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Preparing a Strategic Plan for Offshore Wind Energy Development Staff Workshop

October 6, 2022

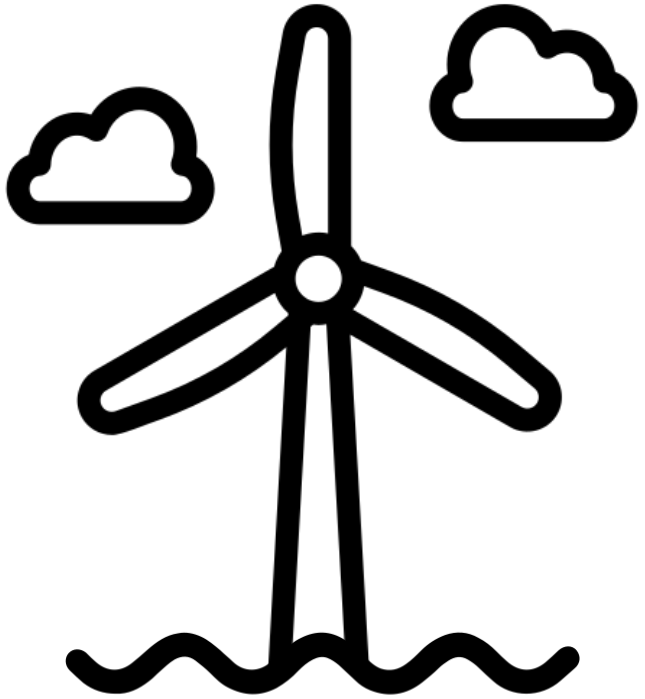
Workshop Schedule

1. Welcome
2. 2022 BOEM California Lease Sale
3. AB 525 Overview
4. Key Offshore Wind Energy Actions and Analyses
5. Public Comments
6. Closing Remarks

Advancing Offshore Wind

Background:

- October 2016: BOEM-CA Intergovernmental Renewable Energy Task Force established
- October 2018: BOEM Call for Information and Nomination
- May 2021: announcement from Biden and Newsom Administrations
- January 2022: Assembly Bill 525 took effect
- August 2022: CEC establishes OSW planning goals
- 2022 BOEM Wind Energy Areas and actions to lease



2022-2023 State Budget Investments

- $45 million proposed to support waterfront facility improvements
- $4 million to support Assembly Bill 525 implementation
- Voluntary Offshore Wind and Coastal Resources Protection Program

Workshop Schedule

2. 2022 BOEM California Lease Sale Update – Jennifer Miller

Workshop Schedule

3. **AB 525 Overview – Rhetta deMesa**

AB 525 Legislative Findings

- Provide economic and environmental benefits.
- Advance progress toward California's renewable and climate goals.
- Diversify the state's energy portfolio.
- Realize economic and workforce development benefits.
- Contribute to renewable resource portfolio that can serve electricity needs and improve air quality in disadvantaged communities.
- Offer career pathways and workforce training opportunities.

OSW Strategic Plan Priorities

- The strategic plan shall emphasize and prioritize near-term actions, particularly related to port retrofits and investments and the workforce, to accommodate the probable immediate need for jobs and economic development.
- In considering port retrofits, the strategic plan shall strive for compatibility with other harbor tenants and ocean users to ensure that the local benefits related to offshore wind energy construction complement other local industries.
- The strategic plan shall emphasize and prioritize actions that will improve port infrastructure to support land-based work for the local workforce.
- The development of the strategic plan regarding workforce development shall include consultation with representatives of key labor organizations and apprenticeship programs that would be involved in dispatching and training the construction workforce.

AB 525 Required Interim Work Products

June 1, 2022

- Evaluate and quantify maximum feasible capacity of offshore wind
- Establish megawatt planning goals for 2030 and 2045

December 31, 2022

- Complete a preliminary assessment of economic benefits related to seaports and workforce development needs and standards
- Develop a permitting roadmap

July 30, 2023

- Develop a strategic plan for offshore wind off the California coast in federal waters

AB 525 Additional Requirements

Identify suitable Sea Space for wind areas in federal waters sufficient to accommodate the planning goals.

Develop a plan to improve waterfront facilities that could support a range of floating offshore wind development activities.

Assess the transmission investments and upgrades necessary, including subsea transmission options, to support the offshore wind planning goals.

