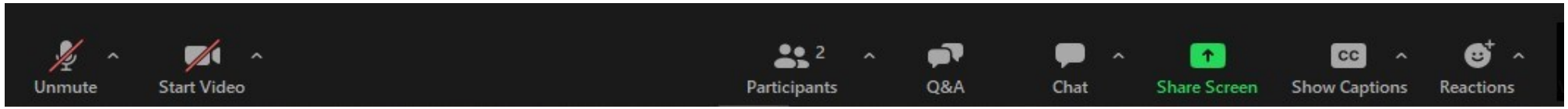
BOEM Bureau of Ocean Energy Management

New York & New Jersey Offshore Wind Environmental Justice Forum

Zoom Meeting Instructions – Technical Assistance

- If you encounter any technical issues today, please message Sam Levy (Host) through the CHAT. You may also email support@kearnswest.com.
- If you are participating by phone, raise your hand for help by dialing *9.



Proposed EJF Objectives

- Grow relationships and improve coordination across agencies, governments, lessees, Tribes, and community-based organizations.
  - Provide space for EJF Participants to talk with New York Bight lessees.
- Continue to develop a shared understanding of challenges affecting and efforts to engage environmental justice populations, underserved communities, and Tribes on offshore wind issues across New York and New Jersey.
- Provide updates on how previous input is being processed for consideration in BOEM's and others' decision-making processes so far and invite feedback to continue refining next steps.

Agenda

1. Welcome and Agenda Overview
2. Participant Announcements
3. Draft PEIS Comments Update
4. Workforce and Economic Considerations
    1. Expert lightning talk
    2. Breakout discussions
5. Reflecting on the EJF
6. Next Steps & Adjourn
7. Optional: 30 minutes of unstructured networking

Meeting Principles

- All participants of in this effort will strive to be open, transparent, inclusive, and accountable in their actions. They will adhere to the highest ethical standards and are committed to using informed judgment and thoughtfulness in their participation. By agreeing to participate in the group, participants commit together to the following principles:
  - Interact respectfully with all other participants, valuing all perspectives.
  - Honor the agenda and time frames.
  - Participate in an active and focused manner – commit to the success of the process.
  - Provide balanced speaking time.
  - Provide explanations for views and interests.
  - Share perspectives and values.
  - Share relevant information.
  - Strive for transparency.
  - When sharing reports of discussions, not attributing discussions to any individual member to protect opportunities for open discussion.

Introductions

BOEM Core EJF Engagement Team Introductions

Introductions: Please insert your name, organization, and affiliation in the chat box

Bulletin Board Announcements

Space to share information on developments and activities affecting environmental justice and underserved communities related to offshore wind off the coast of NY & NJ.

Announcements may include:

- Engagement processes underway
- Available opportunities
- Needed information or support

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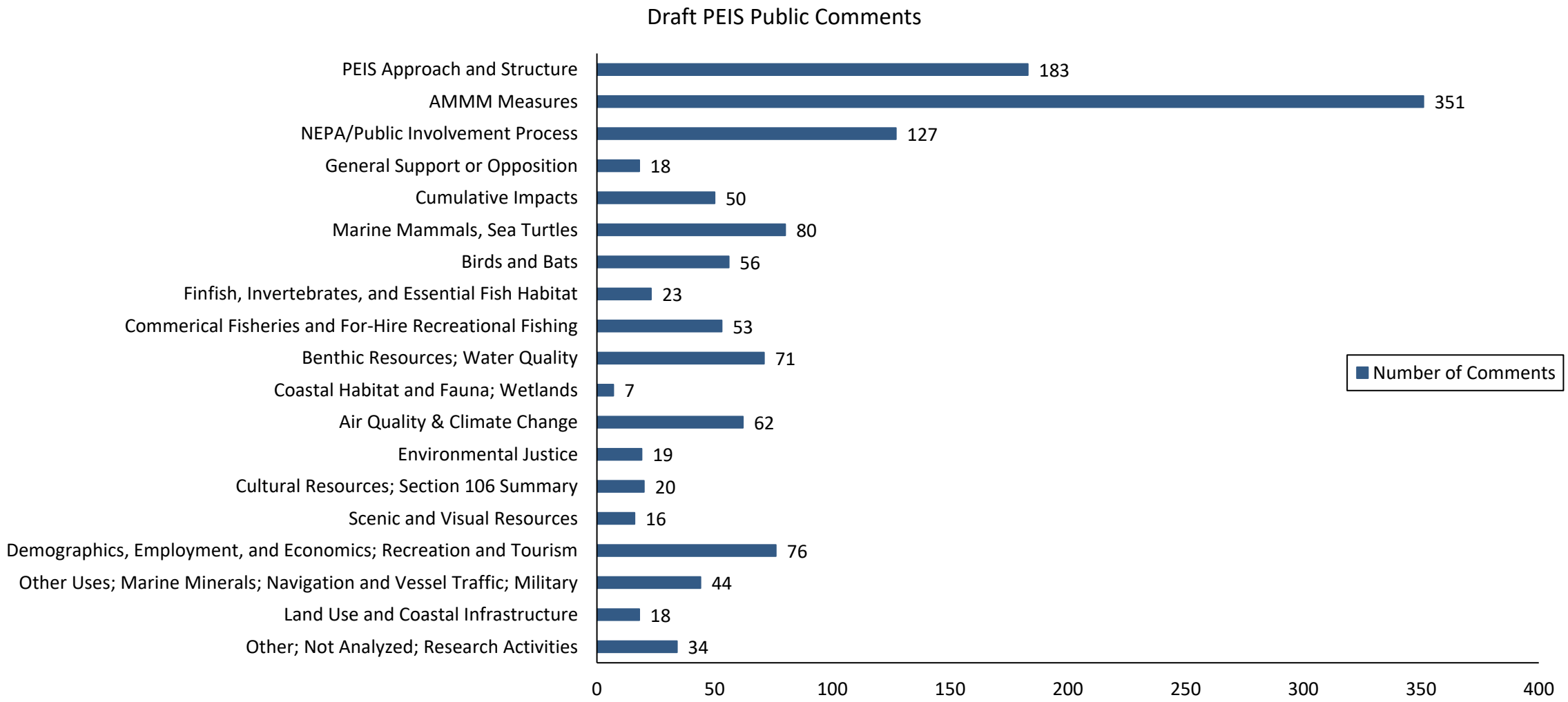
Draft PEIS Comments Updates

Holly Fowler | BOEM

Public Comments

- On Jan. 12, 2024, BOEM published a notice of availability of the Draft PEIS, opening a 45-day public comment period
- BOEM extended the comment period by an additional 14 days in response to requests for additional review time.
- 1,355 unique comments from 530 comment submissions.
- Comments are all posted at Regulations.gov under docket number BOEM-2024-0001.
- BOEM is still processing comments to assess the themes and categories. The comment summary and responses to substantive comments will be included in the Final PEIS.

