



NYSERDA

New York State Offshore Wind Master Plan

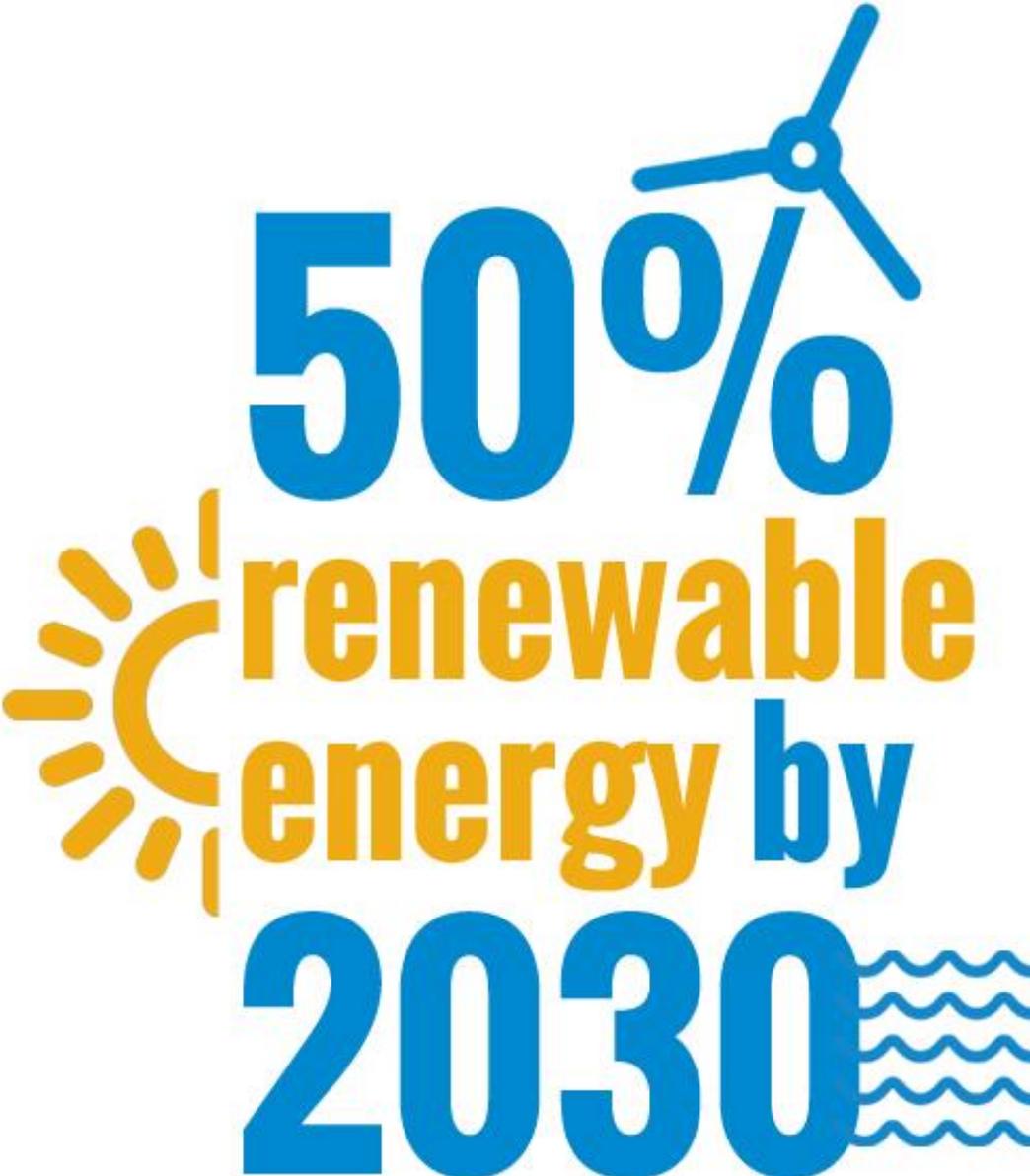
Public Webinar

February 13, 2018



New York Clean Energy Standard

50%
renewable
energy by
2030



New York State will commit to building:

**up to 2,400 megawatts of offshore
wind power by 2030, which will
generate enough power for up to
1.2 million homes.**

Offshore Wind Master Plan

A comprehensive state roadmap for advancing development of offshore wind in a cost-effective and responsible manner

Key Elements

- Identifies the most favorable areas for potential offshore wind energy development
- Describes the economic and environmental benefits of offshore wind energy development
- Addresses mechanisms to procure offshore wind energy at the lowest ratepayer cost
- Analyzes costs and cost-reduction pathways
- Recommends measures to mitigate potential impacts of offshore wind energy development
- Identifies infrastructure requirements and assesses existing facilities
- Identifies workforce opportunities



NEW YORK STATE OFFSHORE WIND MASTER PLAN

**Charting a Course to 2,400 Megawatts
of Offshore Wind Energy**

Studies and Surveys...into Action



20 Master Plan Studies and Surveys

Study name

Analysis of Multibeam Echo Sounder and Benthic Survey Data

Assessment of Ports and Infrastructure

Aviation and Radar Assets Study

Birds and Bats Study

Cable Landfall Permitting Study

Cables, Pipelines, and Other Infrastructure

Consideration of Potential Cumulative Effects

Cultural Resources Study

Environmental Sensitivity Analysis

Fish and Fisheries Study

Health and Safety Study

Study name (cont'd)

