



**NYSERDA**

# **Maritime Technical Working Group**

**Meeting**

January 22, 2024 | Zoom Webinar



# Purpose of today's meeting

1. To share State and member updates
2. Hear an update on the NYC Public Policy Transmission Need process
3. Discuss M-TWG priorities for 2024





**NYSERDA**

# **New York State Offshore Wind Offshore Wind Program Updates**

**Sherryl Huber and Tess Arzu,  
NYSERDA**

January 22, 2024 - Maritime Technical Working Group January Meeting

# Public Service Commission Decision



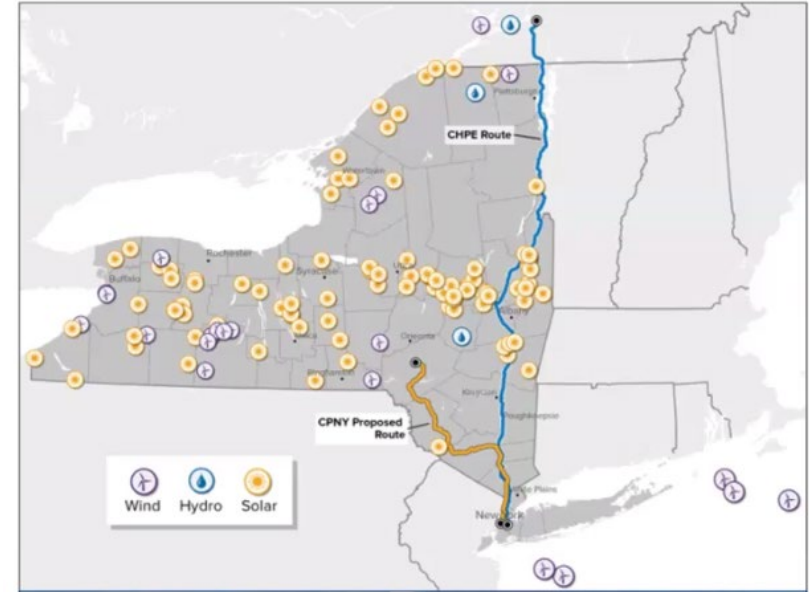
Public Service  
Commission

## PSC Issues Decision to Preserve Competitive Renewable Energy Market and Protect Consumers

Denies Petitions Filed by Renewable Energy Developers Seeking Financial Relief

Commission Reaffirms Commitment to Achieve Renewable Energy Targets

**ALBANY** — The New York State Public Service Commission (Commission) today denied petitions filed by a group of offshore wind developers and a state renewable energy trade association seeking billions of dollars in additional funding from consumers for four proposed offshore wind projects and 86 land-based renewable projects. In denying financial relief, the Commission opted to preserve the robust competitive bidding process that provides critically needed renewable energy resources to New York in the fairest and most cost-effective manner that protects consumers.



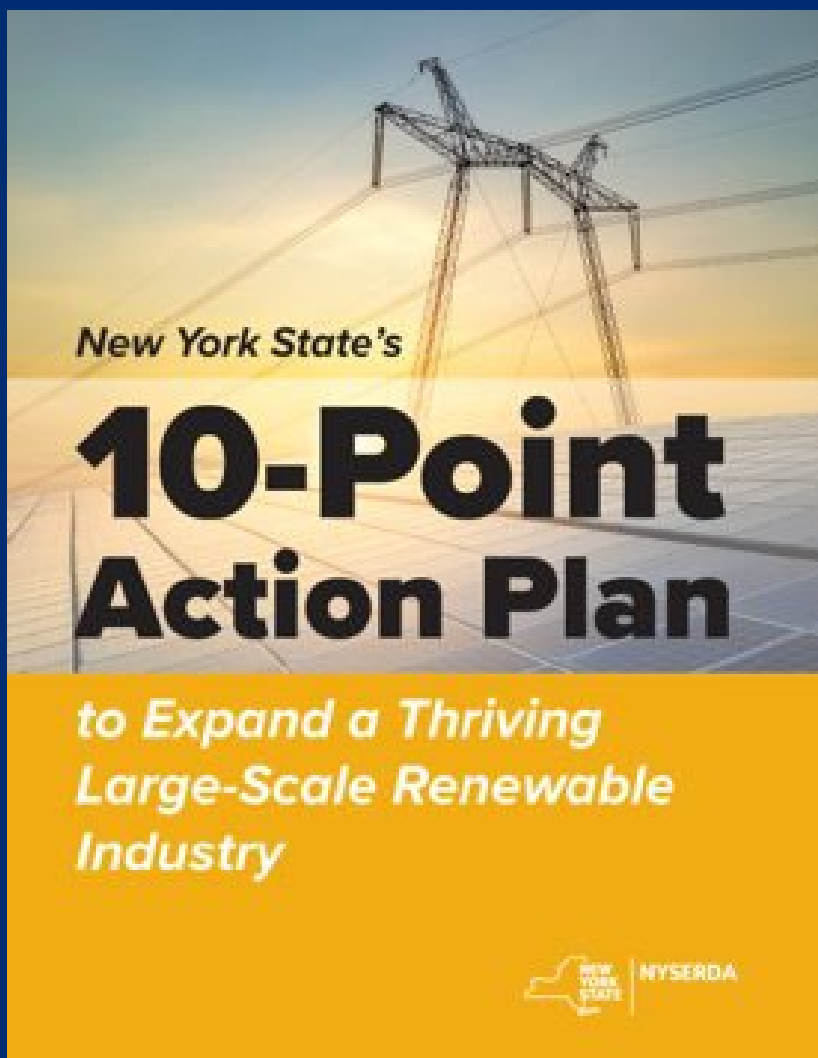
“NYSERDA remains steadfast in its commitment to develop renewable energy projects on behalf of New Yorkers and is proud to showcase this plan which effectively captures the strategic vision Governor Hochul has for growing a vibrant renewable energy industry. Over the coming months, we will demonstrate to the nation how to collectively recalibrate in the face of an evolving renewables marketplace and address the growing energy and supply chain challenges head-on in a comprehensive, cost-effective and responsible manner.”

NYSERDA President and CEO Doreen M. Harris



“The requested amendments to the contracts would have provided adjustments outside of the competitive procurement process; such relief is fundamentally inconsistent with long-standing Commission policy.”

Commission Chair Rory M. Christian



**Action 1:** Announce Offshore Wind and Onshore Renewables Awards in the Near Future

**Action 2:** Execute on Public Service Commission Order and Assess Renewables Portfolio Status

**Action 3:** Launch Accelerated Competitive Procurements

**Action 4:** Leverage Federal Support and Partnerships

**Action 5:** Build Transmission Infrastructure

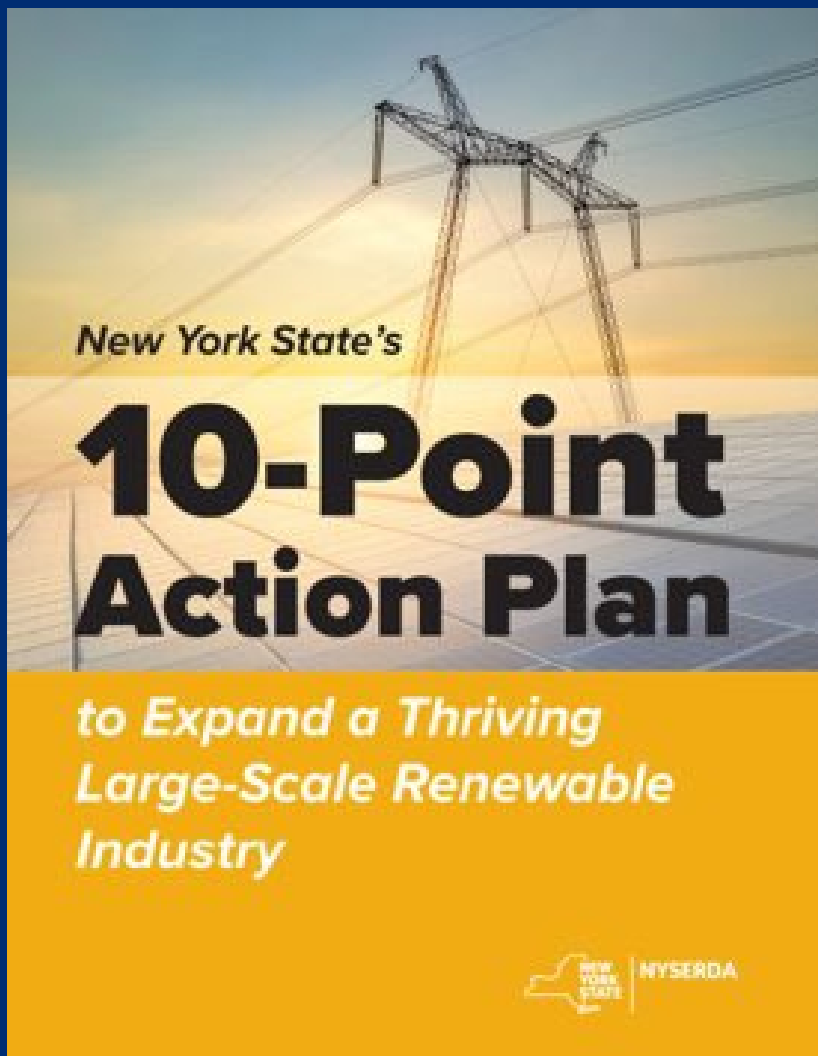
**Action 6:** Build the Offshore Wind Supply Chain

