DOCKETED	
Docket Number:	25-AB-03
Project Title:	Assembly Bill 3 California Offshore Wind Advancement Act
TN #:	264348
Document Title:	Staff Workshop on Assembly Bill 3 Scoping Reports on Offshore Wind Seaports, Workforce, and Supply Chain
Description:	Primary Slide Deck for June 18, 2025 Staff Workshop on Assembly Bill 3: Scoping Reports on Offshore Wind Seaports, Workforce, and Supply Chain
Filer:	susan fleming
Organization:	California Energy Commission
Submitter Role:	Commission Staff
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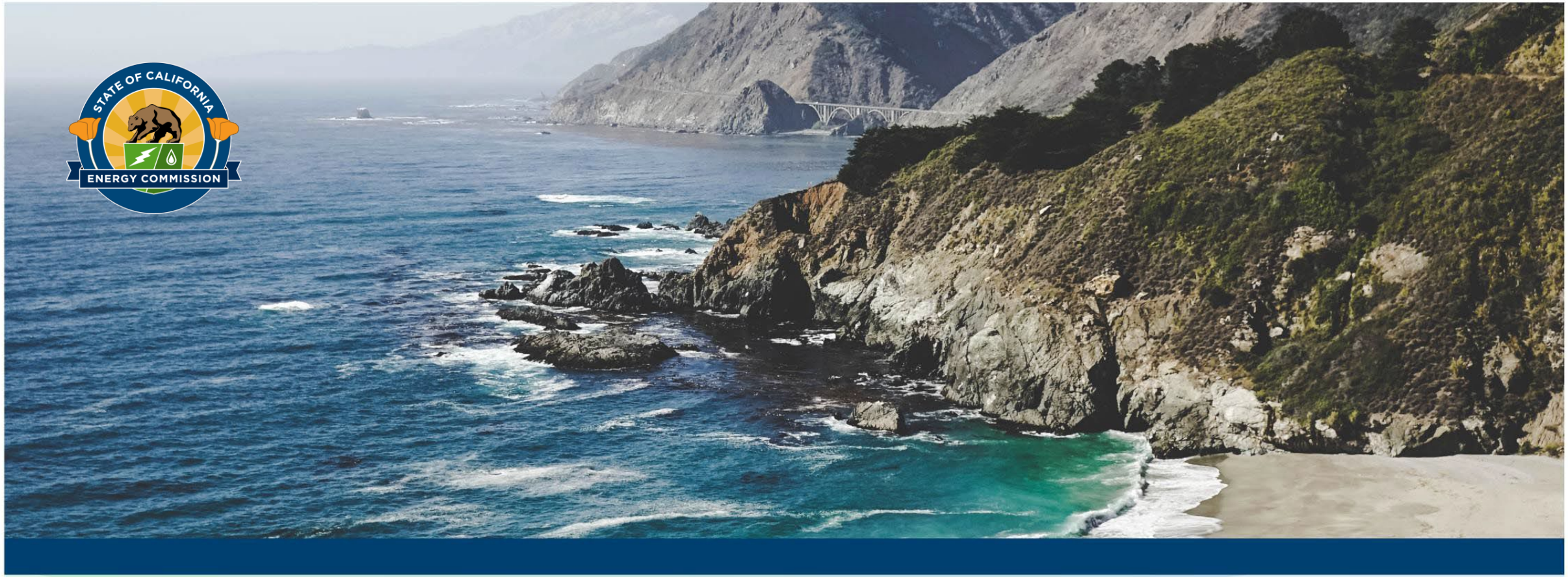


Staff Workshop on Assembly Bill 3: Scoping Reports on Offshore Wind Seaports, Workforce, and Supply Chain

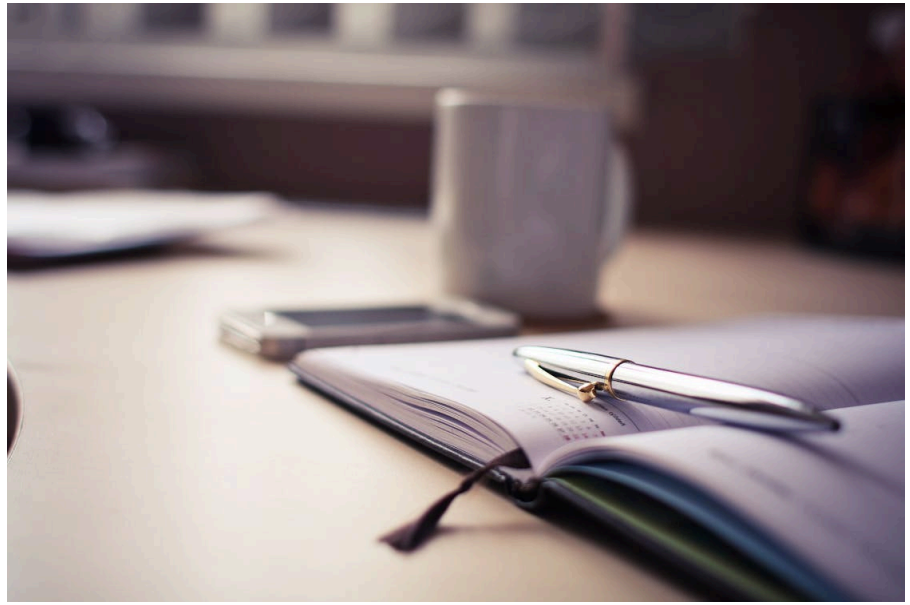
Siting, Transmission, and Environmental Protection Division
June 18, 2025

Logistics

- Remote-only workshop
- Recording will be posted
- Public comments
    - Verbal comments at the end of the workshop
    - Written comments by July 18, 2025

Workshop Schedule

1. Welcome and Logistics
2. Opening Remarks
3. Introduction to AB 3 Requirements
4. Subject Matter Expert Presentations
   - Previous Port Studies
   - Previous Offshore Wind Supply Chain and Workforce Studies
   - Questions and Answers
5. Assembly Bill 3 Literature Assessment
6. Scoping Document and Request for Comments
7. Public Comment



Opening Remarks

Elizabeth Huber

Director

Siting, Transmission, and Environmental Protection Division

California Energy Commission

Introduction to Assembly Bill 3 Reports

Elizabeth Barminski

Offshore Wind Program Specialist

Siting, Transmission, and Environmental Protection Division

California Energy Commission

Assembly Bill 3 Legislation

Assembly Bill 3 requires the California Energy Commission (CEC) to author and submit two reports to the Governor and the Legislature.

Report 1: Offshore Wind Seaport Readiness Plan

- Second-phase plan and strategy for seaport readiness
- Build on recommendations and alternatives in the strategic plan
- 10 requirements
- Due December 31, 2026

Report 2: In-State Assembly, Supply Chain, and Workforce Feasibility Study

- Study on the feasibility of achieving *50 percent* and *65 percent* in-state assembly and manufacturing of offshore wind energy projects and domestic content thresholds for offshore wind energy projects
- 13 requirements
- Due December 31, 2027

Seaport Readiness Requirements (Report 1)

- Identify feasible seaport locations
- Recommend port alternatives
- Minimize impacts to cultural and natural resources
- Maximize in-state workforce opportunities
- Consider transportation and other infrastructure investments
- Identify port costs, funding and financing strategies

Report 1 Requirements (Continued)

- Collaborate with tribal governments and consult with key stakeholders to develop appropriate seaport siting criteria
- Collaborate with the oceangoing vessel operator and commercial maritime industry to identify spatial planning policies and siting criteria

Supply Chain and Workforce Requirements (Report 2)

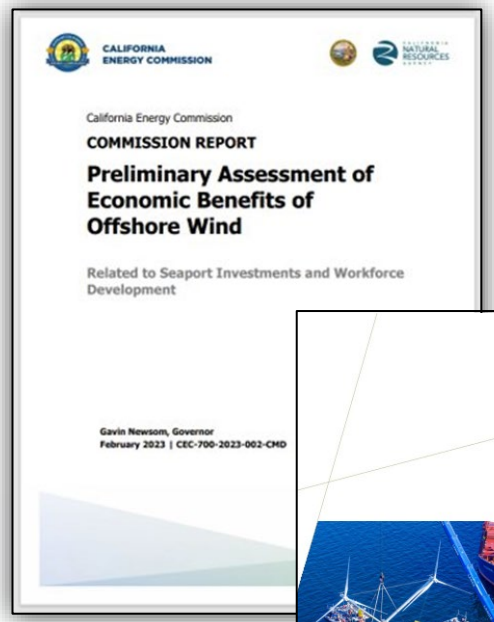
- Assess current manufacturing capabilities and identify gaps
- Estimate number and type of jobs needed
- Identify investments needed and available funds

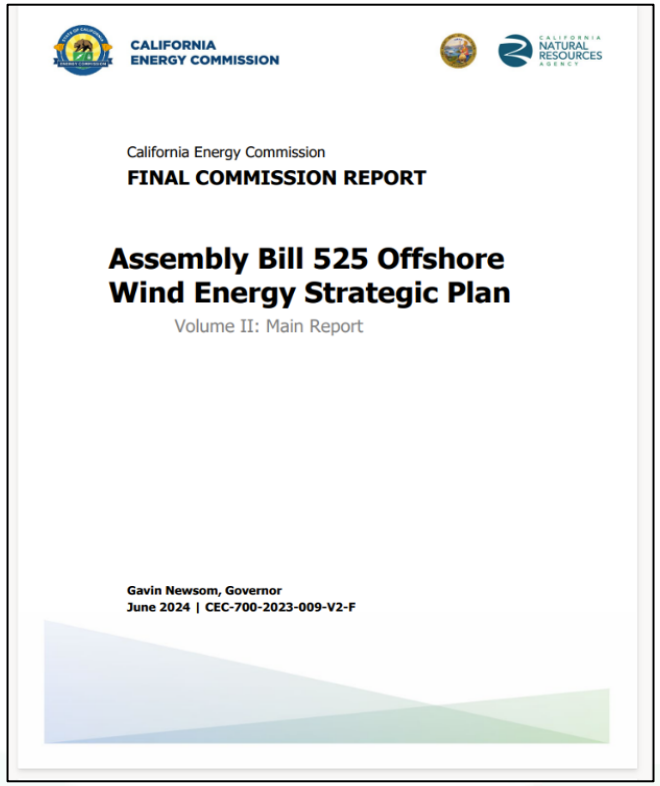
- Study and estimate potential impacts of in-state targets to:
  - Economic activity, job growth, and tax revenue
  - Project development timelines and costs, and
  - Electric ratepayers

Report 2 Requirements (Continued)

- Develop recommendations for incorporating equity and environmental justice into supply chain development
- Coordinate with tribal governments to develop recommendations for tribal workforce development opportunities
- Consult with key stakeholders to develop recommendations for workforce development opportunities
- Consult with building and construction trades councils to develop recommendations on the use of project labor agreements to achieve workforce development and apprenticeship goals

Foundational Reports from AB 525



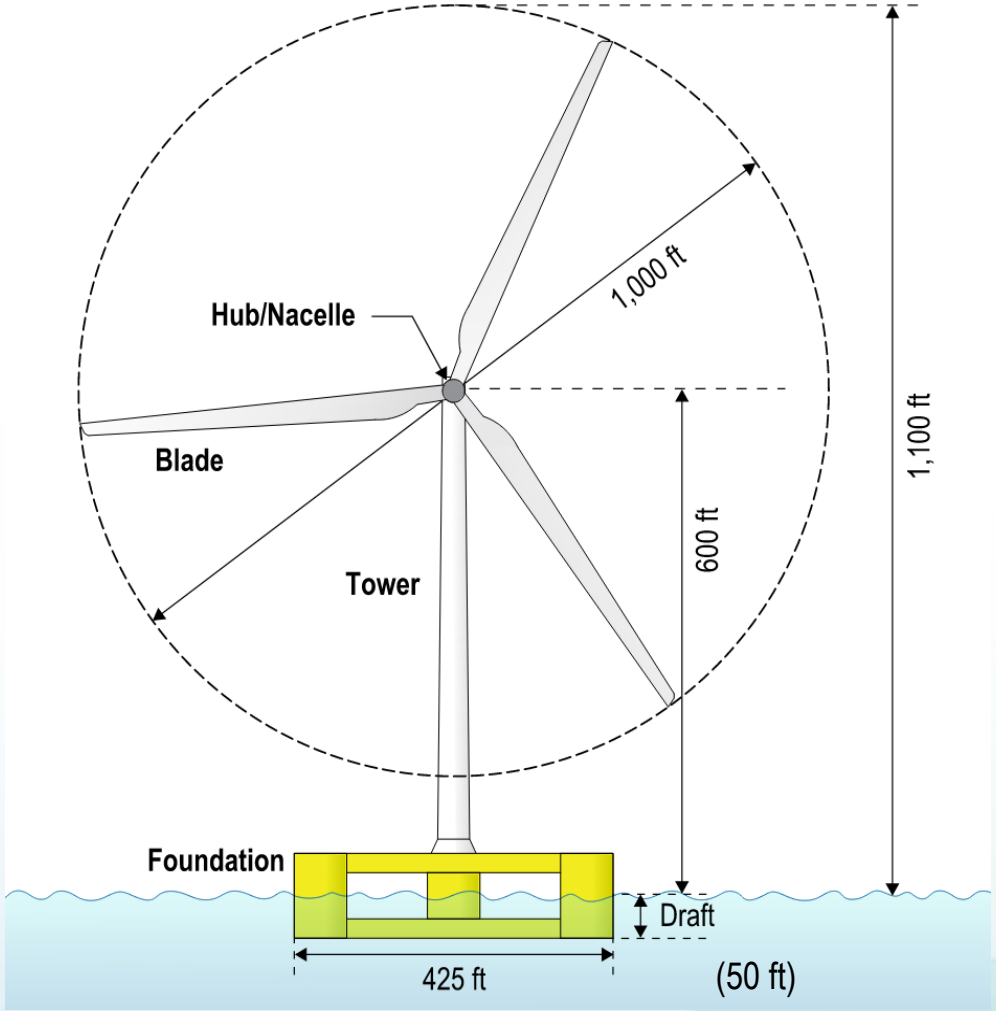


More information on the CEC AB 525 Reports is available at:

https://www.energy.ca.gov/data-reports/reports/ab-525-reports-offshore-renewable-energy