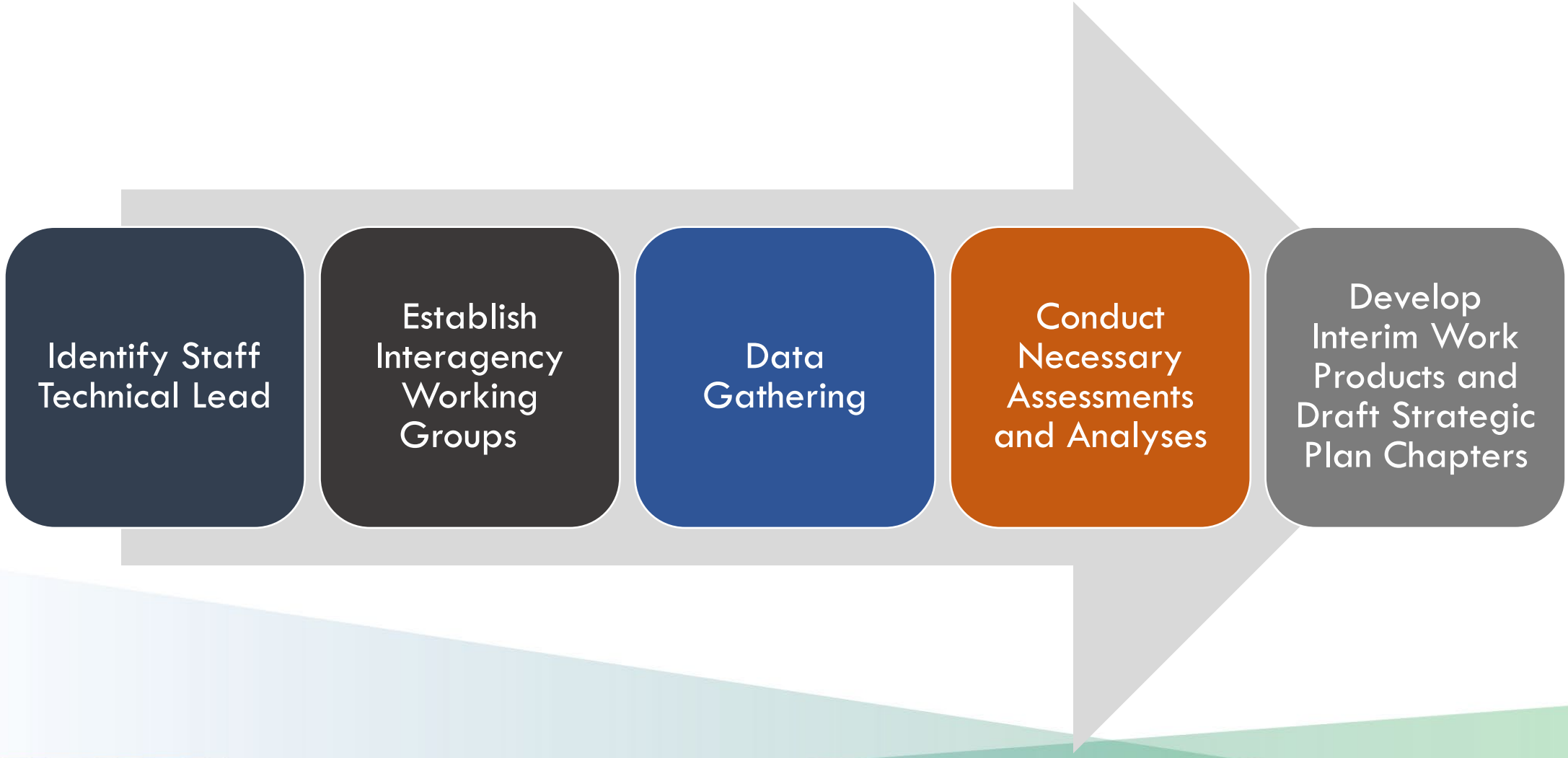
OSW Strategic Plan Chapters

- Identify sea space.
- Focused actions for economic and workforce development and identification of port space and infrastructure.
- Assess transmission planning investments and upgrades.
- Develop a permitting roadmap for offshore wind energy facilities and related infrastructure.
- Identify and address potential impacts to coastal resources, fisheries, Native American and Indigenous peoples, and national defense.