**Action 7:** Build the Clean Energy Workforce

**Action 8:** Plan for Next Phase of Offshore Wind Deployment

**Action 9:** Engage in Active Industry Outreach and Dialogue

**Action 10:** Advance Public Engagement and Outreach



**Action 1: Announce Offshore Wind and Onshore Renewables Awards in the Near Future**

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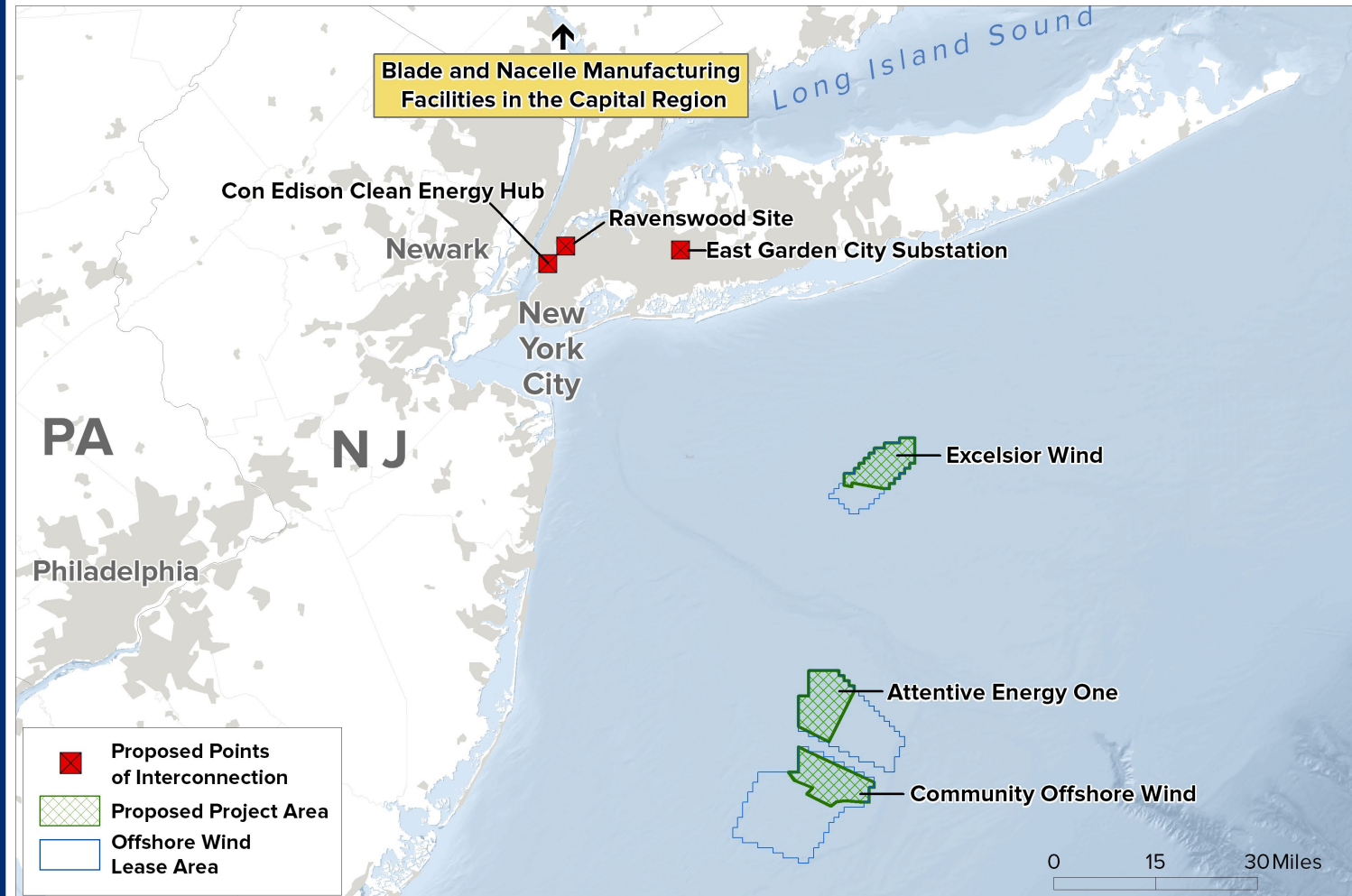
**Attentive Energy One** (1,404 MW)  
**Community Offshore Wind** (1,314 MW)  
**Excelsior Wind** (1,314 MW)

- Enough energy to power 2 million homes
- \$15 billion in anticipated in-state spending, including \$3.4 billion in commitments to spending in Disadvantaged Communities
- More than \$85 million to support wildlife and fisheries research, mitigation, and enhancement

**\$300 million state investment in the nation's first blade and nacelle manufacturing facilities in New York's Capital Region**

- Leveraging more than \$2 of privately-committed capital for every \$1 of New York State funding
- Total investment of \$968 million

# AWARD RESULTS: 3 OSW Projects + Blade and Nacelle Manufacturing



# NYSERDA's Fourth Offshore Wind Solicitation (ORECRFP23-1)

| NY4 Solicitation Schedule |                   |
|---------------------------|-------------------|
| RFP Release               | November 30, 2023 |
| Bid Submission            | January 25, 2024  |
| Award Notification        | February 2024     |
| Contract Execution        | Q2 2024           |

## Eligibility Requirements

- Proposal flexibility including a commitment to conditional termination for existing projects
- Stakeholder Engagement Plans and Workforce and Jobs Plans
- Minimum purchase of U.S. iron and steel requirement
- Benefits to New York State Disadvantaged Communities, including workforce training
- Economic benefits (in-state spending), \$10,000 per megawatt to support regional wildlife and fisheries monitoring, Environmental and Fisheries Mitigation Plans, Project Labor Agreements and Labor Peace Agreements, participation in New York's OSW Technical Working Groups (TWG)

## Bid Scoring Criteria

70% Price

20% Economic Benefits

10% Project Viability



# You Are Invited



**NYSERDA**

## Offshore Wind Open House Events

Learn more about offshore wind in New York State

### **Astoria, Queens**

- January 9, 2024
- Variety Boys and Girls Club  
21-12 30th Rd, Queens, NY 11102

### **Albany, Capital Region**

- January 17, 2024
- The Albany Armory  
195 Washington Avenue, Albany, NY 12210

### **Long Beach, Long Island**

- January 24, 2024
- Long Beach Public Library  
111 W Park Ave, Long Beach, NY 11561

### **Red Hook, Brooklyn**

- January 10, 2024
- Joseph Miccio Community Center  
110 W 9th St, Brooklyn, NY 11231

### **Hempstead, Long Island**

- January 23, 2024
- Sondra and David S. Mack Student Center  
Hofstra University, Hempstead, NY 11549

Visit [wind.ny.gov](https://wind.ny.gov) for more details

*Open to the public. Advance registration not required.*

# Master Plan 2.0 Timing

## Track 1:

9 conducted Studies to inform future BOEM Offshore Wind Lease Areas

Advance New Lease Areas Request to Bureau of Ocean Management (BOEM)

### M-TWG Action Item:

April 2024 – Review Draft Report of Vessel Analysis for Deep Water Wind Development and Operation and provide feedback to NYSERDA within allocated two-week review window

## Track 2:

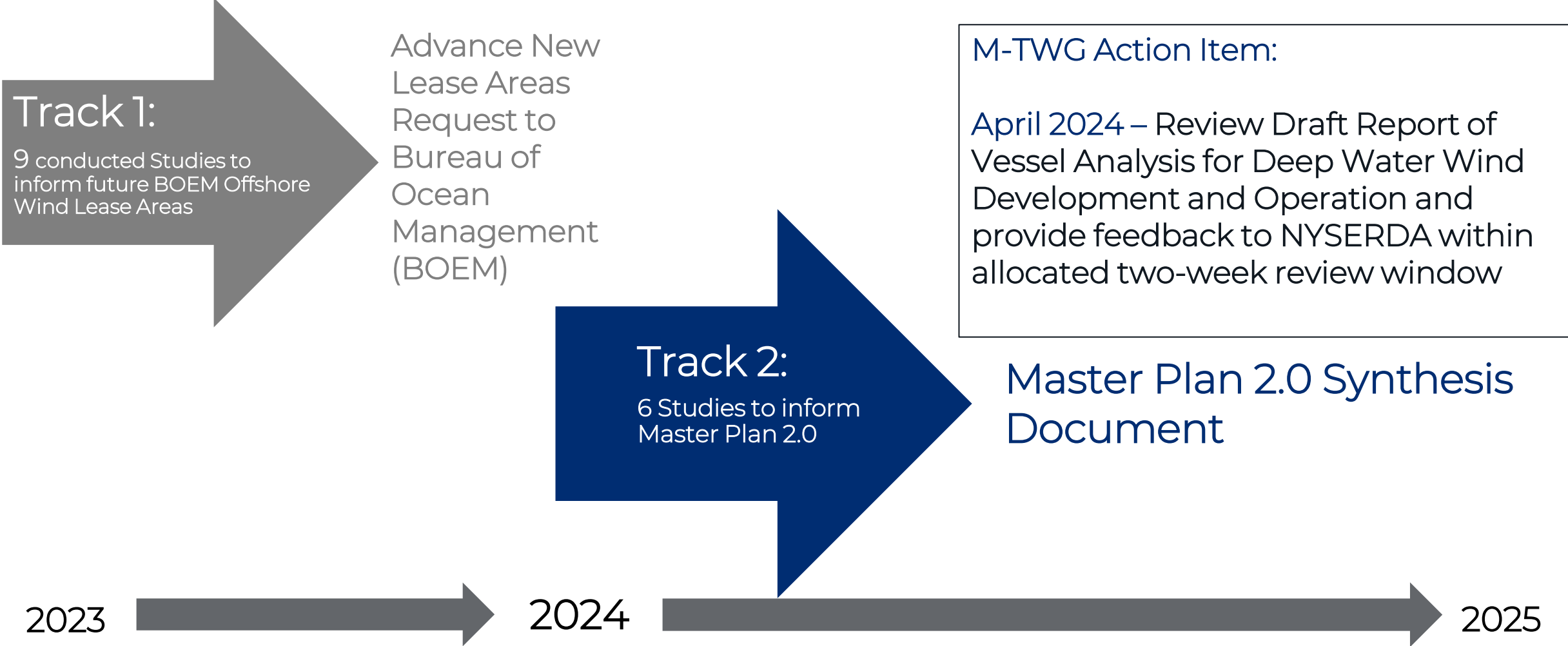
6 Studies to inform Master Plan 2.0

Master Plan 2.0 Synthesis Document

2023

2024

2025



# 2024 Technical Working Group (TWG) Engagement

2023

2024

Late 2024  
/ Early  
2025

> TWGs and technical third-party reviewers conducted Master Plan 2.0: Track 1 Study reviews that would help inform Advance New Lease Areas Request to BOEM

> Feedback from Technical Working Groups and agencies was received and acknowledged in drafting of Master Plan 2.0: Track 1 Studies

> Master Plan 2.0: Track 1 Studies are finalized

January 2024:

- > M-TWG January Meeting
- > NYSERDA/Contractor Master Plan 2.0: Track 2 Study Kick-Off Calls take place

February / March 2024:

- > Advance New Lease Areas Request to BOEM to be submitted

Late March / Early April 2024:

- > Draft "Vessel Analysis" for Deep Water Wind Development and Operation Report anticipated
- > Port & Supply Chain Study key findings and summary to be presented to Jobs & Supply Chain TWG

April 2024:

- > Contractor presents Vessel Analysis key findings and summary to M-TWG
- > Two weeks-review time thereafter for M-TWG, NYSERDA, and State agencies to provide feedback

Late May / Early June 2024:

- > Draft Port & Supply Chain Study anticipated
- > Final Vessel Analysis Report anticipated
- > Respective two-week technical third-party reviews, legal reviews, and marketing reviews to follow

Early to Mid-August 2024:

- > Final product of Vessel Analysis anticipated

September / October 2024:

- > Final product of Port & Supply Chain Study anticipated

October / November / December 2024:

- > Master Plan 2.0 Synthesis Document to be finalized

# Overview of Master Plan 2.0 Studies

2023 – Track 1

(In Final Stages of Finalizing for Publication)

## Maritime Activity

- > Maritime Assessment: Commercial and Recreational Uses Study

## Technology

- > Offshore Wind Resource Assessment
- > Deep Water Wind Technologies: Technical Concepts Study

## Feasibility

- > Technology Assessment and Cost Considerations Study

## The Environment

- > Birds and Bats Study
- > Fish and Fisheries Study
- > Marine Mammals and Sea Turtles Study
- > Benthic Habitats Study
- > Environmental Sensitivity Analysis

Advance New Lease Areas Request to Bureau of Ocean Energy Management (BOEM)

2024 – Track 2

(In Progress)

## Supply Chain

- > Vessel Analysis for Deep Water Wind Development and Operation
- > Port and Supply Chain Study

## Feasibility

- > Deep Water Cost Reduction Study

## Workforce

- > Navigating Workforce Opportunities and Challenges of Scaling Up Offshore Wind Targets in New York State

## Disadvantaged Communities

- > Empowering Potential: Cataloging Existing Community Assets for Harnessing Offshore Wind Opportunities in New York's Disadvantaged Communities

## The Environment

- > Characterizing Oceanographic Conditions and Analyzing Extreme Weather Risks and Potential Interactions with New York State's Offshore Wind Infrastructure

# Track 2 Studies to inform Master Plan 2.0 for 2024

## M-TWG Engagement and Study Review

### **Vessel Analysis for Deep Water Wind Development and Operation**

Examines vessel and port requirements for each phase of offshore wind development in deep water



COWI (S. Wilkie)

- > Builds upon Master Plan 2.0 Technology Assessment and Cost Considerations Study
- > Analyzes deep water offshore wind vessels required to service the U.S. East Coast deep water market
- > Includes but is not limited to vessel characteristics required for floating operations, as well as port characteristics needed at scale to reach long-term offshore wind goals
- > Examines methodologies required to support deep water offshore wind technologies on the U.S. East Coast

# Track 2 Studies to inform Master Plan 2.0 for 2024

## Substantiating the focus of onshore supply chain

### **Port and Supply Chain Study**

Characterizes port and supply chain needs, with consideration of deep water technologies, to maximize long-term benefit to the State from development of the offshore wind industry.