The Scale of Floating Offshore Wind

Representative Floating Offshore Wind Turbine Dimensions



Source: Port Plan. 2023

Example of a floating platform

Example of a nacelle

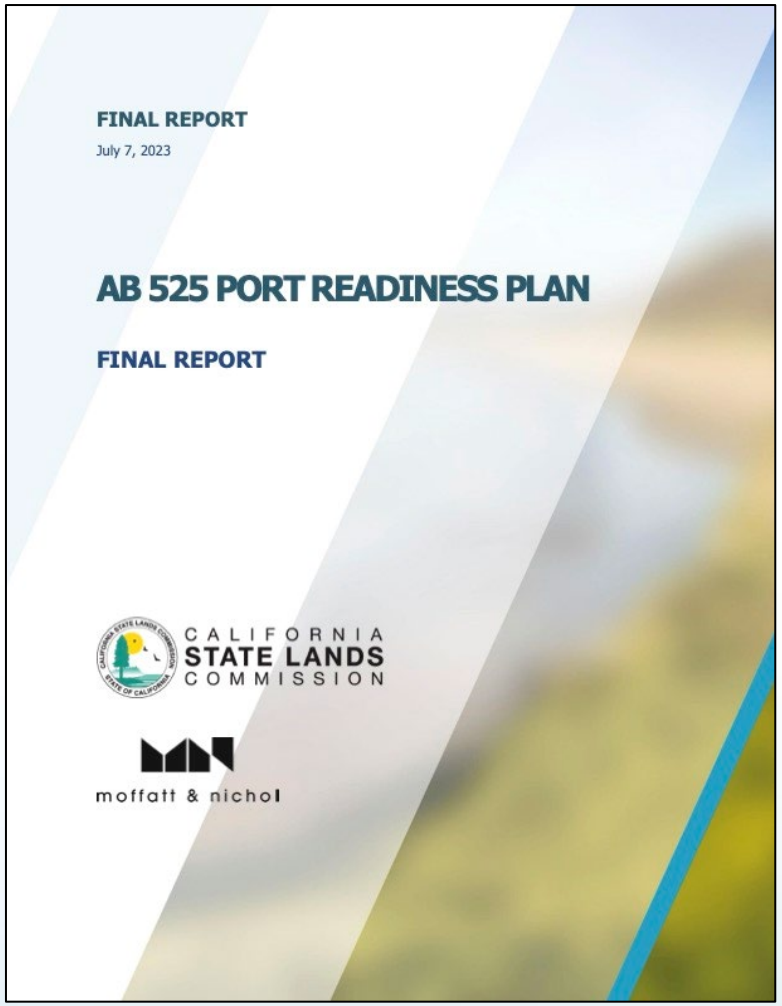
Port and Waterfront Infrastructure

- Port upgrades needed to support OSW
- 3 port types:
  - Staging and integration
  - Manufacturing and fabrication
  - Operations and maintenance

Rendering of Pier Wind
Source: Port of Long Beach

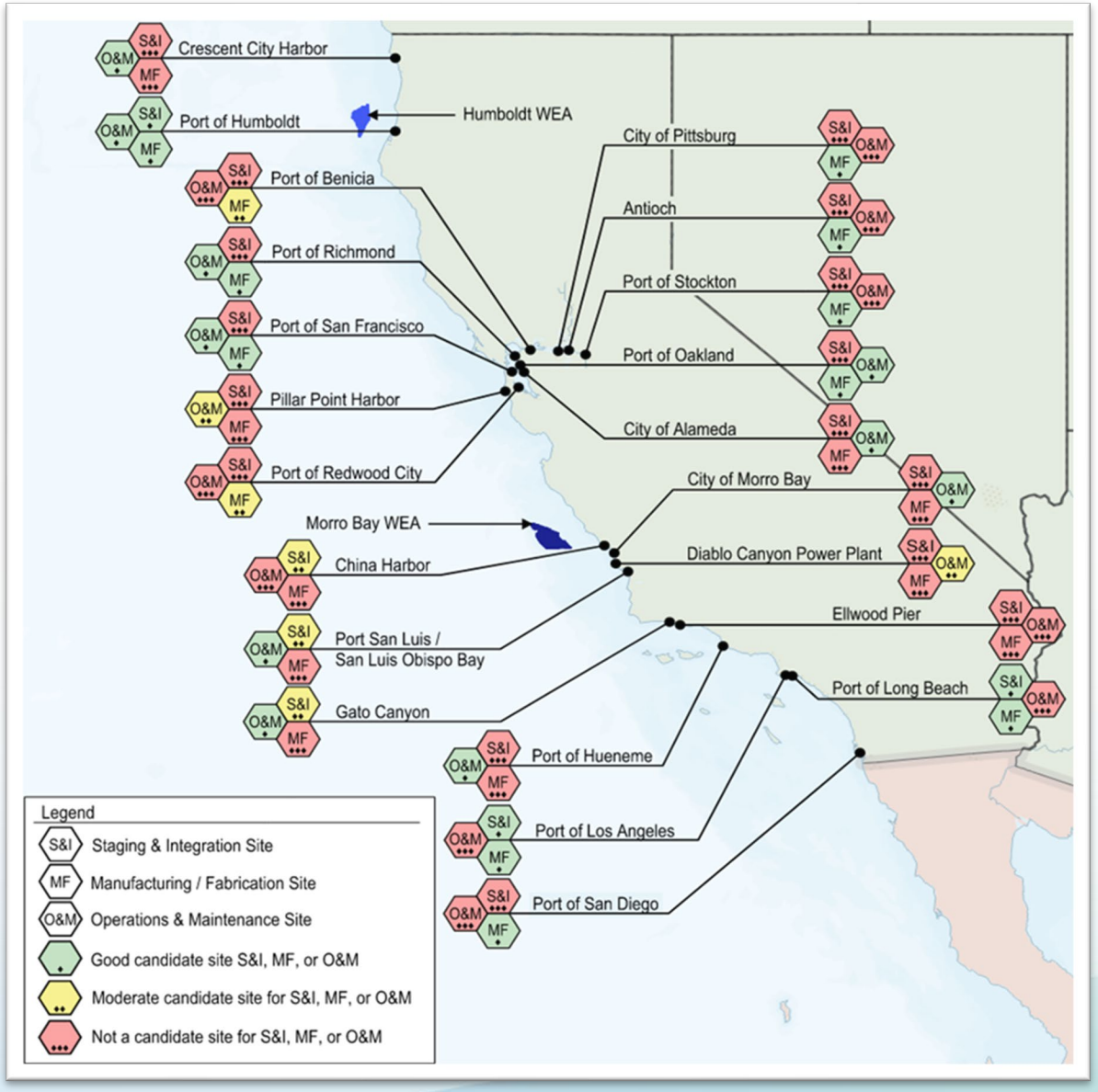
Heavy-lift wharf construction at State Pier, New London, CT
Source: CEC

Key Takeaways from Port Readiness Plan



- Multiple ports are required
- Staging and integration ports must be prioritized
- Funding for early-stage planning and construction is needed
- Level of local content anticipated is a driver for number of port sites
- Port specific environmental information is needed
- Planning is needed to prepare for marine operations and offshore wind challenges

AB 525 Strategic Plan: Port Infrastructure Needs



Number of Port Sites or Acreage Needed to Develop 25 GW by 2045

Type of Site	Number of Port Sites or Acreage Required
Staging and Integration Sites	**3 to 5**
Blade Manufacturing and Fabrication Sites	**2**
Tower Manufacturing and Fabrication Sites	**1**
Nacelle Assembly Sites	**1**
Foundation Subcomponent Manufacturing and Fabrication Site	**4**
Foundation Assembly Sites	**4**
Service Operations Vehicles berths for Operations & Maintenance Activities	**9 to 16**
Mooring Line and Anchor Storage Sites	**20 to 65 acres**
Electrical Cable Laydown Sites	**12 to 22 acres**

Source: Port Plan. 2023

Supply Chain and Workforce Benefits

Supply chain activities include:

- Raw material extraction and transport.
- Manufacturing raw material into offshore wind components.
- Transporting and delivering components to port for construction.
- Constructing the components into a finished offshore wind turbine.
- Towing the finished offshore wind turbine out to sea.

Estimated Jobs Needed for Workforce Development for 2045 Goals

Source/Model	Supply Chain	Construction	Operations & Maintenance	Total Jobs
American Jobs Project	9,000	1,400	2,600	13,000
NREL	11,280	2,340	4,330	17,950
Guidehouse	1,936	173	1,508	5,063
Total Range	**3,382– 11,280**	**173 – 2,340**	**1,508 – 4,330**	**5,063 – 17,950**

Source: Catalyst Assessment. 2023

State Agency Coordination

CALIFORNIA STATE LANDS COMMISSION
STATE OF CALIFORNIA

CALIFORNIA GOVERNOR'S OFFICE OF BUSINESS AND ECONOMIC DEVELOPMENT

CALIFORNIA OCEAN PROTECTION COUNCIL

PUBLIC UTILITIES COMMISSION
EUREKA
STATE OF CALIFORNIA

DEPARTMENT OF WATER RESOURCES
STATE OF CALIFORNIA

CALIFORNIA COASTAL COMMISSION

CALIFORNIA DEPARTMENT OF FISH & WILDLIFE

LABOR & WORKFORCE DEVELOPMENT AGENCY

CALIFORNIA Workforce Development Board

CA Governor's Office of Land Use and Climate Innovation

Previous Port Studies

Jennifer Lim

Ports and Offshore Wind Lead

Moffatt & Nichol

Assembly Bill 3 Staff Workshop

Offshore Wind Seaports Status Update

Presenter: Jennifer Lim

moffatt & nichol

Who We Are

moffatt & nichol

Creative People, Practical Solutions.®

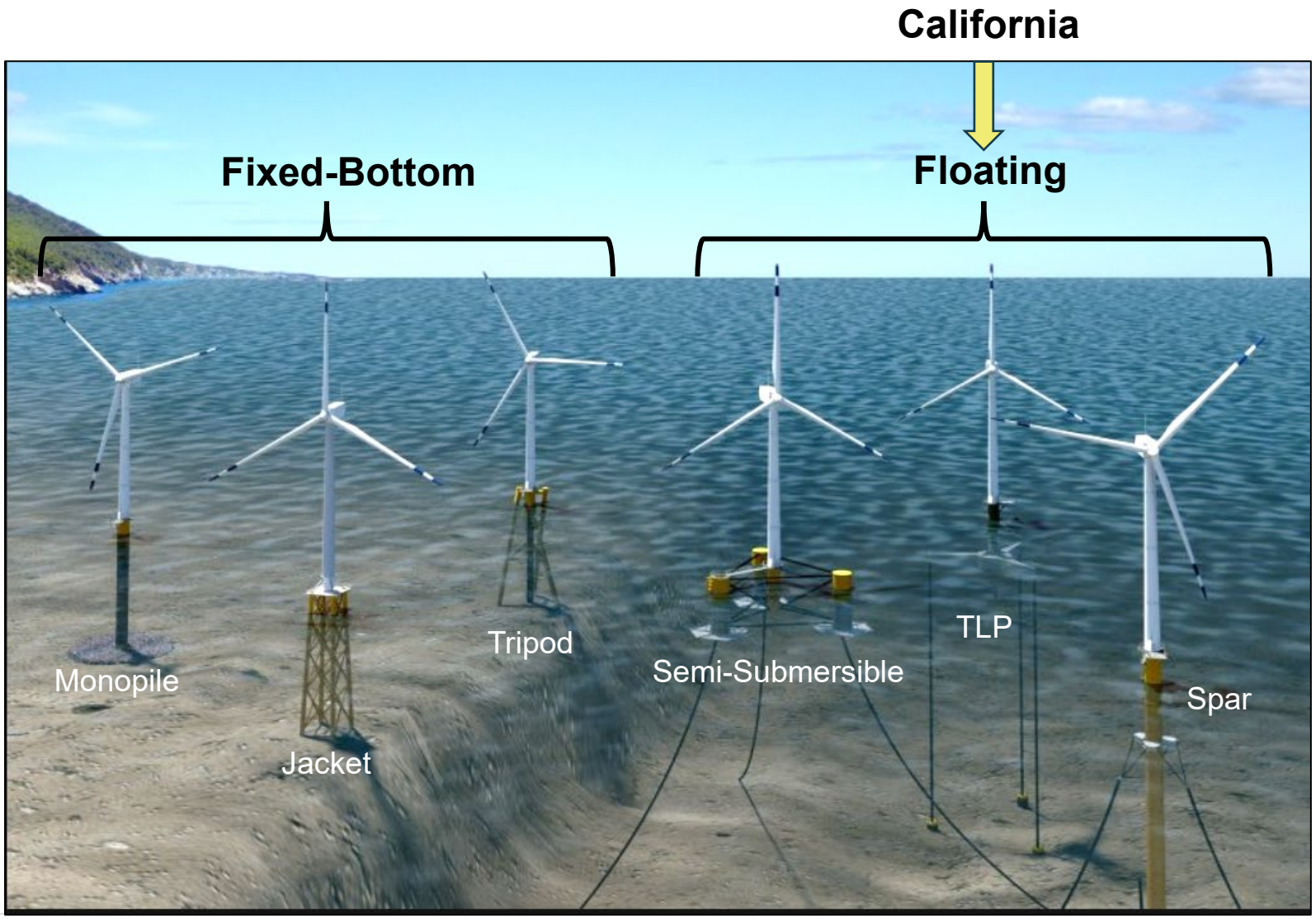
- Port Infrastructure Consultant
- Since 1945, Naval Shipyards in Long Beach
- Experts where land meets water
- West & East Coasts, & Gulf of Mexico coastline
- Ports & Harbors
- All Maritime Business Lines
  - Offshore wind, containers, bulk cargo, marinas, etc.

Jennifer Lim, P.E.