Marine Mammals and Sea Turtles Study

Marine Recreational Uses Study

Offshore Wind Injection Assessment

Preliminary Offshore Wind Resource Assessment

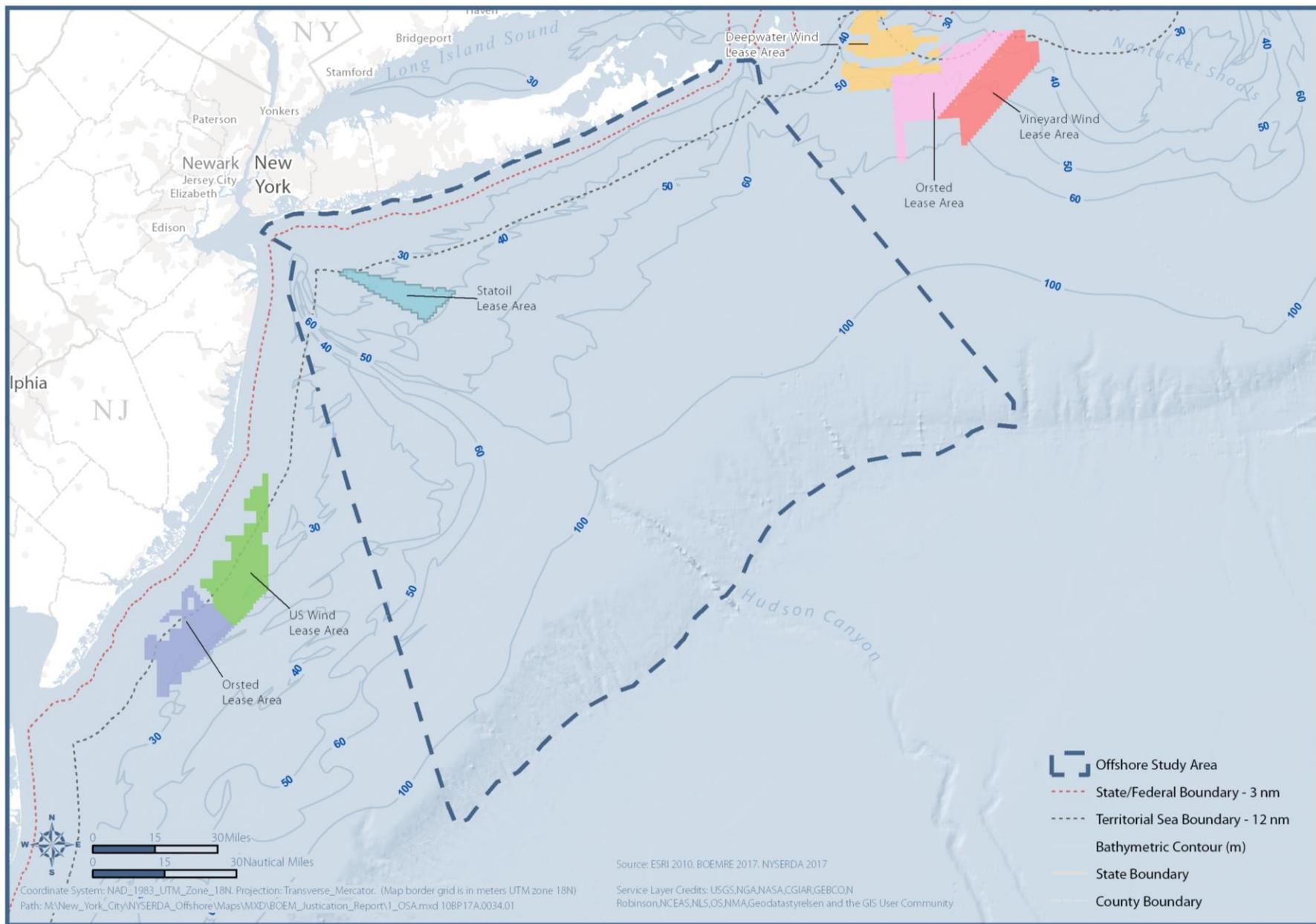
Sand and Gravel Resources Study

Shipping and Navigation Study

U.S. Jones Act Compliance Offshore Wind Turbine Installation Vessel Study

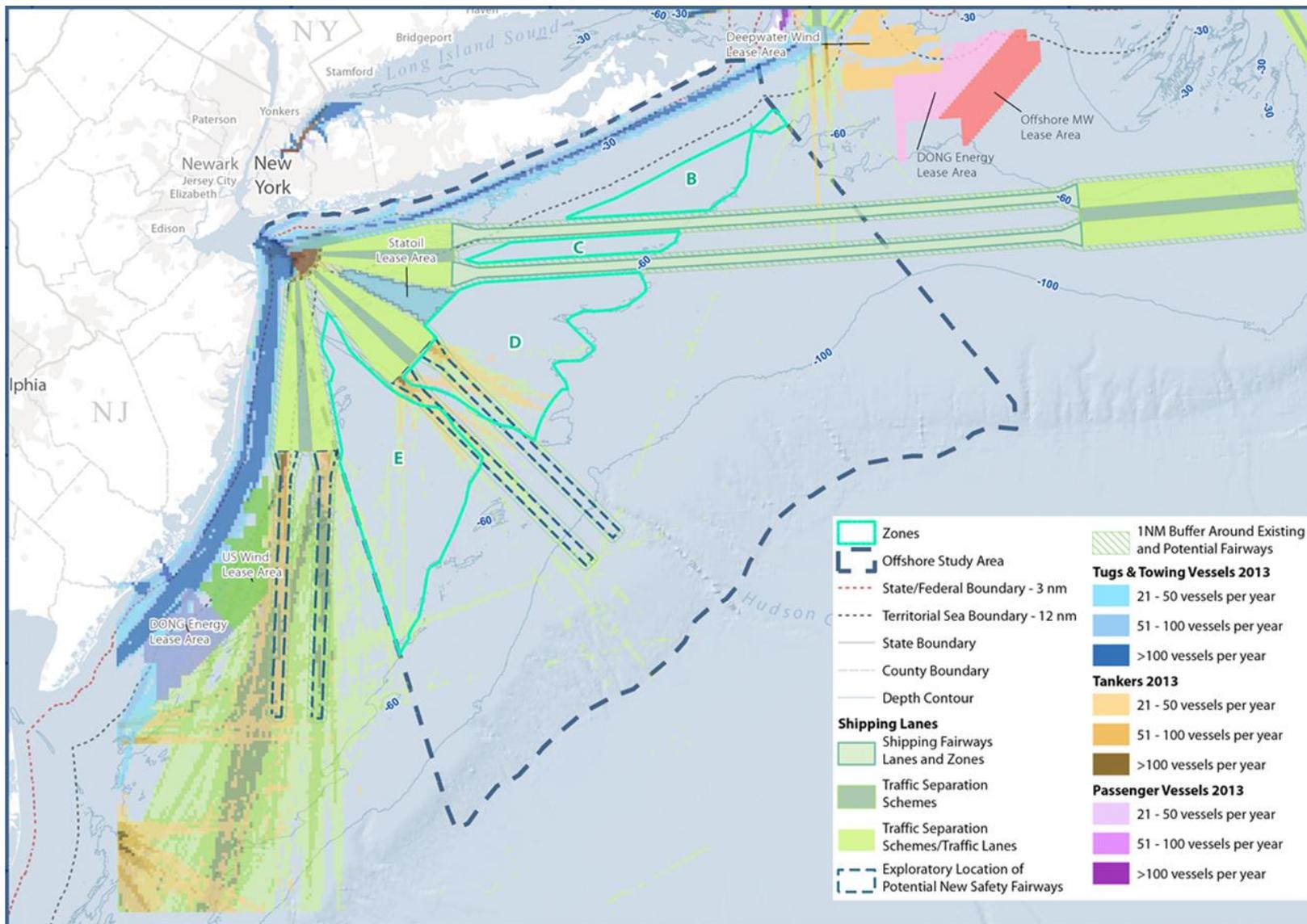
Visibility Threshold Study

