New York State Offshore Wind Master Plan

Advanced Energy Conference
March 27, 2018

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.**

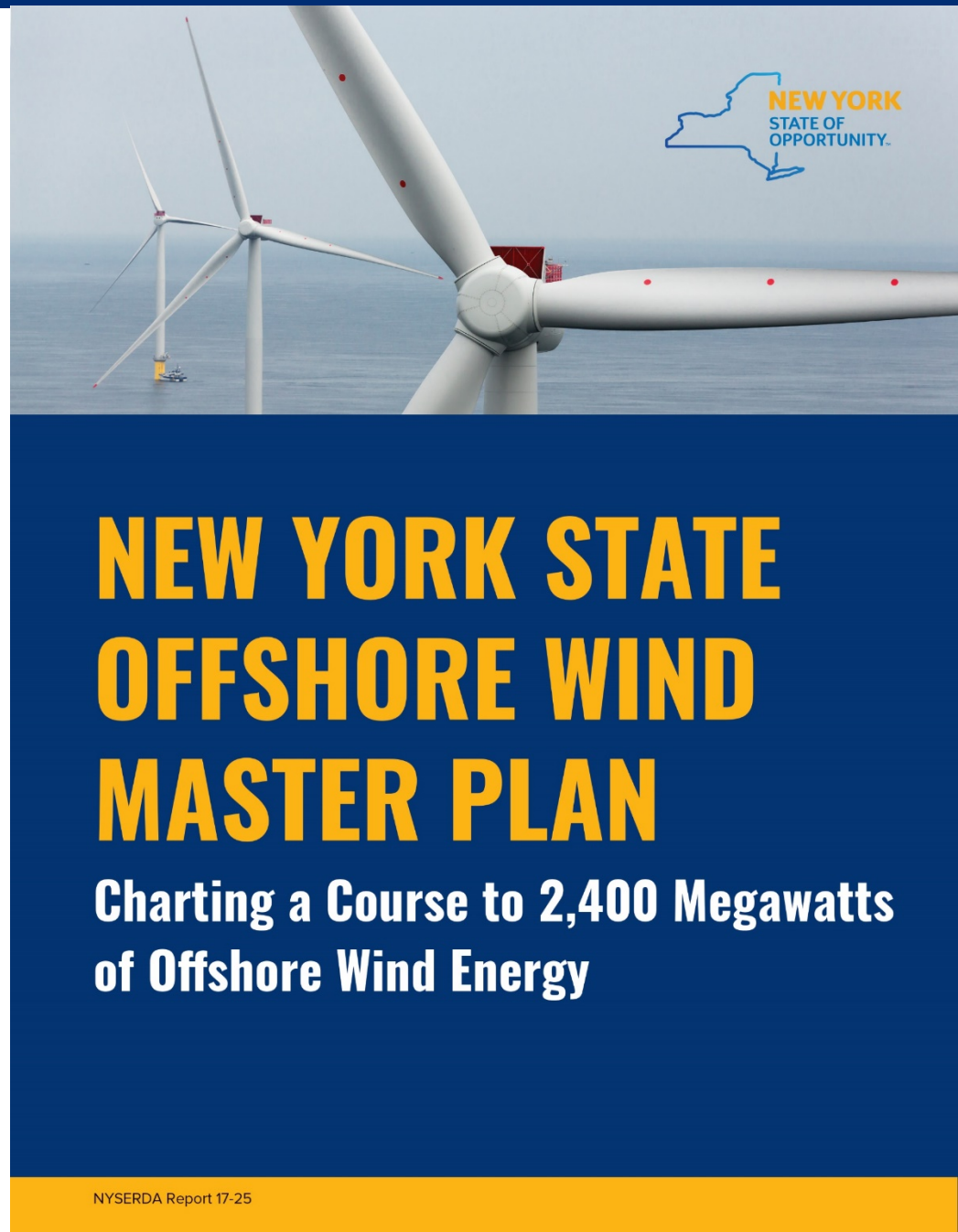
NEW YORK STATE