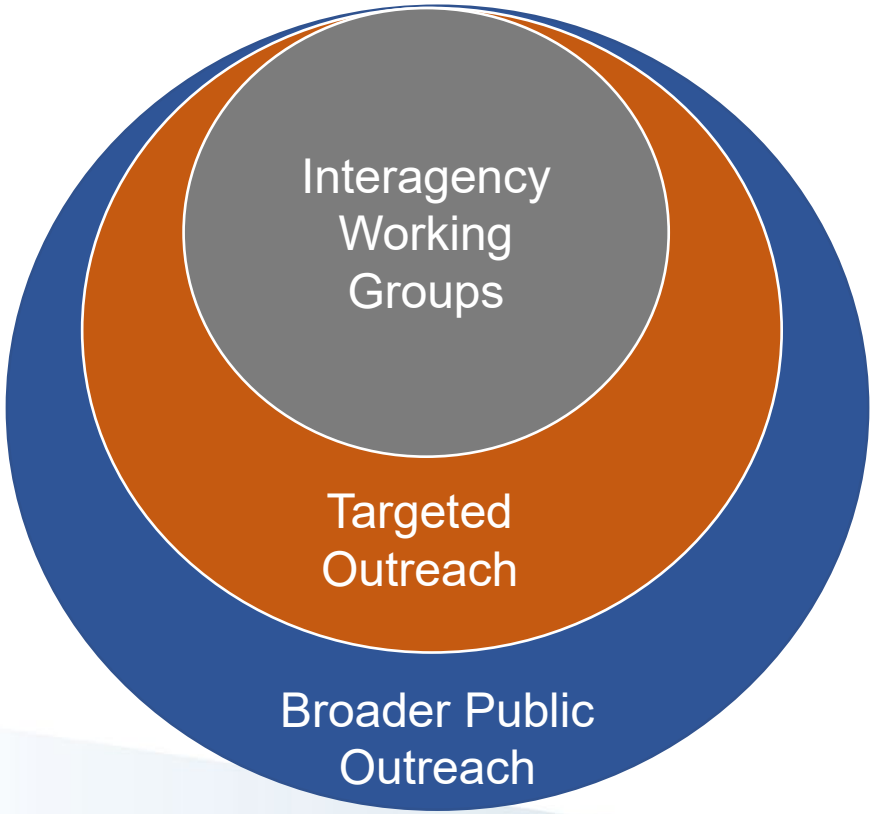
CEC Established OSW Planning Goals

CEC Report: *Offshore Wind Energy Development off the California Coast: Maximum Feasible Capacity and Megawatt Planning Goals for 2030 and 2045*

Process to Develop Strategic Plan



Coordination, Outreach, and Engagement



Interagency Working Groups: Topically focused interagency working groups on permitting, seas space, transmission, and economic benefits

Targeted Outreach: Engaging with key stakeholder groups based on legislative directive, technical expertise, interest, etc.

Broader Public Outreach: Engaging broader stakeholders and interested parties

Workshop Schedule

4. **Key Offshore Wind Energy Actions and Activities:** ***Permitting Roadmap – Kristy Chew***

AB 525 OSW Permitting Roadmap

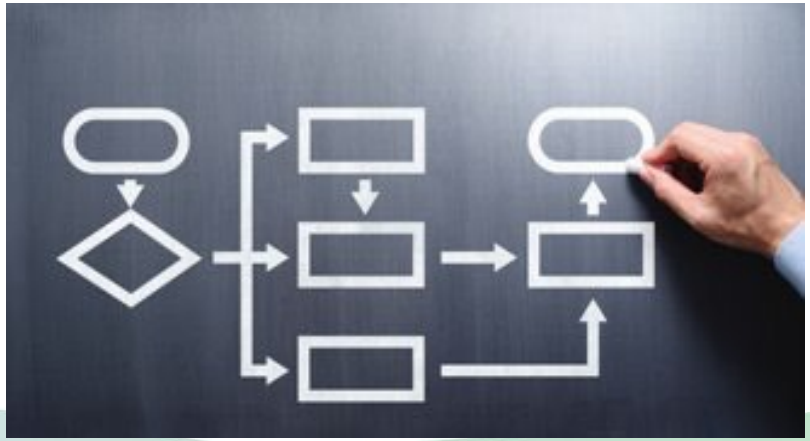
- Describes timeframes and milestones for a coordinated, comprehensive, and efficient permitting process for offshore wind energy facilities and associated electricity and transmission infrastructure
- Consult and collaborate with all relevant local, state, and federal agencies
- Identify a goal for the permitting timeframe
- Define local, state, and federal agency roles, responsibilities, and decision-making authority
- Provide opportunity for stakeholder and public input

Permitting Roadmap Goals and Objectives

- Document existing processes
- Identify opportunities for increased efficiencies and improved coordination among the permitting agencies
- Identify process improvements within and among agencies
- Develop a common understanding across agencies, developers, and other interested parties

Key Inputs

- Analyzing literature, studies, reports, and ongoing activities related to government review and permitting processes
- Reviewing information from state agency working group, Bureau of Ocean Energy Management, local governments
- Interfacing with stakeholders



Tasks and Timelines

- Gather information on existing permitting processes: Ongoing through 2022
- Host public workshop/webinar on approach and scope: early November 2022
- Prepare draft Permitting Roadmap: now through early November 2022
- Release draft Permitting Roadmap: Early November 2022
- Public workshop on draft Permitting Roadmap: Early/Mid November 2022
- Consideration at CEC business meeting: December 2022

Workshop Schedule

4. **Key Offshore Wind Energy Actions and Activities:** ***Preliminary Assessment of the Economic Benefits of OSW Related to Seaports and Workforce Development – Paul Deaver***

Scope

- Identify, measure, and value the economic benefits from seaport upgrades and developing a skilled and trained workforce.
- Estimate the monetary impacts to California communities from developing offshore wind.
- Consider strategies to maximize the economic opportunities that could result from offshore wind development.

