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AB 525 Workshop 1 of 2: Draft Strategic Plan for Offshore Wind off the Coast of California in Federal Waters

March 20, 2024



AM Workshop Schedule

- 1. Welcome**
- 2. Overview of AB 525 Draft Strategic Plan**
- 3. Potential Impacts of Offshore Wind and Avoidance, Minimization, and Mitigation Strategies:**
 - Native American Tribes and Peoples
 - Marine Biological Resources
 - Underserved Communities
 - Fisheries
- 4. Lunch Break**



PM Workshop Schedule

1. Welcome Back

2. Port and Waterfront Facilities Infrastructure

3. Workforce Development

4. Break

5. Comment Period

- Input and comments from California Native American tribes, elected officials, other government agencies, and members of the California Energy Commission-California Public Utilities Commission Disadvantaged Communities Advisory Group.
- Comments from interested members of the public, organizations, and neighboring communities.



Welcome



AB 525: Draft Strategic Plan Overview



Draft AB 525 Strategic Plan Overview

Elizabeth Huber, Director, Siting Transmission and Environmental Protection Division
March 20, 2024



AB 525 Legislative Findings

-  Provides economic and environmental benefits
-  Advances climate goals and diversifying the energy portfolio
-  Improves grid reliability
-  Serves electricity needs and improve air quality in underserved communities.
-  Stimulates state and local economic and workforce development



AB 525 Statutory Requirements



- Identify **suitable sea space** to accommodate the 2045 offshore wind planning goal.



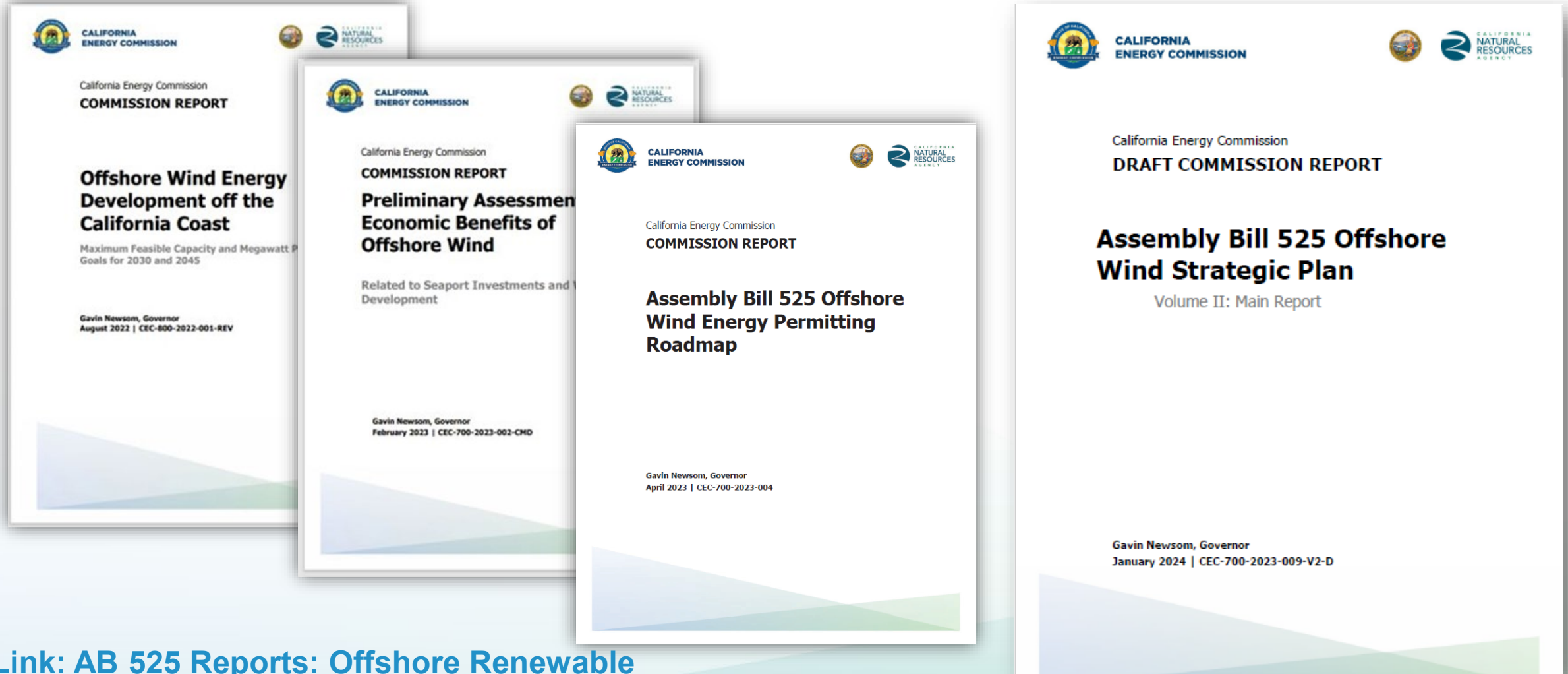
- Develop plan for **port infrastructure** and identify **workforce development** needs.



- Assess and plan for **transmission** infrastructure needs to meet offshore wind goals.
- Establish coordinated and efficient **permitting process**.
- **Identify potential impacts and strategies** to address them.



AB 525 Required Deliverables



[Link: AB 525 Reports: Offshore Renewable Energy\(ca.gov\)](https://www.energy.ca.gov/ab525-reports-offshore-renewable-energy)



AB 525 Coordinating Agencies



CALIFORNIA
**NATURAL
RESOURCES**
AGENCY



CALIFORNIA
COASTAL
COMMISSION





Draft AB 525 Strategic Plan Structure

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Chapter 3: Offshore Wind Potential Economic and Workforce Benefits



1

Direct Effects



2

Indirect Effects



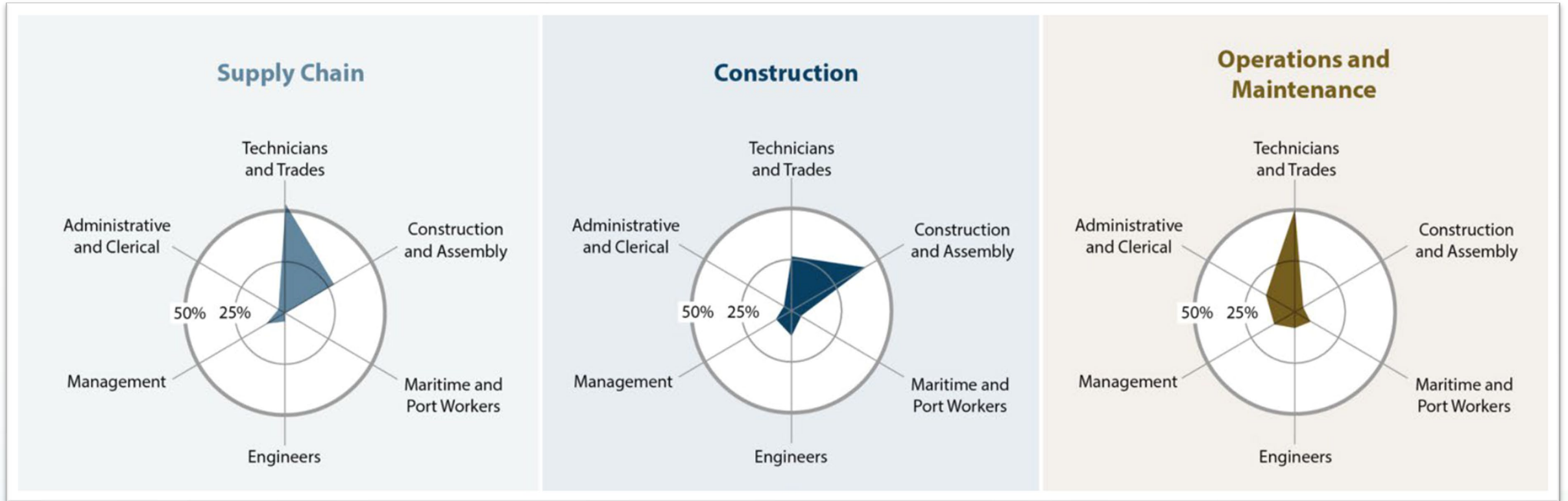
3

Induced Effects

Types of Beneficial Impacts



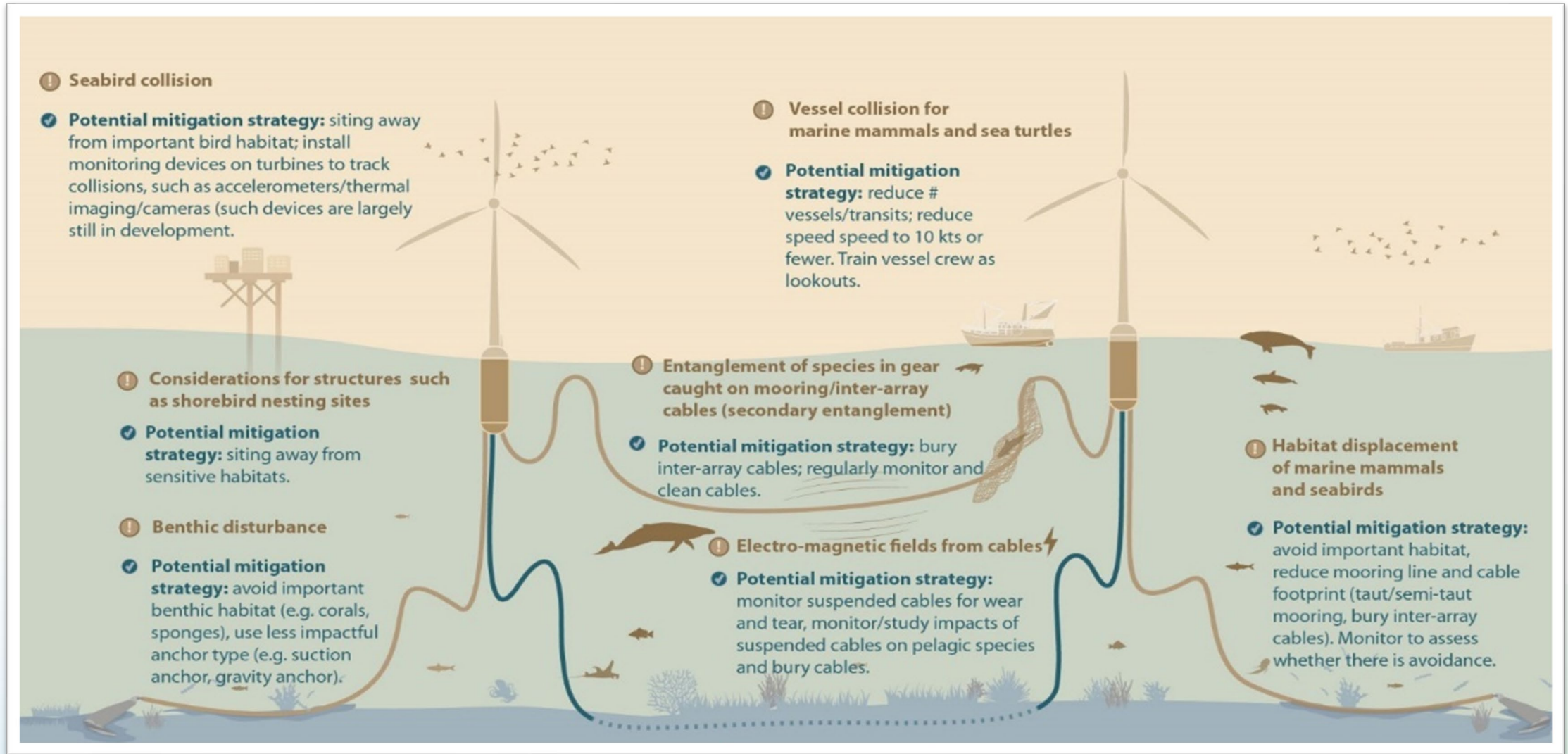
Economic and Workforce Benefits



Workforce by Job Type and Sector for Each Project Development Phase



Chapter 4: Potential Impacts of Offshore Wind and Avoidance, Minimization, and Mitigation Strategies