Public Comments (continued)



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Workforce and Economic Considerations

BOEM Bureau of Ocean Energy Management

Environmental Justice Forum

May 2, 2024

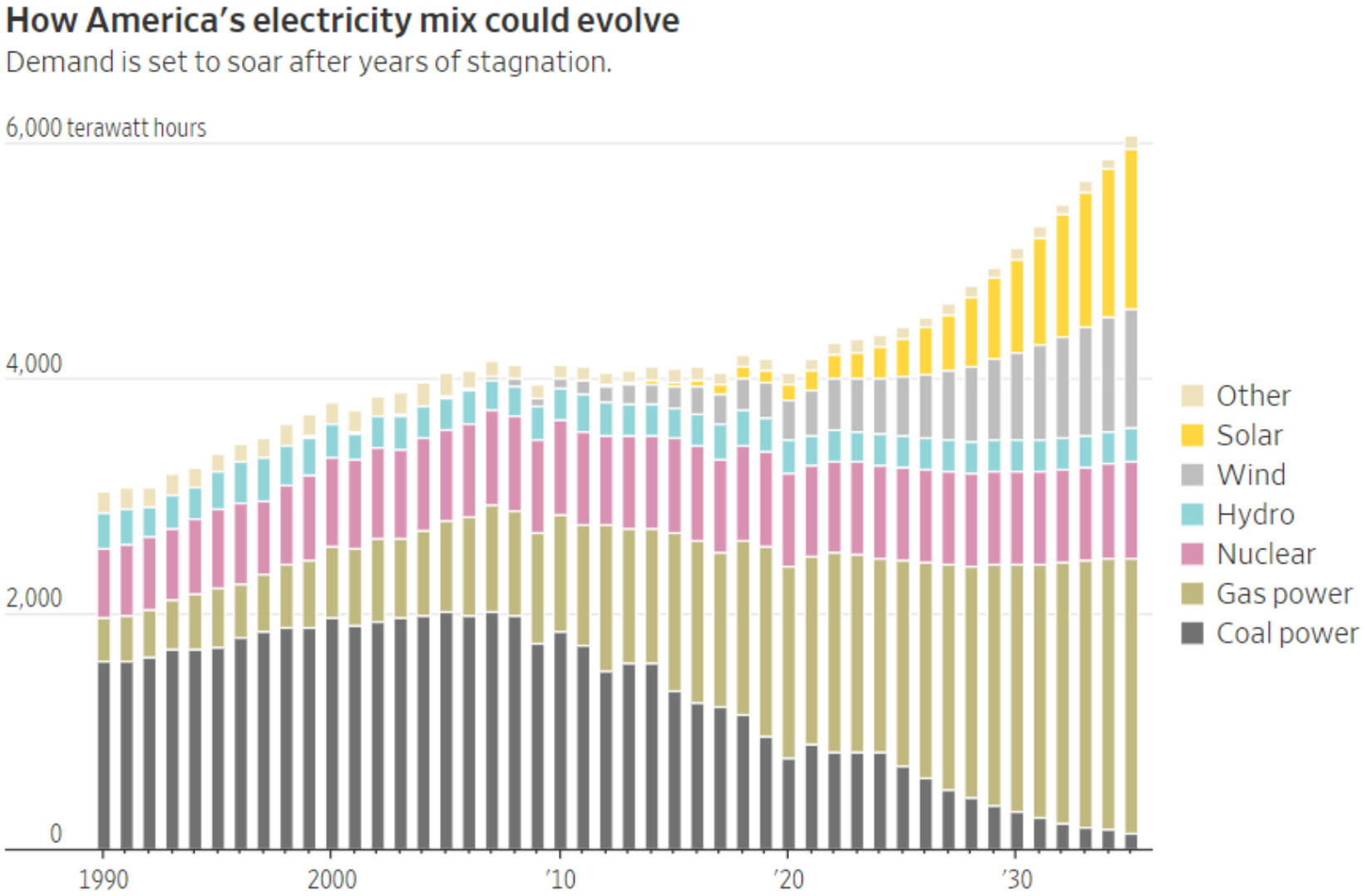
Marty Heinze

BOEM Economics Division

What are the advantages of offshore wind?

- High Energy Potential:
  - ✓Offshore wind speeds are often faster and more consistent than onshore winds.
- Proximity to Population Centers:
  - ✓Areas with strong wind speeds are often located near densely populated areas.
- Land Use Efficiency:
  - ✓Valuable onshore land is left free for alternative uses.
- Job Creation:
  - ✓As the industry grows, a diverse workforce will be in high demand.