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



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

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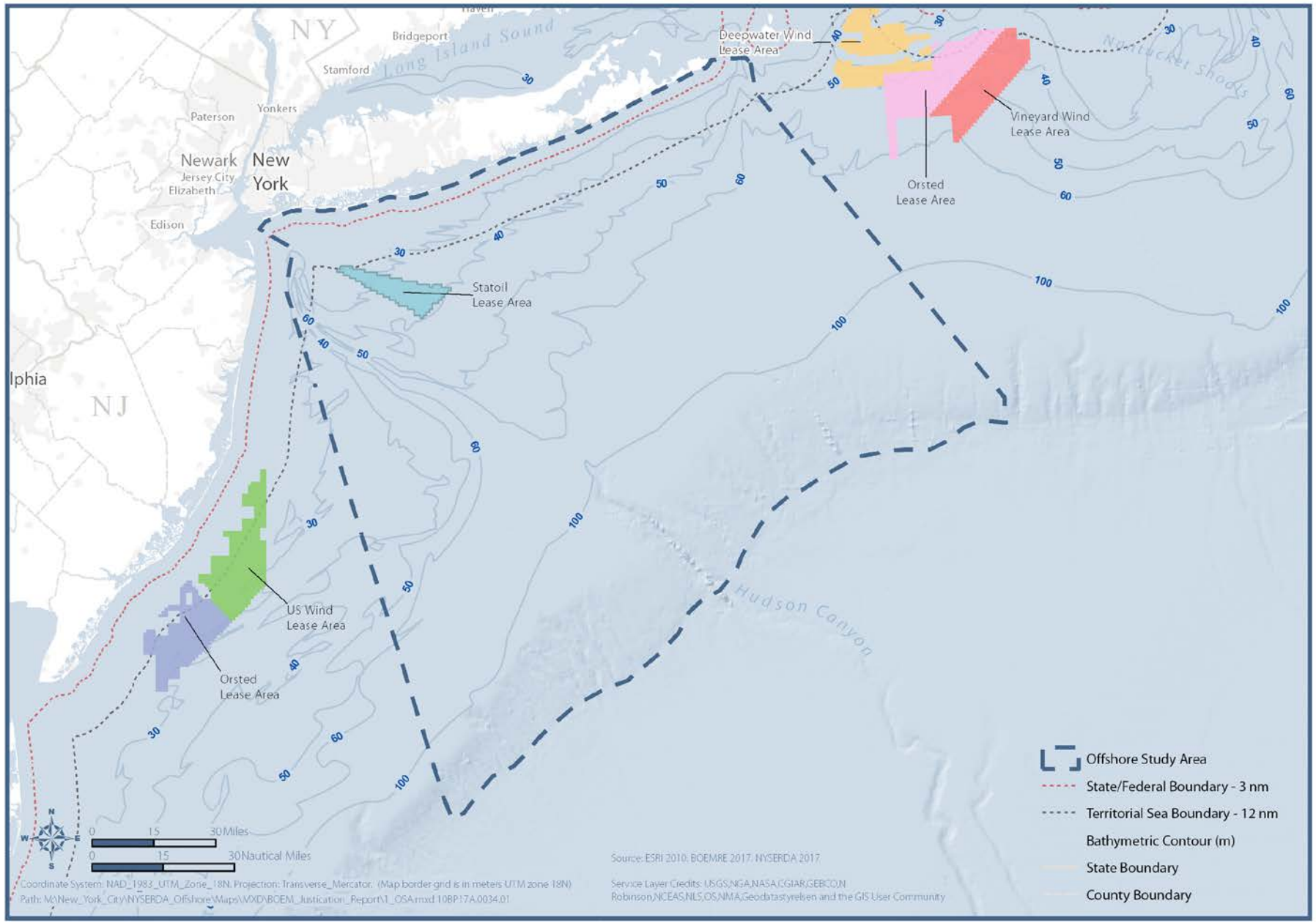

