FLT)
- General power supply and cable runs
- Infrastructure in place in case requirement for HVAC



BERTHING

Deep Water Berthing

- Deep water berth for an SOV or PSV
- Berth suitable for 330ft length, 130ft breadth, 32ft draft overall
- 3 crane pads suitable for 1000t cranes
- 4" fuel position
- Shore power
- Potable water positions
- Locally contracted waste disposal company for black/sludge water
- Passenger transfers separated from lifting operations

CTV Berthing

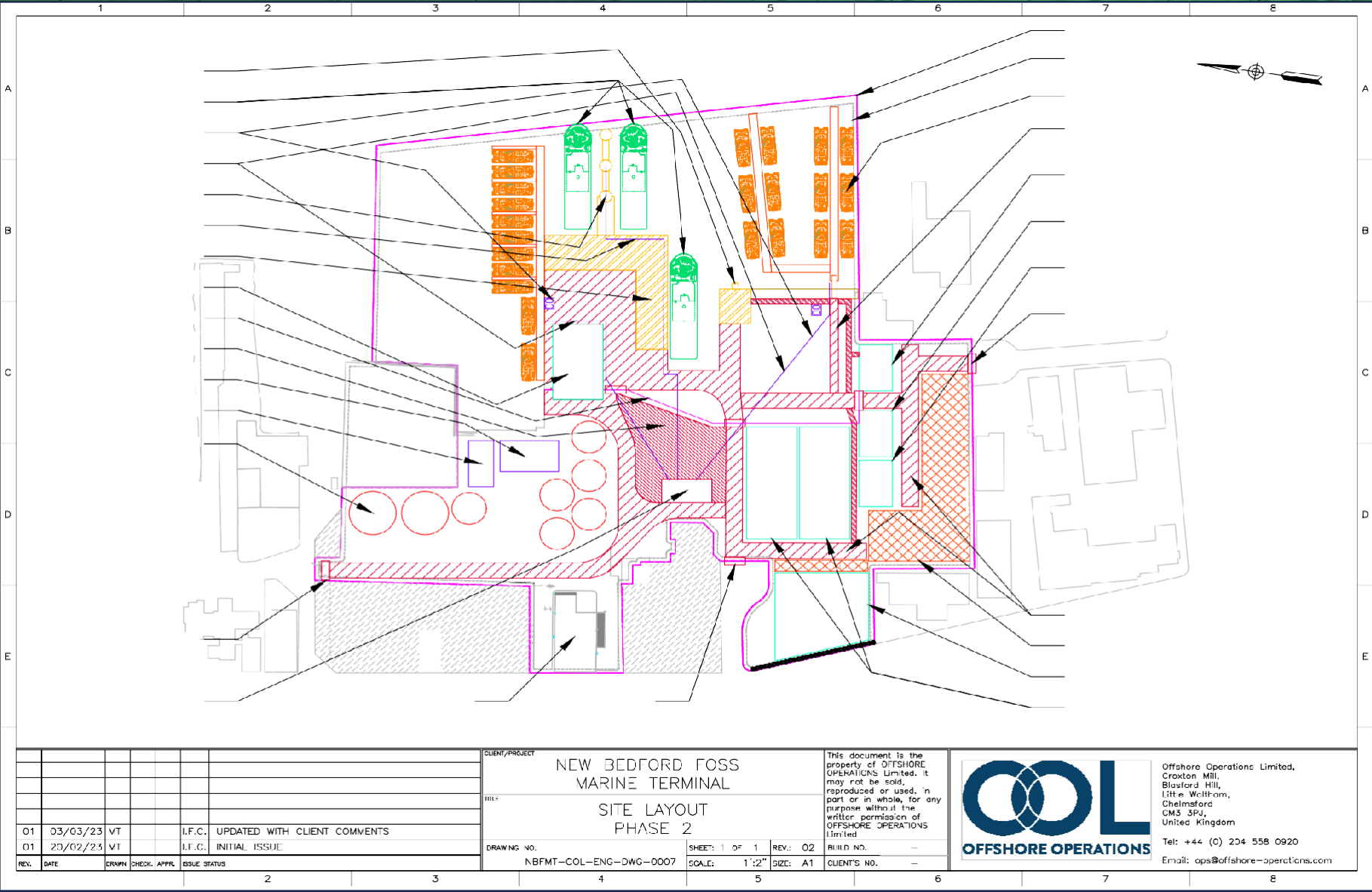
- 4 CTVs
- 2" fuel line running to nozzle station on rail
- Shore power
- Vacuum system for disposal of black/bilge/sludge water
- Potable water positions



PHASE III OVERVIEW OF SITE WITH 3 ANCHOR TENANTS AND 3 DEEPWATER BERTHS



PHASE III OVERVIEW OF SITE WITH 3 ANCHOR TENANTS AND 3 DEEPWATER BERTHS



CAPE STREET ENTRANCE WITH INDUCTION CENTER AND WAREHOUSES



FOSS
OFFSHORE WIND



Molly Croll

Pacific Offshore Wind Director

American Clean Power



Public Comment

In person:

- Line up at the podium

Zoom:

- Use the “raise hand” feature

Telephone:

- Dial *9 to raise your hand
- Staff will call on you to talk
- *6 to mute/unmute your phone line or use the mute feature on your phone.

Zoom participants:

- Use the raise hand feature
- Staff will call on you to talk
- Unmute your line
- Alternatively, type your comment in the Q&A window

- Limited to 1 representative per organization.
- Spell your name for the record.

3-Minute Timer



Thank you!

Technical Inquiries: Eli Harland and Elizabeth Barminski

offshorewind@energy.ca.gov

Slides, recording, and transcript will be posted in the docket (23-MISC-01)

<https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=23-MISC-01>

Subscribe to the Offshore Wind Waterfront Facility Improvement Program List Serve

<https://www.energy.ca.gov/programs-and-topics/programs/offshore-wind-waterfront-facility-improvement-program>

Written comments by December 1, 2023

The CEC encourages the use of its electronic commenting system. Visit the e-commenting page for docket 23-MISC-01 at

<https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=23-MISC-01>.

Written comments may also be submitted by email. Include docket number 23-MISC-01 in the subject line and email to docket@energy.ca.gov.