The Workforce Opportunity of Offshore Wind in New York

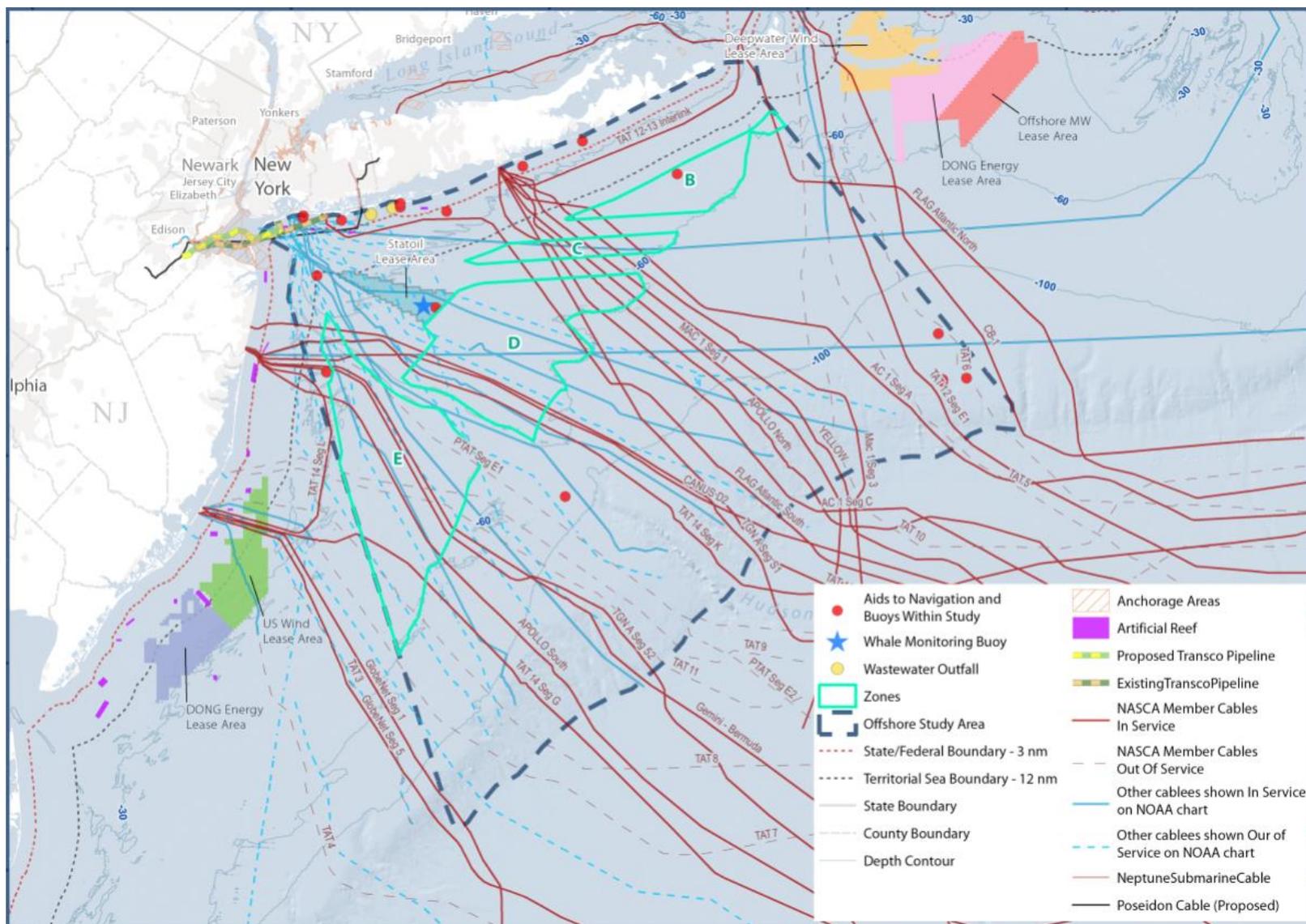


Master Plan Study Area

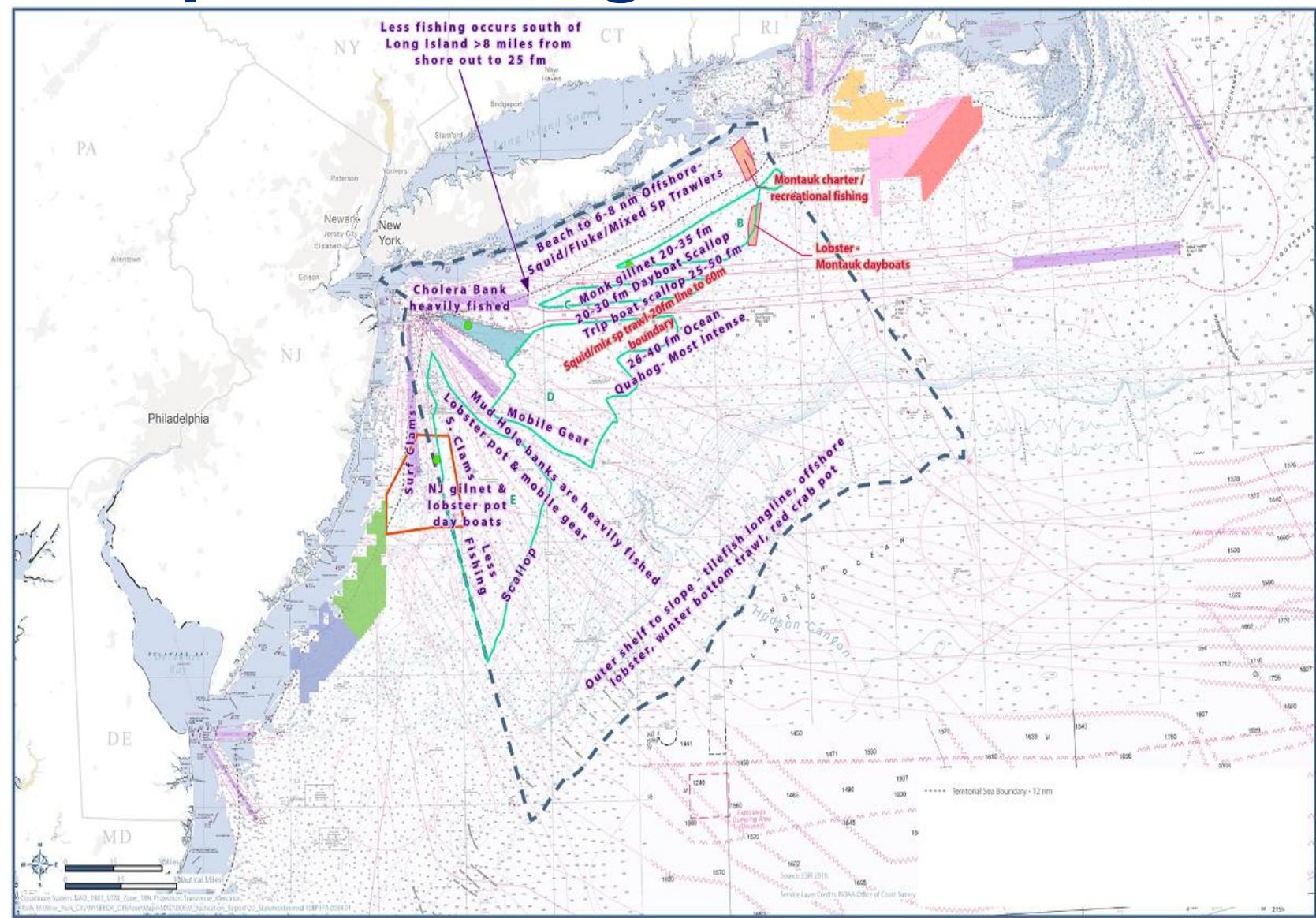
Study Examples: Shipping and Navigation



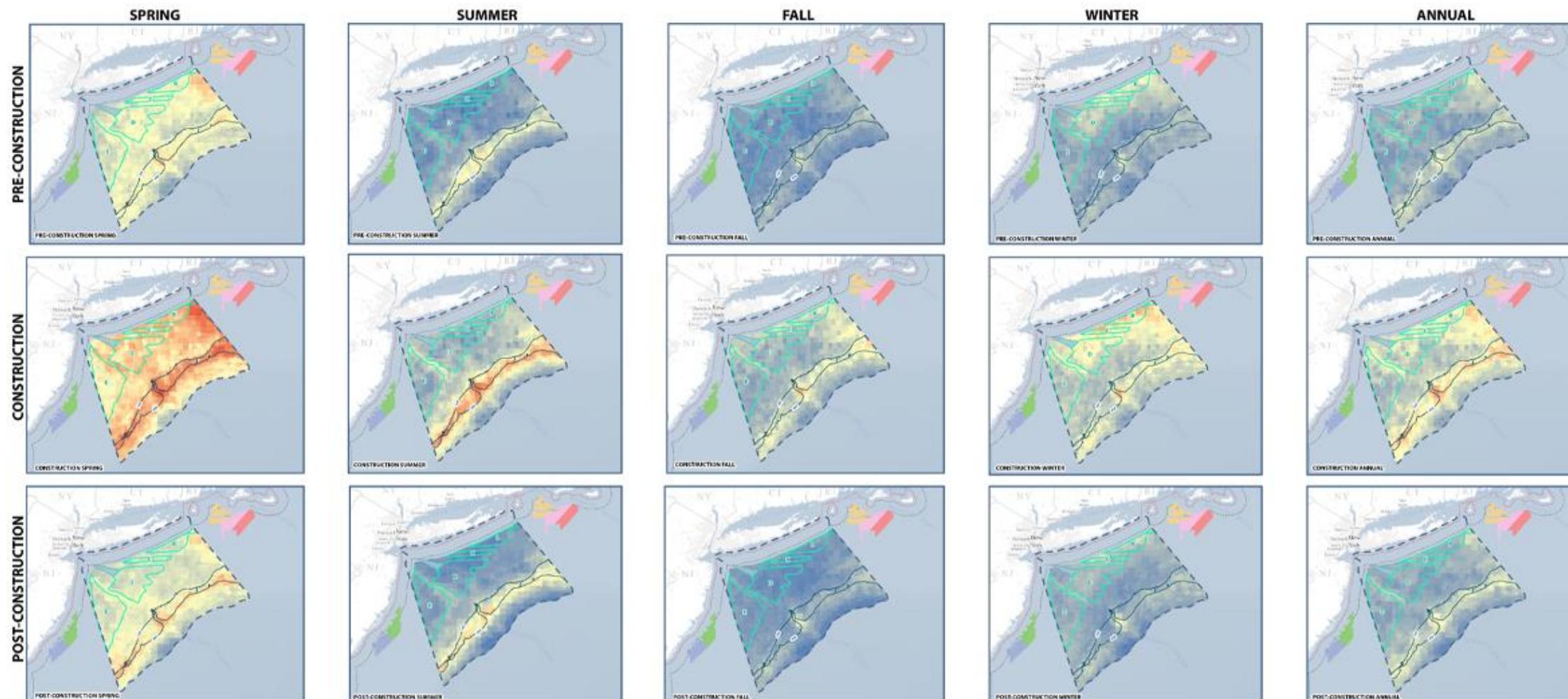
Study Examples: Cables and Pipelines



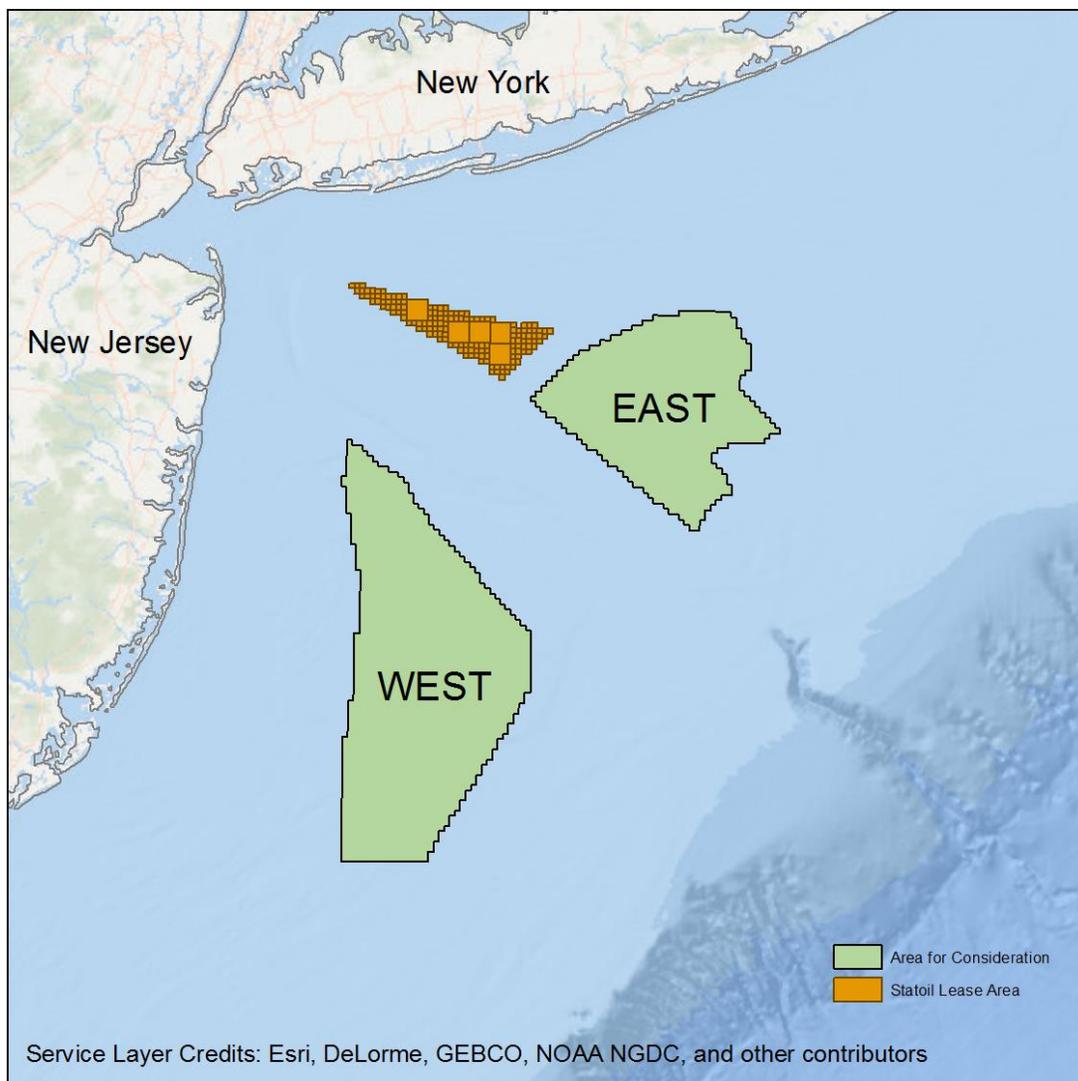
Study Examples: Fishing Outreach



Study Examples: Environmental Sensitivity