Tasks and Timelines

- Develop an approach and inputs to assess the preliminary economic benefits
- Identify, review, and analyze literature, studies and reports that will inform the overall assessment of preliminary benefits
- Coordinate interagency work
- Onboard technical consultant
- Draft preliminary assessment of economic benefits report
- Engage in various stakeholder outreach efforts
- Post draft report
- Host public workshop, proposed for October 31, 2022
- Present for consideration at CEC December Business Meeting

Defining Economic Benefits

*An **economic benefit*** is any activity that can be quantified in terms of the money that it generates such as net income, revenue, profit, and cash flow.

Economic Assessment of Benefits

Direct Benefits

- Onsite and project development benefits directly related to the port operations and resulting growth

Indirect Benefits (supply chain)

- Benefits related to economic growth in upstream industries spurred by spending at the port for OSW, such as supply chain development and component manufacturing.

Induced Benefits

- Ripple effects that occur at all points in the supply chain from both direct and indirect impacts as a result of increased spending in the local region

Economic Benefit Metrics

- Based on literature and stakeholder input, the report will use metrics to measure economic benefits from offshore wind:
  - Gross state product and gross domestic product
  - Economic output- market value of goods and services produced by CA offshore wind projects
  - In-state and local job growth
  - Earnings and wages from jobs created
  - Net economic outcomes
- Although offshore wind can also provide social benefits (reduced GHGs and reduced total resource cost), this assessment will focus on the economic benefits.

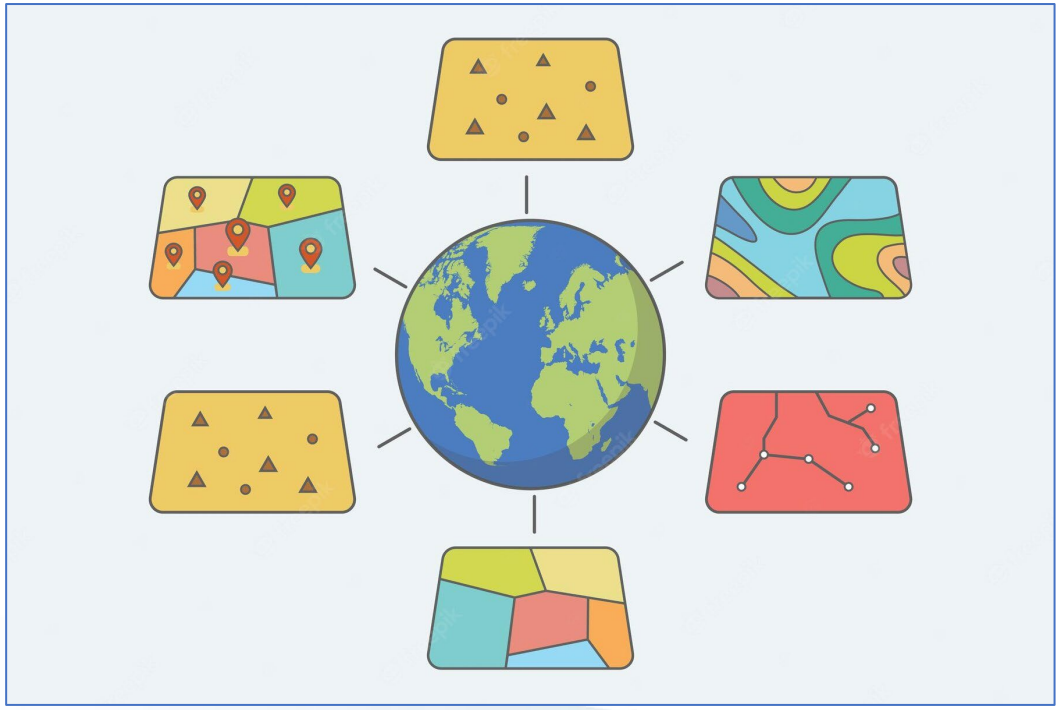
Public Outreach Efforts

- Interagency technical working group (monthly meeting)
- Agency partners (SLC, OPR, CDFW, CWDB, etc.)
- Targeted stakeholder meetings and discussion:
  - Offshore wind developers (supply chain)
  - Labor organizations, training, and apprenticeship programs
  - Port authorities
- Webinars, workshops
- Other potential stakeholders/agency partners

Workshop Schedule

4. **Key Offshore Wind Energy Actions and Activities: *Sea Space and Impact Assessment – Scott Flint***

AB 525 Sea Space Requirements



Work with specified agencies, stakeholders, state, local, and federal agencies, and the offshore wind energy industry to identify suitable sea space for wind energy areas in federal waters sufficient to accommodate the offshore wind planning goals for 2030 and 2045.