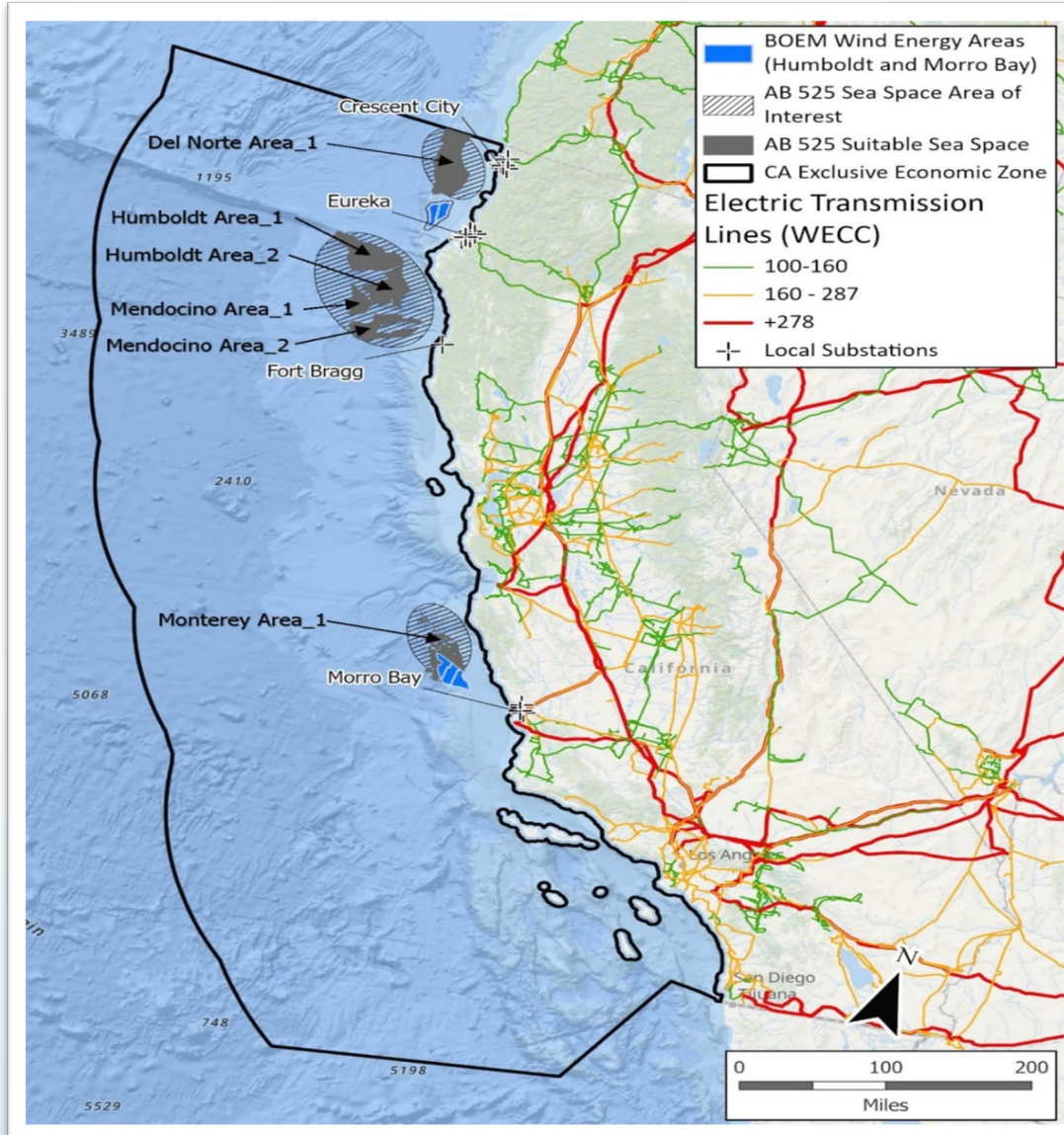
Potential Impacts of Offshore Wind and Avoidance, Minimization, and Mitigation Strategies



- California Native American and Indigenous Peoples (including tribal cultural resources)
- Underserved Communities
- Coastal Resources (marine and biological)
- Fisheries
- National defense



Chapter 5: Sea Space for Offshore Wind Development



Suitable Sea Space Key Considerations:

- Wind speed and consistency
- Water depth
- Ocean bottom slope
- Distance to shore
- Sanctuaries and protected areas
- Marine resources
- Existing ocean uses
- Existing infrastructure



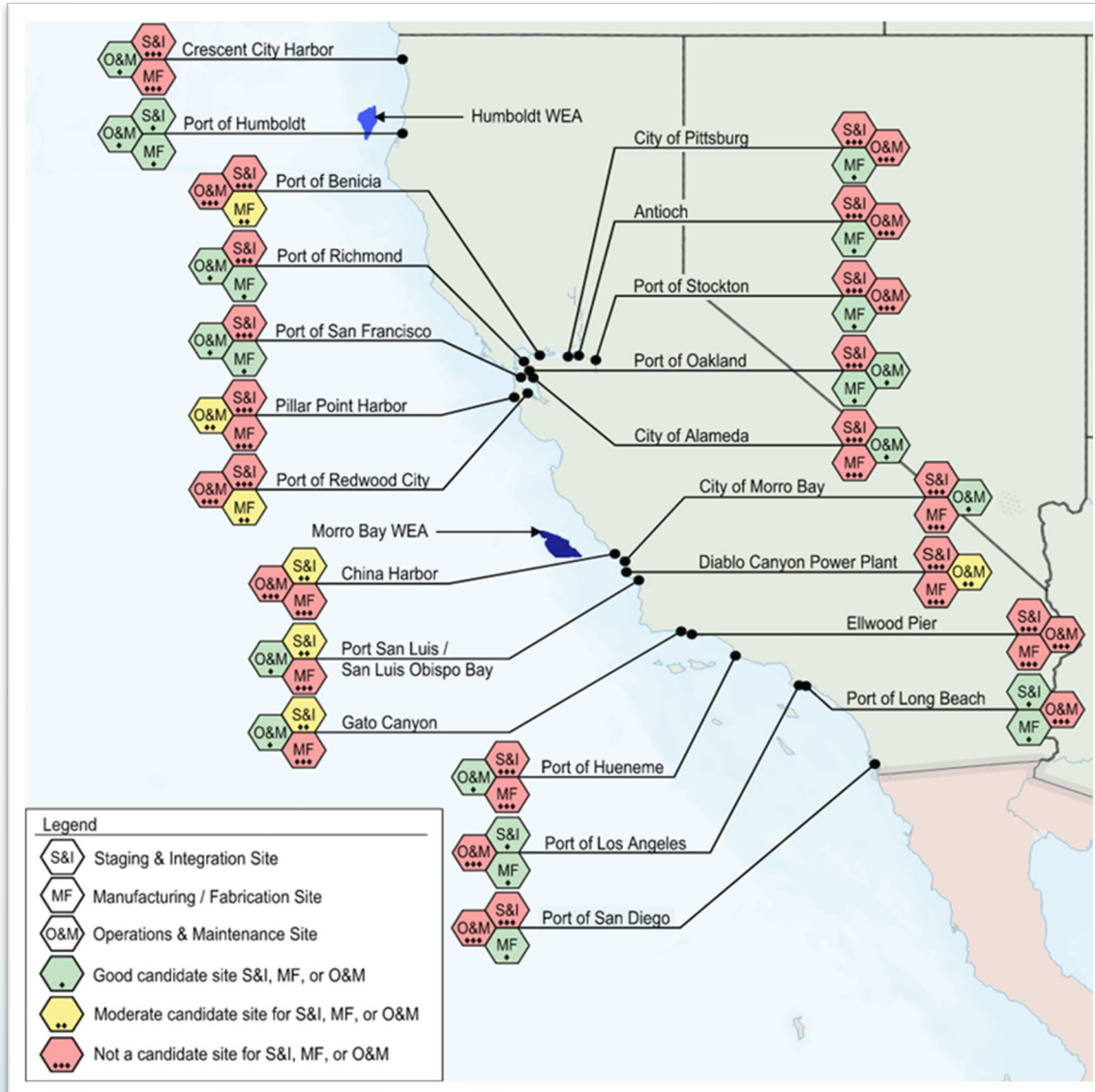
Suitable Sea Space

- Sufficient sea space needed to accommodate 25 GW planning goal.
- Up to 50% of that sea space may be unsuitable due to conflicts.
- Development should occur at least 20 miles offshore to avoid conflicts.
- Ocean use species and ecosystem conflicts will require additional evaluation to determine suitability.

Recommendation: Continue suitable sea space identification, research, analysis and refinement, in coordination with BOEM.



Chapter 6: Port and Waterfront Infrastructure



- Assessing port needs and costs
- Port sites by offshore wind activity:
 - *Staging and Integration*
 - *Manufacturing and Fabrication*
 - *Operations and Maintenance*
- Environmental consideration for port development sites
- Marine operations and offshore wind challenges



Port and Waterfront Infrastructure

- Existing port infrastructure is unable to support offshore wind industry.
- A coordinated multi-port strategy is needed: 16 large and 10 small port sites.
- Estimated investment of \$11 - 12B is needed to meet the 2045 goal.

Recommendations:

- Develop port readiness framework coordinated with larger West Coast port network.
- Collaborate with ports and harbors, tribal governments, local communities, port users, and others in developing port framework.
- Engage with industry leaders, developers, and supply chain entities to explore options to support local supply chain development.



Chapter 7: Workforce Development

- Workforce needs and standards
- Workforce Training Programs and Apprenticeships
- Varying types of jobs expected to support offshore wind development





Workforce Development

- Most needed near-term skills are in trades, technician, and construction sectors.
- In the long-term more jobs are in the supply chain and manufacturing sector.
- A workforce with right skillset requires specialized training for different types of workers.

Recommendations:

- Identify workforce needs, establish equitable hiring standards, fund training and education, and recruit entry-level and experienced workers.
- Coordinate to create career opportunities, workforce training, and economic development benefits.
- Support project labor agreements that provide local communities and tribes with meaningful economic benefits.



Chapter 8: Transmission Technology and Alternative Assessment



- Transmission technologies and innovative approaches for interconnection
- Interconnection
- Emerging technologies will need investment to bring to market.
- North Coast Transmission Alternatives study by Schatz
- Existing North Coast system serves relatively small loads with low-voltage transmission and doesn't have interconnection to the state's major transmission pathways.



Transmission Technology and Alternative Assessment

- Transmission technologies are still emerging including dynamic and higher capacity cables and floating substations.
- Large investments will be required to deliver electricity to local communities and the larger grid.
- Potential transmission pathways for the North Coast will require additional detailed corridor planning.

Recommendations:

- Continue assessing transmission alternatives for the North and Central Coast offshore wind development to meet the offshore wind planning goals.
- Consider phased approaches to transmission development that examine needs, costs, and benefits in both short-term and long-term.