Area for Consideration



October 2017

New York State identified an Area for Consideration and requested that the federal Bureau of Ocean Energy Management identify and lease at least four new Wind Energy Areas within the area, each capable of supporting at least 800 MW of offshore wind.

Offshore Wind Supply Chain

Manufacturing



- Blades are the world's largest fiberglass component cast in one piece.
- Scale of blades, nacelles, towers and foundations requires manufacturing at portside facilities.

Staging



- Components are held at a staging area for loading onto the installation vessel.
- To manage installation costs, staging area should be located close to wind energy areas.

Installation



- Various types of installation vessels are used, including jack-up, support and cable lay vessels.
- Towers are typically transported vertically, creating air draft constraints.

Operation & Maintenance

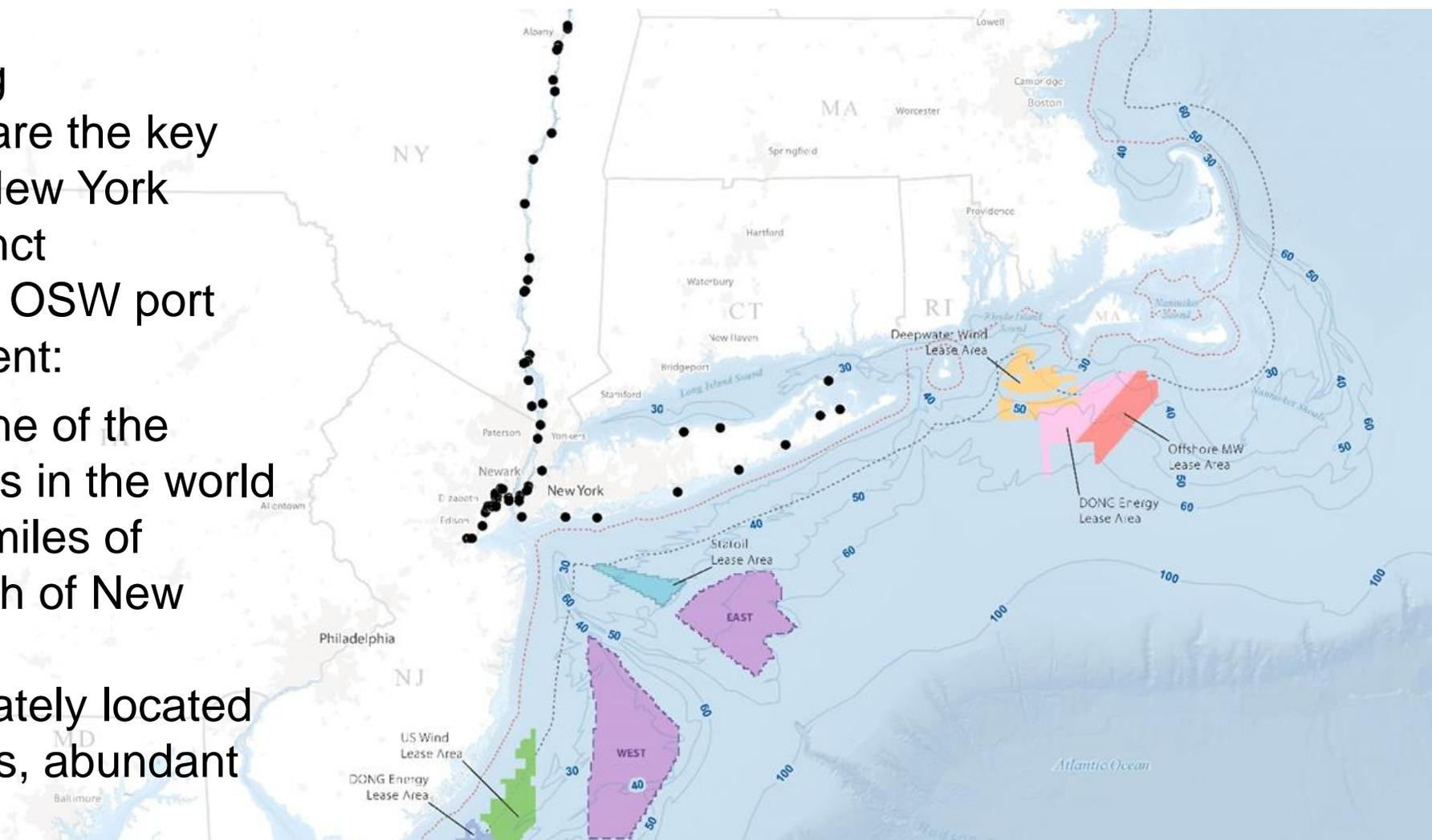


- Ports must be located close to wind energy areas to react quickly to system failures.
- Vessels visit the site daily to perform scheduled and unscheduled maintenance.
- Oversight includes turbine components as well as all electrical components.