Sea Space Identification Steps

Step 1:

- Identify the sea space identified by the federal Bureau of Ocean Energy Management in its 2018 call for nominations and;
- Use any other relevant information necessary to achieve the 2030 offshore wind planning goal established pursuant to Section 25991.1.

Step 2:

- Identify suitable sea space for a future phase of offshore wind leasing to accommodate the 2045 offshore wind planning goal established pursuant to Section 25991.1.

AB 525 Sea Space Policy

(b) In identifying suitable sea space, the commission shall consider all of the following:
(1) Existing data and information on offshore wind resource potential and commercial viability.
(2) Existing and necessary transmission and port infrastructure.
(3) Protection of cultural and biological resources with the goal of prioritizing least-conflict ocean areas.

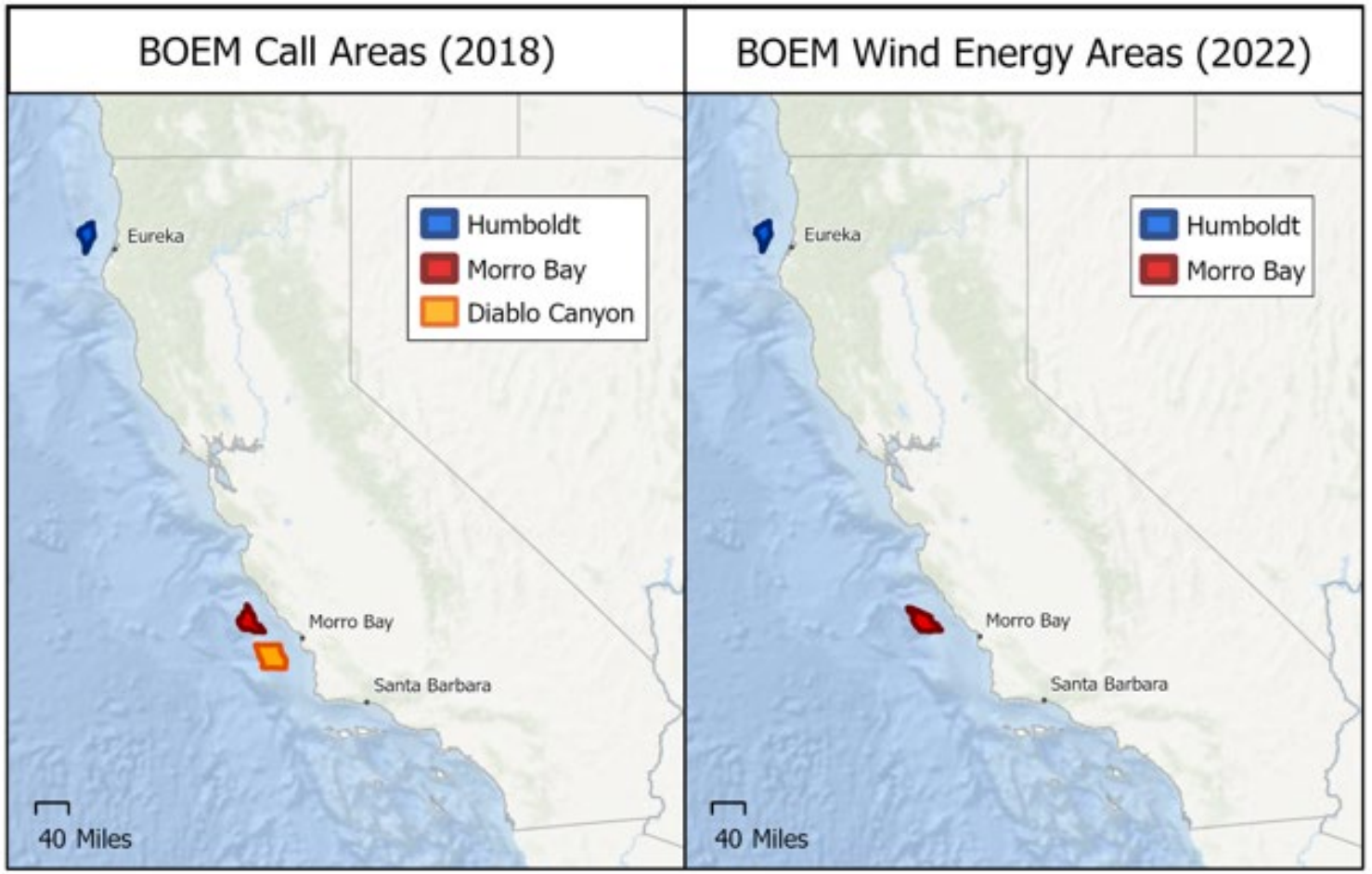
(c) In fulfilling the requirements of this section, the commission shall incorporate the information developed by the Bureau of Ocean Energy Management California Intergovernmental Renewable Energy Task Force.