Chapter 9: Transmission Planning and Interconnection



- Transmission planning processes
- Corridor planning
- Interconnection issues including process enhancement



Transmission Planning and Interconnection

- Proactive planning and innovative interconnection approaches will be needed for timely transmission development.
- Landscape level planning for transmission corridors can provide a smoother path for transmission projects from planning to permitting.
- Assessing transmission needs for host communities and other rural communities along transmission routes can help address reliability and equity issues.

Recommendations:

- Foster regional bulk transmission planning to support West Coast offshore wind development that can benefit the Western Interconnection.
- Explore innovative approaches, such as networked or backbone layout, to efficiently bring offshore wind energy to shore and meet planning goals.
- Identify and prioritize alternative points of interconnection that limit the number of landfall sites and minimize environmental impacts and long run costs.



Chapter 10: Offshore Wind Permitting



Permitting Roadmap and other approaches explored:

- Coordinated agency approach
- Consolidated permitting approach
- Coordinated environmental review approach
- Programmatic Environmental Impact Report (PEIR) approach
- The Renewable Energy Action Team (REAT) coordinated multi-agency permitting approach
- Fixing America's Surface Transportation Act (FAST-41)



Offshore Wind Permitting

- The permitting process for any large infrastructure such as offshore wind is complex and involves numerous state, federal, and local agencies.
- A coordinated multi-agency permitting approach was developed to streamline the permitting for large renewable projects in the California desert.
 - *The permitting approach created the Renewable Energy Action Team (REAT) and Renewable Energy Policy Group (REPG) to ensure coordination.*

Recommendations:

- Consider developing a coordinated, comprehensive, and efficient permitting process modeled on the successful REAT approach called the Ocean REAT.
- Engage early and consistently with BOEM on its offshore wind Programmatic Environmental Impact Statement (PEIS) to ensure the states priorities are reflected.



March 20, 2024

Draft AB 525 Workshop Focus

- **Chapter 4: Potential Impacts of Offshore Wind and Avoidance, Minimization, and Mitigation Strategies**
 - Native American Tribes and Peoples
 - Marine Biological Resources
 - Underserved Communities
 - Fisheries
- **Chapter 6: Port and Waterfront Facilities Infrastructure**
- **Chapter 7: Workforce Development**



March 29, 2024

Draft AB 525 Workshop Focus

- **Chapter 5: Sea Space for Offshore Wind Development**
- **Chapter 10: Offshore Wind Permitting**
- **Chapter 8: Transmission Technology and Alternatives Assessment**
- **Chapter 9: Transmission Planning and Interconnection**



Public Participation and Links

AB 525 Reports: Offshore Renewable Energy

(ca.gov) <https://www.energy.ca.gov/data-reports/reports/ab-525-reports-offshore-renewable-energy>

- Reports & studies
- Workshop Event Info

File Comments to Docket #17-MISC-01:

California Energy Commission : e-comment : Select a Proceeding

Comments Due April 22, 2024, for Strategic Plan and workshops

The screenshot shows the California Energy Commission's e-commenting portal. At the top is a navigation bar with the CA.GOV logo, the California Energy Commission logo, and links for CA.gov, Contact Us, Accessibility, and Quick Links. Below this is a secondary menu with links for Home, About Us, Analysis & Stats, Efficiency, Funding, Power Plants, Renewables, Research, and Transportation. The main content area features a 'Notification' section with a blue box stating that scheduled maintenance will occur on 2024/01/24 from 05:00PM to 2024/01/25 08:00AM, with possible service interruptions. Below the notification is a green box with a message: 'Please select a proceeding before submitting your comment.' The 'Add Comment' section follows, with a note that fields denoted by an asterisk (*) are required. It includes a dropdown menu for 'Select a Proceeding *' and a search input field with the placeholder 'Enter a project title, docket #, or county'. A magnifying glass icon and a link to 'View All Projects' are also present. A blue button with the text 'You will need to select a proceeding before continuing' is located below the search field. At the bottom, a footer provides contact information for e-commenting: 'For any questions regarding e-commenting, please send an e-mail to e-CommentingHelp@energy.ca.gov, or call 800-822-6228 or 916-654-4489.' On the right side of the footer, there are links for 'Activate Wi' and 'Go to Settings'.



Chapter 4: Potential Impacts of Offshore Wind and Avoidance, Minimization, and Mitigation Strategies



Native American Tribes and Peoples: Impacts, Strategies, and Recommendations



Native American Tribes and Peoples: Impacts, Strategies, Recommendations

Geneva Thompson, Deputy Secretary for Tribal Affairs at the California Natural Resources Agency

Sierra Graves, Tribal Liaison at the California Energy Commission

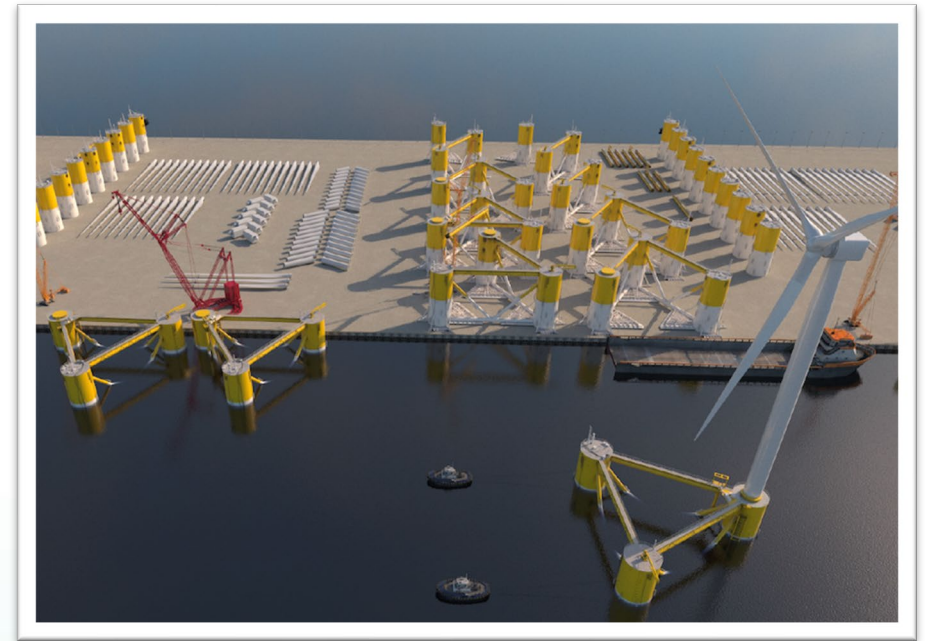
March 20, 2024



AB 525 Strategic Plan: Development of OSW in Federal Waters

Strategic Plan chapters must address:

- Identify additional suitable sea space.
- Focused actions for economic and workforce development and identification of port space and infrastructure.
- Assess transmission planning investments and upgrades.
- Permitting roadmap for offshore wind energy facilities and related infrastructure.
- **Potential impacts** on coastal resources, fisheries, **Native American and Indigenous peoples**, and national defense, **and strategies for addressing those potential impacts**.





Tribal Cultural Resource Considerations

- Sites, Features, Sacred Places and Objects
- Cultural Landscape Considerations
- Tribal Natural Resource Considerations





Tribal Economic and Energy Reliability Considerations

- Outages
- Microgrids





Social Considerations



- Missing and Murdered Indigenous Persons Crisis (MMIP)
- Fisheries (Food Scarcity and Sovereignty)
- Jobs



Tribal Government Feedback on the Permitting Roadmap

Concerns over the industrialization of the shoreline, impacts on the environment and the proposed Central Coast marine sanctuary

Streamlining processes can create a responsible agency vacuum – agencies need to be responsible for meaningful Tribal consultation

Have tribal members on inter-governmental or **inter-agency** groups when making decisions with impacts to Ancestral Lands

Carbon-free electricity can be developed responsibly if decisions are based on sound science and informed feedback from key experts and stakeholders

Consultation with Tribal Governments should be respected and rewarded



Recommendations

- Consult early, often, and meaningfully.
- Study and develop public safety measures to reduce violent crime.
- Encourage the contracting with tribes on cultural and environmental monitoring.
- Explore opportunities to increase tribal access and stewardship.



Native American Tribes and Peoples: Impacts, Strategies, and Recommendations

Tribal Government Comments



Tribal Government Comments

Instruction

- 1 representative per organization

If online: Zoom App/Online

- Click “raise hand”

Telephone

- Press *9 to raise hand
- Press *6 to (un)mute

When called upon

- Will open your line
- Unmute, spell name, affiliation or tribe

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Marine Biological Resources: Impacts, Strategies, and Recommendations



AB 525 Strategic Plan

Potential Impacts to Marine Resources

Jenn Eckerle

Deputy Secretary for Oceans and Coastal Policy, California Natural Resources Agency
Executive Director, Ocean Protection Council

California's Coast and Ocean



Photo credit: Zack Gold



Habitat Disturbance

Seafloor disturbance is expected from anchoring and mooring of turbines, transmission cables, surveys, and potentially siting substations. Nearshore habitats may also be impacted by cables connecting to onshore infrastructure.

Strategies for addressing impacts include:

- Additional research to guide project design
- Buffers to protect sensitive habitats
- Mooring and cable designs and placements that minimize impacts to the seafloor



Bird and Bat Strikes

Seabirds and bats may be impacted through collision with turbines.

Strike risk will vary based on:

- Bird and bat density and seasonality
- Flight heights
- Turbine speed
- Visual conditions
- Behavior

Strategies for addressing impacts include:

- Additional research on bird and bat behavior
- Seasonal restrictions on operations