Study Examples: New York Ports Assessment

Ports and the supporting manufacturing facilities are the key drivers of job creation. New York benefits from three distinct geographies suitable for OSW port infrastructure development:

1. New York Harbor – one of the largest natural harbors in the world
2. Hudson River – 125 miles of navigable waters north of New York Harbor
3. Long Island – proximately located to potential OSW sites, abundant coastline



Study Examples: Workforce Opportunity

Scenario		Project management and development workers	O&M workers	Installation and commission workers	Manufacturing workers
High Market	High local content	350	1,830	470	2,250
	Base local content	330	1,820	200	90
Low Market	High local content	340	1,790	420	1,310
	Base local content	330	1,780	250	50

The workforce impact in New York is dependent on two primary factors:

- Market size: New York workers will benefit not only from New York's offshore wind market, but also from the deployment in other states. Two scenarios were analyzed, a **high market** scenario where 8 GW is deployed regionally by 2030, and a **low market** scenario where 4 GW is deployed by 2030 , both scenarios include the achievement of New York's 2.4 GW commitment.
- Local content: The use of New York ports and manufacturing facilities is critical in bringing offshore wind jobs to New York; attainment of these facilities will depend on market support from New York State and State's engagement with the private sector. Both a **high local content** and **low local content** sensitivity were considered.

Fostering offshore wind by investing

\$15 Million

**in Workforce Development and
Infrastructure Advancement**



Issue solicitations in 2018 and 2019 to develop

at least

800 MW

of offshore wind projects

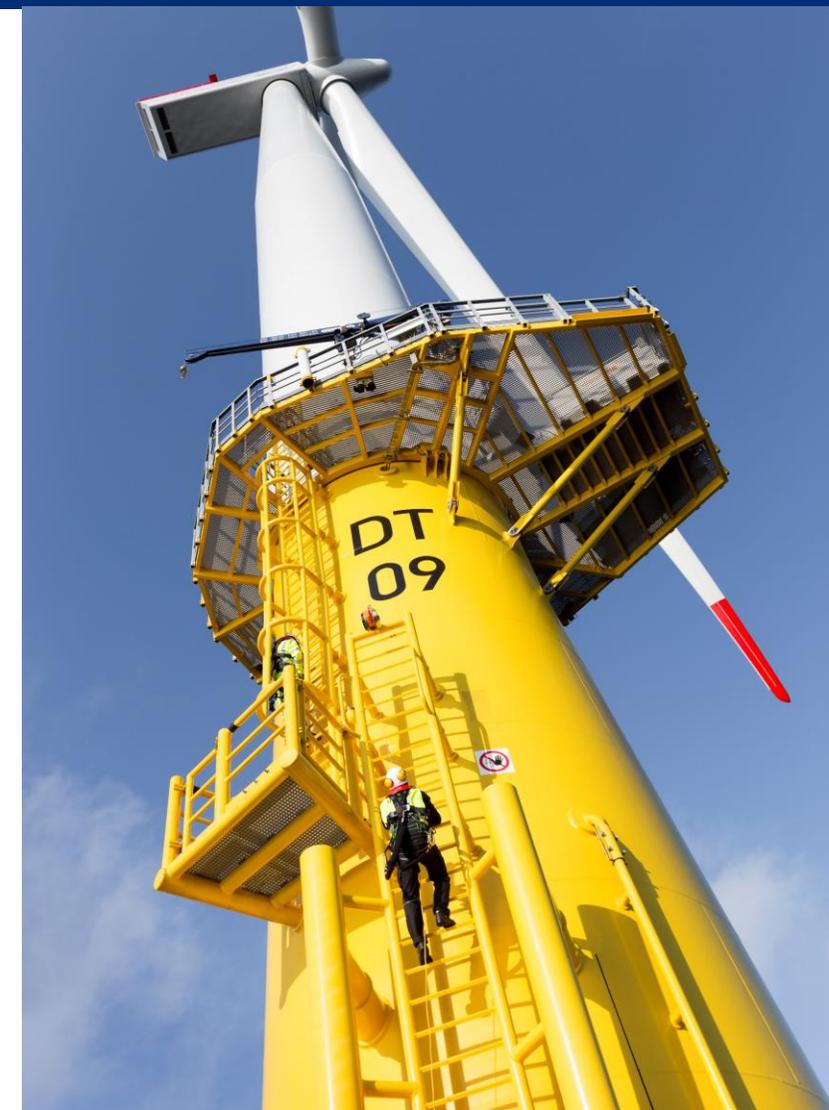


NEW YORK
STATE OF
OPPORTUNITY

NYSERDA

Offshore Wind Policy Options Paper

- NYSERDA filed an Offshore Wind Policy Options Paper on January 29, 2018
 - Public Service Commission Case 18-E-0071
 - Technical Conference in New York City on March 8, 2018
 - Continued on March 9, 2018 if needed
- The Options Paper provides an assessment of alternatives for addressing a wide range of policy issues pertinent to the successful deployment of a first phase of offshore wind energy
- Components include:
 - Procurement and Contracting
 - Seven Options
 - Schedule and Targets
 - Cost Containment, Co-incentives
 - Funding through Load Serving Entity Obligations
 - Transmission and Interconnection
 - Cost and Benefits Analysis