- Marine Engineer
- Port Infrastructure Expert
- Offshore Wind Ports
- Author of Federal / State Offshore Wind Reports for BOEM, California State Lands Commission, and NREL

Fixed-Bottom vs. Floating Offshore Wind

- **Fixed-Bottom WTG:**
  - Attached to the seabed by monopiles or jacket structures
  - Water Depth < 200 ft (60 m)
- **Floating WTG:**
  - Buoyant and stabilized to seabed via mooring lines and anchors
  - Water Depth > 200 ft (60 m)



Source: NREL

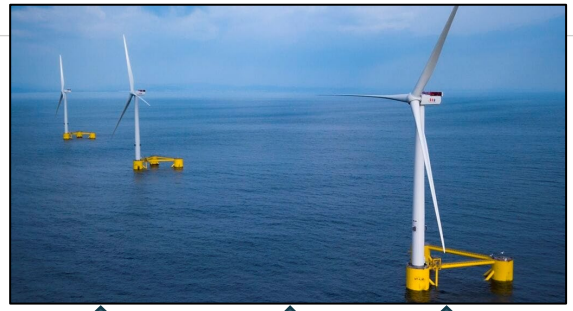
Fixed vs. Floating Offshore Wind

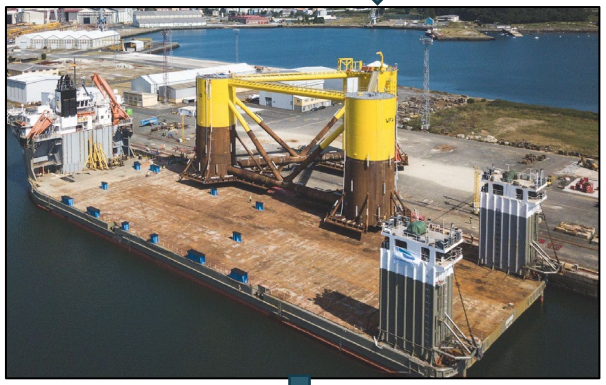
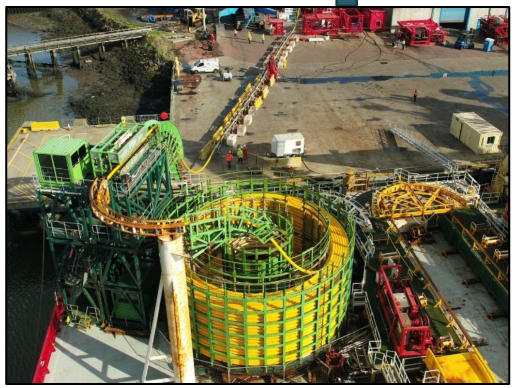
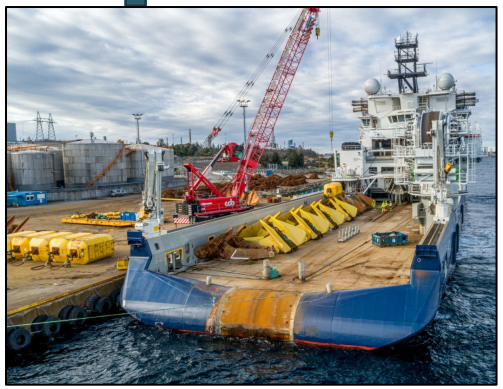
Source: NREL

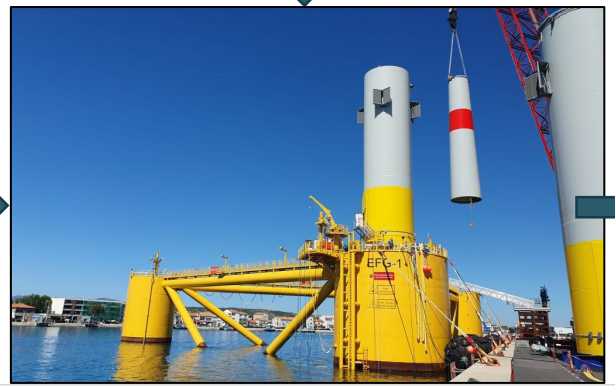
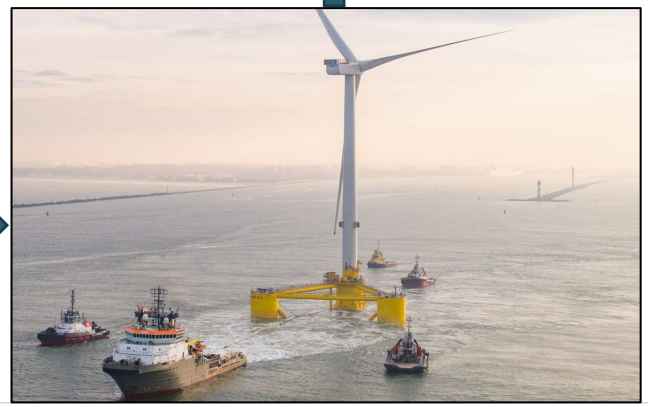
Floating Offshore Wind Turbine Assembly Operations







Moffatt & Nichol

Source: *Riviera Maritime Media, New England News Collaborative, Journal of Commerce, Principle Power, Ocean Winds, Boskalis, Global Offshore, Delmar Systems*

Offshore Wind Requires Ports

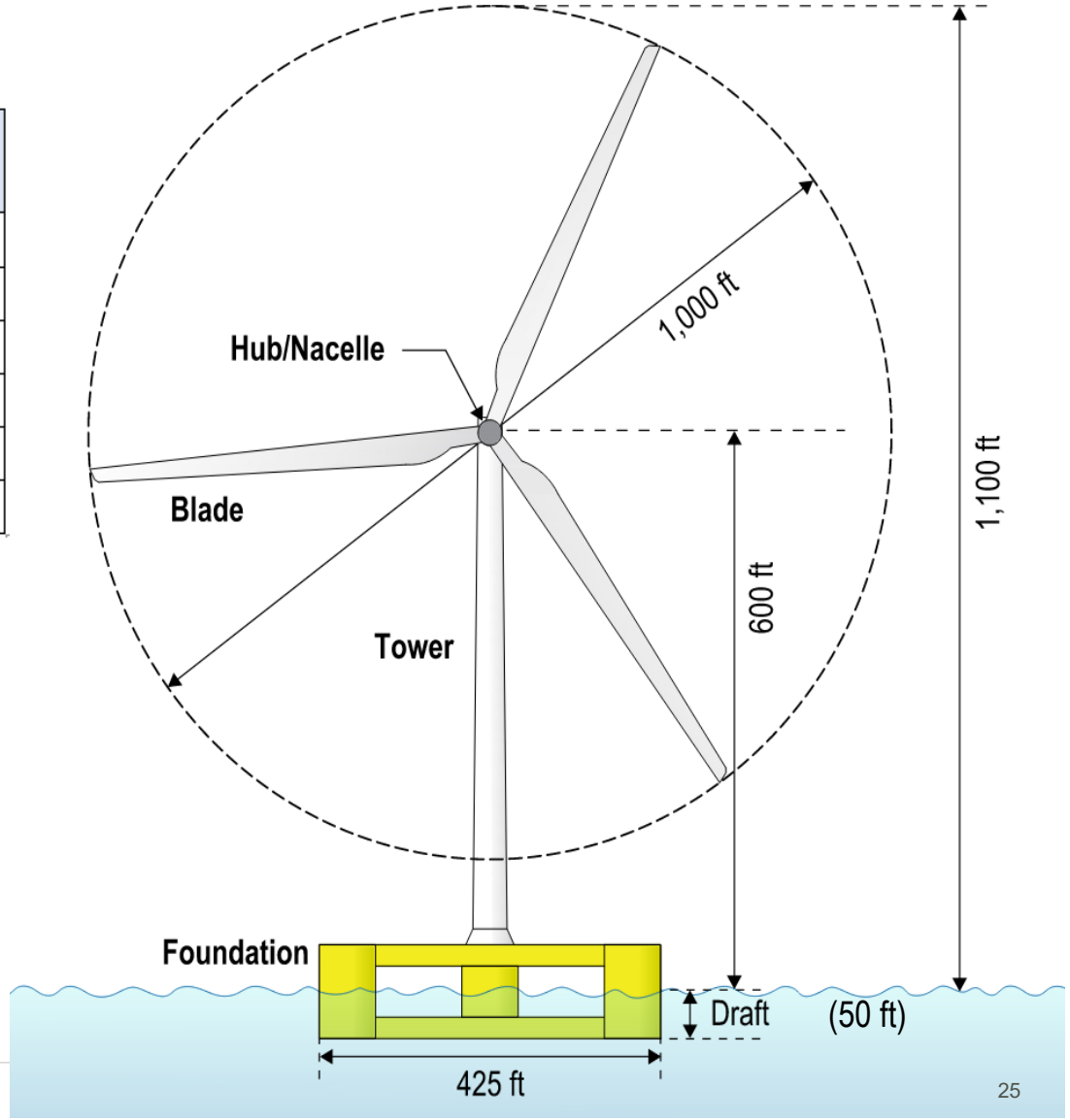
- **Component Manufacturing, Deployment Operations, and Maintenance of OSW farms requires Ports:**
  - Large laydown space
  - Sheltered harbor
  - Deep water and large width channel access
  - Heavy load capacity infrastructure and equipment
- **Existing port terminals on the U.S. West Coast are not adequate to support OSW**
  - Requires significant development and investment
  - Requires a multi-port strategy
  - Adding a new maritime industry without displacing or replacing existing maritime uses

Source: Principle Power

Future Offshore Wind Turbine Dimensions

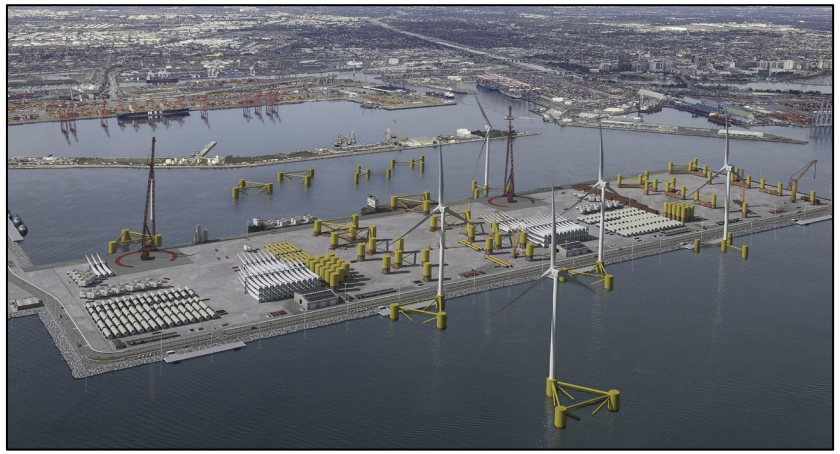
Floating Offshore Wind Turbine	Approximate Dimension [ft]	Approximate Dimension [m]
Foundation Beam / Width	Up to 425 ft x 425 ft	Up to 130 m x 130 m
Draft (Before integration)	15 to 25 ft	4.5 to 7.5 m
Draft (After integration)	20 to 50 ft	6 to 15 m
Hub/Nacelle Height (from Water Level)	Up to 600 ft	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

- Dimensions shown are for a turbine that is approximately 25 MW

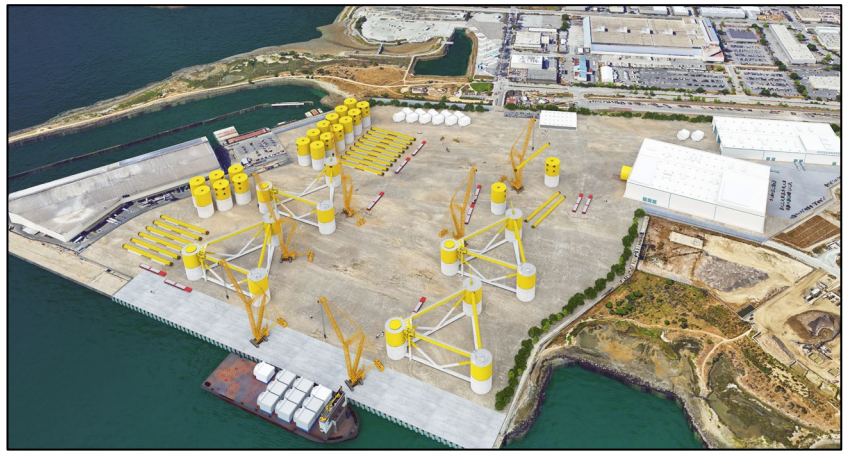


Types of OSW Port Terminals

- **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.
- **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



Staging and Integration



Manufacturing Port (Foundations Shown)