Master Plan Study Area

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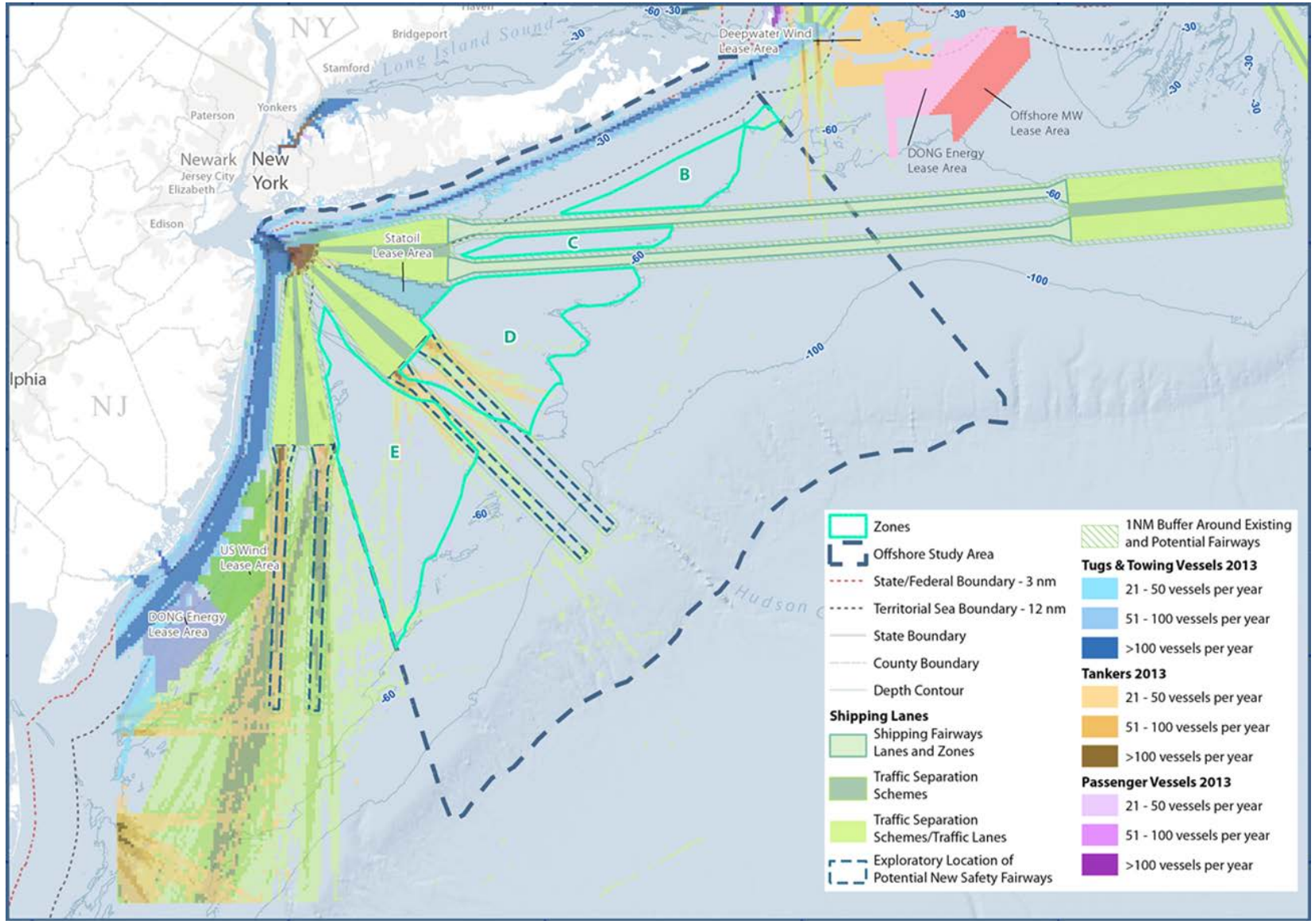