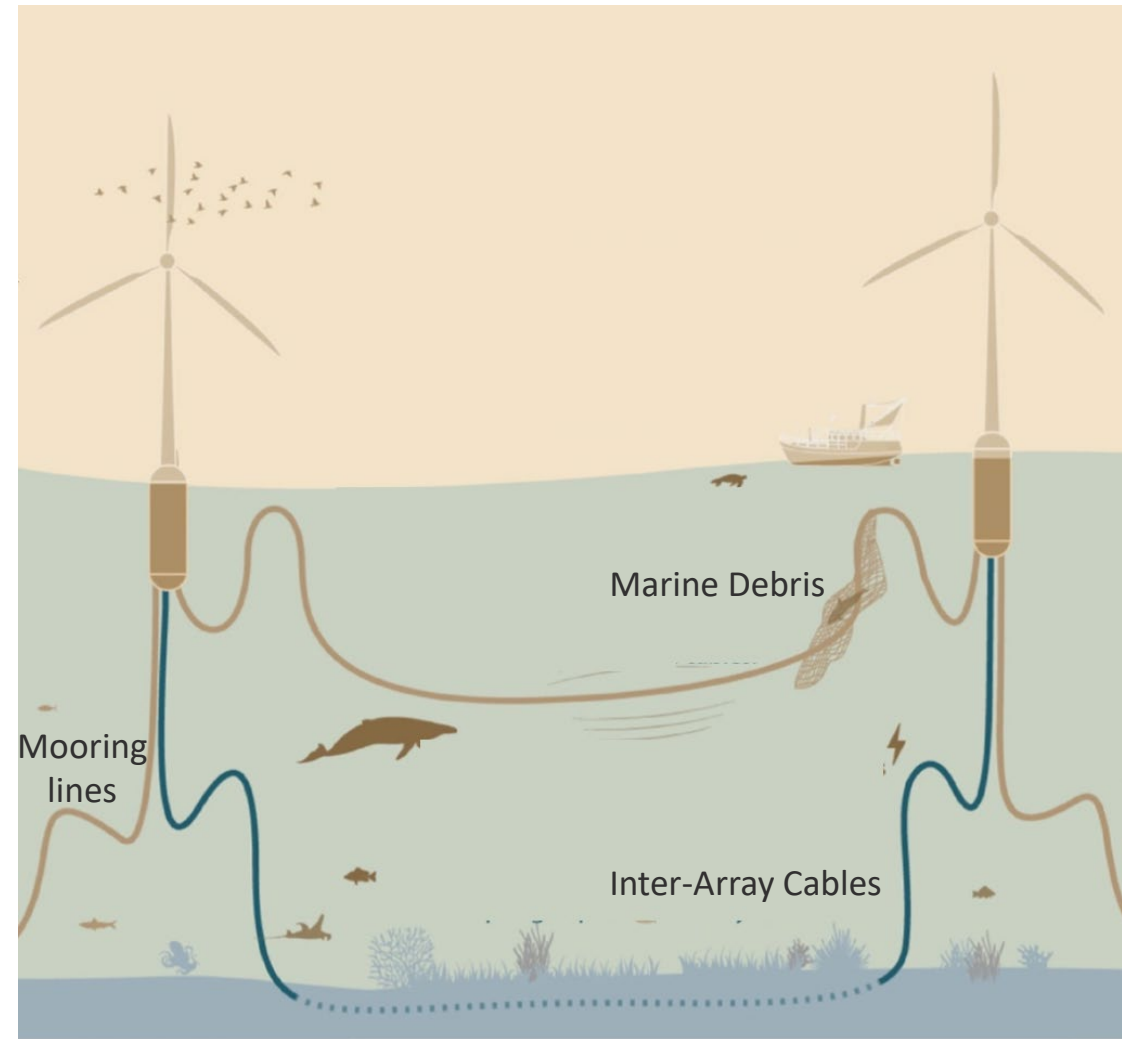
Entanglement

Mooring lines and inter-array cables have the potential to increase entanglement risk for marine mammals.

- Risk from primary entanglement is low
- Greater risk from secondary entanglement caused by fishing gear and debris caught in cables and mooring lines

Strategies to address impacts include:

- Using equipment with sensors to detect snagged debris
- Requiring developers to perform regular maintenance



Source: Maxwell et al. 2023

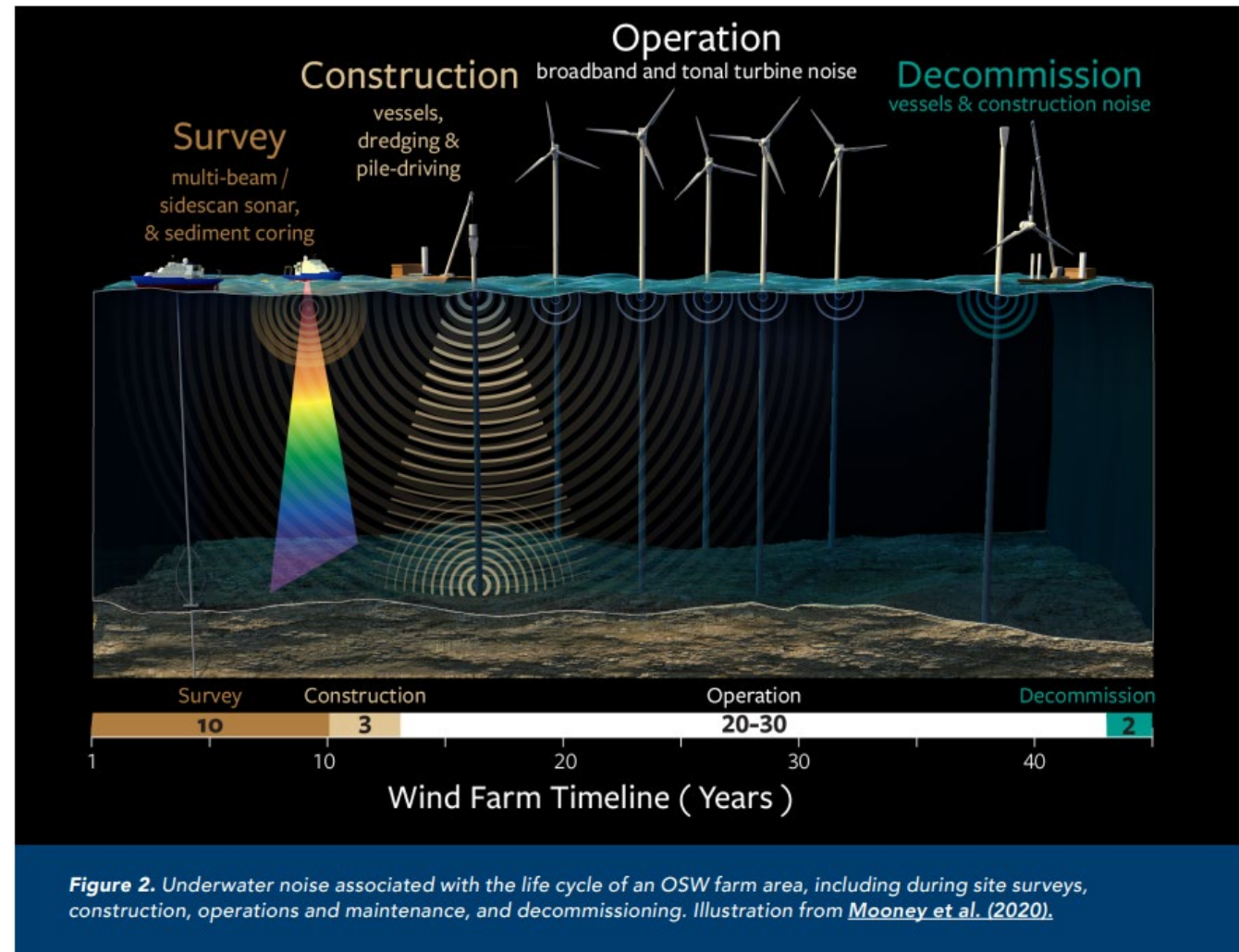


Underwater Noise

Underwater noise from pre-construction, construction and ongoing operation may impact bird, marine mammal, and fish behavior.

Strategies to address impacts include:

- Low-energy geophysical surveys
- Seasonal restrictions on construction
- Survey ramp up
- Protected species observers
- Quieting technologies

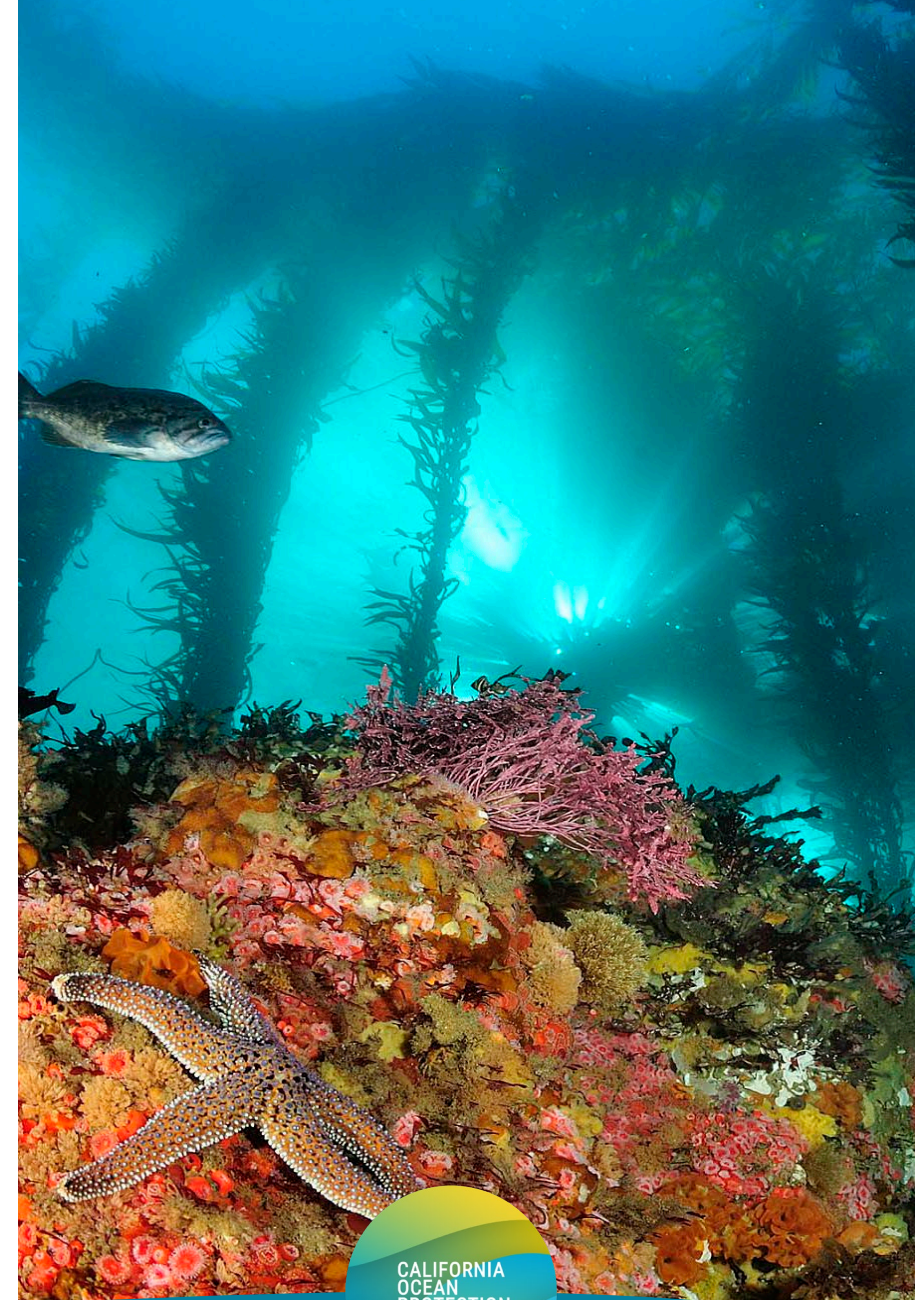


Displacement, Avoidance, Attraction

Offshore wind infrastructure will alter benthic and pelagic habitats and may cause behavioral changes in species that disrupt foraging and breeding, among other impacts.