Vestas

- > Assesses and identifies required supply chain and port characteristics to service all phases of deepwater offshore wind project development and operation
- > Evaluates economic implications of port development for deep water technologies and future-proofing of ongoing infrastructure investments
- > Synthesizes floating and advanced offshore wind foundation technologies, associated supply chain needs, potential supply gaps, and costs to maximize New York State's supply chain opportunity

# Thank You

**Sherryll Huber**

Senior Project Manager, Offshore Wind

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**Tess Arzu**

Special Projects Manager, Offshore Wind

[Tess.Arzu@nyserda.ny.gov](mailto:Tess.Arzu@nyserda.ny.gov)



**NYSERDA**

# Member Updates



# Ørsted Update



The New York Times

## New York Turns On Its First Offshore Wind Farm



By Patrick McGeehan

Patrick McGeehan has reported on New York's pursuit of offshore wind power from Providence, R.I., New London, Conn., and East Hampton, N.Y.

Dec. 6, 2023

FIRST IN NEWSDAY

## South Fork Wind Farm starts sending power to LIPA electric grid

By Mark Harrington

ENVIRONMENT Updated December 6, 2023 7:59 pm



Ørsted | EVERSOURCE

# Atlantic Shores – Portfolio Overview

## 5+ GW

strategically positioned to meet the growing demands of renewable energy targets in multiple east coast markets

### Lease Area OCS-A 0499<sup>(1)</sup>

~ 102,000 acres

Project 1, 1.5 GW under 20-yr OREC contract with New Jersey (COP 1)  
Project 2, COP filed March 2021

### Lease Area OCS-A 0549

~ 81,000 acres

Project 3, COP Filed April 2022

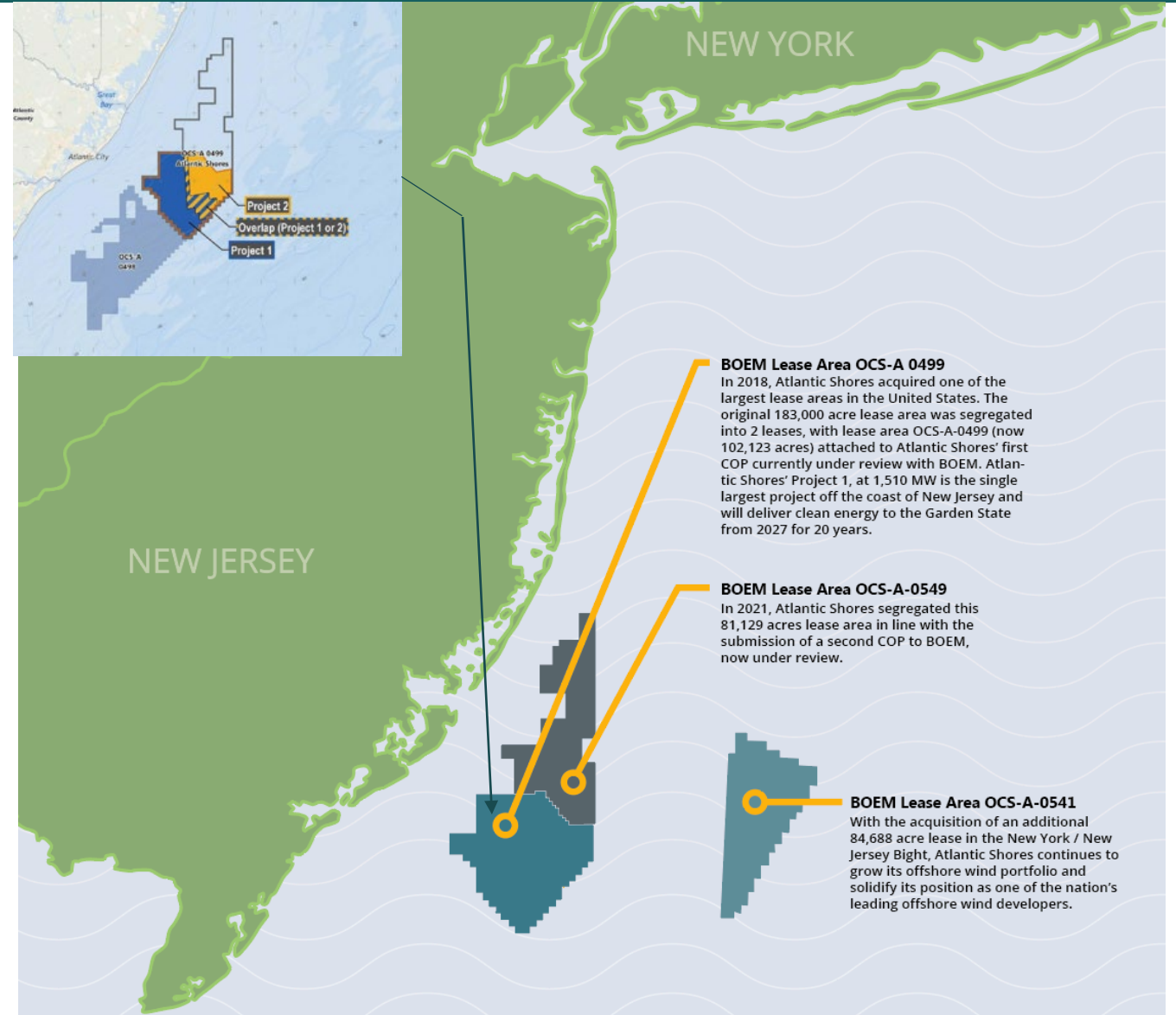
### Lease Area OCS-A 0541<sup>(2)</sup>

~ 79,000 acres

Project 4, under development

(1) Acquired in December 2018 from US Wind. Segregated in 2 x sub-leases 0499 and 0549

(2) Awarded in the Bureau of Energy Management (BOEM)'s 2022 New York Bight auction

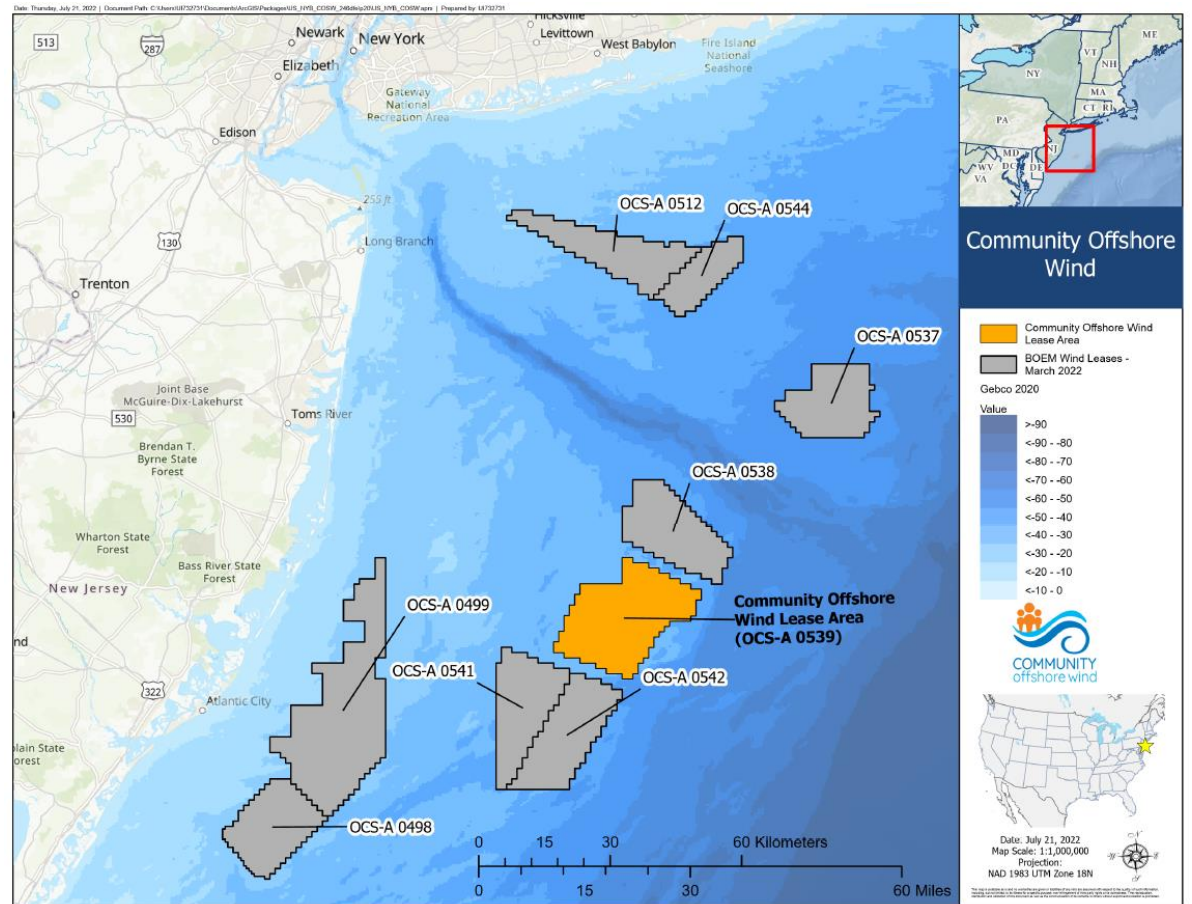


# COMMUNITY OFFSHORE WIND

- February 2022, Community Offshore Wind acquires Lease Area OCS-A 0539
- October 2023, Project selected into ConEd's Brooklyn Clean Energy Hub (BCEH)
- Pursuing NJ's third Solicitation for Offshore Wind
- G&G Survey Campaign Underway

## KEY FACTS

|                        |                           |
|------------------------|---------------------------|
| Lease Size             | 125,964 acres/197 sq. mi. |
| Estimated Capacity     | 3 GW                      |
| Estimated Homes Served | 1.1 million               |
| Distance to New York   | 56 nm/64 mi/104 km        |
| Distance to New Jersey | 32 nm/37 mi/59 km         |