Study Examples: Shipping and Navigation

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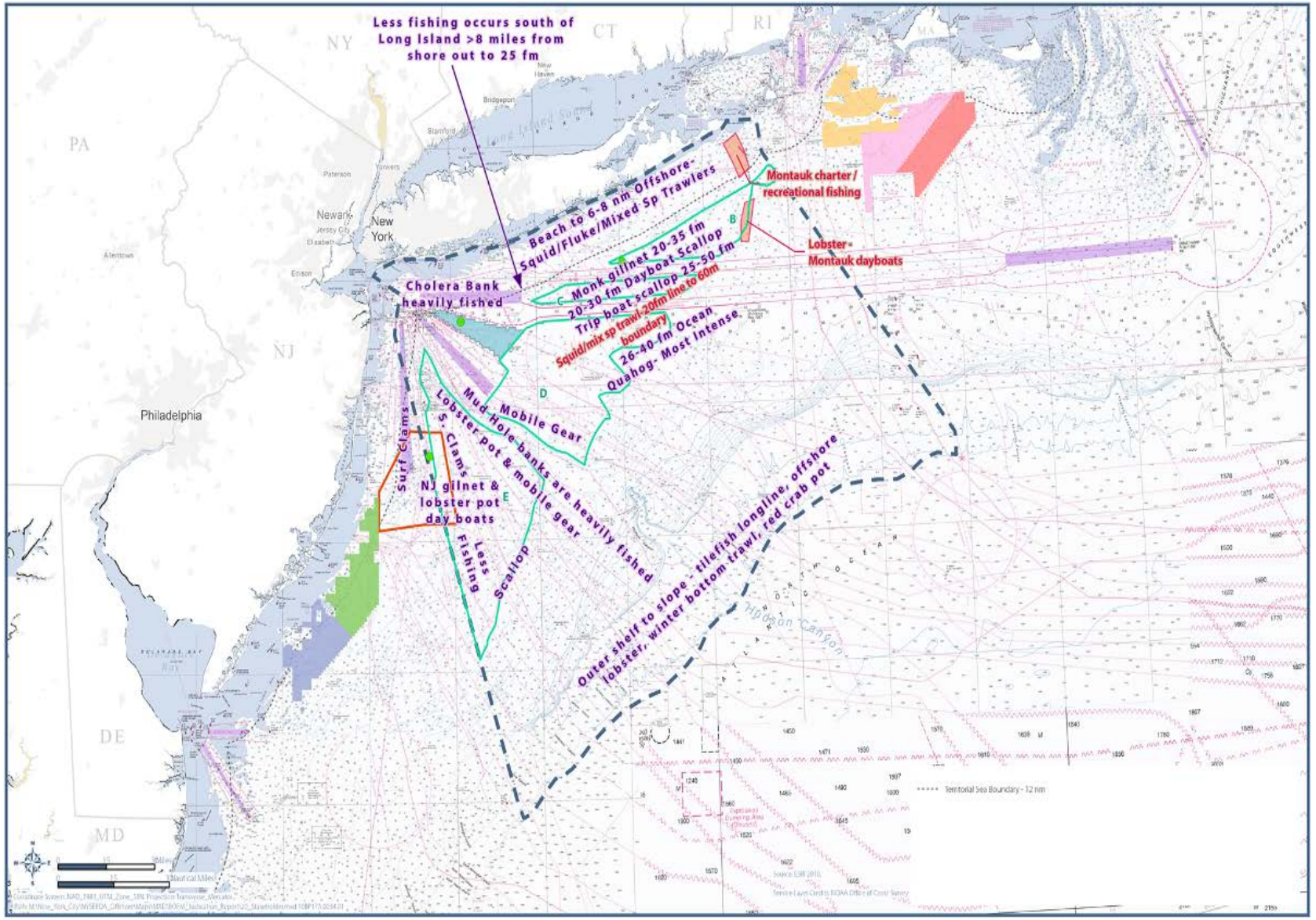