Strategies to address impacts include:

- Baseline and ongoing monitoring
- Adaptive design measures

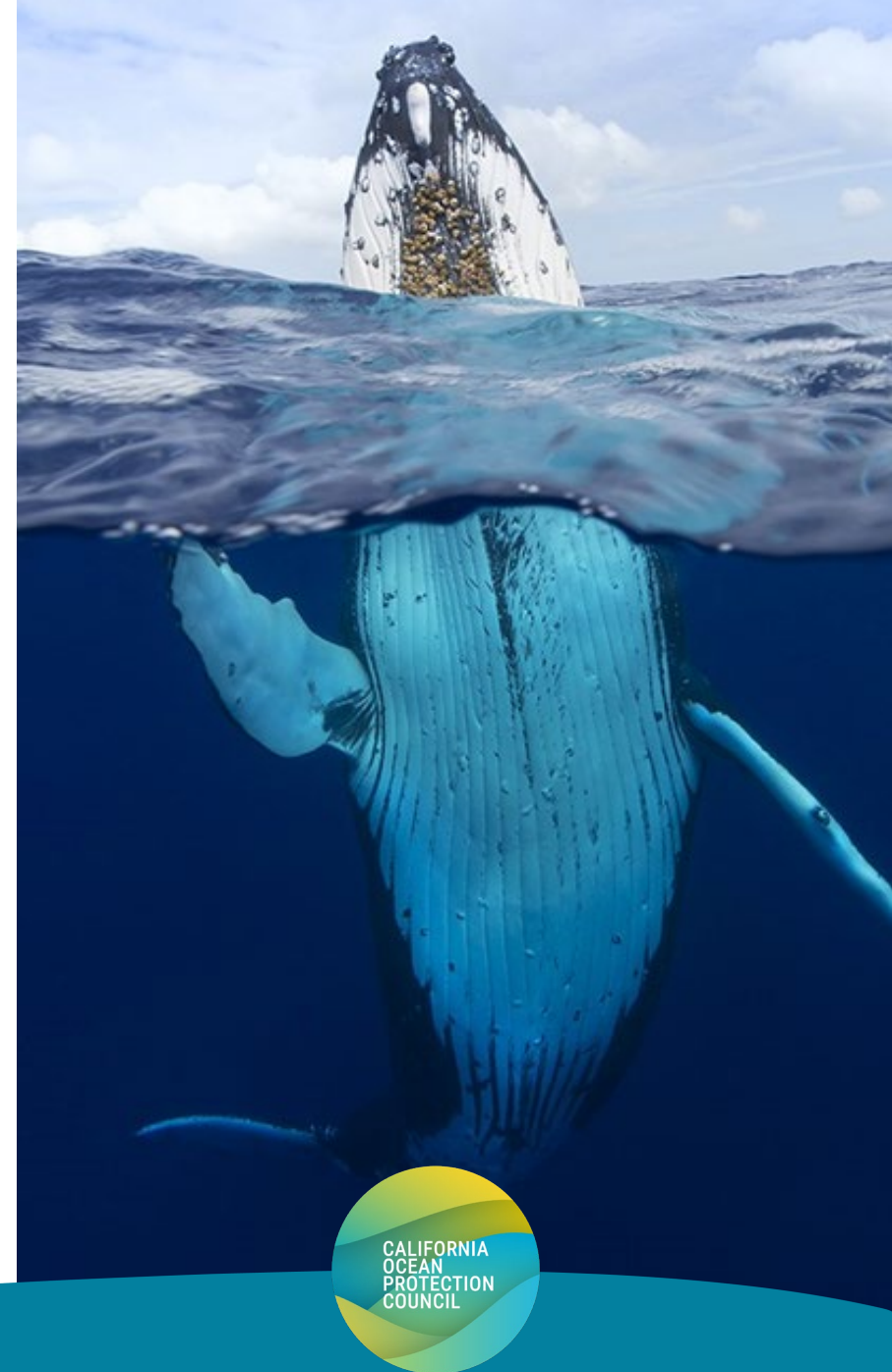


Ship Strikes

Increased vessel traffic through all phases of offshore wind development has the potential to increase whale and sea turtle injury or mortality from ship strikes.

Strategies to address impacts include:

- Reducing ship speeds to 10 knots and below
- Protected species observers



Oil Spills and Invasive Species

Increased vessel traffic can increase the potential for oil spills.

Strategies to reduce risk of oil spills include:

- Spill prevention and response measures
- Vessel operations and control plans

Mooring lines, anchor chains, ship ballast and hull fouling can be vectors for invasive species.

Strategies to address impacts include:

- Antifouling coatings
- Appropriate management of vessel ballast water



Changes in Upwelling

Installation and operation of turbines could affect wind-driven upwelling by decreasing wind speeds at the sea surface, with potential impacts to ecosystem health and function.

Strategies to address impacts include:

- Ongoing monitoring
- Additional research on the impact of upwelling changes on primary production and ecosystem dynamics



Electromagnetic Fields

Transmission of electricity through cables will produce electromagnetic fields that may impact navigation and behavior of marine species.

Strategies to address impacts include:

- Further study on possible impacts
- Consolidating cable routes to shore
- Burying cables
- Surveys to ensure cables remain buried/appropriately sited



Impacts from Port Development

Port development has the potential to displace or destroy nearshore habitats and impact marine species through construction and operation activities.

Strategies to address impacts include:

- Vessel and site-specific spill prevention plans
- Concentrating vessel traffic in industrial areas
- Planning port development in partnership with communities



Monitoring and Adaptive Management

Comprehensive monitoring and adaptive management are critical to protect marine ecosystems, given the high degree of uncertainty around the scope and scale of impacts.



Environmental Monitoring Guidance

- Marine mammals and sea turtles
- Birds and bats
- Fish ecology
- Habitats and ecosystems
- Data integration and sharing
- Monitoring technology
- Climate change



Recommendations

- Support comprehensive environmental research and monitoring using best available science, including traditional ecological knowledge.
- Continue promoting coordination and collaboration among lessees to minimize environmental impacts.
- Develop a comprehensive mitigation framework and adaptive management strategies.





Marine Biological Resources: Impacts, Strategies, and Recommendations

General Comments





Public Comment: Marine Biological Resources

Instruction

- 3 minutes or less per person
- 1 representative per organization

Zoom App/Online

- Click “raise hand”

Telephone

- Press *9 to raise hand
- Press *6 to (un)mute

When called upon

- Will will open your line
- Unmute, spell name, state affiliation, if any

3-MINUTE TIMER



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Underserved Communities: Impacts, Strategies, and Recommendations



Chapter 4 - Underserved Communities: Impacts, Strategies, and Recommendations

Eli Harland, Offshore Wind Federal Programs & Outreach Liaison
Siting, Transmission, and Environmental Protection Division
March 20, 2024



Requirements from AB 525

Statutory Direction for Impacts Chapter:

- Potential impacts on coastal resources, fisheries, Native American and Indigenous peoples, and national defense, and strategies for addressing those potential impacts.

Statutory Direction for Other Chapters:

- The term “stakeholder” is used in different Public Resources Code sections within AB 525.
- AB 525 defines “stakeholders” to include, but not limited to, fisheries groups, labor unions, industry, **environmental justice organizations**, environmental organizations, and other ocean users.

Approach taken in Draft AB 525 Strategic Plan

- Although not specified as a requirement by AB 525, recommendations to address the potential impacts of offshore wind on underserved communities are included.



Chapter 4: Including Underserved Communities

“Offshore wind offers a unique opportunity to increase equitable access to energy and benefits. Environmental justice and equity must be thoughtfully addressed early in the process.”

“Achieving energy equity requires intentionally designing systems, technologies, procedures, and policies that help achieve the fair and just distribution of energy system benefits and the participation of individuals from underserved communities. An intentional approach can also avoid, mitigate, and lessen historical injustice in these processes.”



2021 SB 100 Joint Agency Report

- California Energy Commission, California Public Utilities Commission, and California Air Resources Board
- Prioritizing equitable outcomes will mean considering what energy policies could support underserved communities in overcoming barriers to clean energy by:
 - Keeping electricity affordable, with an emphasis on vulnerable populations and households that spend a disproportionately high share of their household income on energy.
 - Reducing air pollution from local power plants, particularly in communities that experience a disproportionate amount of air pollution.
 - Strengthening communities' ability to function during power outages and enjoy reliable energy in a changing climate.
 - Funding training for high-quality jobs and careers in the growing clean energy industry for communities historically impacted by the energy industry.



Chapter 4: Potential Benefits to Underserved Communities

- Benefits to local and underserved communities through economic and workforce development and opportunity to create well-paying, long-term jobs, such as:
 - developing local supply chain capacity and upgrading ports and waterfront facilities,
 - investing in manufacturing of components and assembly of offshore wind turbines,
 - operation and maintenance of offshore wind turbines,
 - environmental and cultural resource monitoring, and
 - grid operations and maintenance.
- Offshore wind energy development has the potential to provide reliability and resilience benefits to rural and remote communities with inadequate energy services that limit their ability to participate in the evolving clean energy economy.



Chapter 4: Engagement With Underserved Communities

- The California Natural Resources Agency, the CEC, the State Lands Commission, and the California Coastal Commission met with community members and environmental justice advocates in the development of the draft report.
- Advocates placed importance of reducing impacts of the offshore wind industry on local and underserved communities, including:
 - potential increased strains on housing availability and affordability,
 - increased cost of living,
 - negative air quality impacts near port development, and
 - construction and operation of offshore wind turbines uses oil-based lubricants and other products that has the rare potential to result in an oil spill.
- While offshore wind is itself a clean energy source, the production, transportation, and maintenance of these facilities could produce pollution if it is not electrified. These activities may impact port communities with potential air, water, noise and light pollution.



Chapter 4: Engagement With Underserved Communities

- Advocates proposed strategies to address impacts:
 - increasing engagement with potentially impacted communities,
 - funding to increase the capacity of underserved communities to participate meaningfully,
 - opportunities to learn how offshore wind projects may be progressing and the best time and place for providing input on minimizing and avoiding potential impacts.
- Advocates suggested best practices for engagement include:
 - creating an advisory board of community leaders,
 - partnering with trusted community groups,
 - advertising meetings weeks in advance,
 - holding meetings in trusted locations at times when working families can attend,
 - providing children's activities and food, and
 - creating accessibly written materials that are also translated.



Chapter 4: Engagement With Underserved Communities

- A key priority advocates outlined is to support efforts to decommission aging oil and gas facilities as California moves towards a clean energy future.
- Advocates also expressed support for zero emission goals for ports and electrifying trucking and goods movement as much as possible.
- Advocates also want to see:
 - strong legally binding community benefit agreements,
 - investments in community resilience programs, and
 - continuous monitoring and use of adaptive management practices throughout the development and operation of offshore wind facilities.



Chapter 4: Additional Strategies for Underserved Communities

- Prioritizing infrastructure projects that also have co-benefits for communities that have reliability issues and are most impacted during public safety power shut offs.
- Supporting the development of community benefits agreements, when and as required by offshore wind lease agreements with the Bureau of Ocean Energy Management.
- Support training, hiring, and recruiting for employment opportunities within underserved communities and communities most impacted by offshore wind development.



Chapter 4: Recommendations to Address Impacts to Underserved Communities

The following recommendations will increase understanding of potential impacts to underserved communities and inform actions to avoid, minimize and mitigate impacts and adaptively manage offshore wind development and ongoing operation.

- The study, development and operation of offshore wind related projects should include early regular, and meaningful community outreach and engagement with underserved communities, nongovernmental organizations, local governments and other potentially impacted underserved groups.
- Offshore wind development and operation should avoid, minimize or mitigate impacts to underserved communities, including those in and around ports.
- Evaluate and identify ways to increase capacity for stakeholders to engage on the permitting, development, and mitigation of offshore wind development.

Note: Recommendations related to workforce development efforts for underserved communities are presented as part of the “Workforce Development” presentation.