U.S. may require 45% electricity over the next decade



Note: Figures are projections from 2024.
Source: Thunder Said Energy

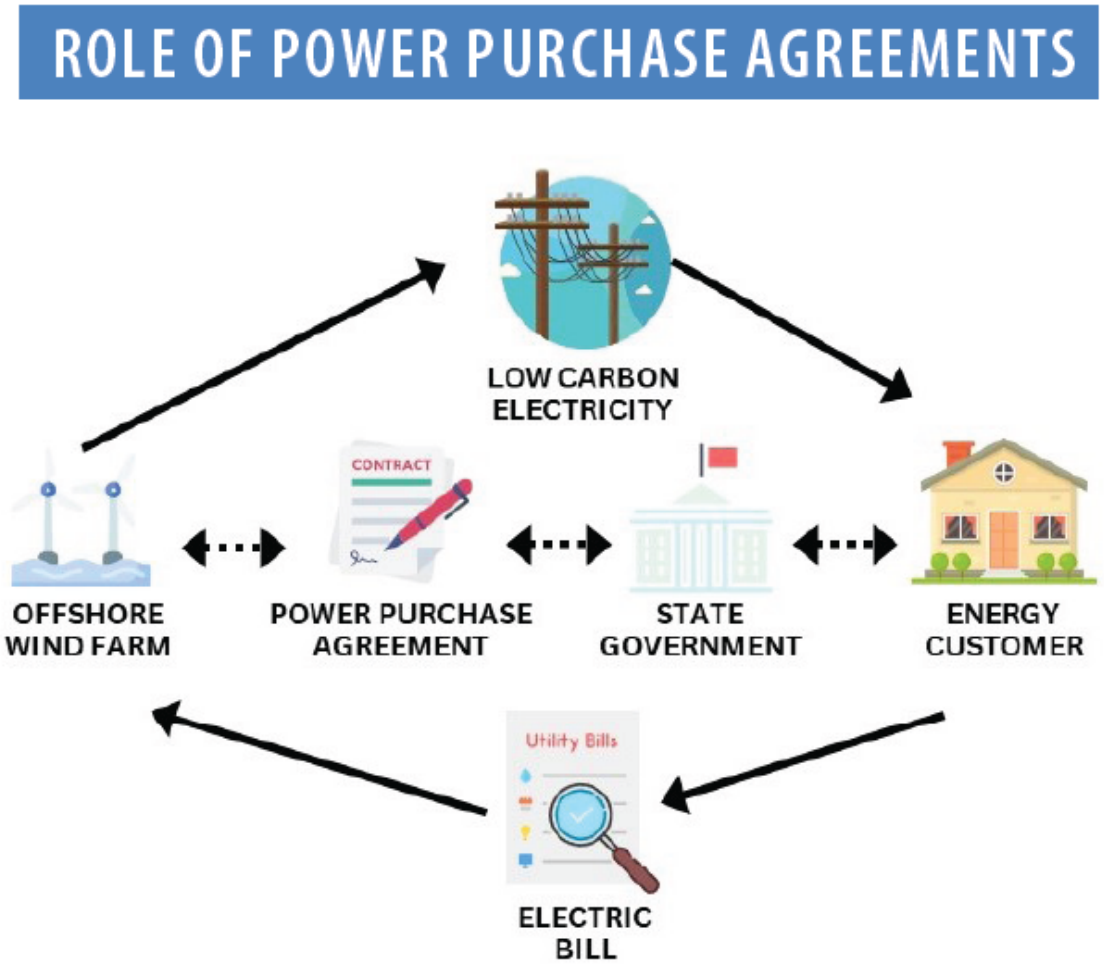
BOEM

Tradeoffs of levelized cost of energy (LCOE), Carbon Intensity & Availability

Resource	LCOE ($/MWh) [2]	LCOE Including Tax Credits ($/MWh) [2]	Life Cycle GHG Emissions (g CO2e/KWh) [3]	Capacity Factor[2]
Offshore Wind	$127	$100	19	44%
Onshore Wind	$51	$31	12	40%
Biomass	$95	$77	52	83%
Solar	$41	$23	43	29%
Geothermal	$45	$37	37	90%
Hydropower	$73	$57	21	56%
Nuclear	$91	$71	13	90%
Natural Gas	$43	$43	486	87%
Coal	$89	$89	1001	85%

State Procurements

- Offshore wind developers are awarded power purchase agreements *through* a competitive process and agree to a particular power price.
- Many of the existing agreements were put into place before inflation and interest rate increases.
- This resulted in project cancellations and states opening new power purchase solicitations.



What are the current economic challenges for offshore wind?

- Interest Rates
  - Capital intensive projects require borrowed and equity capital
  - Higher interest rates require increased revenue for a profitable project
- Inflation
  - Commodity inflation (e.g., steel, cooper, critical minerals) makes each offshore wind component more expensive.
  - Labor costs are also increasing
- Supply Chain
  - Components are difficult to procure, and most currently come from Europe
  - Vessel availability is another huge challenge to construct these projects (Jones Act)

10 Year US Treasury Yield

An industry will not develop unless it is profitable

- 13,500 MW of offshore wind contracts have been terminated since 2023
  - NYSERDA's cancelation of the 4 GW of New York Bight Projects, Atlantic Shores South still questionable
- Companies need to earn a certain rate of return on their investment to make the investment worthwhile.
  - 7 to 9 percent has been mentioned by developers
  - Eversource sold its project stake; it could not earn the 10-10.5 percent for regulated utilities
- The state solicitation process works to obtain power prices high enough to allow for project development and meet clean energy goals without significantly increasing the price for rate payers.
  - Both New York and New Jersey include non-price factors into their solicitation which results in a higher power prices, but with other benefits.

Cautions

- The more that is asked of developers by states or stakeholders, the higher electricity rates paid by ratepayers
- Because of uncertainties, companies are very cautious about investing
  - Pipeline of projects
  - Costs
  - Regulatory
- Economies of scale suggest fewer job locations -- collocated at ports
- Operations and maintenance support fewer jobs than most expect

Offshore Wind Energy Workforce Insights

Energy Justice Forum (EJF)

Jeremy Stefek

May 2, 2024

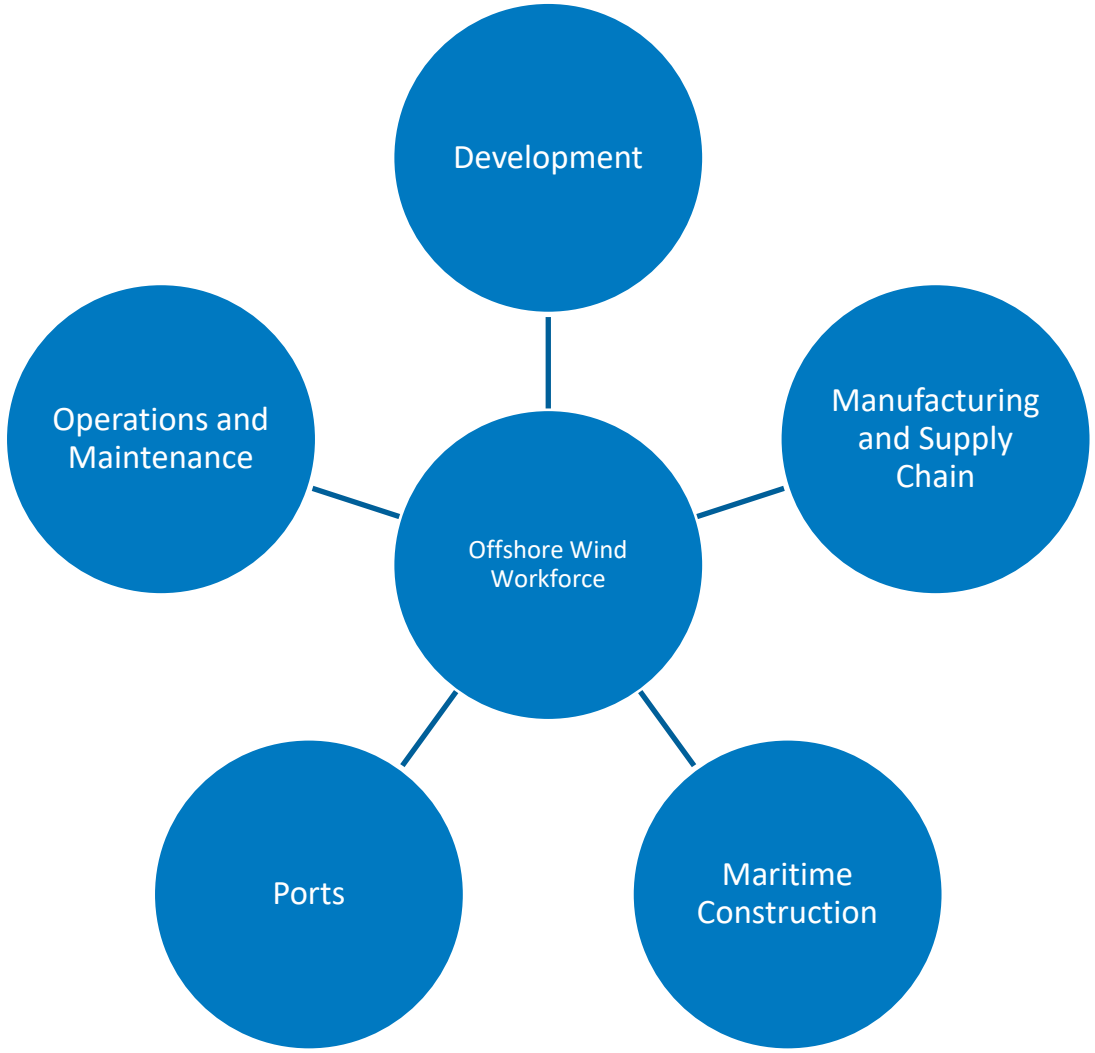
Agenda – Offshore Wind Workforce Insights

1. Segments, Magnitude, Roles
2. Supply Chain and O&M
3. Workforce Considerations
4. Resources
5. Supply Chain Jobs
6. What is the IRA?
7. Workforce Initiatives

Segments, Magnitude, Roles

An introduction to offshore wind energy workforce.