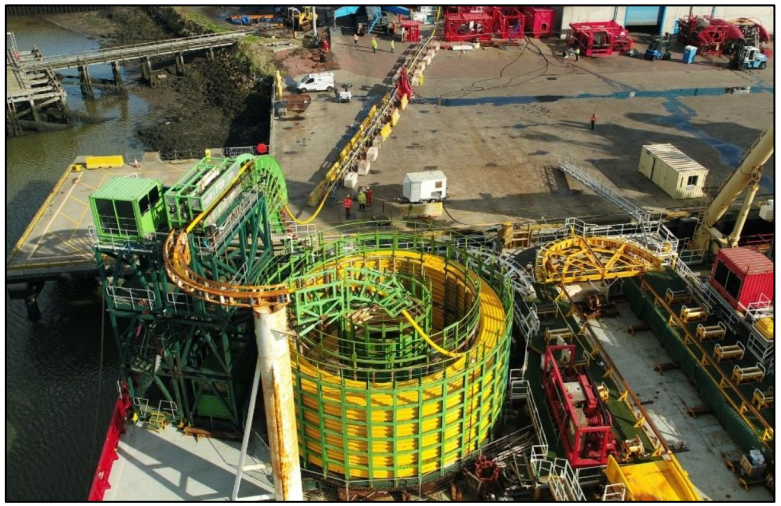
Operations & Maintenance

Source for O&M Figure: Reach & Mott MacDonald

Types of OSW Port Terminals- continued

- **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

Anchor Storage



Cable Laydown

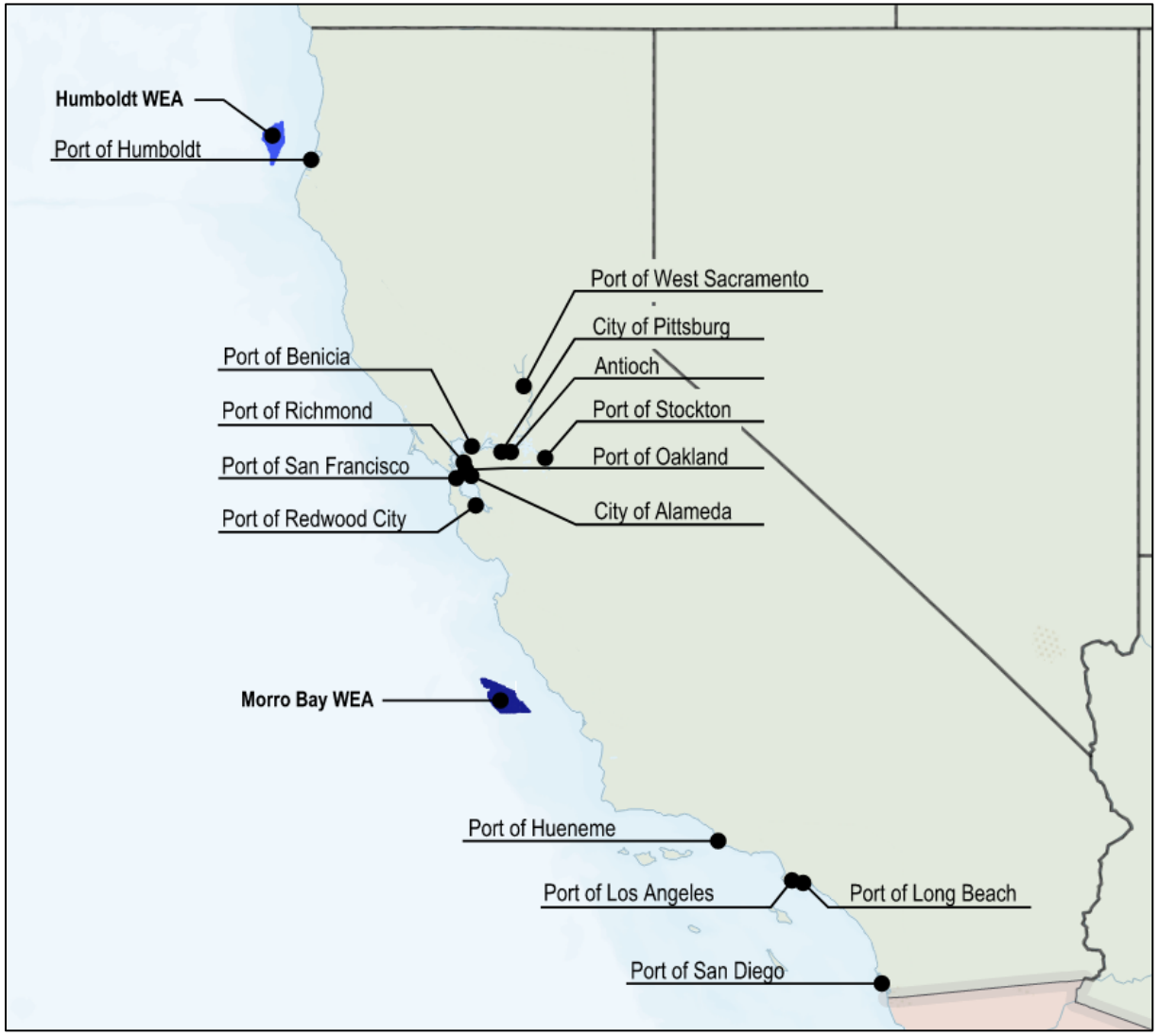
Source: MAERSK Service Supply, Global Marine Group

Floating OSW Port Requirements

Design Requirement	Staging and Integration (S&I)	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

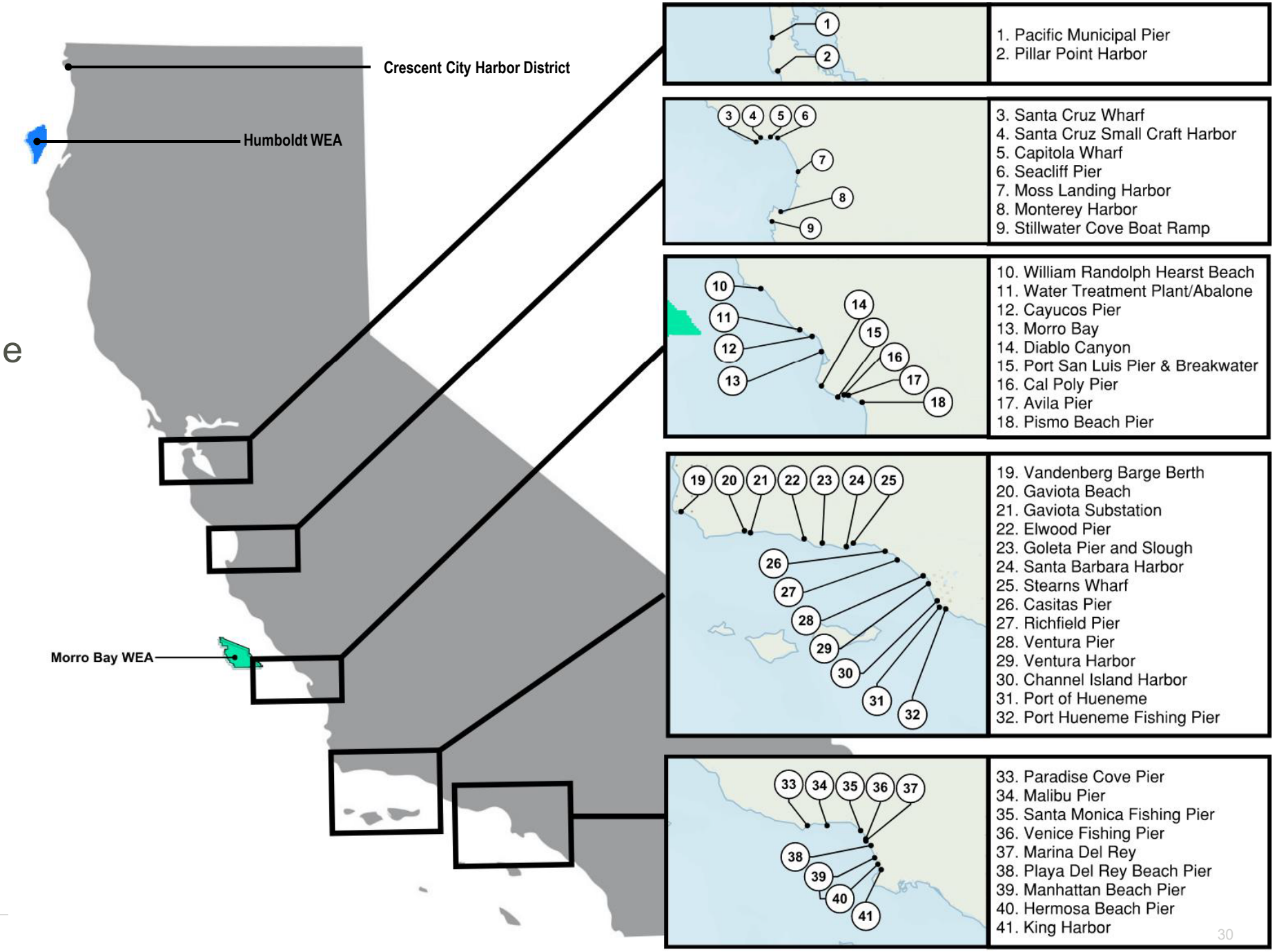
AB 525 – Existing Port Assessment

- **Existing Ports**
  - 11 deep water ports
  - 4 industrial port areas



AB 525 – Existing Harbors

- Existing harbors along the North and Central Coast

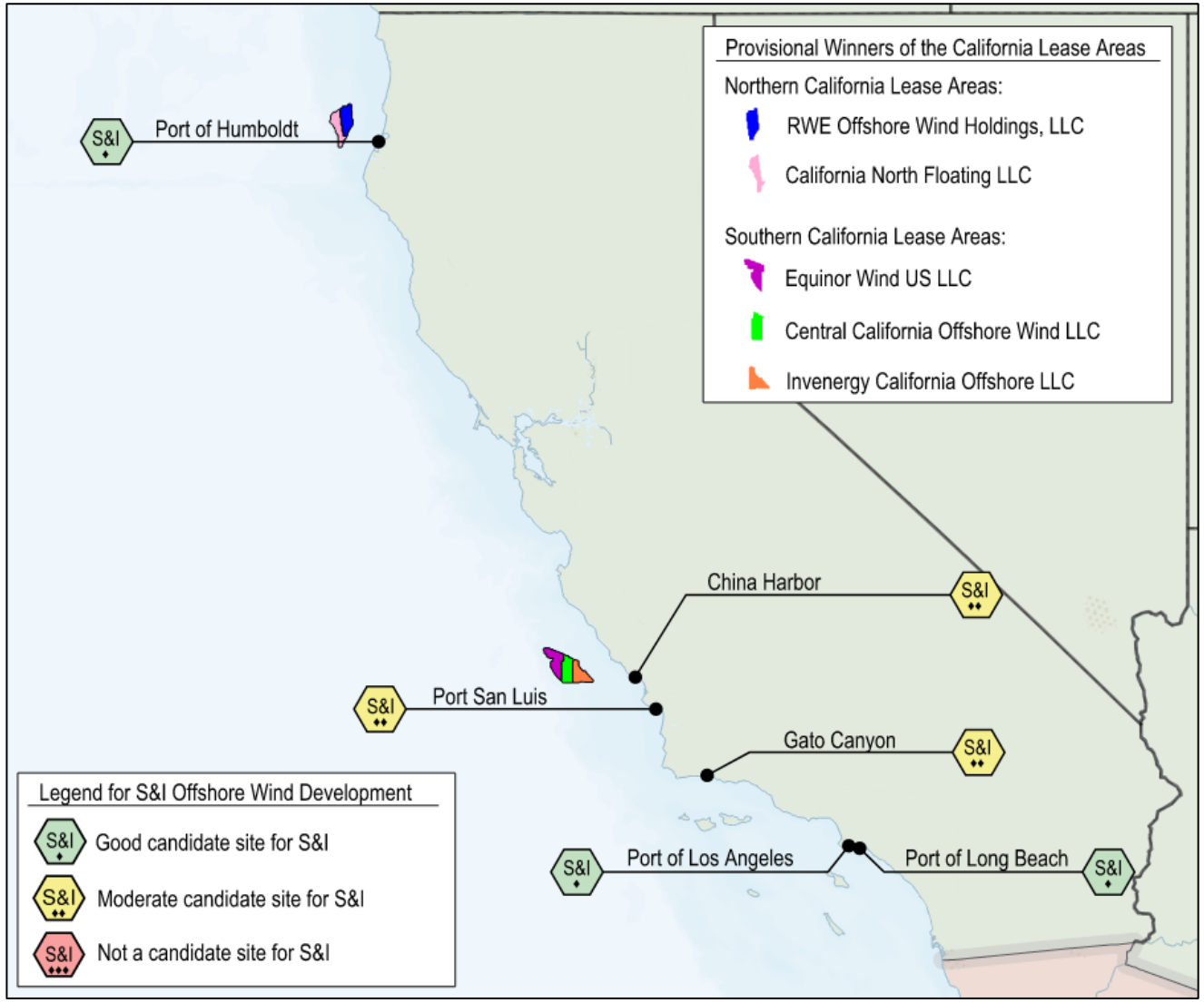


AB 525 – Alternative Port Site Screening

Site Screening Criteria

- Exclude the following sites:
  - Residential / Urban Areas
  - California Marine Protected Areas
  - State Parks
  - National Forest
  - Military Base
  - Vandenberg Danger Zone
  - Airspace Restrictions
  - Islands (e.g. Catalina, San Nicolas, San Clemente)
  - Existing offshore oil & gas platforms
- Consider Existing and Proposed National Marine Sanctuaries
- Consider Engineering Feasibility
- Consider Permitting and Environmental Impacts