(d) The commission shall use the California Offshore Wind Energy Gateway, or functionally equivalent publicly accessible, commission-approved internet website, to provide relevant information developed pursuant to this section to the public.

Sea Space Goals and Objectives

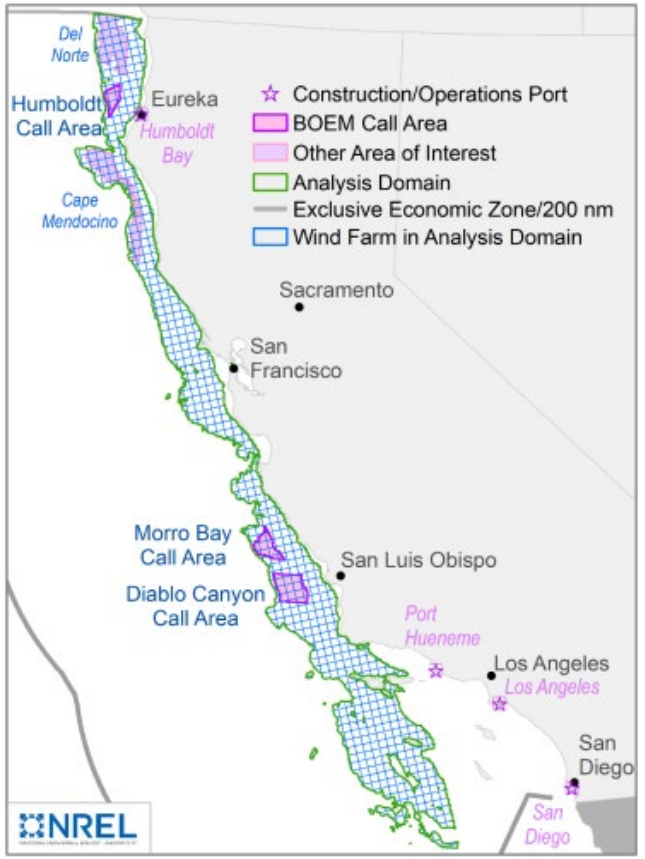
- Identify and map existing BOEM Call Areas, estimate the range of GW generation potential from these areas and describe how they will contribute to California OSW goals
- Identify and map new areas of Sea Space with technical potential for OSW, estimate the range of GW generation potential from these areas and describe how they contribute to California OSW goals
- Use existing ocean data sets to screen potential conflicts with existing ocean uses
- Apply existing datasets to screen, identify and describe potential conflicts and how these conflicts may affect the GW generation potential of the Sea Space
- Identify data gaps and ongoing research and completion timeline for information important to further assess identified Sea Space
- Develop recommendations for further data collection and additional research to help fill remaining data gaps

Scope of Sea Space Identification



Source: California Energy Commission

Five Areas Studied in 2020 for Offshore Wind Technical Potential



Source: The Cost of Floating Offshore Wind Energy in California Between 2019 and 2032, NREL, November 2020

Sea Space Identification Process

Identify Wind Potential

Wind and Technical Characteristics

- Speed
- Consistency
- Capacity Factor
- Depth
- Slope
- Distance to Tx
- Distance to Port

Screen Available Data

Data and Information

- Ocean Uses
- Cultural Elements
- Protected Areas
- Marine Mammals
- Marine Birds
- Benthic Habitats
- Sensitive Biological Areas

Summarize Results

Analyze and Summarize

- Map Locations of Wind Potential
- Calculate Estimated Energy Capacity
- Identify and Describe Potential Conflicts
- Summarize Effect on Energy Capacity

Supporting Data and Studies

- Environmental and ocean use data sets, cataloged and publicly available on CBI Data Basin and the California Offshore Wind Energy Gateway, Marine Cadaster, CDFW, BOEM, NOAA, NMFS and US Geologic Survey
- Technical reports and datasets from NREL on OSW technical potential off the California coast
- Technical reports and datasets from Cal Poly Humboldt on OSW technical potential, environmental effects and transmission infrastructure off the California north coast
- Draft and final technical reports, datasets, and modeling results from CEC and OPC funded studies conducted by Conservation Biology Institute (CBI) and Point Blue Conservation Science (Point Blue) and BOEM
- CCC staff report and findings for BOEM Wind Energy Area Consistency Determinations
- Transmission reports from IRP/TPP, CAISO 20-year Transmission Outlook
- BOEM and SLC Reports on port infrastructure and location
- Input from SLC, CCC, DFW, CPUC, OPC, fed and local govts, stakeholders