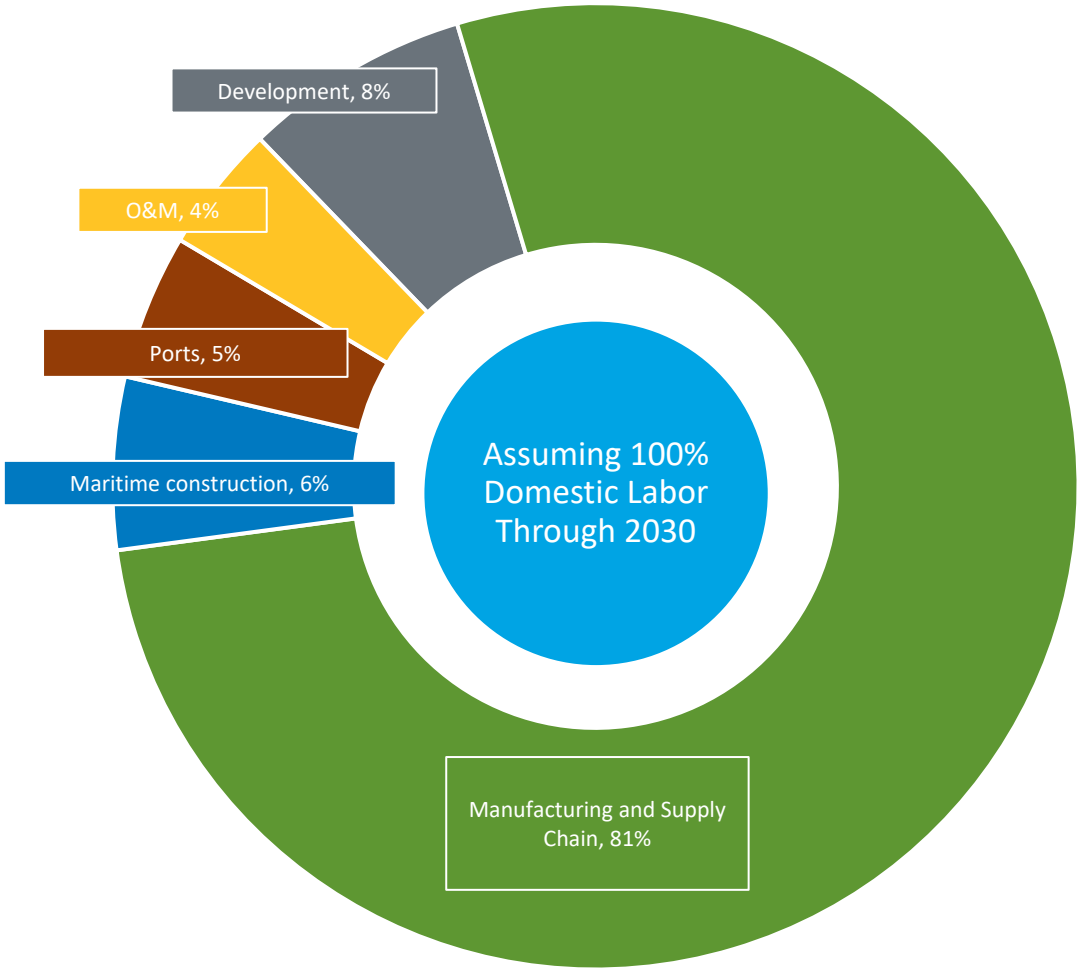
Offshore Wind Segments



- Offshore wind workforce span **5 major areas**: development, manufacturing and supply chain, ports, vessels, and operations and maintenance.
- To meet the target **of 30 GW of U.S. installed offshore wind capacity** by 2030, average annual employment levels (full-time equivalent) are estimated at **15,000 and 58,000** based on 25% and 100% domestic content scenarios.[1]
- The wind industry employed 125,580 workers in 2022 **– 1,056 of those workers were in offshore wind**.[2]

[1] Stefek, J., et al. 2022. *U.S. Offshore Wind Workforce Assessment.* Golden, CO: National Renewable Energy Laboratory. NREL/TP-5000-81798. https://www.nrel.gov/docs/fy23osti/81798.pdf.
[2] U.S. Department of Energy, U.S. Energy and Employment Report, 2023. https://www.energy.gov/sites/default/files/2023-06/2023%20USEER%20REPORT-v2.pdf

Workforce Magnitude



- The largest opportunity for the U.S. workforce is **manufacturing of turbine and plant components** while using domestic suppliers**.**
- Jobs associated with manufacturing/supply chain, ports, and O&M are **highly dependent on the facilities** being built or expanded and their location.
- Each sector has unique consideration that affect the **timing** of workforce need and the **extent** to which a domestic workforce develops.

Types of Roles

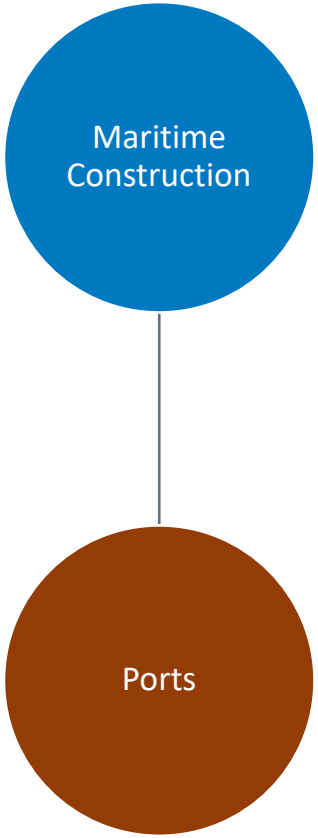
Development

Roles: Environmental scientists, engineers, policy experts, project managers, and community planners
Training: Universities
Timing: Several years before construction

Manufacturing and Supply Chain

Roles: Engineers, skilled trades (e.g. welding, electricians), crane operators, supply chain analysts, safety officers
Training: Apprenticeship programs, community colleges, universities
Timing: Prepare workforce 1 year before plant online

Types of Roles (continued)



Roles: Captains, seaman (vessel operators), crane operators, engineers, technicians (construction crews)
Training: Maritime academies, universities, apprenticeship programs
Timing: During construction phase

Roles: Port operations manager, logistics managers, riggers, laborers
Training: Apprenticeship programs, community colleges, universities
Timing: During construction phase

Supply Chain and O&M

A deeper dive into two segments.