AB 525 – Staging & Integration Port Sites



- 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 for S&I sites

PIER WIND

CONCEPT DESIGN

Port of LONG BEACH
THE GREEN PORT

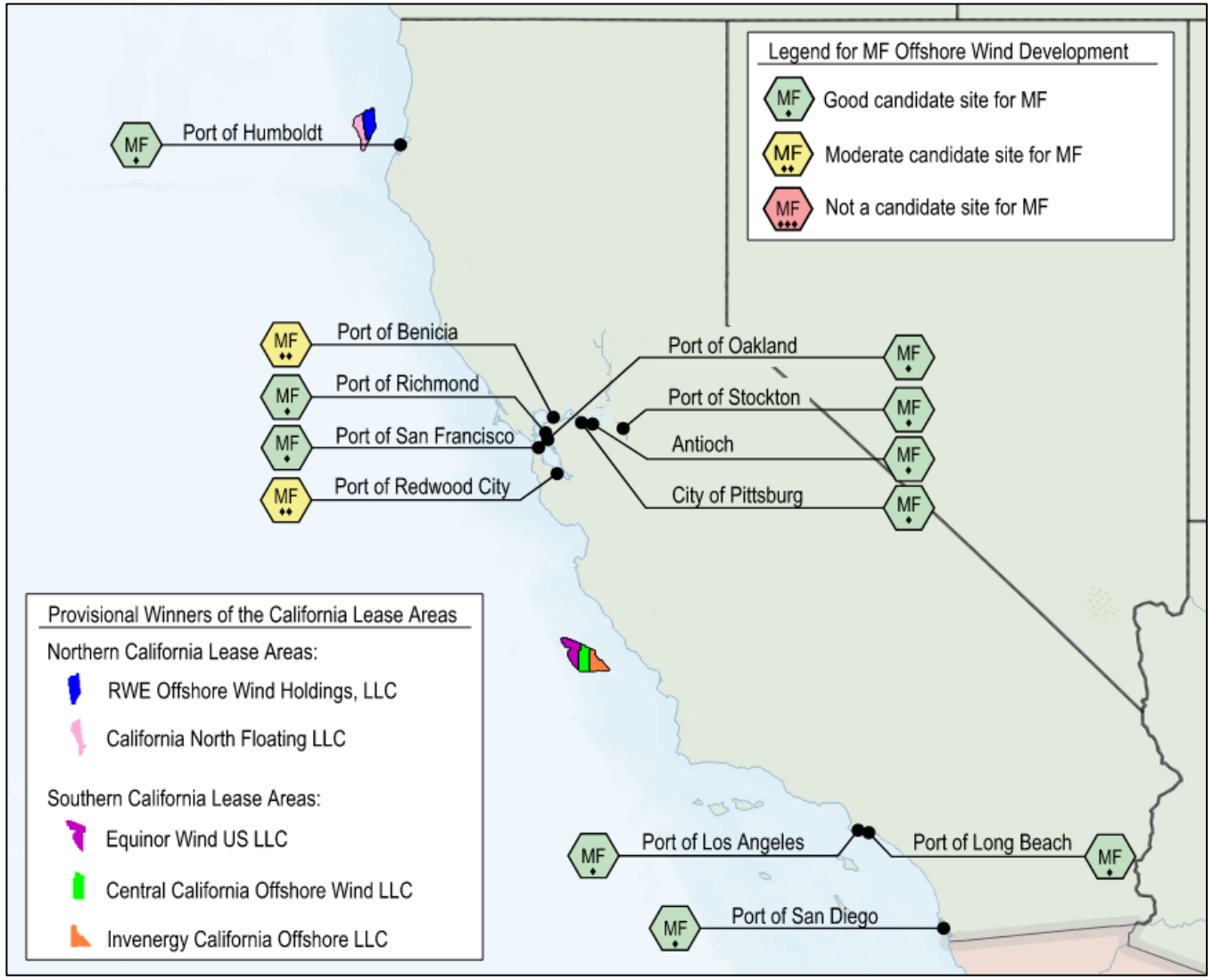
PierWind

REDWOOD MARINE OFFSHORE WIND & HEAVY LIFT MULTIPURPOSE TERMINAL

CONCEPT DESIGN

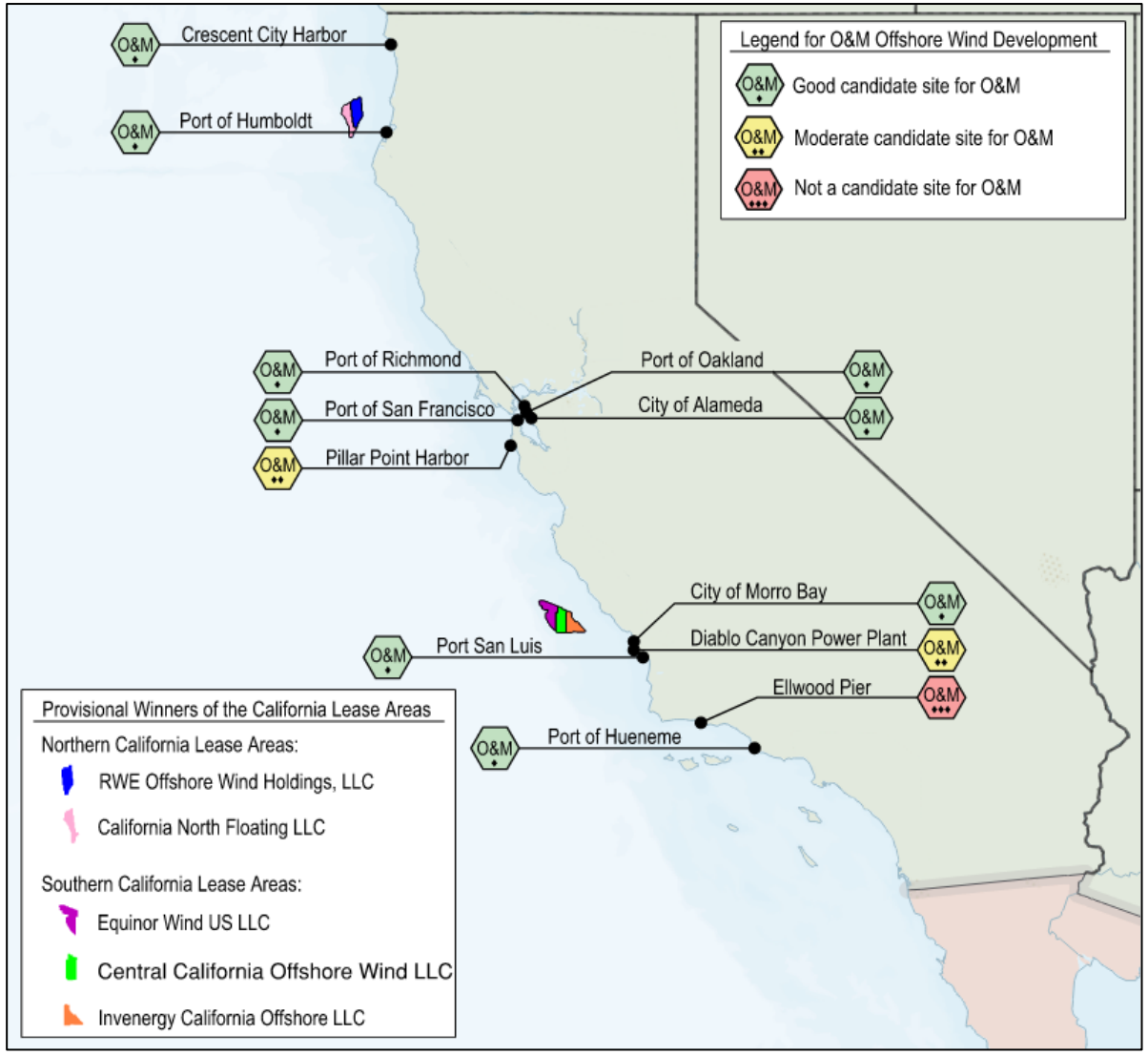
HUMBOLDT BAY HARBOR RECREATION & CONSERVATION DISTRICT

AB 525 – Manufacturing Port Sites



- These type of sites provide significant job creation and economic impact
- It is possible for CA to provide all the MF sites required to support the state goals (blades, towers, nacelle assembly, foundation subcomponents)
- The State will need to determine how much MF will occur in CA and how it will incentivize or drive this investment

AB 525 – Operations & Maintenance Sites



- O&M sites are required for both the North Coast and Central Coast to support offshore wind projects

Typical Port Improvements Required

- **To prepare port sites for the offshore wind industry, infrastructure improvements are needed, such as:**
  - Demolition of existing facilities (buildings, marine structures, etc)
  - Construction of new wharves or berths
  - Completion of geotechnical ground improvements
  - Dredging / deepening of berth pocket
  - Deepening / widening of federal navigation channels and entrance channels
  - Install fill to raise site for sea level rise (SLR) and to provide required working surface
  - Miscellaneous civil site improvements (utilities, drainage, etc.)
  - Significant electrical improvements (electrified terminals, no emissions)
  - Construct buildings, warehouses, factories, security features, training facilities, etc.
  - Projects to mitigate environmental impacts

AB 525 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

- Need approximately 15-17 large port sites (>80 acres) and 10 small port or harbor sites (2-10 acres) to meet CA targets by 2045
- Number of MF port sites shown is if all major components were to be manufactured within CA to support 25 GW
- California ports and harbors can be ready to support the OSW industry with adequate and timely investments

Next Steps for Ports & Assembly Bill 3

- **Assembly Bill 3 – Report 1:**
  - ☑ Identify feasible seaport locations for offshore wind turbine assembly to serve Central Coast and North Coast offshore..
  - ☑ Recommend and prioritize alternatives where site control can be obtained by a port authority or state agency within five years…
  - ☑ Recommend and prioritize alternatives only with sufficient landside and water acreage or capacity…
  - ☑ Recommend and prioritize port locations that minimize impacts to cultural and natural resources…
  - ☑ Identify and prioritize ports that maximize in-state workforce opportunities…
  - ❑ Consider transportation and other infrastructure investments needed to develop the identified seaports…
  - ❑ Collaborate with tribal governments to develop appropriate seaport siting criteria that minimize adverse impacts to natural and cultural resources and maximize economic and workforce benefits to the tribal governments…
  - ❑ Collaborate with the oceangoing vessel operator and commercial maritime industry to identify appropriate ocean spatial planning policies and siting criteria that minimize adverse impacts to vessel navigation and maximize maritime safety…
  - ❑ Identify potential funding and financing strategies for necessary port development…
- **Assembly Bill 3 – Report 2:**
  - ❑ Further assess supply chain strategy for CA and identify how many MF port sites are needed to achieve 50% and 65% in-state assembly and manufacturing

Thank You

Jennifer Lim, P.E.
Moffatt & Nichol
JLim@moffattnichol.com

Previous Offshore Wind Supply Chain and Workforce Studies

Aubryn Cooperman

Senior Wind Energy Analyst

National Renewable Energy Laboratory

Offshore Wind Supply Chain & Workforce Studies

Aubryn Cooperman

California AB3 Workshop

June 18, 2025

Offshore Wind Supply Chains

Shields, Matt, Jeremy Stefek, Frank Oteri, Sabina Maniak, Matilda Kreider, Elizabeth Gill, Ross Gould, Courtney Malvik, Sam Tirone, and Eric Hines. 2023. *A Supply Chain Road Map for Offshore Wind Energy in the United States.* NREL/TP-5000-84710.

Shields, Matt, Aubryn Cooperman, Matilda Kreider, Frank Oteri, Zoe Hemez, Liz Gill, Ashesh Sharma, et al. 2023. *The Impacts of Developing a Port Network for Floating Offshore Wind Energy on the West Coast of the United States*. NREL/TP-5000-86864.

Shields, Matt, Ruth Marsh, Jeremy Stefek, Frank Oteri, Ross Gould, Noe Rouxel, Katherine Diaz, et al. 2022. *The Demand for a Domestic Offshore Wind Energy Supply Chain*. NREL/TP-5000-81602.

Supply Chain Considerations

Port investment

Barriers & gaps

Manufacturing

Permitting

Workforce

Photo courtesy of the Windfloat Atlantic project / Principle Power. Artist: DOCK90

Offshore wind supply chains involve a network of suppliers with varying levels of specialization

Tier 1: Finished Components

- Major products purchased by a project developer
- Blades, towers, floating platforms, cables, etc.

Tier 2: Subassemblies

- Systems that have specific functions within Tier 1 components
- Power converters, pitch systems, boat landings, etc.

Tier 3: Subcomponents

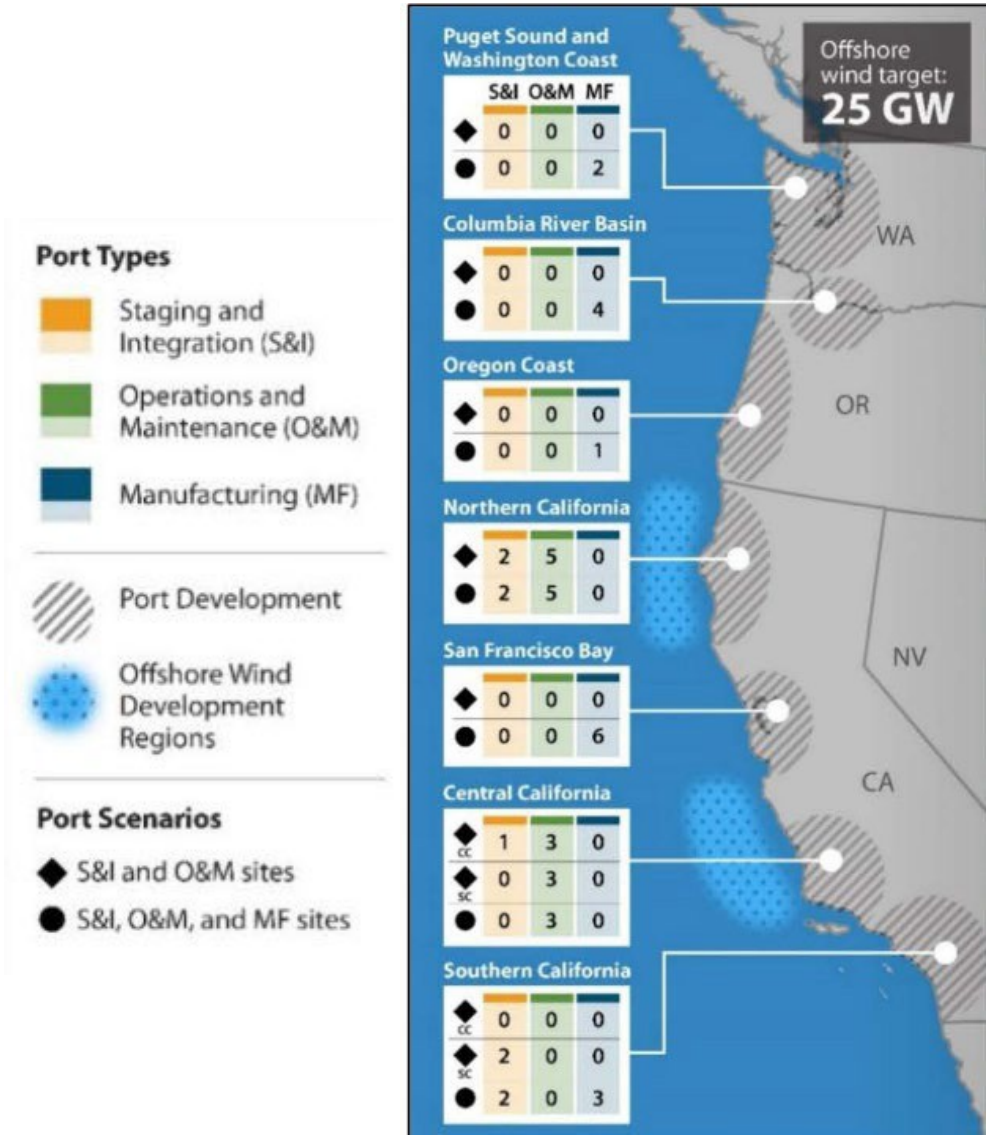
- Commonly available items that are combined into Tier 2 subassemblies
- Motors, bolts, gears, etc.

Tier 4: Materials

- Engineered and raw materials that are used to fabricate Tier 1-3 components
- Steel, iron, fiberglass, carbon fiber, aluminum, etc.