Tasks and Timelines

- Assemble, examine, select and document data sets June-September 2022
- Develop and document analytical approach and conduct research and analysis: July-November 2022
- Review technical work, sea space technical potential areas and screening results with Agency Workgroup, BOEM and stakeholders: August-November 2022
- Staff Public Webinar on Sea Space Identification: October 26, 2022
- Publish Technical Methods and Sea Space Identification Results: November-December 2022
- Develop Strategic Plan Chapter on Sea Space: January-April 2023

Public Engagement

- Host webinars and workshops
- Coordinate state agency working groups and
- Consult with federal partners
- Schedule targeted stakeholder meetings with interested entities including:
  - Industry representative and project developers;
  - Environmental and conservation NGOs
  - Local government and community organizations
  - others
- Engage with Native American Tribes on Sea Space Identification

Workshop Schedule

4. **Key Offshore Wind Energy Actions and Activities: *Transmission Investments and Upgrades – Melissa Jones***

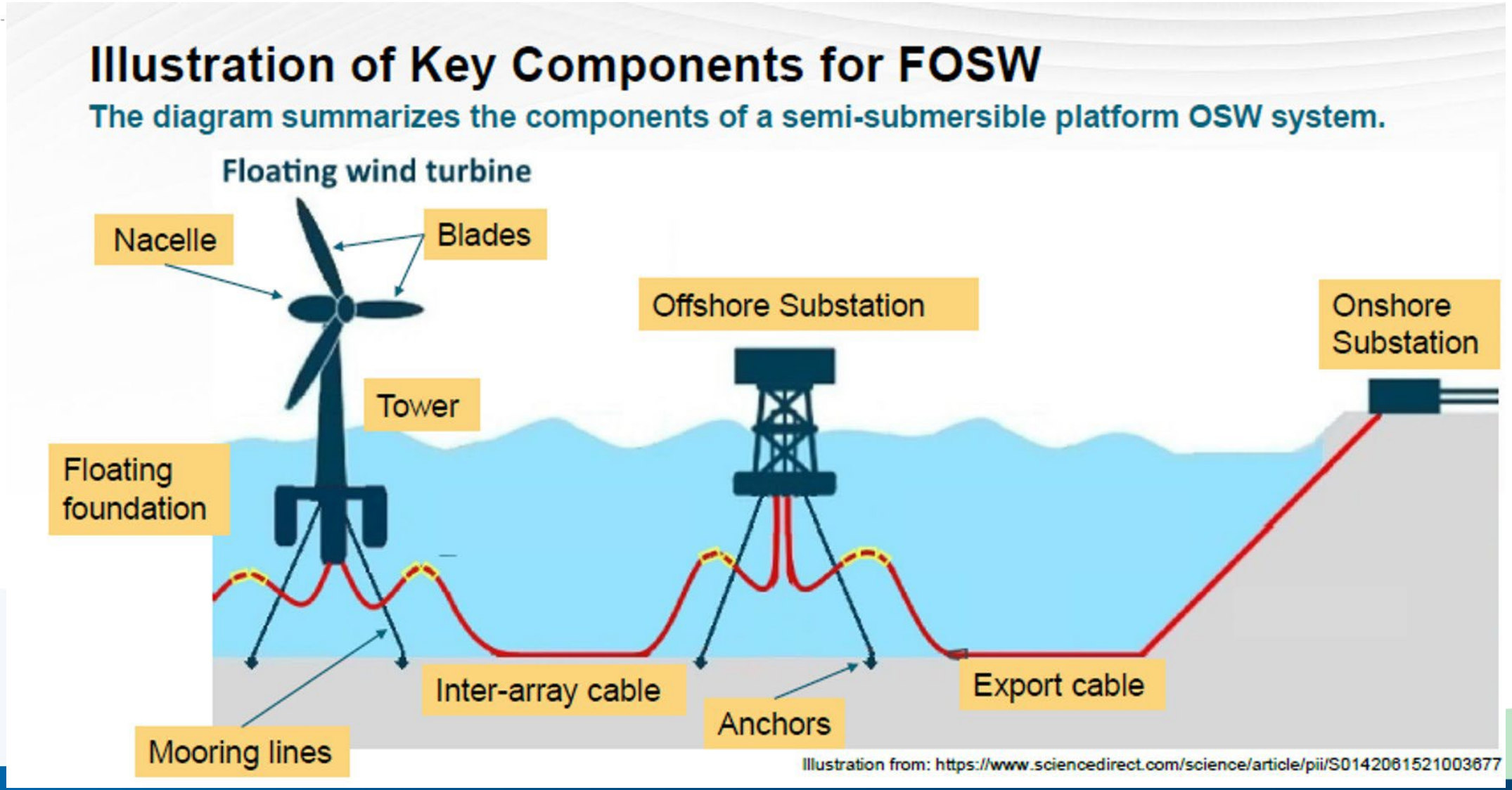
AB 525 Transmission Planning

- Assess transmission investments and upgrades necessary to support the 2030 and 2045 offshore wind planning goals
- Identify relevant information on the cost of subsea high-voltage transmission
- Assess the existing transmission infrastructure and associated upgrade costs to support offshore wind energy development
- Consult with CPUC and CAISO

Goals and Objectives for Assessment

- Identify existing transmission capabilities.
- Assess needed transmission upgrades and new transmission and costs (including subsea cables), needed to meet the 2030 and 2045 offshore wind energy preliminary planning goals.
- Ensure the strategic plan captures adequate transmission solutions to deliver offshore wind resources to load centers.
- Build upon current and support future transmission planning efforts to access offshore wind resources, including information necessary to inform other pertinent topics such as the permitting roadmap and sea space.

Scope of Transmission Assessment



Tasks and Timelines

- Develop analytical approach and initiate work efforts to support transmission chapter: September – October 2022
- Conduct research and analysis: October 2022 – March 2023
- Host public workshop/webinar on approach and scope: early November 2022
- Draft transmission chapter: January – March 2023
- Host public workshop/webinar on research results and study findings: March 2023
- Release draft transmission chapter: April/May 2023
- Host public workshop on draft chapter: Late April to early May
- Present for Consideration at CEC business meeting: by June 2023

Key Inputs

- CPUC Integrated Resource Planning (IRP) and CAISO Transmission Planning Process (TPP) Offshore Wind Transmission Studies