Supplier jobs represent the largest opportunity space for offshore wind jobs

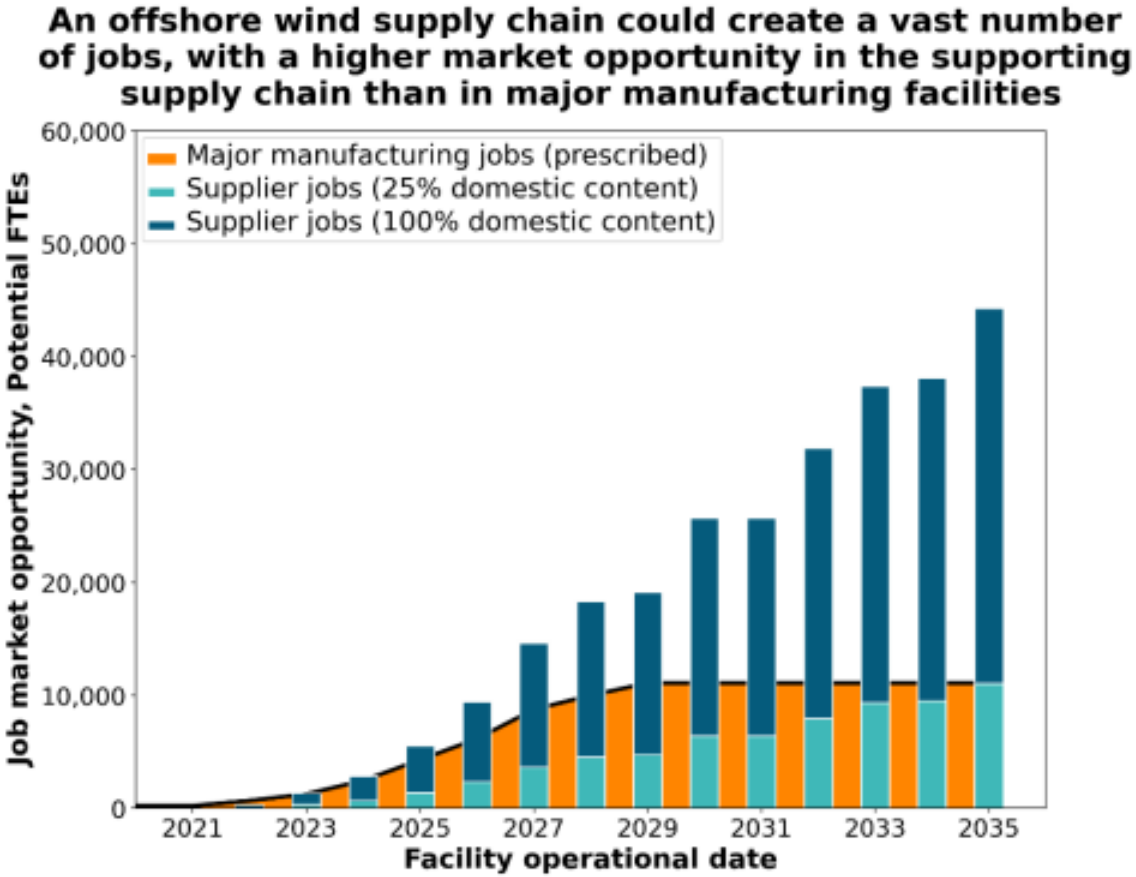
Suppliers

- Produce subassemblies, parts, and materials for Tier 1 original equipment manufactures

Caveats:

- Existing businesses would have to make significant investments in facilities, equipment, certifications, and/or workforce training to qualify as offshore wind energy suppliers
- Based on U.S. market supplying 30GW of offshore wind by 2030 across all markets.

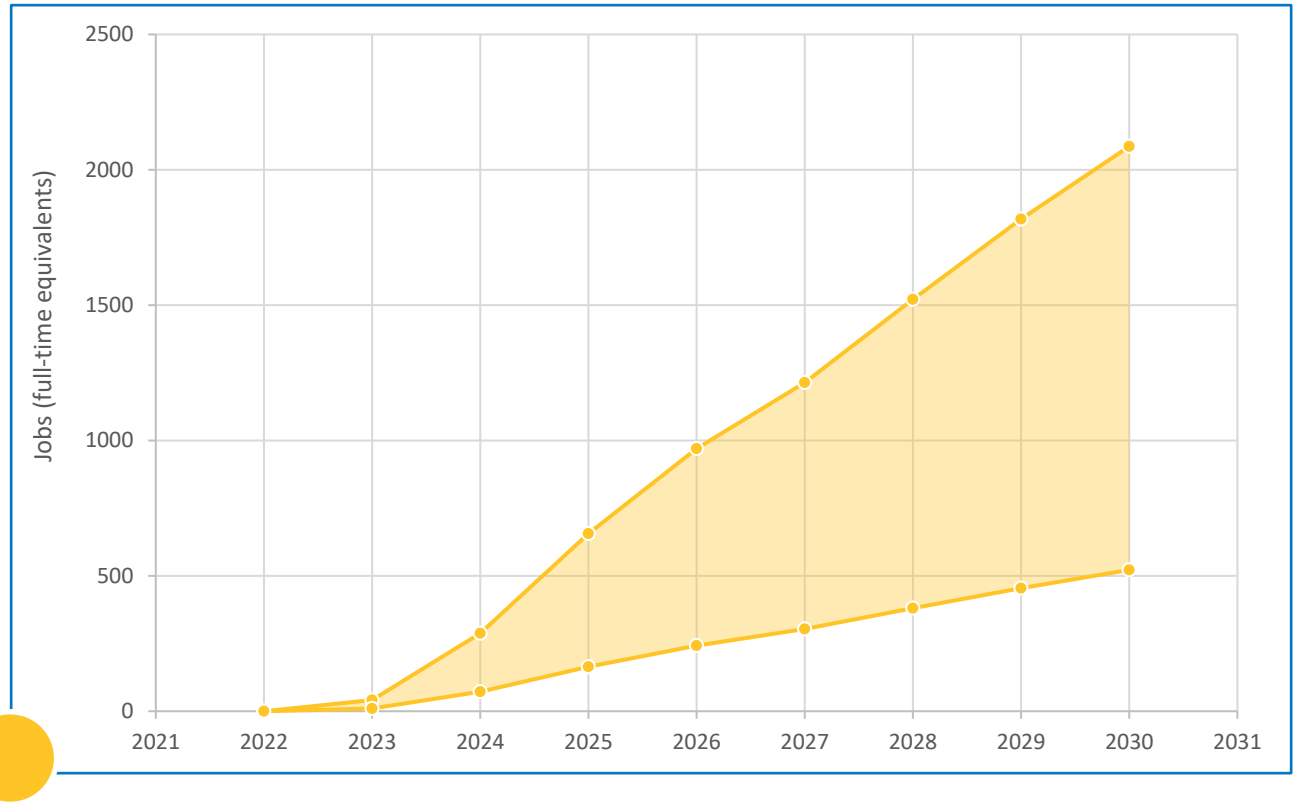
Local and regional assessments are key to unlock supply chain potential. Know your businesses and their strengths!