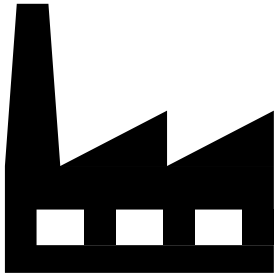
Total Number of Tier 1 Manufacturing Facilities, Jobs, and Investment to Support California's 25 GW Target

Component	# of Facilities	Total Jobs	Facility Investment
Blades	2	1,000	$600M
Towers	2	580	$500M
Nacelle Assembly	2	460	$500M
Floating Platform	3	720	$300M
Substation	2	N/A	N/A
Mooring Rope	1	110	$50M
Mooring Chain	1	110	$500M
Array Cables	1	230	$350M
Export Cables	1	230	$350M
Total	**16**	**3,440**	**$3,150M**

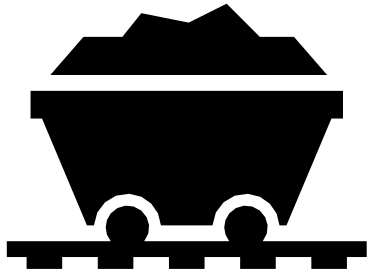


Barriers to supply chain development

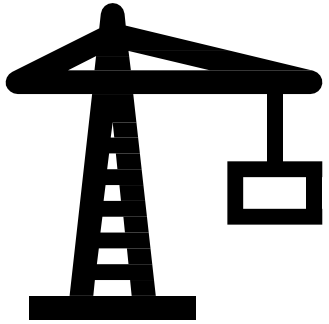
Investment risk



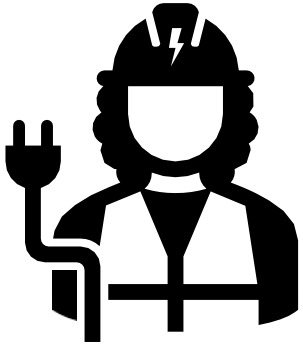
Siting and technology challenges



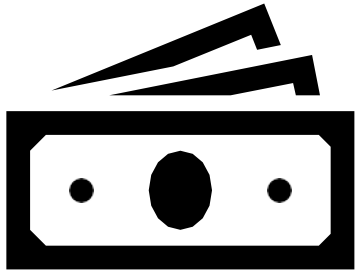
Limited supplier networks



Insufficient port and vessel infrastructure



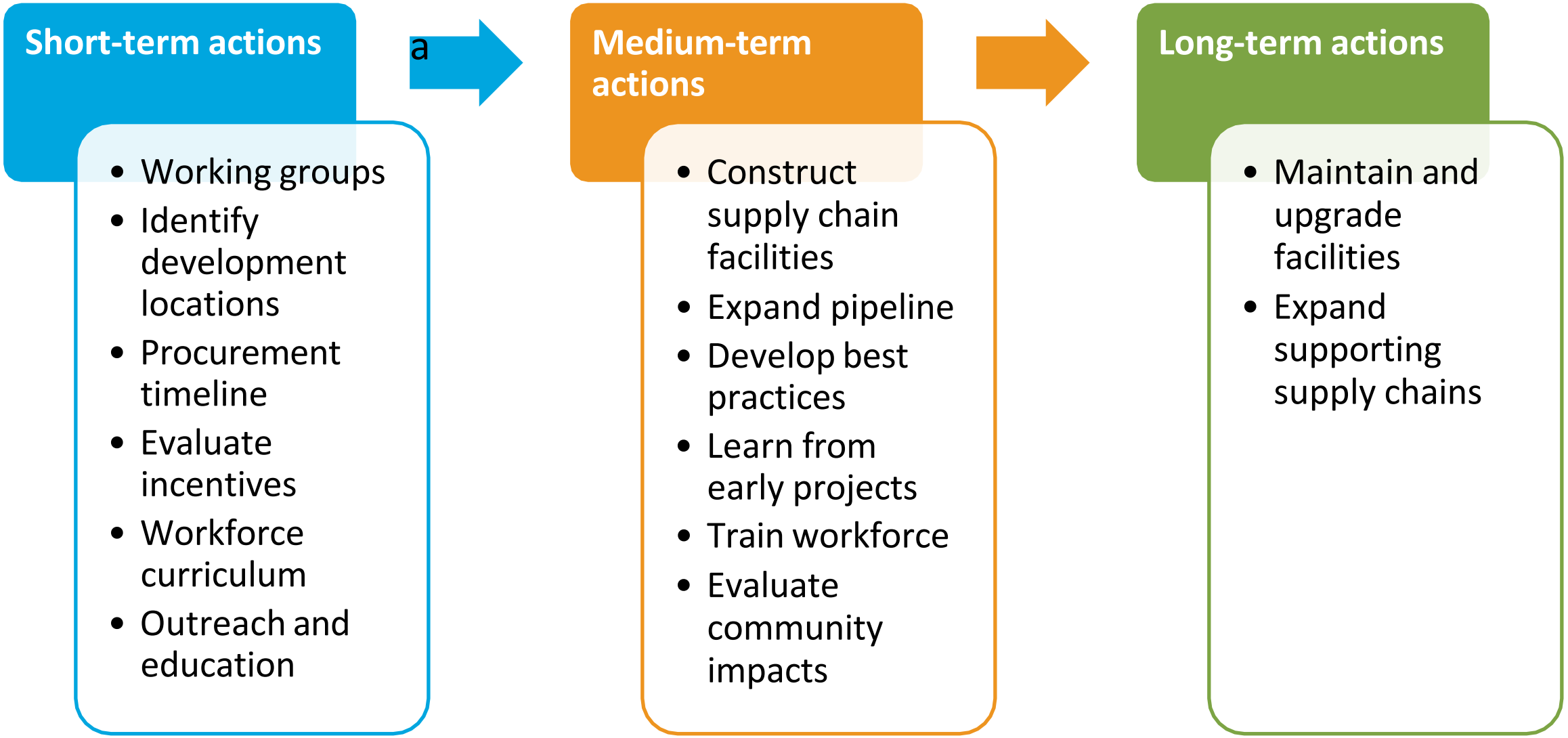
Limited domestic workforce



Cost competitiveness

Community engagement

Pathways to developing a domestic supply chain



Workforce Assessments

Stefek, Jeremy, Chloe Constant, Caitlyn Clark, Heidi Tinnesand, Corrie Christol, and Ruth Baranowski. 2022. “U.S. Offshore Wind Workforce Assessment.” NREL/TP-5000-81798.

U.S. Wind Energy Education and Training Database https://windexchange.energy.gov/training

Occupational Maps

Job Details

Qualifications

SOC Code | SOC Title | Suggested Occupational Title | Alternative Occupational Title | Job Description | Certifications | Education | Programs/ Majors | RAPIDS Occupations | Skills

Pre-Development/ Development

Floating Substructure Manufacturing

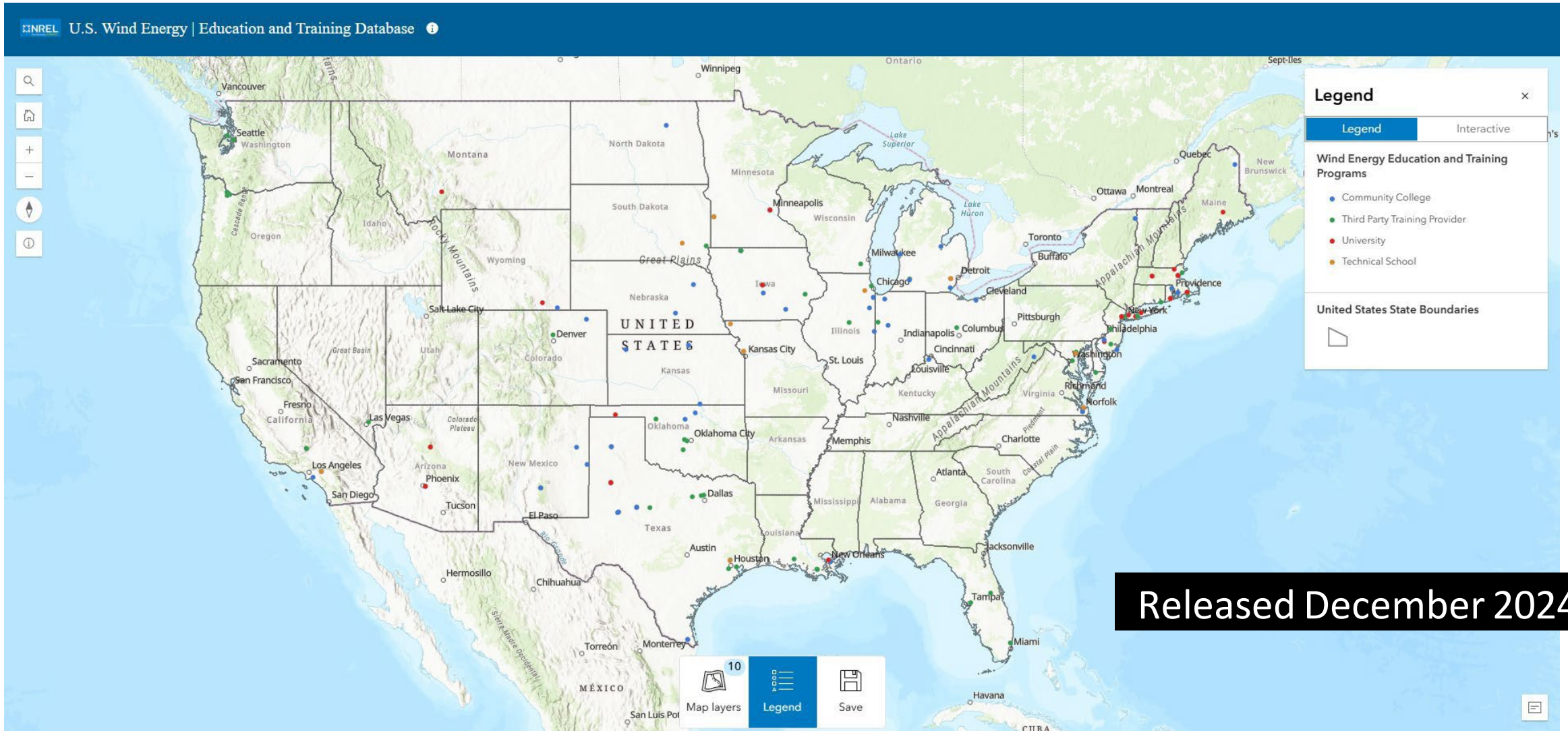
Preassembly and Assembly

Port Operations

Construction and Installation

Operations and Maintenance

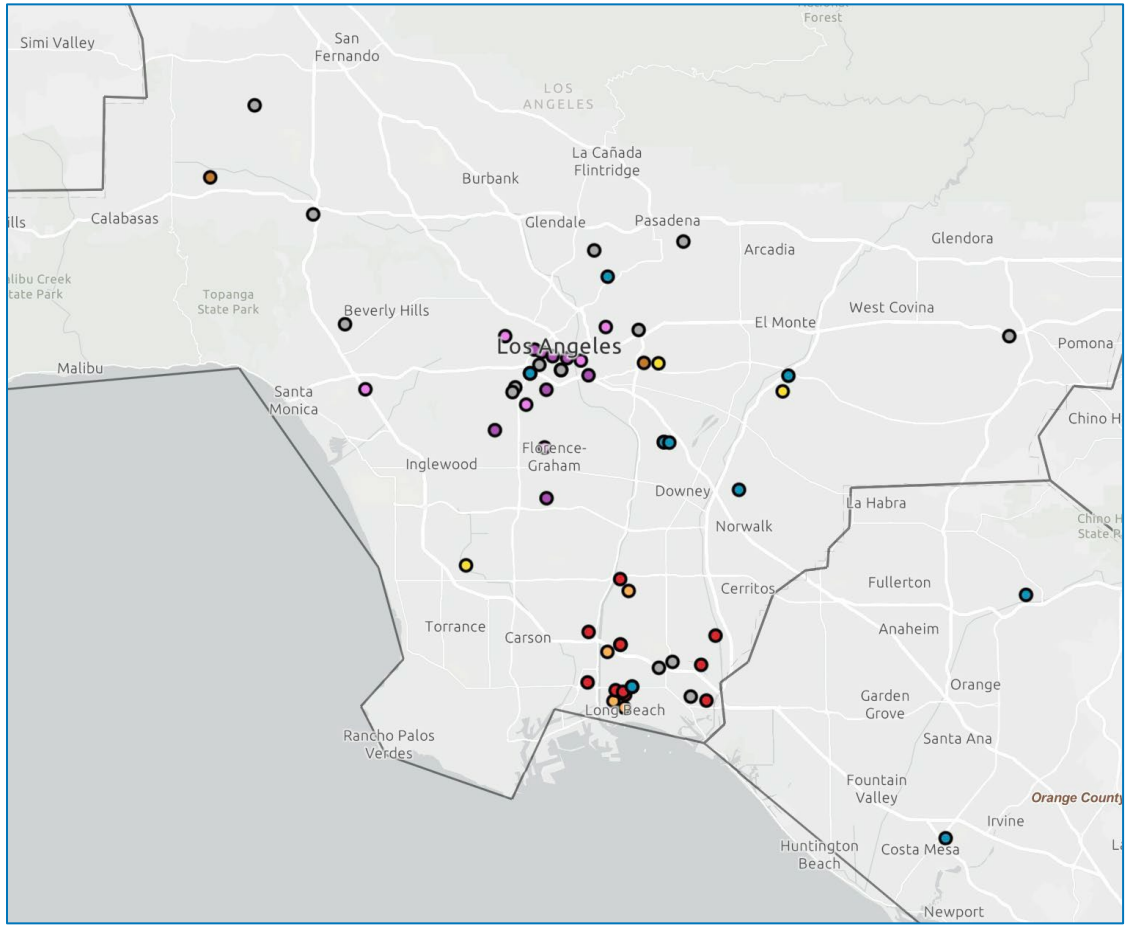
U.S. Wind Energy Education and Training Database