Underserved Communities: Impacts, Strategies, and Recommendations

General Comments



Public Comment: Underserved Communities

Instruction

- 3 minutes or less per person
- 1 representative per organization

Zoom App/Online

- Click “raise hand”

Telephone

- Press *9 to raise hand
- Press *6 to (un)mute

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3-MINUTE TIMER



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Lunch Break

12:45 – 1:45



Welcome Back



Fisheries: Impacts, Strategies, and Recommendations



Chapter 4 - Fisheries: Impacts, Strategies, and Recommendations

Rachel MacDonald, Program Specialist
Siting, Transmission, and Environmental Protection Division
March 20, 2024



AB 525 Requirements

The Strategic Plan must include:

***“Potential impacts** on coastal resources, **fisheries**, Native American and Indigenous peoples, and national defense, **and strategies for addressing those potential impacts.**”*





State Agency Roles and Fisheries

- California Department of Fish and Wildlife
- California Coastal Commission
- Ocean Protection Council





AB 525 Outreach and Input from Fisheries

- Received docketed comments
- Conducted webinars
- Held In-Person Meetings:
 - Morro Bay
 - Crescent City
 - Eureka
 - Fort Bragg
- Facilitated discussions with staff
- Fisheries participation in workshops





Examples of Potential Impacts to Fisheries

- Vessel safety concerns
- Lost or reduced access to fishing Areas
- Gear loss or damage
- Uncertainty with survey work
- Food security concerns
- Impacts from port activities
- Disruption of fisheries data collection





Additional Potential Impacts and Concerns



Potential indirect impacts to associated businesses:

- Seafood processors
- Dock hands
- Gear manufacturers
- Vessel crewmembers



Additional concerns about:

- Time spent advocating by fisheries
- Loss of community identity
- Impacts to fishing and tourism industry
- Increased economic pressure stress
- Legal costs to negotiate with developers



Strategies from Fisheries

Develop Fishing Community Benefit Agreement that provides:

- Payment of damaged or lost fishing gear due to offshore wind development
- One-time compensatory mitigation to all regional fishermen
- Additional compensation for those directly impacted by offshore wind and related infrastructure

Develop a Fisheries and Mariners Communication Plan:

- Coordinates with the USCG and local fisheries groups
- Uses modeling to design projects minimizing impacts and maximizing access to productive fishing grounds
- Designs port and harbor infrastructure improvements to serve both the local fishing community and offshore wind needs



Recommendations

- The latest commercial, recreational, subsistence, and cultural fishing data should be used to conduct analyses assessing spatial and temporal trends in fishing effort and value metrics in the offshore and nearshore environments, in consultation with California Native American tribes and the California Offshore Wind Fisheries Working Group.
- Continue to support the California Offshore Wind Fisheries Working Group in developing a statewide strategy for avoidance, minimization, and mitigation of impacts to fishing and fisheries that prioritizes fisheries productivity, viability, long-term resilience, and safe navigation.
- Continue working with researchers, offshore wind leaseholders, tribes, and other state and federal agencies to develop a strategy to avoid, minimize, and mitigate impacts to ongoing fisheries surveys that inform fisheries management.



Fisheries: Impacts, Strategies, and Recommendations

General Comments



Public Comment: Fisheries

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Ports and Waterfront Facilities



Chapter 6: Port and Waterfront Infrastructure

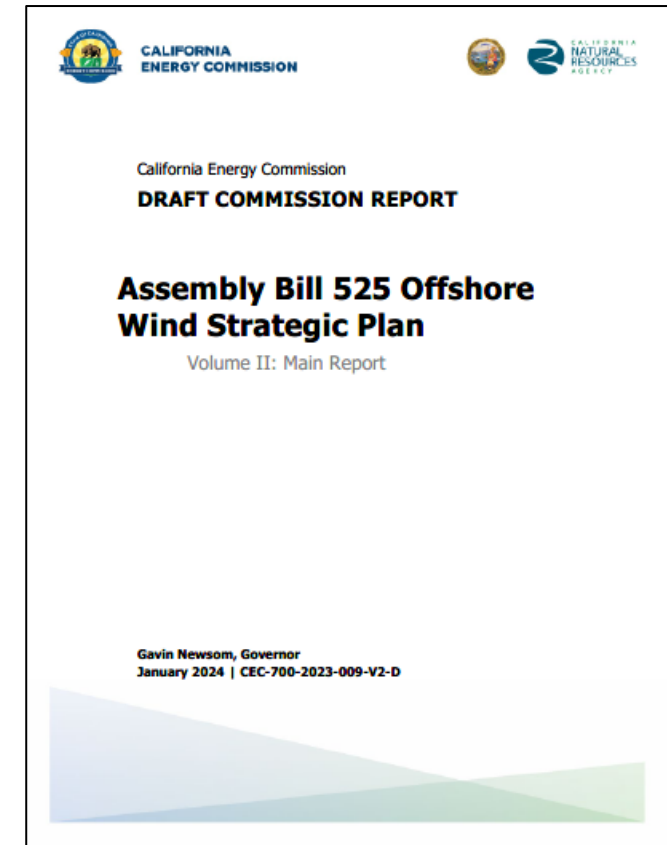
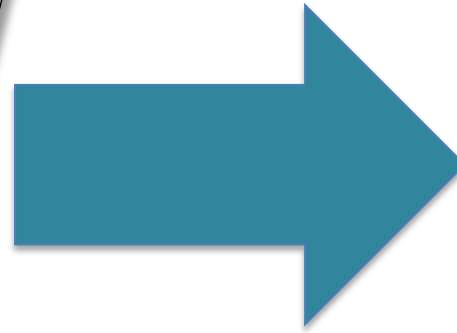
March 20, 2024

CALIFORNIA STATE LANDS COMMISSION

California State
Lands Commission



REPORTS INFORMING AB 525 PORTS CHAPTER



Reports available for download:
slc.ca.gov/renewable-energy/offshore-wind-energy-development

THREE MAIN PORT TYPES

1. Staging and integration (S&I)
2. Manufacturing/fabrication (MF)
3. Operations and maintenance (O&M)

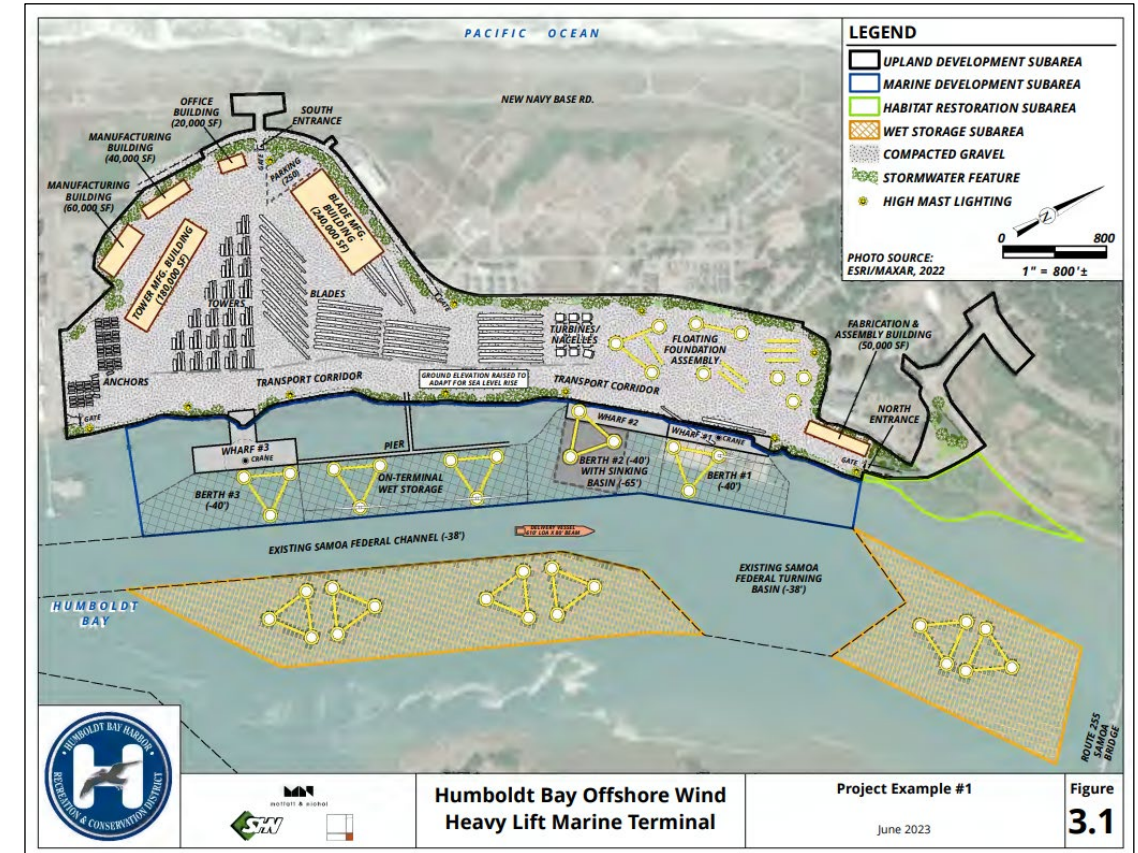
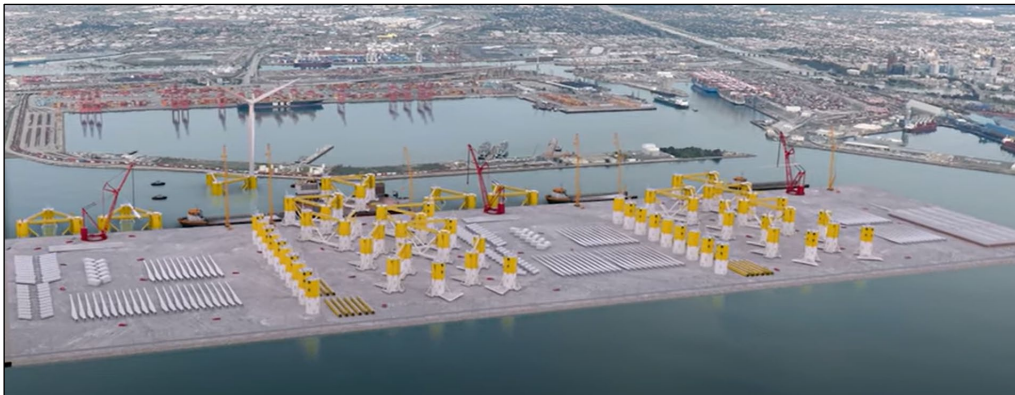


Depiction by Moffatt & Nichol

STAGING AND INTEGRATION

Site where components are received for assembly of the turbines

- 30-100 acres
- No overhead restrictions (e.g., bridges)
- Humboldt, Long Beach, Los Angeles are likely sites

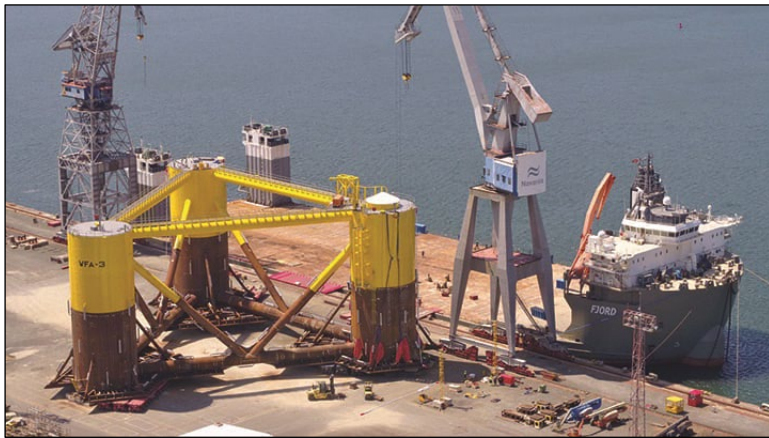


POLB artistic rendering; helpful
2-minute video:
<https://youtu.be/i2rdYDeh5V4>

MANUFACTURING/FABRICATION

Site for manufacturing of larger components from raw materials

- 30-100 acres
- Wharf loading capacity $>6,000$ pounds per ft^2
- Can be specific to a component, like nacelles
- Must be located on a waterway; many more options than S&I



Floating platform



Nacelle

OPERATION AND MAINTENANCE

Provide for the transfer of crews needed to perform minor maintenance and repair of turbines at the wind farms.