Number of supplier jobs will depend on the level of domestic content achieved which may be tied to the opening of Tier 1 manufacturing facilities

Operations and Maintenance Jobs

Job range: 500 – 2,000 FTEs by 2030



**Analysis conducted in 2022 based on the pipeline of projects analyzed at that time to reach 30GW by 2030*

Permanent jobs over the lifetime of the project involved in operations and maintenance **including wind technicians and plant managers**

Workforce need is cumulative

Increases based on the number, size, and commissioning year of projects

Workforce Considerations

Initiatives, commuting & regional approach, community assessments

Workforce Initiatives

Diversity and Inclusion

- High priority for all stakeholder groups
- RFP provisions
- Transparency and tracking goals

Unions

- Support manufacturing and installation
- Existing training and apprentice programs starting to integrate offshore wind

Apprenticeships

- Core pathway to gain necessary skills for trade careers
- Often require multi-year training

Adjacent Industries

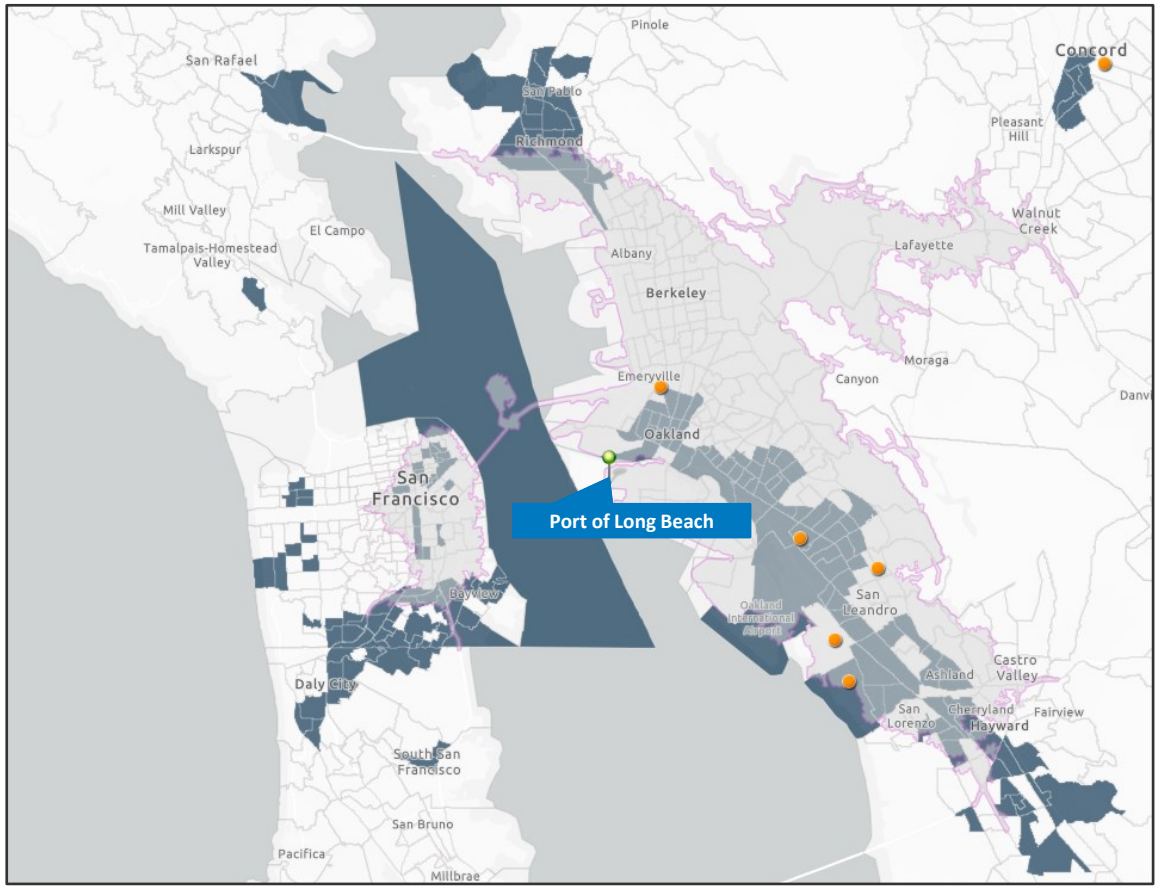
- Transition workers and use their knowledge
- Ex: fishing or oil and gas
- Involve different geographic regions

Economic Development

- Earnings from jobs can drive economic growth in communities
- Agencies support is critical

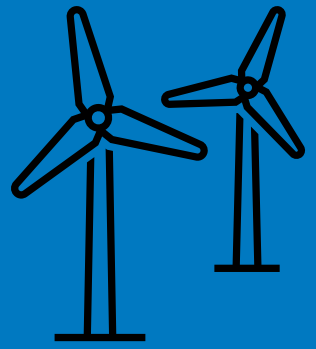
Regionality, Community Flows, Energy Justice

- Commuting patterns can affect where workers are trained, live, and work
- Consider location of people, training programs, and disadvantaged communities
- Consider a regional mindset – the economic benefits that flow in and out of from offshore wind development



Map showing registered apprenticeship programs, disadvantaged communities, and 30-min community radius from Port of Long Beach

Regional, State, and Local Workforce Assessments



Recommend communities study how they can support future offshore wind projects.

1) Location Screening and Diversity Assessment

2) Review of Location's Economic Development Goals, Existing Industry, and Workforce Development Initiatives