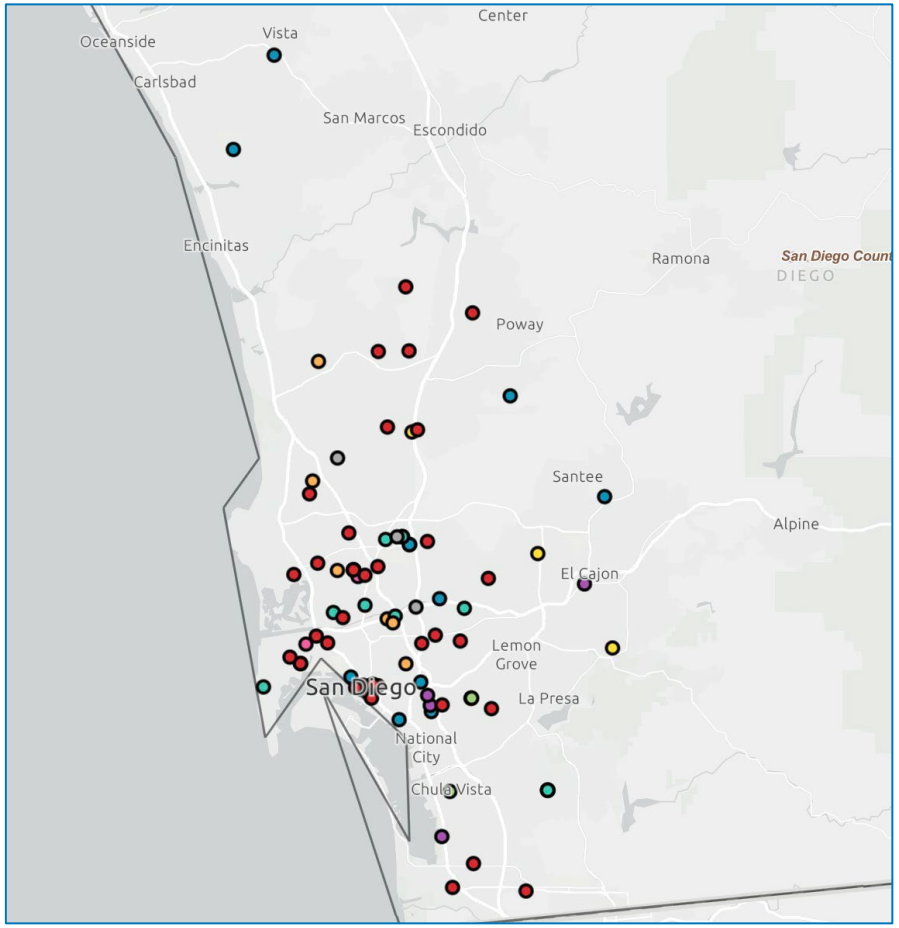
Education and Training Database

- Public High School
- Apprenticeship Program
- University
- Non-profits and community-based organizations
- Private High School
- Community College
- Youth Program
- Pre-apprenticeship Program
- Re-Entry Program
- Youth Programs
- Other

Port of Long Beach, CA



San Diego, CA



Summary

Supply Chain and Workforce Key Findings

- **Developing offshore wind supply chains and workforce capabilities is complex**
  - Long timelines depend on multiple participants
  - Strategic planning of large investments in an uncertain environment
- **Coordination throughout the offshore wind sector is one of the most impactful ways to overcome barriers**
  - Identify local strengths and resources
  - Understand roles of agencies and industry participants
  - Collaborate with existing businesses, education and training centers, and other organizations

Thank You!

www.nrel.gov

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Photo from Getty-181828180

Question and Answer

Please submit questions using the Zoom Q&A function.

(10 minutes)

Assembly Bill 3 Literature Assessment

Susan Lee

Executive Vice President

Aspen Environmental Group

AB 3 Scoping Workshop

Literature Assessment

Date: June 18, 2025

Aspen environmental group

Discussion Topics

- Purpose of Literature Assessment
- Identification of Literature
- Relevance Evaluation
- Important or Most Relevant Documents
  - Report 1
  - Report 2
- Data Gaps Identified

Purpose of Literature Assessment

- Why was the Literature Assessment Prepared?
  - To identify available information that would support preparation of the two AB 3 reports
  - To evaluate the existing information for its relevance to the specific AB 3 requirements
  - To identify data gaps that are evident after review of existing literature. Data gaps will frame research required to prepare the two AB 3 reports.

Identification of Literature

- Our technical team researched their own data sources and reference lists in published reports
- A list of documents was assembled
- Documents were sorted into the most relevant AB 3 report topics for each report:
  - 7 criteria for Report 1
  - 9 criteria for Report 2
- Result – initial list of 169 documents
  - Additional documents have been added; 177 documents now included

Evaluation of Document Relevance

- Each document was evaluated for its relevance to each of the AB 3 requirements
- The evaluation process was completed by a technical team
- Scoring for relevance to each specific criterion defined in the legislation
  - 0 = not relevant to AB 3 requirements
  - 1 = relevant content but not in California
  - **2 = relevant content and in California**
- Documents with highly relevant content (score of 2) are identified with shaded rows in Tables 4-1 through 4-3.
- The relevance analysis compared document contents with the AB 3 report criteria to identify data gaps

Literature Assembled for Report 1

Seaport Readiness Report Requirements

1. Identify feasible seaport locations for offshore wind turbine assembly to serve Central Coast and North Coast offshore wind energy projects. **(Criterion 1-1)**
2. Recommend and prioritize only port alternatives where site control can be obtained by a port authority or state agency within five years. **(Criterion 1-2)**
3. Recommend and prioritize alternatives only with sufficient landside and water acreage or capacity to support maximum in-state assembly and manufacturing of offshore wind energy components. **(Criterion 1-3)**
4. Recommend and prioritize port locations that minimize impacts to cultural and natural resources, including the marine and onshore environments, sensitive species, and habitats. **(Criterion 1-4)**
5. Identify and prioritize ports that maximize in-state workforce opportunities, including workforce opportunities for low-income and environmental justice communities. **(Criterion 1-5)**
6. Consider transportation and other infrastructure investments needed to develop the identified seaports and waterfront facilities needed for offshore wind energy activities. **(Criterion 1-6)**
7. Assess the estimated cost and identify potential funding and financing strategies for necessary port development and redevelopment that support offshore wind energy activities, including the potential to leverage federal funding. **(Criterion 1-10)**

Literature Assembled for Report 1
Seaport Readiness

- For the seven AB 3 criteria related to seaport readiness:
  - 48 documents related identified related to 6 criteria on seaport siting and funding (Table 4-1)
  - 78 documents related to the criterion on cultural and natural resources (Table 4-2)
- The most important and relevant reports are those that were prepared in support of the AB 525 Strategic Plan:
  - California State Lands Commission Alternative Port Assessment to Support Offshore Wind (CSLC)
  - California State Lands Commission AB 525 Port Readiness Plan - Final Report (CSLC)
  - Preliminary Assessment of the Economic Benefits of Offshore Wind Related to Seaport Investments and Workforce Development Needs and Standards (CEC)

Literature Assembled for Report 1
Seaport Readiness-continued

- Additional important literature related to Report 1:
  - California Supply Chain Needs Summary (#156, CEC): This report provides instructions in the bidding credits for bidders to enter into community benefits agreements. Through these agreements, the bidders will prioritize and maximize opportunities for Tribes, or stakeholder groups that are expected to be affected.
  - Preliminary Assessment of Economic Benefits Related to Seaport Investments and Workforce Development (#11, CEC): The report summarizes how ports like Humboldt and those on the East Coast have received funding through state funding and/or grants.
  - California Floating Offshore Wind Regional Ports Assessment (#15, BOEM): Provides cost estimates for offshore wind port development.
  - The Impacts of Developing a Port Network for Floating Offshore Wind Energy on the West Coast of the US (#14, NREL)
  - California Floating Offshore Wind (FOSW) Regional Ports Feasibility Analysis (#15, BOEM)
  - Central Coast Emerging Industries Waterfront Siting & Infrastructure Study (#30, REACH, Mott MacDonald)
  - Humbolt Bay OSW Port Infrastructure Assessment Report (#38, Schatz Energy Research Center)

Literature Assembled for Report 1
Cultural & Natural Resources

- Over 45% of the documents identified were for this criterion
- The five reports most relevant to cultural and natural resources at seaports are:
  - Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (#51): The most significant impact on marine mammals is increased noise; this document is important for understanding noise thresholds.
  - Algal blooms in San Pedro Channel and Los Angeles Harbor (#108): Harmful algal blooms are an under-evaluated risk of dredging in ports
  - Pacific Coast Groundfish Fishery Management Plan for the California, Oregon, and Washington Groundfish Fishery (#104): Valuable data set for assessing impacts on fisheries.
  - Surf Zone, Coastal Pelagic Zone, and Harbors (#110): Provides useful background on fish assemblages within harbors in California.
  - Effects of Dredging on Sensitive Fish Species (#112): Helpful for understanding the effects of dredging on fish species.

Literature Assembled for Report 1
Tribal and Cultural Resources

- Few published documents address Tribal and Cultural Resources because the site-specific data is confidential. The Literature Assessment identified:
  - Pacific Coast Groundfish Fishery Management Plan for the California, Oregon, and Washington Groundfish Fishery (#104): Fishery management report summarized concerns about California's fisheries and potential effects on economic interests of Native American tribes.
  - Final Environmental Assessment for Crescent City Harbor Maintenance Dredging Crescent City, Del Norte County (#54): Crescent City Harbor dredging report considered cultural and historical resources.
  - Bidder's Financial Form Addendum Bidding Credits – Requirements and Restrictions (#156): Discusses prioritizing job opportunities for tribal members.
- Ongoing Offshore Wind Port CEQA documents are holding Native American Consultation now as part of the CEQA processes:
  - Port of Long Beach (Pier Wind) and Humboldt Bay Harbor Recreation and Conservation District (Humboldt Bay Offshore Wind Heavy Lift Marine Terminal Project) – consulting with 7 tribes.

Data Gaps Identified: Report 1
Seaport Readiness

- **(Criterion 1-4) Recommend and prioritize port locations that minimize impacts to cultural and natural resources, including the marine and onshore environments, sensitive species, and habitats.**
  - No documents provide detailed marine resources information on specific port locations. More information is needed on impacts and mitigation strategies related to cultural and historical resources. There is a lack of reliable spatial data on commercial and recreational fishing occurring in and around ports.
- **(Criterion 1-5) Identify and prioritize ports that maximize in-state workforce opportunities, including workforce opportunities for low-income and environmental justice communities.**
  - Additional studies needed to consider environmental justice and disadvantaged communities, and strategies to maximize in-state workforce opportunities, including for Tribes, low-income, and environmental justice communities.
- **(Criterion 1-6) Consider transportation and other infrastructure investments needed to develop the identified seaports and waterfront facilities needed for offshore wind energy activities.**
  - More information is needed to determine the transportation and other infrastructure investments required to support port development
- **(Criterion 1-10) Assess the estimated cost and identify potential funding and financing strategies for necessary port development and redevelopment that support offshore wind energy activities, including leveraging federal funding.**
  - More information is needed on funding strategies for port development, specifically on financing strategies and the potential to leverage federal funding.

Literature Assembled for Report 2
Manufacturing and Workforce

- **(Criterion 2-1) Assess current manufacturing capabilities within California.**
  - Analytical Guidance and Benefits Assessment for AB 525 Strategic Plan Seaport and Workforce Development for Floating Offshore Wind in California (#148): The report provides a simplified assessment of certain strengths in California that can be leveraged to supply the offshore wind industry. The assessment provides a general finding of what California may be able to currently supply.
- **(Criterion 2-2) Identify gaps in the current supply chain and workforce.**
  - AB 525 Workforce Development Readiness Plan (#147): This study analyzes the workforce gaps given varying levels of local content.
- **(Criterion 2-3) When estimating required job types, include roles in environmental monitoring, research and development, construction, engineering and design, and manufacturing, operations, and maintenance.**
  - Analytical Guidance and Benefits Assessment for AB 525 Strategic Plan Seaport and Workforce Development for Floating Offshore Wind in California (#148): The report provides a simplified assessment of certain strengths in California that can be leveraged to supply the offshore wind industry. The assessment provides a general finding of what California may be able to currently supply.

Literature Assembled for Report 2
Manufacturing and Workforce- section 2

- **(Criterion 2-4) Identify supply chain and workforce investments needed by the state to support achieving the in-state assembly and manufacturing targets and domestic content thresholds.**
  - OSW Ports and Workforce Workshop (#129): The report includes an analysis of the investments required to upgrade port infrastructure.
- **(Criterion 2-6) Study and estimate the potential impacts on economic activity and job growth, and resulting state tax revenues, resulting from achieving the in-state assembly and manufacturing targets and domestic content thresholds.**
  - OSW Ports and Workforce Workshop (#129): Above
- **(Criterion 2-5) Identify available federal and state funds to support bringing or retaining jobs related to the manufacturing and assembly of offshore wind projects in the state.**
  - U.S. Federal and State Local Content Requirements for Offshore Wind Projects (#140): Includes a summary table of key federal and state grants and programs that support domestic job creation and supply chain development in the U.S. offshore wind sector. It highlights multi-state working groups as well as programs specific to states like New Jersey that aim to bolster local content.

Literature Assembled for Report 2
Manufacturing and Workforce-section 3

- **(Criterion 2-7) Study and evaluate any potential impacts to project development timelines and costs as a result of achieving the in-state assembly and manufacturing targets and domestic content thresholds.**
  - No highly relevant documents.
- **(Criterion 2-8) Study and estimate potential impacts to electric ratepayers as a result of achieving the in-state assembly and manufacturing targets and domestic content thresholds.**
  - CA OSW: Workforce Impacts and Grid Integration (#163): The calculated energy costs are outdated for floating offshore wind, when compared with industry standard. This study provides an analysis of the avoided cost of offshore wind and LCOE, but a further study for grid impact will need to be conducted.
- **(Criterion 2-9) Develop recommendations for incorporating equity and environmental justice in economically and environmentally sustainable supply chain development.**
  - OSW Ports and Workforce Workshop (#129): The workforce development analysis did evaluate geographic areas with respect to their designation as environmental justice communities. These insights can serve as a foundation for incorporating equity considerations into future studies focused on sustainable supply chain development.
  - CA North Coast OSW Studies: Stakeholder Benefits and Concerns (#162): The Schatz Energy Research Center conducted a series of interviews with stakeholders to capture their perceptions on the offshore wind industry in Humboldt County, including consideration of community benefits packages.