Study Examples: Fishing Outreach

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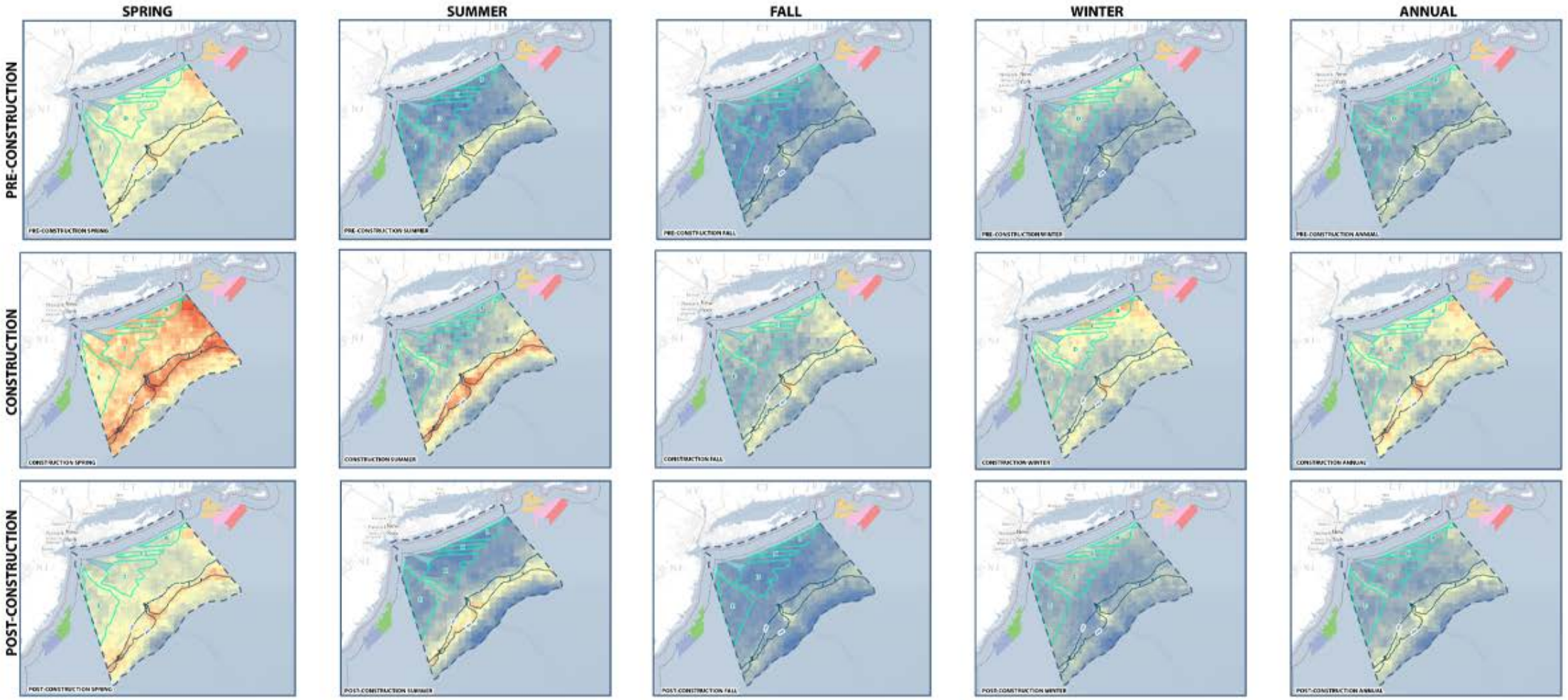
Study Examples: Environmental Sensitivity