## LEASE OCS-A 0539/ANTICIPATED TIMELINE

**2022-2026**  
Site assessment surveys,  
Project design, Planning  
and Permitting

**2027-2029**  
Construction

**2030**  
Operation



Leading Light  
Wind

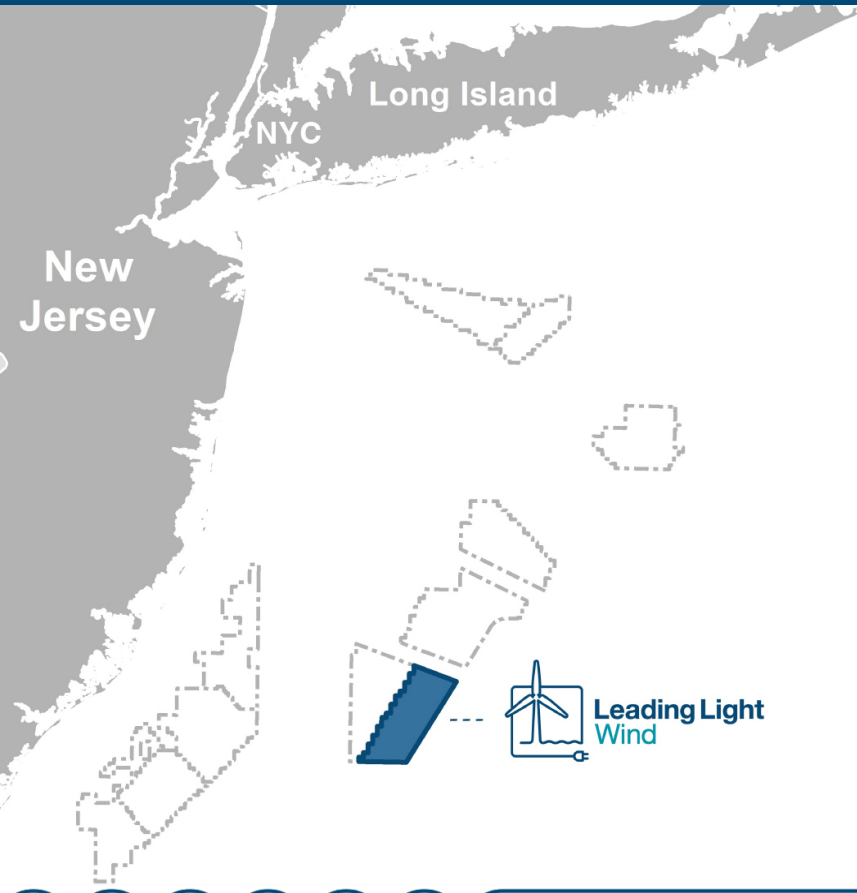
Invenergy energyRe

January 2024

M-TWG

[LEADINGLIGHTWIND.COM](http://LEADINGLIGHTWIND.COM)

# Project Overview



- Located more than 40 miles east of the New Jersey coastline and 80 miles south of Long Island
- Approximately 84,000 acres of seabed
- Leading Light Wind is targeted for operation in 2031+



**2,100+**  
Megawatts (MW)



**800,000+**  
homes powered

# Project Progress



- Ongoing offshore benthic, geophysical, and geotechnical survey work; geo-archaeological survey to commence this year
  - G&G + Benthic: Exploration of export cable routes and completion of lease area
  - Geoarch: QMA clearance, development of ground model to inform core sampling locations; consulting with Tribes
- COP Submittal to BOEM Q2 2025
- Ongoing engagement with various stakeholders (eNGOs, fisheries, labor unions, local communities, etc.)
- Ongoing engagement with Tribes and Tribal Nations jointly with NY Bight Lessees, and individually as a project





BLUEPOINT  
WIND

# Bluepoint Wind Project Presentation

## NYS Offshore Wind – Maritime Technical Working Group

Tim Brown, Marine Affairs Manager, [timothy.brown@oceanwinds.com](mailto:timothy.brown@oceanwinds.com)

January 22, 2024

**Bluepoint Wind by the Numbers:** 71,522 acres, average depth 54.5 meters, 38 nautical miles (NM) south of Long Island, New York and 53 east of New Jersey.

**Expected Avoided Emissions:** 5.07 million metric tons of CO<sub>2</sub>, or the equivalent of taking 109 million gasoline powered passenger vehicles off the road for one year. *(Source: EPA)*

## Recent Progress & Year Ahead:

- ✓ Significant GeoPhys and GeoTech survey work in 2023 (in lease area and in export cable corridor)
  - ✓ 782 vessel days (12 different vessels) with zero lost time incidents
  - ✓ >20K line kms surveyed
  - ✓ 100s core penetration tests and vibracore samples
- Continuing to advance our engineering design in 2024
- Furthering federal project permitting





# Public Policy Transmission Need Overview



**Department  
of Public Service**

# **Update on OSW Transmission Planning**

**January 22, 2024**

# Background

- New York has a statutory target to build 9 GW of offshore wind resources by 2035
- Power Grid Study and Brattle Report published in January 2021 recommended allocating approximately 3GW to Long Island and approximately 6GW to New York City interconnection points
- Public Service Commission (PSC) is responsible for planning transmission infrastructure to meet the targets
- Large, expensive projects – PSC prefers a competitive process for identifying solutions

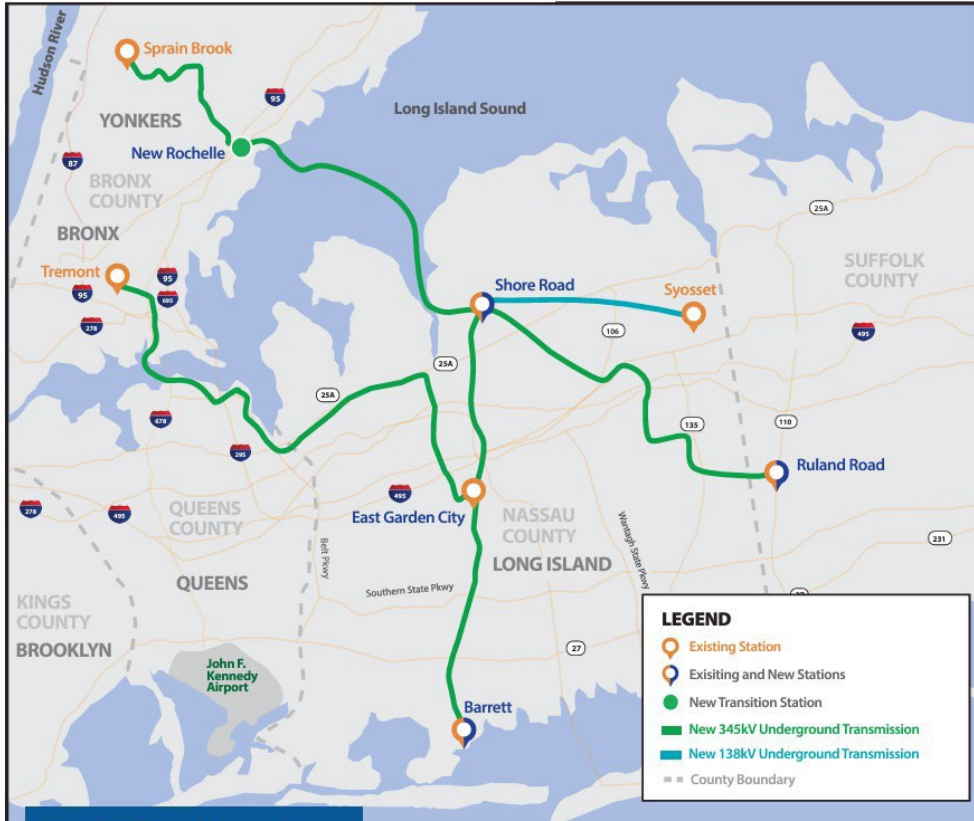
# Public Policy Projects

- The New York Independent System Operator (NYISO) performs many transmission planning functions under federal rules and with PSC input to propose solutions to transmission needs
- When PSC determines there is a public policy need for transmission (PPTN), NYISO will trigger a competitive solicitation process for solutions
- Most cost-effective project gets right to recover project costs and proceeds to permitting under state and federal law

# Offshore Transmission

- To date, the PSC has invoked the NYISO process twice to address OSW needs
- Propel New York – selected through the competitive process to integrate 3GW of offshore energy across Long Island
- New York City PPTN – initiated by the PSC in June 2023
  - PSC/NYISO to seek proposals that will deliver at least 4.7 GW to New York City
  - Proposals must originate at a water side collection point and terminate at NYC interconnection points
  - Proposals must show feasibility of construction by January 1, 2033 to serve the 2035 timeline for the OSW generation
  - NYISO has not yet announced the due date for proposals

# Propel NY Energy



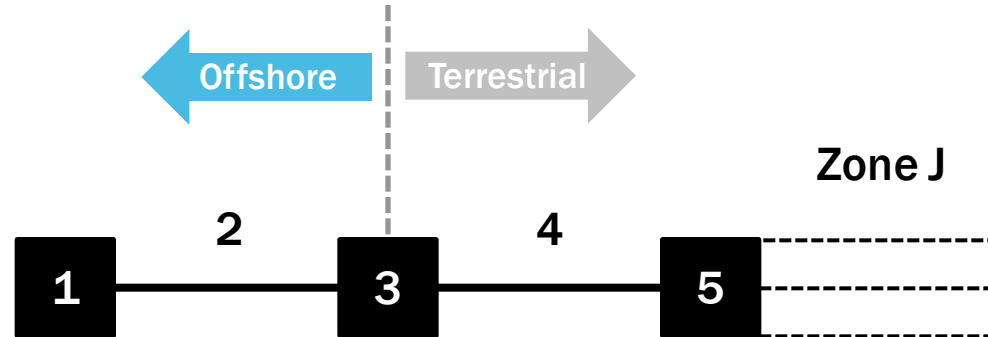
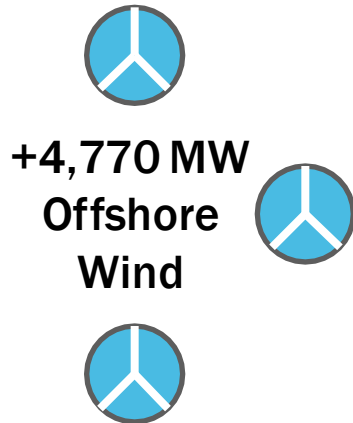
Key Project Components

- Developers:  
NYP& NY Transco
- 5 underground transmission lines
- 4 new stations
- More information:

<https://www.propelnyenergy.com/>

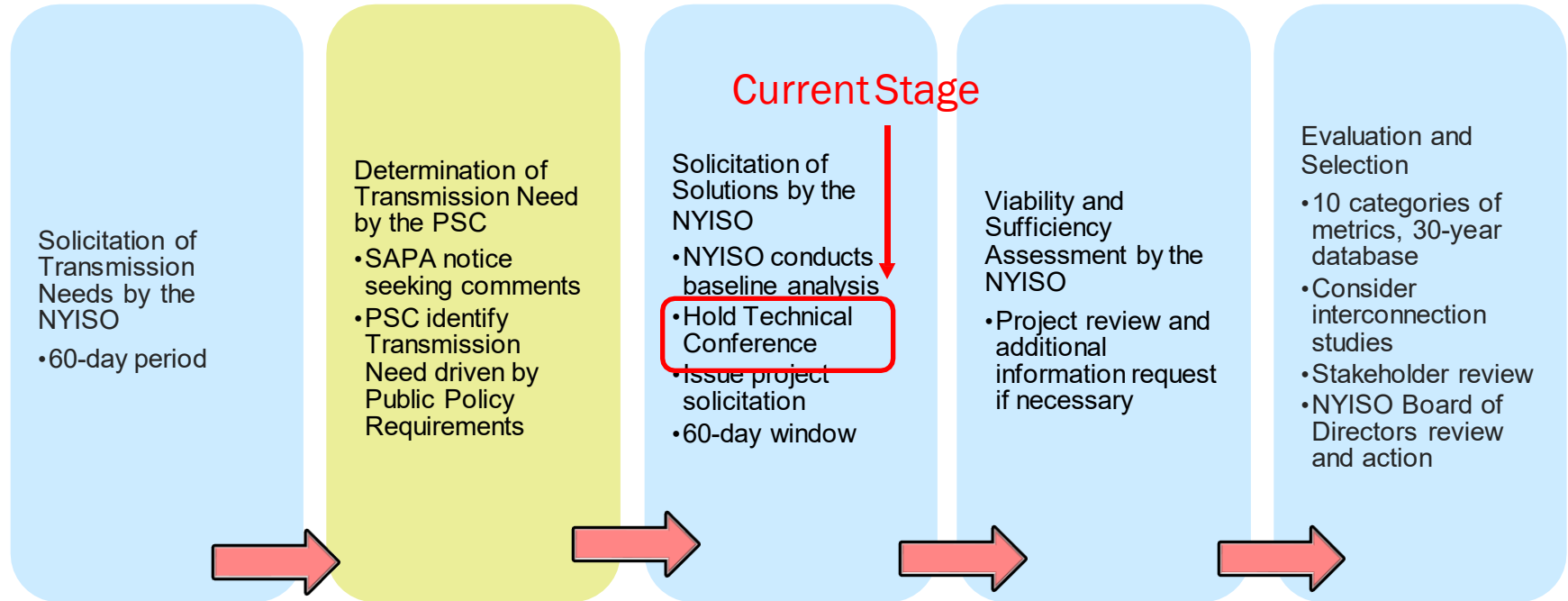
Credit: NYP&, NYTransco

# NYC Offshore Wind PPTN



- 1 offshore interconnection point(s)
- 2 offshore transmission (i.e., submarine cables)
- 3 sites for cable landing points
- 4 onshore transmission path(s) (i.e., terrestrial cables)
- 5 necessary improvements to and/or expansion of the existing onshore transmission system

# Public Policy Transmission Planning Process



Blue means NYISO steps

Green means PSC steps

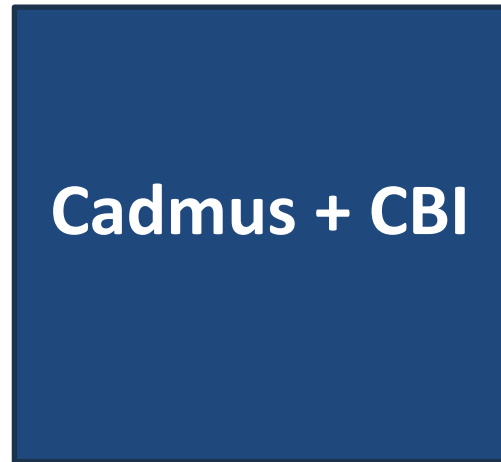


# M-TWG Updates

- Anticipate quarterly meetings in 2024
- New contracts
  - TWG facilitation: Cadmus with CBI, Xodus, and Carbon Trust
  - M-TWG Technical Assistance: WSP with Anchor QEA
- Primary workstreams:
  - Master Plan 2.0: Project Advisory Committee (PAC) & full M-TWG review
  - Update Shared Research Agenda
  - Additional website resources

# M-TWG Facilitation Team

**Core Facilitation:**



**New Expertise:**



## Focus Areas

### Xodus Group:

- Navigating emerging offshore wind market trends of the U.S.
- Delivering projects around supply chain analysis, market entry, workforce planning and analysis.
- Experience in Massachusetts Offshore wind supply chain assessment and gap analysis.

### Carbon Trust:

- Reviews and recommendations on offshore wind markets focusing on policy, technology and innovation, supply chain for fixed and floating foundations.
- Experience in Gulf of Maine Offshore Wind Research Consortium and Cable Burial Risk Assessment



# Xodus: Maritime Expertise

- Xodus provides several services focused on the maritime space, including:
  - GIS mapping of spatial trends in vessel movements
  - Cable routing studies and Cable Burial Risk Assessments (CBRAs)
  - Oil Spill Response Plans (OSRPs) and dispersion modelling
  - ID and assessment of other ocean users across regions
- GIS mapping and cable routing/CBRA studies are particular strengths, and we have a number of skilled experts on our teams.
- Relevant case studies include:
  - Co-author of the CBRA Methodology Guidance published by Carbon Trust
  - Multiple GIS-based site assessment scopes for US offshore wind developers
  - Multiple cable routing and CBRA scopes for US offshore wind developers

# Offshore wind

## Joint Industry Programmes (JIP) Accelerators

- Pre-competitive space to tackle industry-wide challenges
- Standard setting (e.g. Cable Burial Risk Assessment, 66kV/132kV)
- Technology demonstration (e.g. bird collision avoidance campaign)
- Competition and innovator support

## Advisory

Specialist advice for governments and industry:

- New market opportunities
- Domestic economic benefits
- Sustainable accelerated OSW development

### Market agnostic

Generic solution for OSW



#### The Offshore Wind Accelerator (OWA)

Carbon Trust's flagship collaborative RD&D programme for bottom-fixed offshore wind.

2008



#### The Floating Wind JIP (FLW JIP)

The Floating Wind JIP Overcomes challenges and advance opportunities for commercial scale floating wind

2016



#### The Offshore Renewables JIP (ORJIP)

Offshore Renewables JIP aims to reduce consenting and environmental risks for offshore projects.

2011



#### The Integrator

The Integrator is designed to examine the interplay between offshore wind, existing infrastructure, and other technologies to highlight opportunities for innovation investment.

2020



#### Sustainability JIP (SUSJIP)

The Sustainability joint industry programme aims to decarbonise offshore wind farm developments and support developers to achieve net zero targets.

2023

### Market Specific

Addressing specific market challenges



#### Philippines Joint Industry Programme

A public-private collaboration initiative set up to accelerate offshore wind development in Philippines by conducting impactful research that resolves barriers to offshore wind

2021



#### National Offshore Wind R&D Consortium (NOWRDC)

Prioritize, support, and promote research and development activities that reduce cost and risk of offshore wind development projects throughout the U.S.

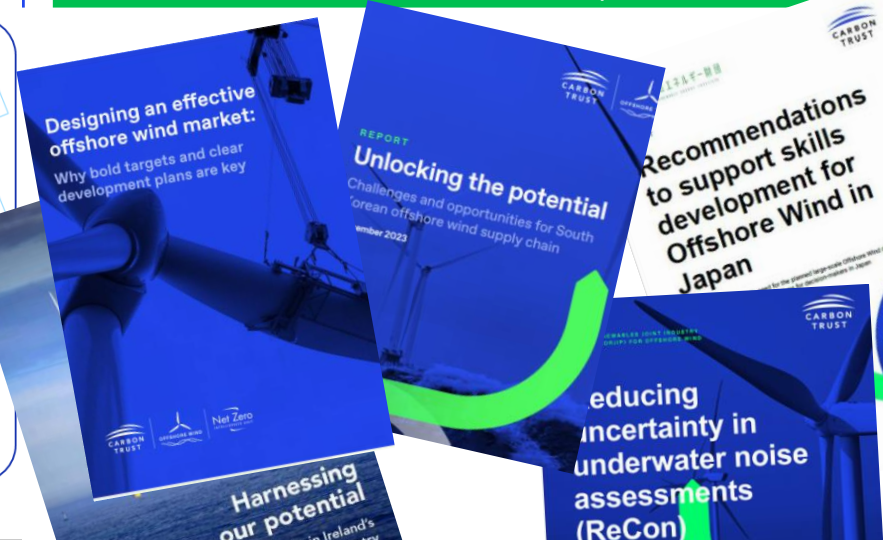
2018



#### State of Maine: Offshore Wind Research Consortium

Aims to create a common understanding of the local and regional impacts (negative and positive) of floating offshore wind in the Gulf of Maine

2023



# WSP USA, INC

- Engineering and professional services firm with more than 16,000 employees in the United States
- Providing services to public and private sector clients in the offshore wind industry for 20+ years
- Over 75 offshore wind projects with the potential to generate over 35 gigawatts of capacity.
- Specific areas of expertise include:



**Maritime**



**Transportation**



**Advisory**



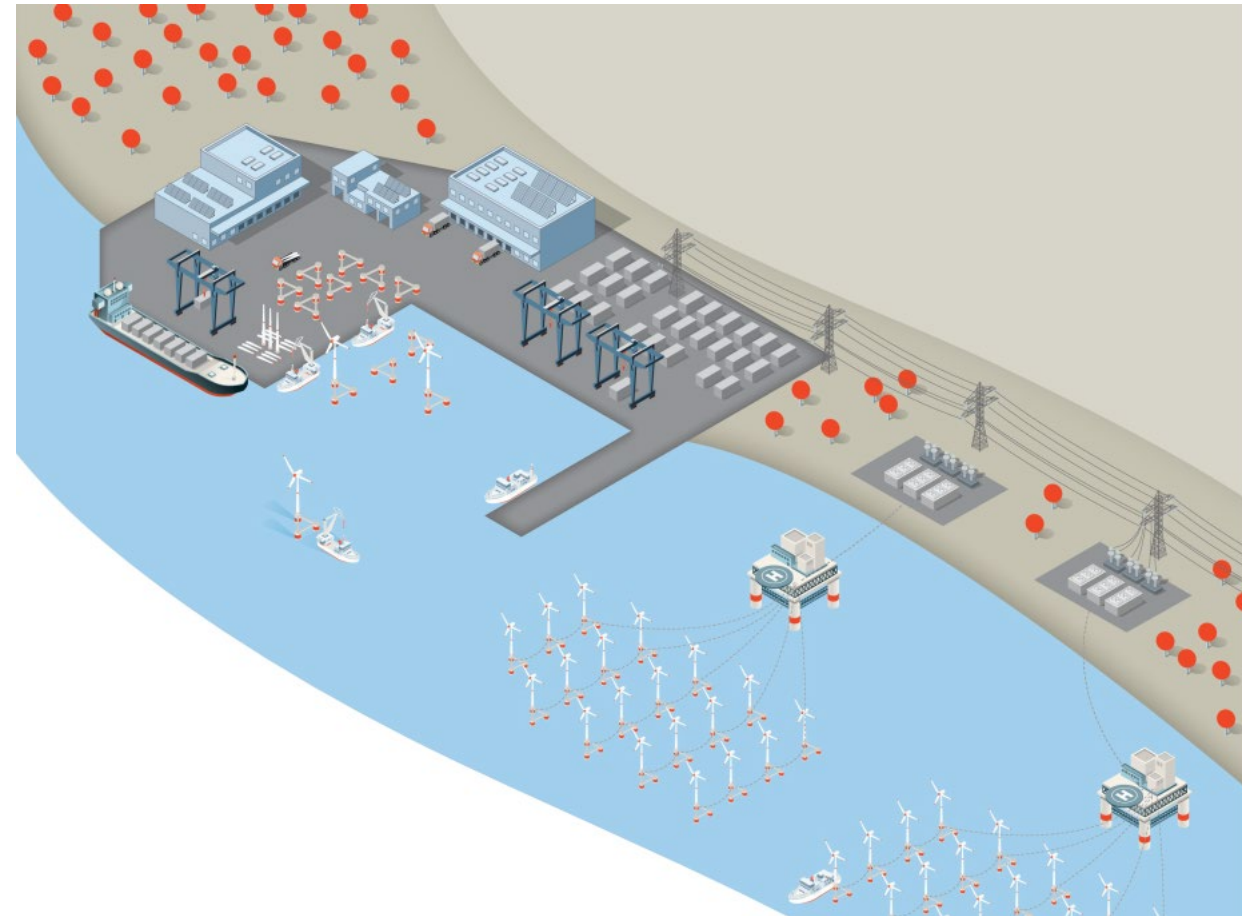
**Energy**



**Regulatory**



**Visualization and Data Intelligence**



# Steve Famularo, PE, D.PE

## WSP East Coast Lead, Maritime Division

- M-TWG Technical Lead Project Manager
- Professional engineer, certified commercial diver, and board-certified Port Engineer (BC.PE)
- Over 27 years of experience
- Maritime engineering expert including underwater inspection, marine structure rehabilitation, service life evaluation, asset management system design, coastal engineering, climate resiliency planning and structural/geotechnical design of piers, wharves, bulkheads, and floating structures.
- Experience with all phases of the project development cycle including initial feasibility, site investigation, concept design, contract documents, and construction support services.
- Federal, State, and local agency projects, as well as work with private developers and operators across the United States.



# Katie Axt

## Assistant Vice President, Advisory

- M-TWG Technical Lead Deputy Project Manager
- Over 16 years of public experience in waterfront planning, policy, and infrastructure design.
- Expertise in coastal resource management, climate resilience, environmental permitting, natural resource management, and maritime transportation.
- Prior to joining WSP, worked for NYCEDC in the Ports & Transportation department and for NYSDEC as the State's Dredge Team Leader.



# Research Agenda Overview

- Developed in October 2021 and updated in 2023.
- **Research Agenda Goals:**
  - Compile research topics and questions useful for shared learning.
  - Enhance decision making on OSW development practices, port infrastructure upgrades, and navigation safety.
  - Identify gaps in our collective understanding regarding potential impacts to vessel traffic and navigation.
- **Recent M-TWG Studies:**
  - Anchor Strike Study (March 2022)
  - Anchorage Area Assessment (2022)
  - Assessment of Loss of Propulsion and Steering Data (2023)
- **Purpose of today's discussion:**
  - Review each topic's key questions, existing studies, and opportunities for additional study.
  - Discuss opportunities for potential new research topics.
  - Determine which topics to close out.






# List of Research Agenda Topics

1. Acceptable Level of Risk Determination
2. Set-Back Distance
3. Navigation Emergencies
4. Impacts to Navigation Radar and Radio Communication Systems
5. Submarine Cable Routing
6. Considerations for Cable Burial Depth
7. Anchorage Areas Updates
8. Anchor Strike Liability
9. Vessel Traffic Modeling and Simulations
10. Jones Act-Compliant Vessel Availability
11. Regional Shipyard Capacity
12. Construction and Operational Safety Zones
13. Seabed Infrastructure Security

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-  Opportunities for Additional Study
-  Master Plan 2.0 Track 2
-  Recommend Closing Out

# Topic 1: Acceptable Level of Risk Determination

- OSW presents a new risk of allision (fixed structures) and potentially increase the risk of collision (vessels) due to installation of fixed infrastructure and new vessel traffic.

## Key Questions

1. What are acceptable levels of increased risk on a project-specific and cumulative basis? Is a numerical standard needed?
2. Who is responsible and what is the process for estimating and evaluating cumulative change in risk due to multiple OSW installations?
3. What methodology is used to calculate risk?
4. How will acceptable levels of risk be communicated (e.g., regulatory review, guidance documents)?

# Topic 1: Acceptable Level of Risk Determination

## Existing Studies:

- U.S. Department of the Interior Bureau of Ocean Energy Management (BOEM) developer regulatory requirements
- "Guidance on the Coast Guard's roles and responsibilities for offshore renewable energy installations (OREI)", NVIC 01-19, U.S Department of Homeland Security, 2019
- USCG PARS presentation of final Port Access Route Studies (PARS) reports and next steps, M-TWG meeting March 23, 2022

## Opportunities for Additional Study

- Study of numerical standards and criteria for evaluating risk used in the approval process of existing OSW installations around the world.
- Interview the USCG for clarity on the criteria they use when reviewing an OSW project.
- Additional discussion with shippers, OSW developers on acceptable level of risk

# Topic 2: Set-Back Distance

- Minimum clear distance between a vessel traffic lane and the nearest physical structure.
- Greater set-back distance offers additional safety buffer, but decreases the available area to install turbines, reducing potential electricity generation and wind energy area value.

## Key Questions

1. What is an appropriate set-back distance from the edge of the navigation fairway to the closest fixed infrastructure?
2. How should project or location-specific factors inform set-back distances?
3. When recommended set-back distances cannot be met, what best practices/mitigation measures can be implemented to address the increased risk?

# Topic 2: Set-Back Distance

## Existing Studies:

- Literature review section of COWI's 2020 Maritime Technical Working Group Support
- USCG Port Access Route Studies (PARS)
- NYSERDA 2017 Shipping and Navigation Study
- BOEM final executed lease agreements (case-by-case), various 2009 to 2023

## Opportunities for Additional Study

- Compile database of set-back distances and channel dimensions at approved/operational windfarms.
- Capture best management practices for evaluating and making determinations around set-back distances.
- Re-examine set-back distance and “watch circles” for floating foundations.

# Topic 3: Navigational Emergencies

- Navigation emergencies are infrequent. Loss of vessel steering, or propulsion is a safety risk.
- A vessel collision could occur if the distance between the vessel and wind turbine generators (WTGs) is insufficient for emergency actions to stop the vessel before impact.

## Key Questions

1. How often do temporary/emergency loss of power/steering events occur?
2. What, if anything, can be done in designing OSW installations to reduce the risk of negative outcomes from navigation emergencies?

# Topic 3: Navigational Emergencies

## Existing Studies:

- M-TWG Study: Assessment of Loss of Propulsion and Steering Data, (COWI, 2023)

## Opportunities for Additional Study

- [●]
- Recommend closing out.



# Topic 4: Impacts to Navigation Radar and Radio Communication Systems

- WTGs can cause a screening or interference effect in some cases.
- Potential additional challenges with collision avoidance.
- Topic was discussed during August 2020 Wind Developer Roundtable meetings.
  - Consensus from meetings: radar interference is not a typical concern for large vessel operators.

## Key Questions

1. Do windfarms create interference with radar and/or VHF communications, and if so, to what extent?
2. Will increasing turbine sizes or emerging technologies such as floating OSW have an effect?
3. What is the appropriate distance needed between a vessel radar and the wind farm to minimize interferences?

# Topic 4: Impacts to Navigation Radar and Radio Communication Systems [Incl. Automated Identification System (AIS)]

## Existing Studies:

- Wind Turbine Generator Impacts to Marine Vessel Radar (2022), National Academies of Sciences Engineering and Medicine
- NYSERDA Shipping and Navigation Study, (The Renewables Consulting Group, 2017)

## Opportunities for Additional Study

- Potential new challenges to marine vessel radar resulting from floating wind technologies.

# Topic 5: Submarine Cable Routing

- Critical infrastructure needed to connect OSW farms to onshore power grid.
- Cables will have to pass beneath traffic lanes and/or anchorage areas in addition to other challenging conditions.
- With growing number of OSW projects being planned, there is support for careful planning and coordination to understand and minimize risk.

## Key Questions

1. What are appropriate locations for submarine cables and cable corridors?
2. How many cables can be sited in specific key geographic areas?
3. How will historical/informal and federally approved anchorage areas affect cable routes?
4. What are the considerations and implications of bundling multiple export cables?
5. What are strategies to shorten and deconflict cables with existing known and unknown subsea infrastructure?

# Topic 5: Submarine Cable Routing

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## Opportunities for Additional Study

- Lessons learned around cable construction with a focus on construction means and methods, and construction coordination within NY region (e.g., Long Island).
- Best management practices for communicating construction scheduling and sequencing to mariners.
- Supply chain challenges with deploying cable installation vessels.

# Topic 6: Considerations for Cable Burial Depth

- Submarine cables can be buried deeper to better protect both submarine cables and vessel equipment from damage
- Risk to the cables must be balanced with technical limitations and the costs and environmental impacts.

## Key Questions

1. How is anchor penetration depth determined?
2. What are appropriate cable burial depths to reduce the risk of fouling?
3. What specific advancements in cabling technology should be targeted to address the factors that limit cable burial depth (e.g., installation tools, cost, overheating, faults) and cable co-location (e.g., installation, maintenance)?
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- Conduct anchor pull tests in the New York Bight.
- Research how anchors respond to concrete mattresses and other cable protection measures.
- New technologies to reduce vessel strike risk of cables and mooring systems.
- Evaluate the risk between anchoring and floating structures' mooring systems.

# Topic 7: Anchorage Areas Updates

- Vessel traffic is expected to increase as OSW projects are constructed.
- Potential increase in demand for anchorage areas due to increased vessel traffic.

## Key Questions

1. Where are informal, common practice anchorage areas located?
2. Are there any existing anchorage areas that are rarely or never used that could be "un-designated"?
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# Topic 7: Anchorage Areas Updates

## Existing Studies:

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## Opportunities for Additional Study

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# Topic 8: Anchor Strike Liability

- Liability for damaging submarine cables is a concern.
- Vessel owners/operators may be liable for the cost of cable repair and/or outages, even when due to accidental damage.
- Greater clarity on the legal landscape recommended.

## Key Questions

1. In what anchor strike scenarios is the cable asset owner responsible? When is the vessel operator responsible?
2. What opportunities exist to address increased costs to vessel operators in the case of accidental anchor strikes due to cables buried too shallow, becoming unburied, or shifting from their mapped locations?

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- Evaluate frameworks for establishing a mitigation fund, voluntary/mandatory insurance, or similar, to alleviate financial burdens when accidents occur.
- Evaluate mechanisms for survey/monitoring of cables over its' operational lifespan, and real-time reporting of cable condition, burial, etc.
- Evaluate opportunities for shared knowledge around increasing safety, minimizing risk to the industry, contingency planning, and increasing predictability/certainty around decision making?
- Emergency preparedness planning, including integrated emergency/contingency planning.