Data Gaps Identified: Report 2
Manufacturing and Workforce

- **(Criterion 2-1) Assess current manufacturing capabilities within California that are potentially suitable to support the offshore wind energy supply chain and identify the tier one, tier two, and tier three components of the offshore wind energy supply chain that are best suited to in-state manufacturing of offshore wind energy projects.**
  - The existing documents provide a simplified overview of California's strengths that could support the offshore wind industry, highlight potential regional contributions to labor and general contractor capabilities, and provide an analysis of a percentage of market share for Tier 2 and Tier 3 opportunities based on economic census data. These documents do not provide a detailed evaluation of California's manufacturing capabilities and supply chain analysis, and they require updated data.
- **(Criterion 2-2) Identify gaps in the current supply chain and workforce for achieving the in-state assembly and manufacturing targets and domestic content thresholds described in subdivision (a), including identifying the facilities and infrastructure required to meet these in-state assembly thresholds and the estimated geographic distribution of these facilities, and estimating the number, geographic distribution, and types of jobs that will be created.**
  - Existing documents do not analyze existing supply chain and workforce capabilities or gaps in relation to in-state manufacturing and assembly targets.

Data Gaps Identified: Report 2
Manufacturing and Workforce-part 2

- **(Criterion 2-3) When estimating the number and types of jobs required for achieving the in-state assembly and manufacturing targets and domestic content thresholds described in subdivision (a), include roles in related and supporting activities, including, but not limited to, environmental monitoring, research and development, construction, engineering and design, and manufacturing, operations, and maintenance.**
  - Existing documents provide broadly defined estimates of job requirements in general categories such as construction, operations, and maintenance, but they do not consider the in-state assembly and manufacturing targets.
- **(Criterion 2-4) Identify supply chain and workforce investments needed by the state to support achieving the in-state assembly and manufacturing targets and domestic content thresholds.**
  - Existing documents broadly address workforce, but they do not present a comprehensive supply chain analysis or define investment requirements.
- **(Criterion 2-5) Identify available federal and state funds to support bringing or retaining jobs related to the manufacturing and assembly of offshore wind projects in the state.**
  - Existing documents provide information on federal and state grant programs leveraged in other states, but they lack information on California-specific programs.

Data Gaps Identified: Report 2
Manufacturing and Workforce-part 3

- **(Criterion 2-6) Study and estimate the potential impacts on economic activity and job growth, and resulting state tax revenues, resulting from achieving the in-state assembly and manufacturing targets and domestic content thresholds.**
  - Existing documents provide estimates on economic activity and job growth, and they do not provide estimates on state tax revenues. The conclusions on economic activity and job growth are not based on achieving in-state assembly and manufacturing targets.
- **(Criterion 2-7) Study and evaluate any potential impacts to project development timelines and costs as a result of achieving the in-state assembly and manufacturing targets and domestic content thresholds.**
  - No studies have been conducted that define the impacts on cost and development timeline of projects of achieving the in-state assembly and manufacturing requirements.
- **(Criterion 2-8) Study and estimate potential impacts to electric ratepayers as a result of achieving the in-state assembly and manufacturing targets and domestic content thresholds.**
  - Existing documents do not provide Information on the impacts to ratepayers.

Data Gaps Identified: Report 2
Manufacturing and Workforce-part 4

- **(Criterion 2-9) Develop recommendations for incorporating equity and environmental justice in economically and environmentally sustainable supply chain development.**
  - Existing documents include a workforce development analysis for Humboldt County that considers environmental justice populations and stakeholder perceptions.
  - Existing documents do not specifically address supply chain development or provide recommendations for incorporating equity and environmental justice.

AB 3 Literature Assessment File

The Literature Assessment referenced in this presentation is available at this link:

https://efiling.energy.ca.gov/GetDocument.aspx?tn=264223&DocumentContentId=100924

Scoping Document and Request for Comment

Elizabeth Barminski

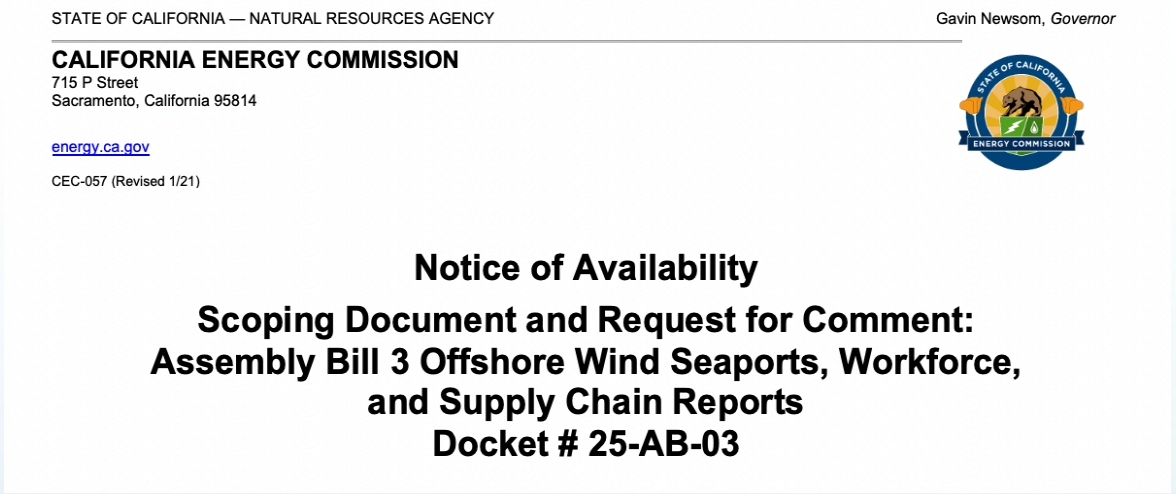
Offshore Wind Program Specialist

Siting, Transmission, and Environmental Protection Division

California Energy Commission

Scoping Document

- Posted Scoping Document and Request for Comment on June 16, 2025
- AB 3 requirements are assigned a reference number (e.g. 1-1) and organized into key topics
- Information gaps for each topic are described
- Comments will help inform CEC approach to report development, engagement, and public process



STATE OF CALIFORNIA — NATURAL RESOURCES AGENCY

Gavin Newsom, *Governor*

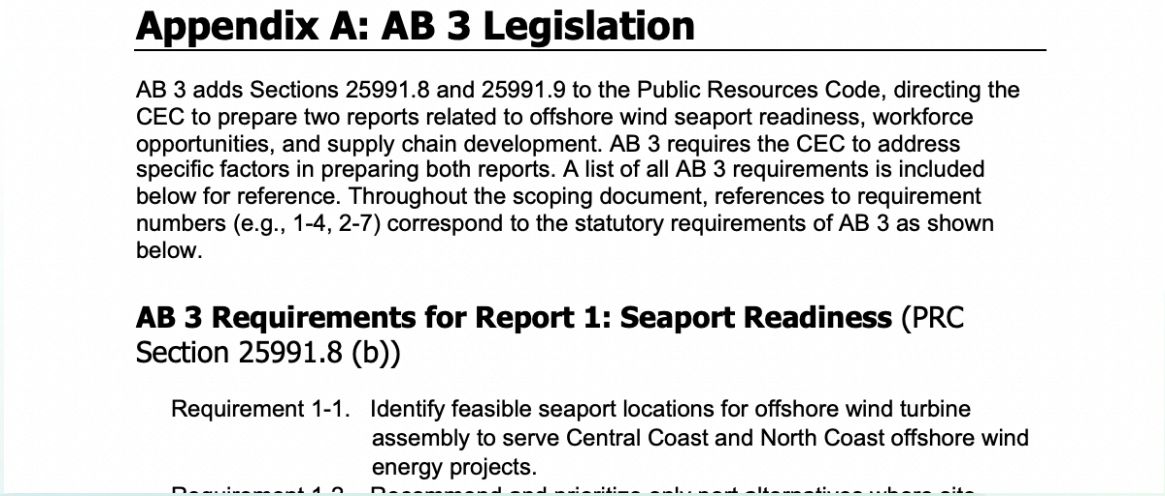
CALIFORNIA ENERGY COMMISSION
715 P Street
Sacramento, California 95814

energy.ca.gov

CEC-057 (Revised 1/21)

Notice of Availability

Scoping Document and Request for Comment: Assembly Bill 3 Offshore Wind Seaports, Workforce, and Supply Chain Reports
Docket # 25-AB-03



Appendix A: AB 3 Legislation

AB 3 adds Sections 25991.8 and 25991.9 to the Public Resources Code, directing the CEC to prepare two reports related to offshore wind seaport readiness, workforce opportunities, and supply chain development. AB 3 requires the CEC to address specific factors in preparing both reports. A list of all AB 3 requirements is included below for reference. Throughout the scoping document, references to requirement numbers (e.g., 1-4, 2-7) correspond to the statutory requirements of AB 3 as shown below.

AB 3 Requirements for Report 1: Seaport Readiness (PRC Section 25991.8 (b))

Requirement 1-1. Identify feasible seaport locations for offshore wind turbine assembly to serve Central Coast and North Coast offshore wind energy projects.

Scoping Document Key Topics – Report 1

Seaport Readiness and Infrastructure Needs (1-1, 1-2, 1-3, 1-5, 1-6)

- Physical and operational capacity of California ports.
- Infrastructure upgrades needed to support offshore wind.
- Transportation needs, including vessels, as well as other land-based infrastructure for moving goods.

Environmental and Cultural Resource Considerations (1-4, 1-7, 1-8)

- Minimize impacts to cultural and natural resources.
- Evaluation of onshore and marine environments, sensitive habitats, and cultural resources.

Workforce Opportunities (1-5, 1-6, 1-8)

- Identifying and maximizing in-state workforce opportunities for port development.

Scoping Document Key Topics – Report 1.2

Tribal Collaboration on Siting (1-7)

- Collaboration with California Native American tribes.
- Minimize adverse impacts to natural, cultural, and tribal cultural resources.
- Maximize economic and workforce benefits to tribal governments.

Interested Party Input on Siting (1-8)

- Interested parties include environmental organizations, environmental justice advocates, fisheries, labor unions, vessel operators, ports, other ocean users, and the public.
- Minimize environmental and community impacts, support equitable development, maximize economic and workforce benefits, and avoid delays in the entitlement process.

Scoping Document Key Topics – Report 1.3

Equity and Environmental Justice (1-5, 1-8)

- Maximize in-state workforce opportunities for low-income and environmental justice communities.
- Outreach and engagement with environmental and environmental justice groups, labor unions, port authorities, and other interested parties.

Maritime Considerations (1-9)

- Maritime safety and coordination with oceangoing vessel operators.
- Identify ocean spatial planning policies and port siting criteria that minimize navigational impacts and maximize maritime safety, with input from the maritime industry.
- Collaboration with the U.S. Coast Guard.

Port Development Costs and Funding Strategies (1-10)

- This topic covers cost assessments and strategies to secure funding and financing for offshore wind port development and redevelopment.

Scoping Document Report 1: Information Gaps

- Port-specific potential impacts and strategies to address impacts
- Port-specific information on workforce opportunities for port development, including for tribes, low-income and EJ communities
- Transportation upgrades needed for vessels and related infrastructure for supply chain components
- Development costs and funding and financing strategies

Scoping Document Key Topics – Report 2

In-State Manufacturing and Supply Chain Capacity (2-1, 2-2, 2-3, 2-4)

- Current in-state manufacturing capabilities
- Identify components (Tier 1, 2, and 3) that are best suited for production in California
- Gaps in the current supply chain

Workforce Development (2-4, 2,8, 2-9, 2-11, 2-13)

- Necessary workforce to meet in-state assembly and manufacturing targets

Tribal Workforce Development Opportunities (2-10)

- Develop recommendations
- Consultation and coordination

Scoping Document Key Topics – Report 2 cont.

Equity and Environmental Justice (2-2, 2-4, 2-9)

- Incorporate in supply chain planning
- Recommendations will be informed by outreach and engagement

Economic Benefits and Impacts (2-5, 2-6, 2-7)

- Impacts on economic activity and job growth, state tax revenue, ratepayers, and project development cost and timelines

Scoping Document Report 2: Information Gaps

- CA manufacturing capability and gaps in current supply-chain needed to achieve 50 percent and 65 percent in-state assembly and manufacturing
- Workforce needs and tribal workforce recommendations
- Incorporating equity and environmental justice within supply chain and workforce development
- Understanding the impacts of achieving in-state targets

Request for Comments

- The CEC requests comments in response to this scoping document by **5:00 p.m. on July 18, 2025.**
- Comments will inform the structure and content of future workshops as well as development of both AB 3 reports.
- CEC staff plans to hold targeted workshops to support development of the AB 3 reports.
- Beginning with Report 1, the series will include topic-focused workshops, each of which will include public comment opportunities.
- Public comment and feedback on this scoping document will not replace and will be in addition to the coordination and consultation required by AB 3.

Multiple Ways to Participate

1. Follow
2. Comment
3. Tribal Consultation

Follow Via Web, Email, and Events

- Report information
- Workshops and other engagements
- Subscription list & email
- Docket link
- Comments

https://www.energy.ca.gov/data-reports/reports/assembly-bill-3-california-offshore-wind-advancement-act

Public Comments

Zoom:

- Use the “raise hand” feature

Telephone:

- Dial *9 to raise your hand
- *6 to mute/unmute your phone line. You may also use the mute feature on your phone.

Zoom/phone participants, when called upon:

- Your microphone will be opened
- Unmute your line
- Spell your name for the record, begin comments

Limited to 1 representative per organization.

3-Minute Timer

Closing Remarks

Submit written comments to the AB 3 docket (Docket # 25-AB-03) from the AB 3 Workshop event page:

- Go to the event web page, "**Staff Workshop on Assembly Bill 3: Scoping Reports on Offshore Wind Seaports, Workforce, and Supply Chain**"
- Click on "**Submit Comment (25-AB-03)**"
- Comments are due **July 18, 2025, by 5:00pm**