Ongoing Activities to Advance Offshore Wind

Continued Public Engagement

- Commercial and Recreational Fishing
- Consumer Advocates
- Elected Officials
- Indigenous Nations
- Labor and Business
- Long Island and New York City Communities
- Non-Governmental Organizations
- Offshore Wind Energy Industry
- State and Federal Agencies
- Submarine Cables and Offshore Infrastructure Owners



Technical Working Groups

Environmental



- Development of Wildlife Best Management Practices.
- Coordination for adaptive management.
- Identification of research needs and coordination.

Commercial and Recreational Fishing



- Development of Fisheries Best Management Practices.
- Identification of research needs and coordination.
- Development of a framework for understanding commercial fishing impacts.

Maritime



- Development of Maritime Best Management Practices.
- Define strategies that could help members engage effectively with OSW development.

Jobs and Supply Chain



- Facilitate the connection of local manufacturers with global OSW developers and equipment manufacturers.
- Ensure certification and training requirements are clear and readily available.

Future Studies and Analysis

Metocean



- Improve characterization of the wind, wave and ocean current environment.
- Useful in refining project layouts and reducing project uncertainty.

Air Quality



- Explore undertaking a detailed assessment of the air quality and health impacts of achieving New York's 2030 goals.
- Refine the understanding of the hourly impacts of offshore wind generation in relation to the demands of the grid.

Wildlife



- Collaboration with appropriate federal and state agencies, universities and scientists to collect baseline data.
- Map seasonal patterns to assist the identification of important habitat areas and predict future areas of high use.

Supply Chain



- Collaborate with industry to study how New York can best support the OSW supply chain.
- Analyze technical challenges to envision a path forward for the broader US industry.

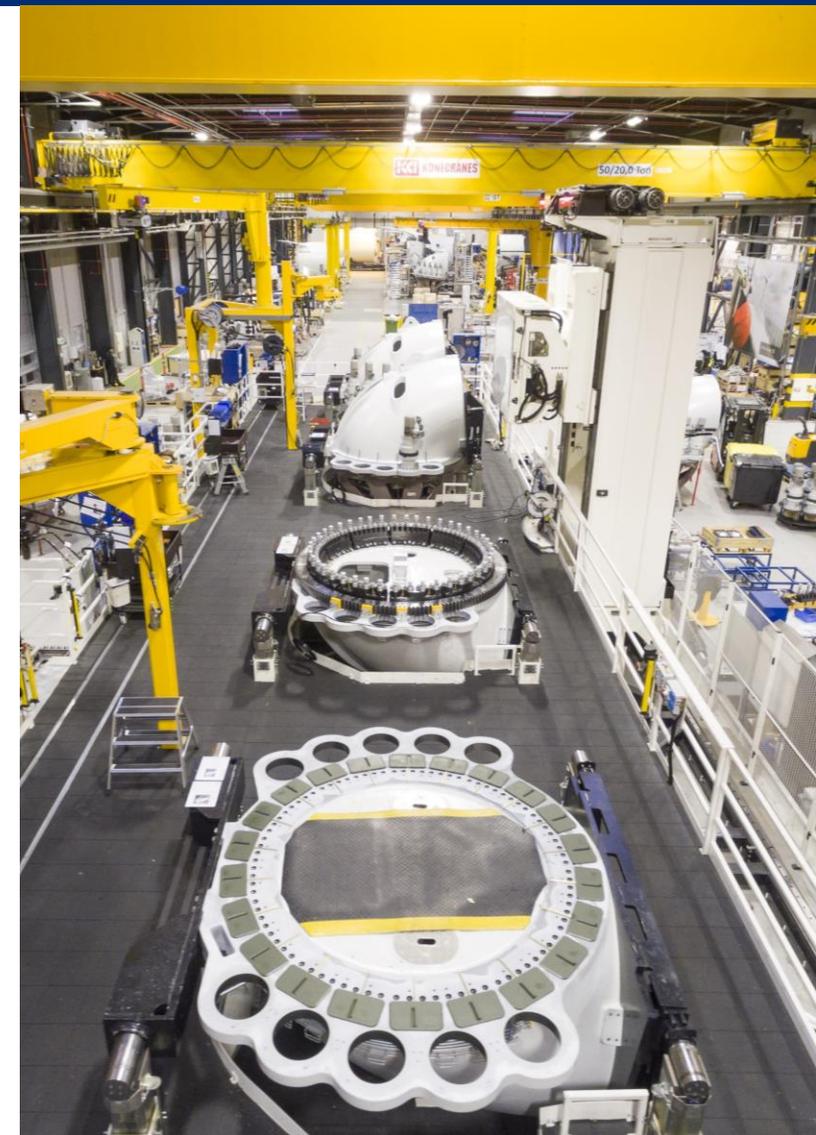
Research and Development



- Component design
- Systems design
- Operational controls
- Monitoring systems
- Manufacturing processes

Summary of Ongoing Activities to Advance Offshore Wind Development

- Public Service Commission Proceeding
- Workforce and Infrastructure Development
- Quarterly Public Updates
- Technical Working Groups
- Future Studies and Analysis
- Research and Development



Questions?

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