# Topic 9: Vessel Traffic Modeling and Simulations

- New OSW infrastructure will introduce additional vessel traffic.
- Obtaining information on types, frequency, and sailing schedule of the additional vessel traffic for early planning.

## Key Questions

1. To what extent and how will OSW vessel traffic alter regional vessel traffic patterns?
2. What additional vessel traffic modeling or simulations are needed to understand potential changes in vessel traffic?
3. What are long-term navigation channel dredging and/or deepening needs due to OSW vessels?

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- Northern NY Bight & Seacoast of NJ Port Access Route Study (Ongoing), USCG
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- NYSERDA is in progress of completing the Commercial and Recreational Uses Study, (McQuilling Renewables, coming soon).

## Opportunities for Additional Study

- [●]
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# Topic 10: Jones Act-Compliant Vessel Availability

- Jones Act requires that the transportation of cargo and personnel from one U.S. port to another U.S. port must be completed by a vessel that is built, owned, and operated by U.S. citizens or permanent residents.
- Currently no operating Jones Act-compliant OSW installation vessels and only a limited number of such vessels planned.

## Key Questions

1. What is availability of Jones Act-compliant OSW vessels?
2. How do developers determine if vessels are available?
3. What does it take to build a Jones Act-compliant vessel?
4. Will the Garamendi Bill affect the OSW industry?

# Topic 10: Jones Act-Compliant Vessel Availability

## Existing Studies:

- [DNV U.S. Offshore Wind Vessels Webinar](#)
- [Business Network for Offshore Wind: Trends in Vessel Design and Offshore Wind Maritime Supply](#)
- NYSERDA [U.S. Jones Act-Compliant Offshore Wind Turbine Installation Vessel Study](#), (GustoMSC, 2017)
- NYSERDA sponsored a presentation titled [Vessels for Offshore Wind](#), (DNV, 2022)

## Opportunities for Additional Study

- Create a regularly updated database of Jones Act-compliant vessels capable of supporting the OSW industry.
- Evaluate past reports to determine if the New York region is on track or is more work needed?
- Evaluate the new types of vessels that floating technology will require.
- What steps and investments are needed to build capacity and meet industry demand?
- Assess emerging trends in the use of automated/un-manned technologies during OSW construction.
- Note: Master Plan 2.0 Track 2 studies may focus on Jones Act vessels. Opportunity for M-TWG collaboration.

# Topic 11: Regional Shipyard Capacity

- Vessels supporting O&M activities for OSW facilities will be transiting from marine terminals to OSW areas.
- Construction and operations vessels will require regular maintenance and repair.
- New York's existing shipyard capacity may not be sufficient to service new vessels locally.
- Understand the types and quantities of vessels that will be added to New York waters and determining if there is capacity to support these vessels in all phases of operation.

## Key Questions

1. What vessel maintenance and repair support services will be necessary for the addition of OSW construction and support vessels?
2. What is the timeline for these vessels entering service?
3. What is the timeline for upgrade or construction of shipyard facilities?

# Topic 11: Regional Shipyard Capacity

## Existing Studies:

- The Port Authority of New York and New Jersey Port Master Plan 2050.

## Opportunities for Additional Study

- Create a statewide master plan for all public and private marine terminals and waterways.
- Compile a list of active shipyards in New York and the northeast region slated to support OSW.
- Case studies of mobile shipyard facilities.
- Note: Master Plan 2.0 Track 2 studies may focus on shipyard capacity as part of its port planning studies. Opportunity for M-TWG collaboration.



# Topic 12: Construction and Operational Safety Zones

- BOEM guidance states that developers are expected to recommend construction safety zones.
- European projects adopt a 50m safety zone during construction. During operations, European projects vary by country in their requirement for safety zones.

## Key Questions

1. What are appropriate and/or planned durations and dimensions for Construction and Operational Safety Zones?

# Topic 12: Construction and Operational Safety Zones

## Existing Studies:

- BOEM Supporting National Environmental Policy Act Documentation for Offshore Wind Energy Development Related to Navigation, 2019.

## Opportunities for Additional Study

- Research occurrences of vessel allisions in existing OSW farms in both construction and operational phases to determine if they are more likely to occur in countries that do not require specific safety zones.
- Opportunity to combine with research topics on construction best management practices.

# Topic 13: Seabed Infrastructure Security

- OSW installations are expensive infrastructure that will be valuable to the New York State and U.S. economies.
- Seabed infrastructure is vulnerable to sabotage and physical and/or cyber-attacks.

## Key Questions

1. Who will be responsible for cable and seabed infrastructure security and what requirements may be imposed on mariners and on OSW farm operators?
2. Will potential security measures result in any additional operational procedures or limitations for mariners and/or wind farm operators?

# Topic 13: Seabed Infrastructure Security

## Existing Studies:

- [USCG Guidelines for Addressing Cyber Risks at Maritime Transportation Security Act \(MTSA\) Regulated Facilities.](#)

## Opportunities for Additional Study

- Research occurrences of intentional incidents or sabotage at existing overseas OSW installations.
- Opportunity to combine topic into larger discussion of emergency management and liability.

# Summary

## Opportunities for Additional Study:

- Topic 1: Acceptable Level of Risk Determination
- Topic 2: Set-Back Distance
- Topic 4: Impacts to Navigation Radar and Radio Communication Systems
- Topic 5: Submarine Cable Routing
- Topic 6: Cable Burial Depth
- Topic 8: Liability and Emergency Management Planning
- Topic 12: Construction and Operational Safety Zones
- Topic 13: Seabed Infrastructure Security

## Opportunities for Collaboration with Master Plan 2.0 Track 2 Studies:

- Topic 10: Jones Act-Compliant Vessel Availability
- Topic 11: Regional Shipyard Capacity

# Summary

## Recommend Closing Out:

- Topic 3: Navigation Emergencies
- Topic 7: Anchorage Areas Updates
- Topic 9: Vessel Traffic Modeling and Simulations

# Next Steps

- Initial feedback
- Complete post-meeting survey
- In-depth discussions at next M-TWG meeting



**NYSERDA**

**Thank you!**



# Offshore wind

## Joint Industry Programmes (JIP) Accelerators

- Pre-competitive space to tackle industry-wide challenges
- Standard setting (e.g. Cable Burial Risk Assessment, 66kV/132kV)
- Technology demonstration (e.g. bird collision avoidance campaign)
- Competition and innovator support

## Advisory

Specialist advice for governments and industry:

- New market opportunities
- Domestic economic benefits
- Sustainable accelerated OSW development

### Market agnostic

Generic solution for OSW



#### The Offshore Wind Accelerator (OWA)

Carbon Trust's flagship collaborative RD&D programme for bottom-fixed offshore wind.

2008



#### The Floating Wind JIP (FLW JIP)

The Floating Wind JIP Overcomes challenges and advance opportunities for commercial scale floating wind

2016



#### The Offshore Renewables JIP (ORJIP)

Offshore Renewables JIP aims to reduce consenting and environmental risks for offshore projects.

2011



#### The Integrator

The Integrator is designed to examine the interplay between offshore wind, existing infrastructure, and other technologies to highlight opportunities for innovation investment.

2020



#### Sustainability JIP (SUSJIP)

The Sustainability joint industry programme aims to decarbonise offshore wind farm developments and support developers to achieve net zero targets.

2023

### Market Specific

Addressing specific market challenges



#### Philippines Joint Industry Programme

A public-private collaboration initiative set up to accelerate offshore wind development in Philippines by conducting impactful research that resolves barriers to offshore wind

2021



#### National Offshore Wind R&D Consortium (NOWRDC)

Prioritize, support, and promote research and development activities that reduce cost and risk of offshore wind development projects throughout the U.S.

2018



#### State of Maine: Offshore Wind Research Consortium

Aims to create a common understanding of the local and regional impacts (negative and positive) of floating offshore wind in the Gulf of Maine

2023







# Xodus: Maritime Expertise

- Xodus provides several services focused on the maritime space, including:
  - GIS mapping of spatial trends in vessel movements
  - Cable routing studies and Cable Burial Risk Assessments (CBRAs)
  - Oil Spill Response Plans (OSRPs) and dispersion modelling
  - ID and assessment of other ocean users across regions
- GIS mapping and cable routing/CBRA studies are particular strengths, and we have a number of skilled experts on our teams.
- Relevant case studies include:
  - Co-author of the CBRA Methodology Guidance published by Carbon Trust
  - Multiple GIS-based site assessment scopes for US offshore wind developers
  - Multiple cable routing and CBRA scopes for US offshore wind developers

# WSP USA, INC

- Engineering and professional services firm with more than 16,000 employees in the United States
- Providing services to public and private sector clients in the offshore wind industry for 20+ years
- Over 75 offshore wind projects with the potential to generate over 35 gigawatts of capacity.
- Specific areas of expertise include:



**Maritime**



**Transportation**



**Advisory**



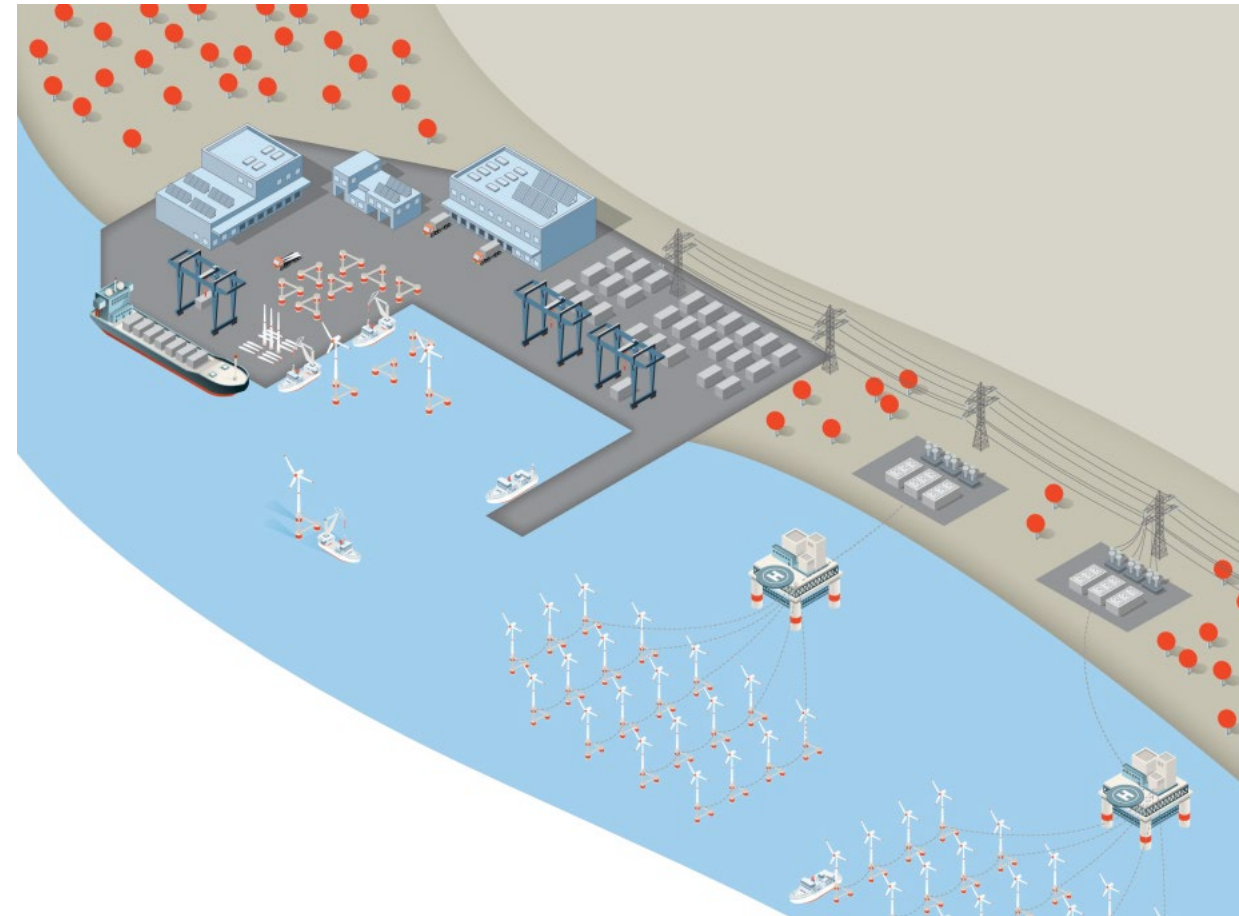
**Energy**



**Regulatory**



**Visualization and Data Intelligence**



# Steve Famularo, PE, D.PE

## WSP East Coast Lead, Maritime Division



- M-TWG Technical Lead Project Manager
- Professional engineer, certified commercial diver, and board-certified Port Engineer (BC.PE)
- Over 27 years of experience
- Maritime engineering expert including underwater inspection, marine structure rehabilitation, service life evaluation, asset management system design, coastal engineering, climate resiliency planning and structural/geotechnical design of piers, wharves, bulkheads, and floating structures.
- Experience with all phases of the project development cycle including initial feasibility, site investigation, concept design, contract documents, and construction support services.
- Federal, State, and local agency projects, as well as work with private developers and operators across the United States.



# Katie Axt

## Assistant Vice President, Advisory

- M-TWG Technical Lead Deputy Project Manager
- Over 16 years of public experience in waterfront planning, policy, and infrastructure design.
- Expertise in coastal resource management, climate resilience, environmental permitting, natural resource management, and maritime transportation.
- Prior to joining WSP, worked for NYCEDC in the Ports & Transportation department and for NYSDEC as the State's Dredge Team Leader.



# Research Agenda Overview




- Developed in October 2021 and updated in 2023.
- **Research Agenda Goals:**
  - Compile research topics and questions useful for shared learning.
  - Enhance decision making on OSW development practices, port infrastructure upgrades, and navigation safety.
  - Identify gaps in our collective understanding regarding potential impacts to vessel traffic and navigation.
- **Recent M-TWG Studies:**
  - Anchor Strike Study (March 2022)
  - Anchorage Area Assessment (2022)
  - Assessment of Loss of Propulsion and Steering Data (2023)
- **Purpose of today's discussion:**
  - Review each topic's key questions, existing studies, and opportunities for additional study.
  - Discuss opportunities for potential new research topics.
  - Determine which topics to close out.

# List of Research Agenda Topics

1. Acceptable Level of Risk Determination
2. Set-Back Distance
3. Navigation Emergencies
4. Impacts to Navigation Radar and Radio Communication Systems
5. Submarine Cable Routing
6. Considerations for Cable Burial Depth
7. Anchorage Areas Updates
8. Anchor Strike Liability
9. Vessel Traffic Modeling and Simulations
10. Jones Act-Compliant Vessel Availability
11. Regional Shipyard Capacity
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-  Opportunities for Additional Study
-  Master Plan 2.0 Track 2
-  Recommend Closing Out

# Topic 1: Acceptable Level of Risk Determination

- OSW presents a new risk of allision (fixed structures) and potentially increase the risk of collision (vessels) due to installation of fixed infrastructure and new vessel traffic.

## Key Questions

1. What are acceptable levels of increased risk on a project-specific and cumulative basis? Is a numerical standard needed?
2. Who is responsible and what is the process for estimating and evaluating cumulative change in risk due to multiple OSW installations?
3. What methodology is used to calculate risk?
4. How will acceptable levels of risk be communicated (e.g., regulatory review, guidance documents)?



# Topic 1: Acceptable Level of Risk Determination

## Existing Studies:

- U.S. Department of the Interior Bureau of Ocean Energy Management (BOEM) developer regulatory requirements
- "Guidance on the Coast Guard's roles and responsibilities for offshore renewable energy installations (OREI)", NVIC 01-19, U.S Department of Homeland Security, 2019
- USCG PARS presentation of final Port Access Route Studies (PARS) reports and next steps, MTWG meeting March 23, 2022

## Opportunities for Additional Study

- Study of numerical standards and criteria for evaluating risk used in the approval process of existing OSW installations around the world.
- Interview the USCG for clarity on the criteria they use when reviewing an OSW project.
- Additional discussion with shippers, OSW developers on acceptable level of risk

# Topic 2: Set-Back Distance

- Minimum clear distance between a vessel traffic lane and the nearest physical structure.
- Greater set-back distance offers additional safety buffer, but decreases the available area to install turbines, reducing potential electricity generation and wind energy area value.

## Key Questions

1. What is an appropriate set-back distance from the edge of the navigation fairway to the closest fixed infrastructure?
2. How should project or location-specific factors inform set-back distances?
3. When recommended set-back distances cannot be met, what best practices/mitigation measures can be implemented to address the increased risk?

# Topic 2: Set-Back Distance

## Existing Studies:

- Literature review section of COWI's 2020 Maritime Technical Working Group Support
- USCG Port Access Route Studies (PARS)
- NYSERDA 2017 Shipping and Navigation Study
- BOEM final executed lease agreements (case-by-case), various 2009 to 2023

## Opportunities for Additional Study

- Compile database of set-back distances and channel dimensions at approved/operational windfarms.
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## Opportunities for Additional Study

- [●]
- Recommend closing out.

# Topic 10: Jones Act-Compliant Vessel Availability

- Jones Act requires that the transportation of cargo and personnel from one U.S. port to another U.S. port must be completed by a vessel that is built, owned, and operated by U.S. citizens or permanent residents.
- Currently no operating Jones Act-compliant OSW installation vessels and only a limited number of such vessels planned.

## Key Questions

1. What is availability of Jones Act-compliant OSW vessels?
2. How do developers determine if vessels are available?
3. What does it take to build a Jones Act-compliant vessel?
4. Will the Garamendi Bill affect the OSW industry?

# Topic 10: Jones Act-Compliant Vessel Availability

## Existing Studies:

- [DNV U.S. Offshore Wind Vessels Webinar](#)
- [Business Network for Offshore Wind: Trends in Vessel Design and Offshore Wind Maritime Supply](#)
- NYSERDA [U.S. Jones Act-Compliant Offshore Wind Turbine Installation Vessel Study](#), (GustoMSC, 2017)
- NYSERDA sponsored a presentation titled [Vessels for Offshore Wind](#), (DNV, 2022)

## Opportunities for Additional Study

- Create a regularly updated database of Jones Act-compliant vessels capable of supporting the OSW industry.
- Evaluate past reports to determine if the New York region is on track or is more work needed?
- Evaluate the new types of vessels that floating technology will require.
- What steps and investments are needed to build capacity and meet industry demand?
- Assess emerging trends in the use of automated/un-manned technologies during OSW construction.
- Note: Master Plan 2.0 Track 2 studies may focus on Jones Act vessels. Opportunity for M-TWG collaboration.

# Topic 11: Regional Shipyard Capacity

- Vessels supporting O&M activities for OSW facilities will be transiting from marine terminals to OSW areas.
- Construction and operations vessels will require regular maintenance and repair.
- New York's existing shipyard capacity may not be sufficient to service new vessels locally.
- Understand the types and quantities of vessels that will be added to New York waters and determining if there is capacity to support these vessels in all phases of operation.

## Key Questions

1. What vessel maintenance and repair support services will be necessary for the addition of OSW construction and support vessels?
2. What is the timeline for these vessels entering service?
3. What is the timeline for upgrade or construction of shipyard facilities?

# Topic 11: Regional Shipyard Capacity

## Existing Studies:

- The Port Authority of New York and New Jersey Port Master Plan 2050.

## Opportunities for Additional Study

- Create a statewide master plan for all public and private marine terminals and waterways.
- Compile a list of active shipyards in New York and the northeast region slated to support OSW.
- Case studies of mobile shipyard facilities.
- Note: Master Plan 2.0 Track 2 studies may focus on shipyard capacity as part of its port planning studies. Opportunity for M-TWG collaboration.

# Topic 12: Construction and Operational Safety Zones

- BOEM guidance states that developers are expected to recommend construction safety zones.
- European projects adopt a 50m safety zone during construction. During operations, European projects vary by country in their requirement for safety zones.

## Key Questions

1. What are appropriate and/or planned durations and dimensions for Construction and Operational Safety Zones?

# Topic 12: Construction and Operational Safety Zones

## Existing Studies:

- BOEM Supporting National Environmental Policy Act Documentation for Offshore Wind Energy Development Related to Navigation, 2019.

## Opportunities for Additional Study

- Research occurrences of vessel allisions in existing OSW farms in both construction and operational phases to determine if they are more likely to occur in countries that do not require specific safety zones.
- Opportunity to combine with research topics on construction best management practices.

# Topic 13: Seabed Infrastructure Security

- OSW installations are expensive infrastructure that will be valuable to the New York State and U.S. economies.
- Seabed infrastructure is vulnerable to sabotage and physical and/or cyber-attacks.

## Key Questions

1. Who will be responsible for cable and seabed infrastructure security and what requirements may be imposed on mariners and on OSW farm operators?
2. Will potential security measures result in any additional operational procedures or limitations for mariners and/or wind farm operators?



# Topic 13: Seabed Infrastructure Security

## Existing Studies:

- [USCG Guidelines for Addressing Cyber Risks at Maritime Transportation Security Act \(MTSA\) Regulated Facilities.](#)

## Opportunities for Additional Study

- Research occurrences of intentional incidents or sabotage at existing overseas OSW installations.
- Opportunity to combine topic into larger discussion of emergency management and liability.

# Summary

## Opportunities for Additional Study:

- Topic 1: Acceptable Level of Risk Determination
- Topic 2: Set-Back Distance
- Topic 4: Impacts to Navigation Radar and Radio Communication Systems
- Topic 5: Submarine Cable Routing
- Topic 6: Cable Burial Depth
- Topic 8: Liability and Emergency Management Planning
- Topic 12: Construction and Operational Safety Zones
- Topic 13: Seabed Infrastructure Security

## Opportunities for Collaboration with Master Plan 2.0 Track 2 Studies:

- Topic 10: Jones Act-Compliant Vessel Availability
- Topic 11: Regional Shipyard Capacity

# Summary

## Recommend Closing Out:

- Topic 3: Navigation Emergencies
- Topic 7: Anchorage Areas Updates
- Topic 9: Vessel Traffic Modeling and Simulations

# Next Steps

- Initial feedback
- Complete post-meeting survey
- In-depth discussions at next M-TWG meeting

# Next Steps



**NYSERDA**

**Thank you!**