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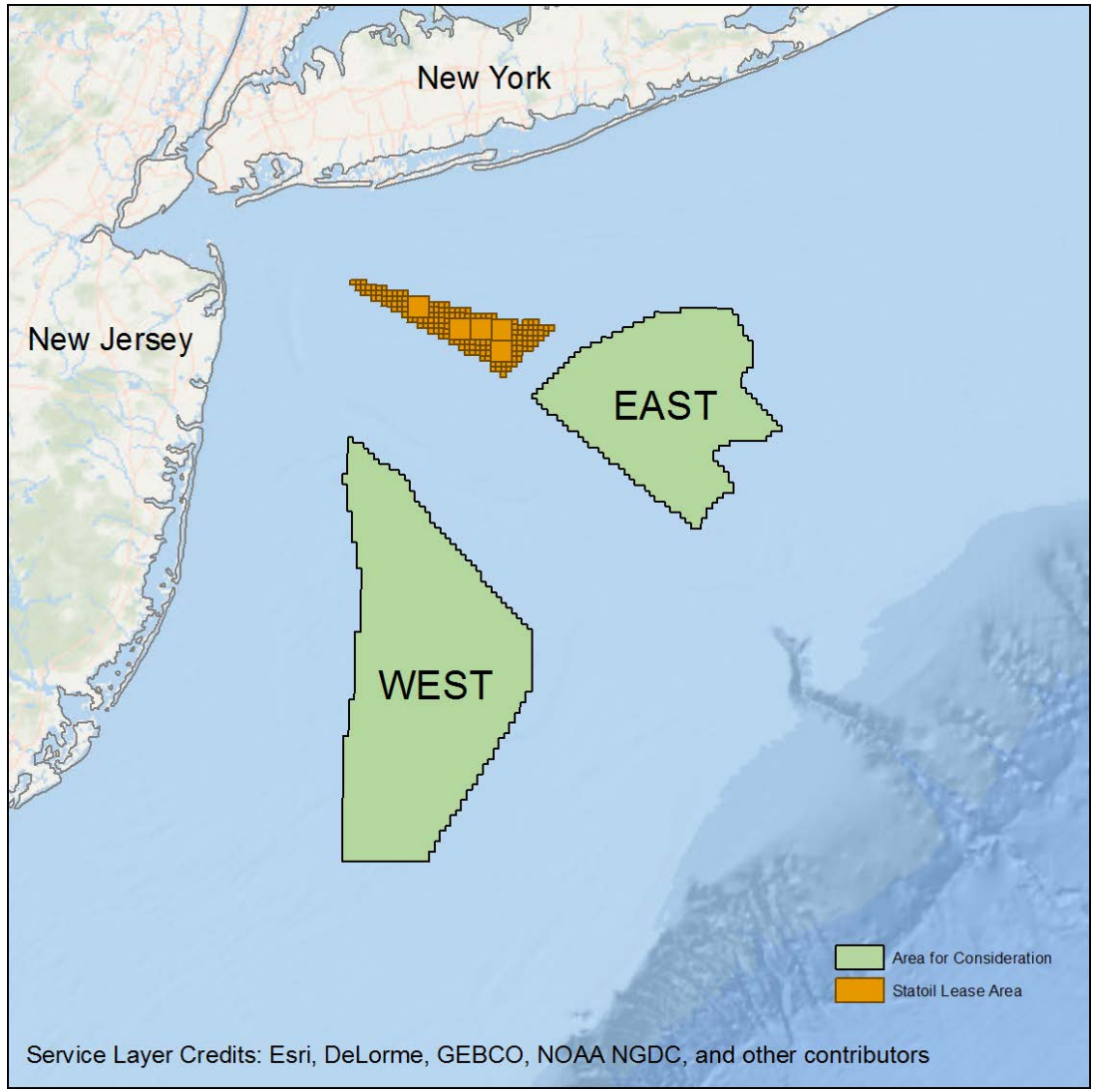
Area for Consideration



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.