3) Education and Training Program Database

4) Evaluate Potential Labor Union Jurisdiction for Workforce Sourcing

5) Occupation and Certification Alignment

6) Feasibility to Train

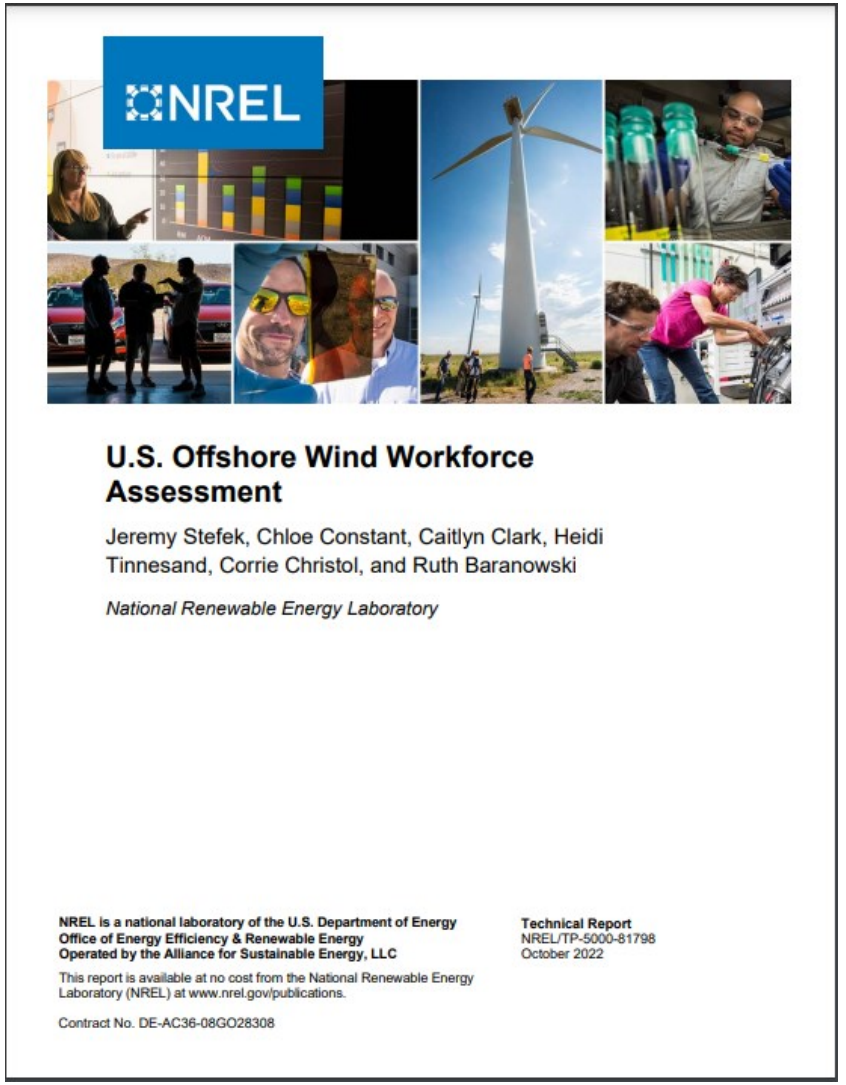
7) SWOT Analysis

Resources

Specific to offshore wind workforce and best practices.

Offshore Wind Workforce Assessment

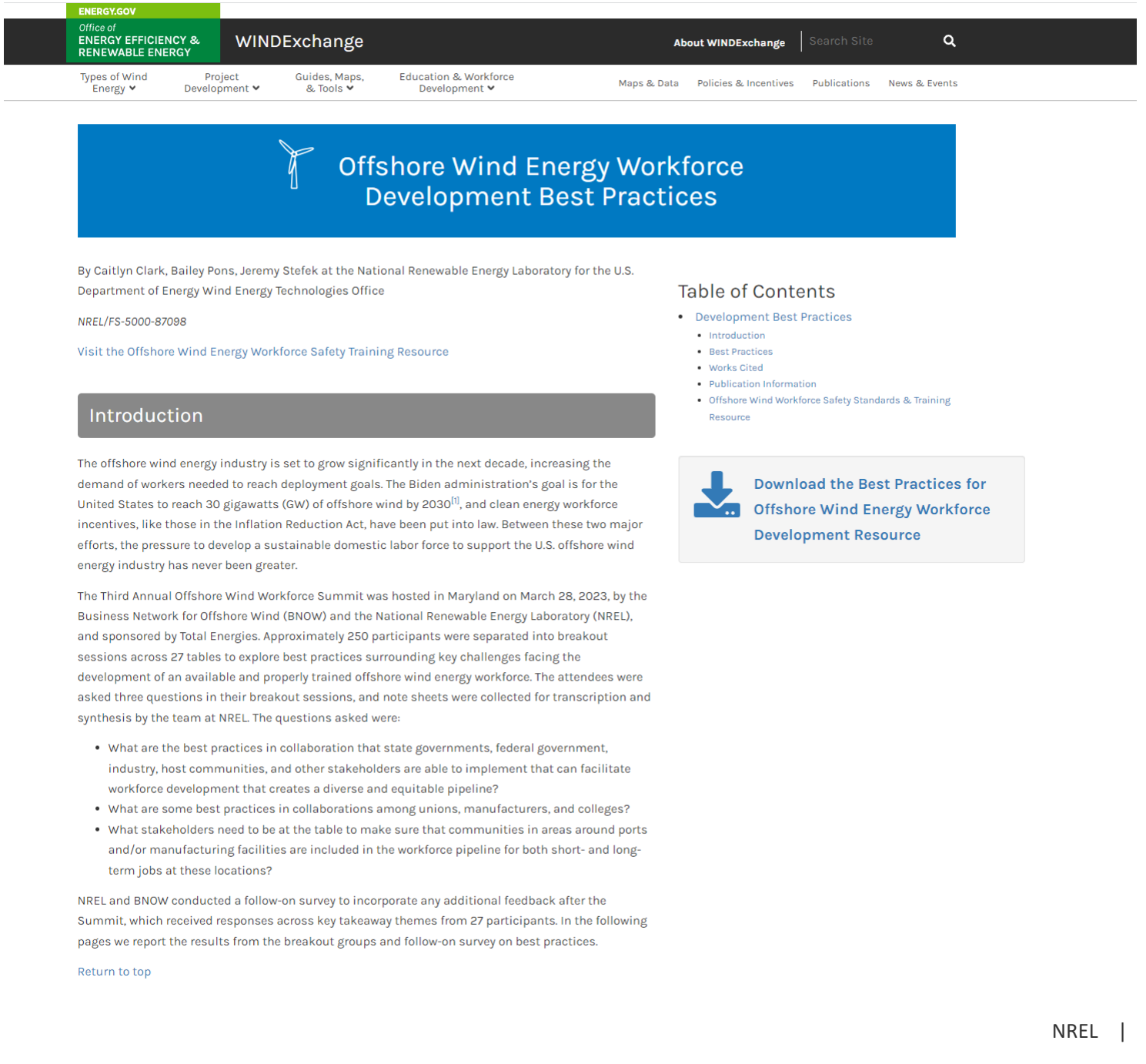
- More detailed information can be found in the recently released *U.S. Offshore Wind Workforce Assessment.*
- The report covers workforce demand, the workforce needs to meet 2030 offshore wind goals, and supply, developing the offshore wind workforce of tomorrow.
- Report provides recommendations to meet supply chain needs by 2050.