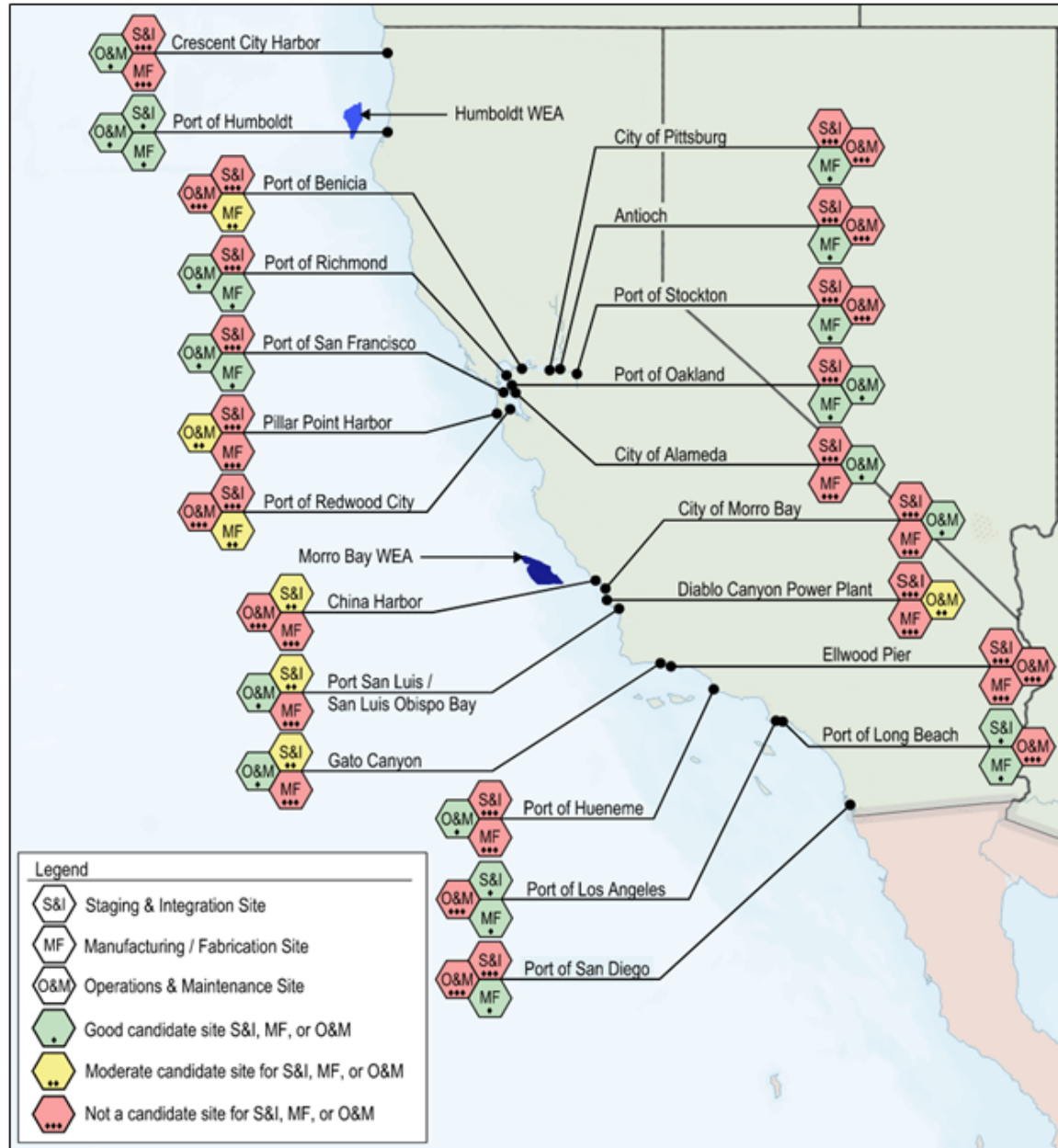
- 2-10 acres
- Wharf doesn't need to be nearly as strong
- Closer to the wind farm, the better



Crew transfer vessel



Service operation vessel



CONCLUSIONS FROM PORT READINESS PLAN

- Utilization of a “multi-port strategy”
- Existing ports are preferable to undeveloped sites
- \$11-12 billion in port upgrades needed

CHAPTER 6 RECOMMENDATIONS

- Continue to support port development and readiness framework
 - Coordinated with larger West Coast port network evaluation efforts and supply chain development.
- Continue to collaborate with ports, tribal governments, underserved communities, and other stakeholders to understand the unique challenges and opportunities
- Continue to engage to explore options to support local supply chain development.



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THANK YOU & QUESTIONS

Amy Vierra
Division of Environmental
Science, Planning and
Management

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California State
Lands Commission





Ports and Waterfront Facilities

General Comment Period



Public Comment: Ports and Waterfront Facilities

Instruction

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Workforce Development



AB 525 Strategic Plan Chapter 7: Workforce Development

Elizabeth Barminski, Offshore Wind Federal Programs & Outreach Liaiso
Siting, Transmission, and Environmental Protection
March 20, 2024

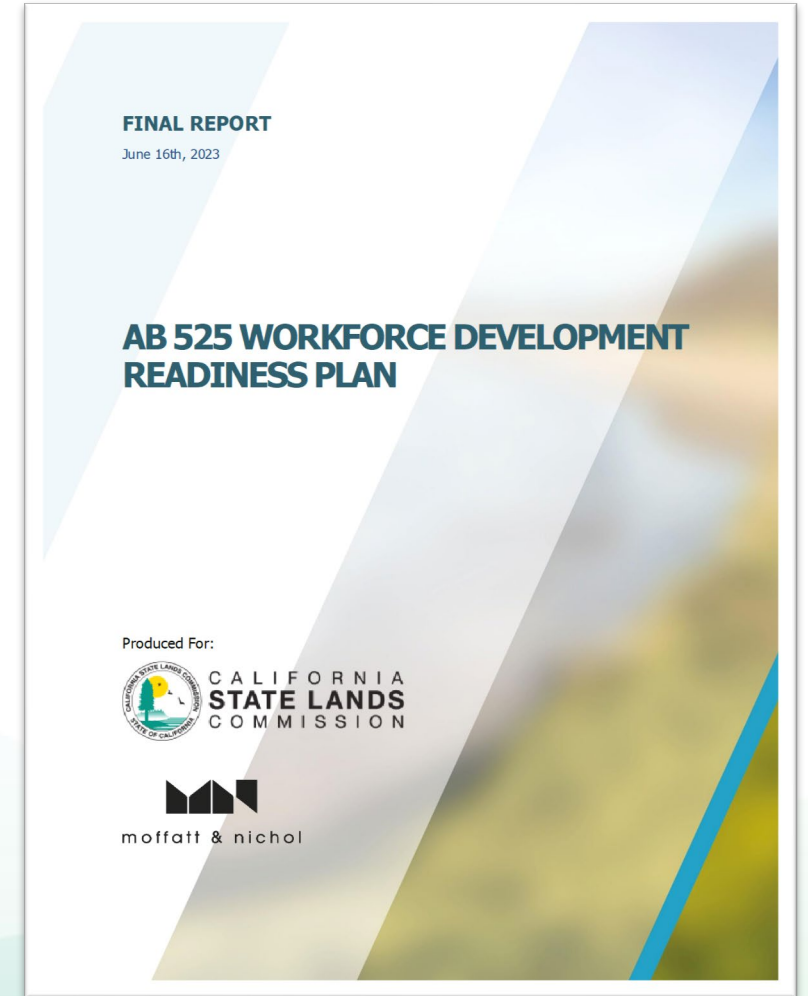
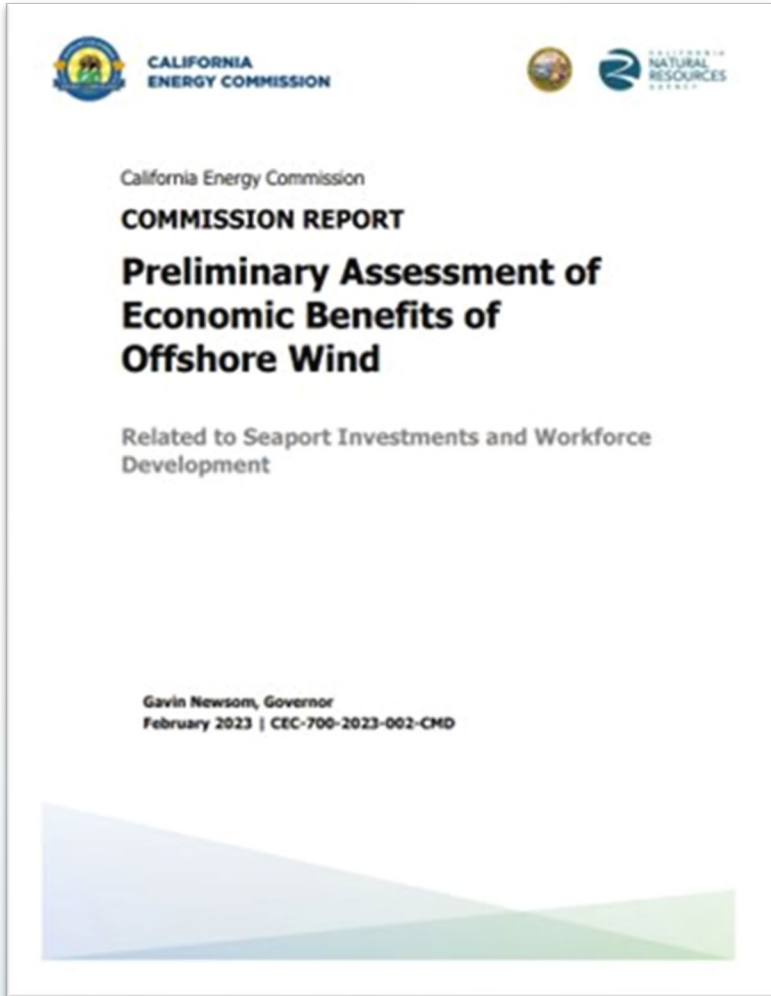


Requirements of Strategic Plan

- Assess offshore wind workforce development needs including:
 - occupational safety requirements
 - the need to require a skilled, diverse, and trained workforce to perform all work
 - the need to develop curriculum for in-person classroom and laboratory advanced safety training for workers
- Develop recommendations for workforce standards for offshore wind energy facilities and associated infrastructure to ensure sustained and equitable economic development benefits



Published Reports





Overview of Workforce Development

Project Development Phases:

- Supply Chain
- Construction
- Operations & Maintenance

Job Types:

- Technicians and Trades
- Construction and Assembly
- Maritime and Port Workers
- Engineers
- Management
- Administrative and Clerical





Estimated Jobs Needed

To meet offshore wind planning goals for 2045:

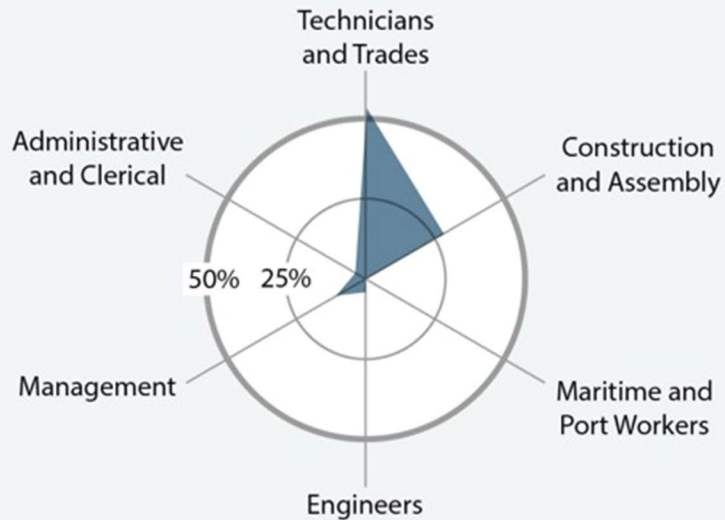
- Supply Chain: **3,382 – 11,280** jobs
- Construction: **173 – 2,340** jobs
- Operations & Maintenance: **1,508 – 4,330** jobs
- Total: **5,063 – 17,950** jobs



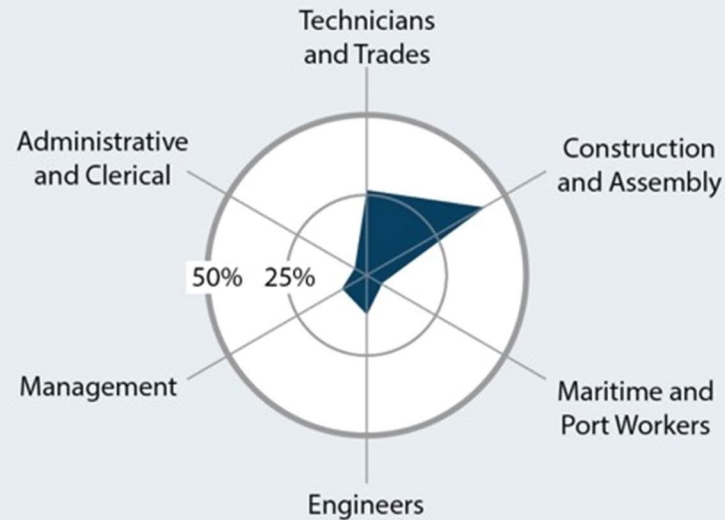


Workforce by Job Type and Project Development Phase

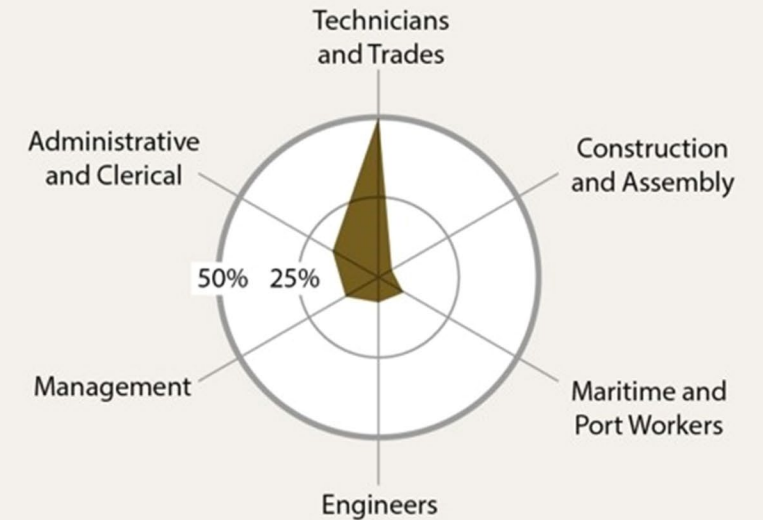
Supply Chain



Construction



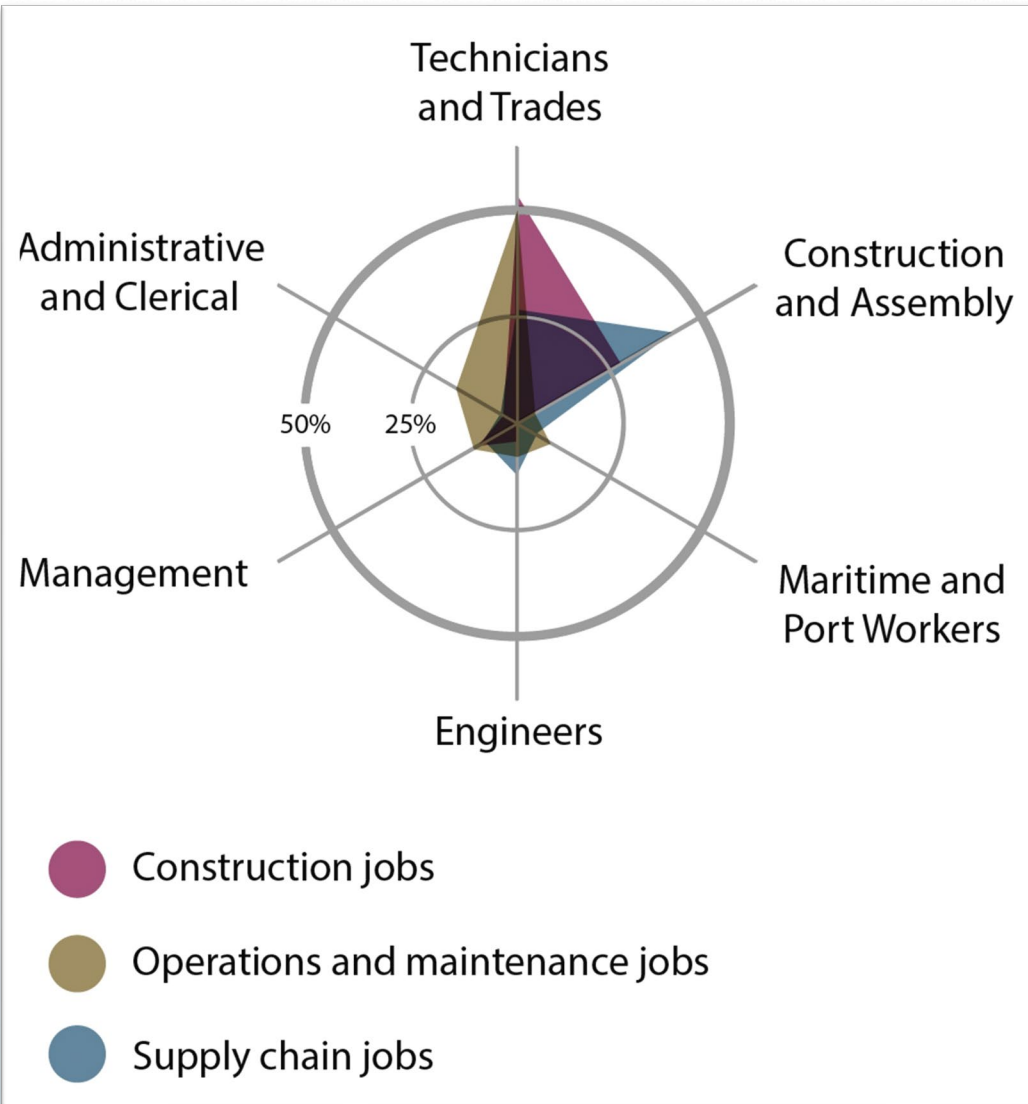
Operations and Maintenance



Source: Catalyst Assessment. 2023



Workforce Skills by Job Type



6 Job Types:

- Technicians and trades
- Construction and assembly
- Maritime and port workers
- Engineers
- Management
- Administrative and clerical

5 Primary Supply Areas:

- Project development
- Wind turbine supply
- Balance of plant supply
- Installation and commissioning
- Operations and maintenance



Workforce Skills and Qualifications

Qualification Level	Description of Minimum Training and/or Certification	Training Length
Manager	Formal education/combination of education and experience	5+ years
Skilled trade – Specialist	Requires training and apprenticeship plus additional experience or specialization (e.g., senior vessel crew, supervisory roles, etc.).	5+ years
Engineer	Engineering degree from university	4+ years
Scientist	Science degree from university	4+ years
Other University Degree	University degree other than engineering/science	4+ years
Skilled trade - Standard	Requires skilled vocational training	2+ years
Support staff	Requires some formal training (e.g., admin, HR, etc.)	2+ years
Tradesperson	Requires training/certification/apprenticeship	1+ years
Nonskilled labor	Requires no formal training, only on-the-job experience	>1 year

Source: Workforce Plan. 2023



Workforce Standards

- Workforce standards can help ensure job quality, equity, worker safety, and industry success.
- Types of standards:
 - Prevailing wage
 - Workforce skills
 - Workforce training
 - Apprenticeship programs
 - Local hiring initiatives
 - Targeted hiring standards
 - Equitable hiring standards



Workforce Training

- Job types differ by education, certification, or credentialing
- Skills are transferable & a robust education and training network exists
- Partnership structures:
 - Project labor agreements (PLAs)
 - Community benefits agreements (CBA) and community workforce agreements (CWA)
 - California Workforce Development Board (CWDB) High Road Training Partnership program



Workforce Development

- In the near-term, most needed skills are in trades, technician, and construction sectors.
- In the long-term, more jobs are in the supply chain and manufacturing phase.
- A workforce with the right skillset requires specialized training for different types of workers.
- Existing education and training networks and programs can be leveraged to support workforce development.

Recommendations:

- Identify workforce needs and gaps, establish targeted and equitable hiring standards, fund training and education, and recruit entry-level and experienced workers, including prioritizing prevailing wage and union labor.
- Coordinate to create career opportunities, workforce training, and economic development benefits.
- Support project labor agreements that provide local communities and tribes with meaningful economic benefits.



Workforce Development

General Comment Period



Public Comment: Workforce Development

Instruction

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Public Participation and Links

AB 525 Reports: Offshore Renewable Energy (ca.gov) - <https://www.energy.ca.gov/data-reports/reports/ab-525-reports-offshore-renewable-energy>

- Reports & studies
- Workshop Event Info

File Comments to Docket #17-MISC-01:
California Energy Commission : e-comment : Select a Proceeding

Comments Due April 22, 2024, for Strategic Plan and workshops

The screenshot shows the California Energy Commission's e-commenting portal. At the top is a navigation bar with the CA.GOV logo, the California Energy Commission logo, and links for CA.gov, Contact Us, Accessibility, and Quick Links. Below this is a secondary navigation bar with links for Home, About Us, Analysis & Stats, Efficiency, Funding, Power Plants, Renewables, Research, and Transportation. The main content area features a 'Notification' section with a blue box stating: 'A scheduled maintenance will be carried out on 2024/01/24 05:00PM ~ 2024/01/25 08:00AM. Possible service interruptions may occur during this period. You are advised not to use the system during this period.' Below the notification is a green box with the message: 'Please select a proceeding before submitting your comment.' The 'Add Comment' section follows, with a note that fields denoted by an asterisk (*) are required. It includes a dropdown menu for 'Select a Proceeding *' and a text input field for 'Enter a project title, docket #, or county'. A search icon and a link to 'View All Projects' are also present. A blue box at the bottom of the form states: 'You will need to select a proceeding before continuing'. At the very bottom, a footer provides contact information: 'For any questions regarding e-commenting, please send an e-mail to e-CommentingHelp@energy.ca.gov, or call 800-822-6228 or 916-654-4489.' On the right side of the footer, there are links for 'Activate Wi' and 'Go to Settings'.