- 2020 and 2022 BOEM funded Studies by Schatz Energy Research Center, Cal Poly Humboldt
- Current DoD funded Schatz Energy Research Center
  - Northern California & Southern Oregon Mission Compatibility and Transmission Infrastructure Assessment
- Transmission Infrastructure Research specific to – Subsea cable technology and costs, interconnection technologies and costs, etc.
- Other studies including Pacific Northwest National Lab efforts

CPUC and CAISO Studies

- CPUC IRP process was established to ensure load serving entities' future energy portfolios meet California's clean energy goals in a reliable and cost-effective manner.
  - IRP is a two-year cycle
  - 2022-23 IRP cycle is underway and will include additional offshore wind
  - 2021 Preferred System Plan included 1.7 GW wind generation by 2032
- CAISO TPP identifies potential system limitations and opportunities to improve reliability and efficiency.
  - TPP is an annual process
  - 2022-23 TPP is currently focused on next 10 years
  - The first CAISO 20-Year Transmission Outlook was released in May 2022 providing longer term context for decisions and scoping the longer-term challenges

Schatz Project Goals

Northern California & Southern Oregon Mission Compatibility and Transmission Infrastructure Assessment

- Promote continued Department of Defense partnership and consultation
- Provide data, mapping and technical transmission analysis
- Map existing electricity and transmission infrastructure to understand limitations and opportunities
- Develop offshore wind scenarios to deliver energy to California, Oregon, and the broader Western grid

Public Engagement

- Webinars and workshops
- State agency working group and coordination with federal partners
- Stakeholder Touchpoints – targeted stakeholder meetings with interested entities including:
  - industry representative and project developers;
  - environmental and conservation NGOs
  - local government and community organizations
  - others
- Engagement with Native American Tribes on transmission

Workshops and Milestones

Workshop/Milestone	Key Dates
Establish OSW Planning Goals for 2030 and 2045	August 10, 2022
Workshop on Preparing a Strategic Plan for OSW	October 6, 2022
Topical Workshops • Sea Space, proposed for October 26 • Preliminary Economic Assessment, proposed for October 31 • Permitting Roadmap, proposed for early November • Transmission Assessment, proposed for early November	October – November 2022
Consideration of Preliminary Economic Assessment and Permitting Roadmap at CEC Business Meeting	December 2022

Workshop Schedule

4. Key Offshore Wind Energy Actions and Activities: *Partner State Agencies*

Workshop Schedule

4. **Questions and Answers**

Workshop Schedule

5. Public Comments

Workshop Schedule

6. Closing Remarks

Thank You!

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https://www.energy.ca.gov/programs-and-topics/topics/renewable-energy/offshore-renewable-energy