Offshore Wind Energy Workforce Development Best Practices

- Now available on WINDExchange!
- Sponsored by DOE Wind Energy Technologies Office

https://windexchange.energy.gov/offshore-workforce-best-practices



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Offshore Wind Energy Workforce Development Best Practices

By Caitlyn Clark, Bailey Pons, Jeremy Stefek at the National Renewable Energy Laboratory for the U.S. Department of Energy Wind Energy Technologies Office

NREL/FS-5000-87098

Visit the Offshore Wind Energy Workforce Safety Training Resource

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- Development Best Practices
  - Introduction
  - Best Practices
  - Works Cited
  - Publication Information
  - Offshore Wind Workforce Safety Standards & Training Resource

Introduction

The offshore wind energy industry is set to grow significantly in the next decade, increasing the demand of workers needed to reach deployment goals. The Biden administration's goal is for the United States to reach 30 gigawatts (GW) of offshore wind by 2030[1], and clean energy workforce incentives, like those in the Inflation Reduction Act, have been put into law. Between these two major efforts, the pressure to develop a sustainable domestic labor force to support the U.S. offshore wind energy industry has never been greater.

The Third Annual Offshore Wind Workforce Summit was hosted in Maryland on March 28, 2023, by the Business Network for Offshore Wind (BNOW) and the National Renewable Energy Laboratory (NREL), and sponsored by Total Energies. Approximately 250 participants were separated into breakout sessions across 27 tables to explore best practices surrounding key challenges facing the development of an available and properly trained offshore wind energy workforce. The attendees were asked three questions in their breakout sessions, and note sheets were collected for transcription and synthesis by the team at NREL. The questions asked were:

- What are the best practices in collaboration that state governments, federal government, industry, host communities, and other stakeholders are able to implement that can facilitate workforce development that creates a diverse and equitable pipeline?
- What are some best practices in collaborations among unions, manufacturers, and colleges?
- What stakeholders need to be at the table to make sure that communities in areas around ports and/or manufacturing facilities are included in the workforce pipeline for both short- and long-term jobs at these locations?

NREL and BNOW conducted a follow-on survey to incorporate any additional feedback after the Summit, which received responses across key takeaway themes from 27 participants. In the following pages we report the results from the breakout groups and follow-on survey on best practices.

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Download the Best Practices for Offshore Wind Energy Workforce Development Resource

Breakout Group Discussion:
Economics and Workforce Development

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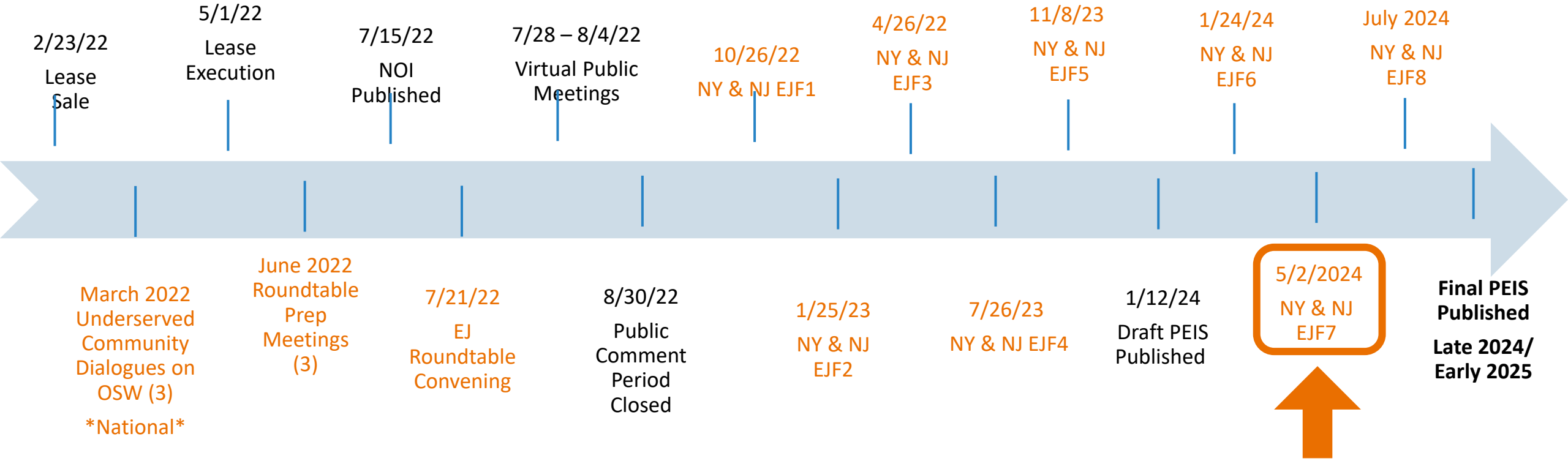
Reflecting on the EJF

Laura Mansfield | BOEM

New York Bight Draft PEIS and EJ Engagement Timeline



Reflecting on BOEM's Pilot EJ Forum

- EJF meetings were **tied to the two-year development of the NY Bight PEIS** and serve the **purpose of a regularly held and iterative coordinated information exchange** between BOEM, Tribes, state agencies, other federal agencies, community-based organizations, and lessees related to environmental justice.
- The EJF was scoped to regularly occur from **Fall 2022 to Summer 2024**
- The **Final PEIS is expected to publish in Fall 2024**, after the final EJF.
- BOEM will start preparing project-specific Environmental Impact Statements as Construction and Operations Plans (COPs) are submitted.

How the EJF was meaningful to BOEM

- Informed the PEIS, including BOEM's first EJ-centric mitigation measures
- Created a record of input (Input-Status Reports)
- Informed Developed a pilot approach to engagement
- Started building a network and process that future efforts can build on
- Built a process for better coordination with States and others involved in offshore wind processes
- Learned how to better integrate environmental justice into all of BOEM's policies and processes (input will inform BOEM's forthcoming EJ Strategy)
- Learned how much time and effort it takes to meaningfully engage, informative for future planning

What was meaningful to EJF Participants?

Reminding us what we heard in 2022:

- Value and integrate input into plans and processes, not only giving communities space to have a voice, but to also have influence.
- Have clear, actionable outcomes to engagement
- Prioritize and fund studies that emphasize social science tools. Need metrics over time, longitudinal studies, adaptive management, program evaluations including participation retention.
- Create tangible, lasting, and felt benefits through leveraging partnerships and expanding the traditional perspective of benefits (e.g., workforce development, CBAs, childcare).

Together, did the EJF achieve the goals we set in 2022?

- Advance the principles of meaningful engagement and outreach that reduce barriers to participation, increase access to environmental reviews, and create better-informed decisions.
- Grow long-term relationships with impacted communities and Tribes in the region that are founded on mutual respect, understanding, and collaboration.
- Continue to expand outreach to as many members of environmental justice and underserved communities and Tribes in the region as possible.
- Improve coordination with other federal agencies, state and local governments, and community-based organizations to reduce fatigue and streamline information sharing.
- Close the information feedback loop by providing greater clarity to communities and Tribes on whether and how their input has affected the decision-making process

Next Steps

Contact Information

For further input and discussion: environmental.justice@boem.gov

New York Bight (New York and New Jersey) offshore wind environmental justice engagement team:

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Thank you!

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Environmental Justice Forum Team

We will be taking a short break before the optional unstructured networking begins.

Please return at 12:35 pm ET.