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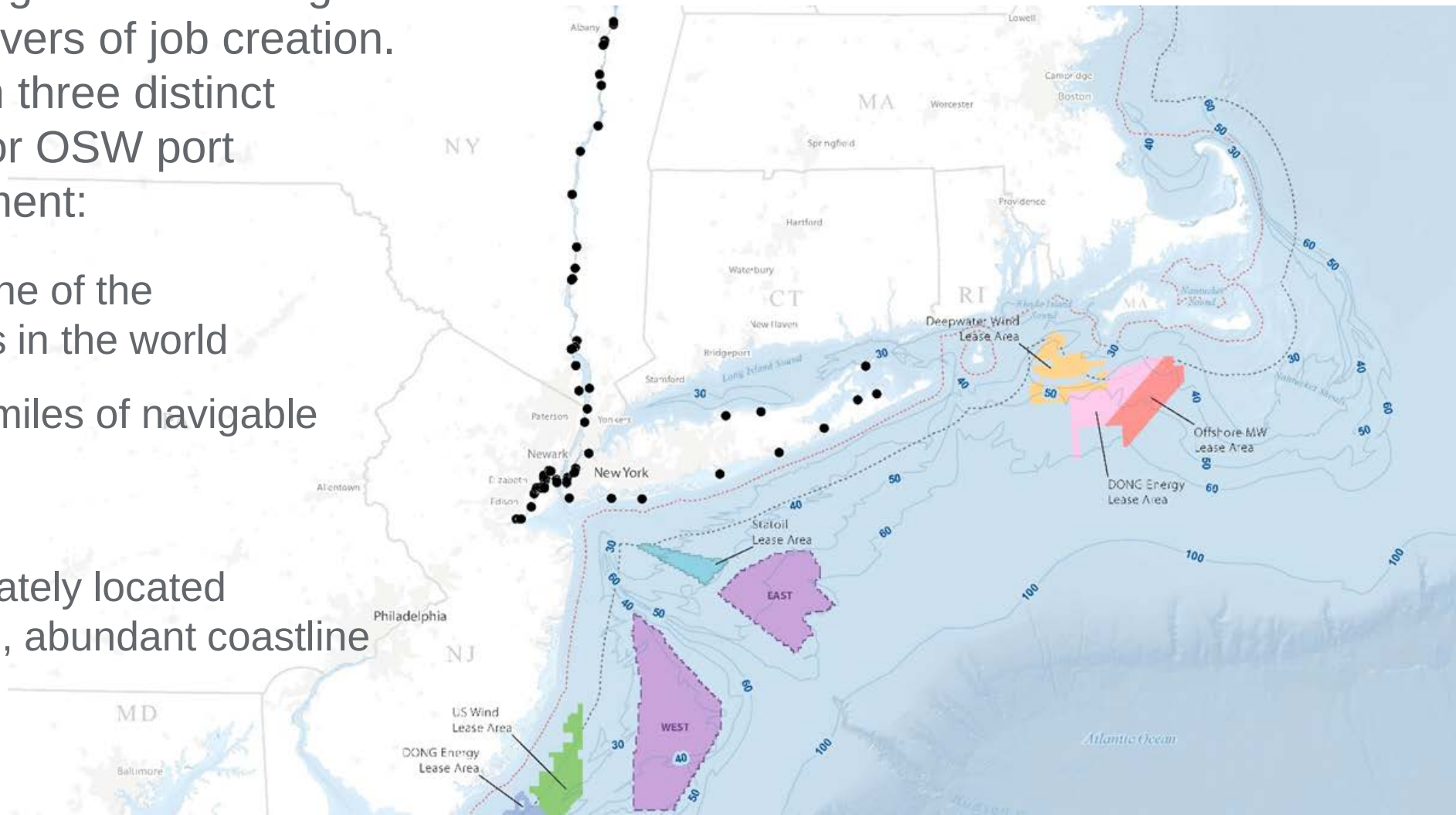
Study Examples: New York Ports Assessment

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.

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Fostering offshore wind by investing
$15 Million
in Workforce Development and
Infrastructure Advancement
NEW YORK STATE


Issue solicitations in 2018 and 2019 to develop
at least
800 MW
of offshore wind projects
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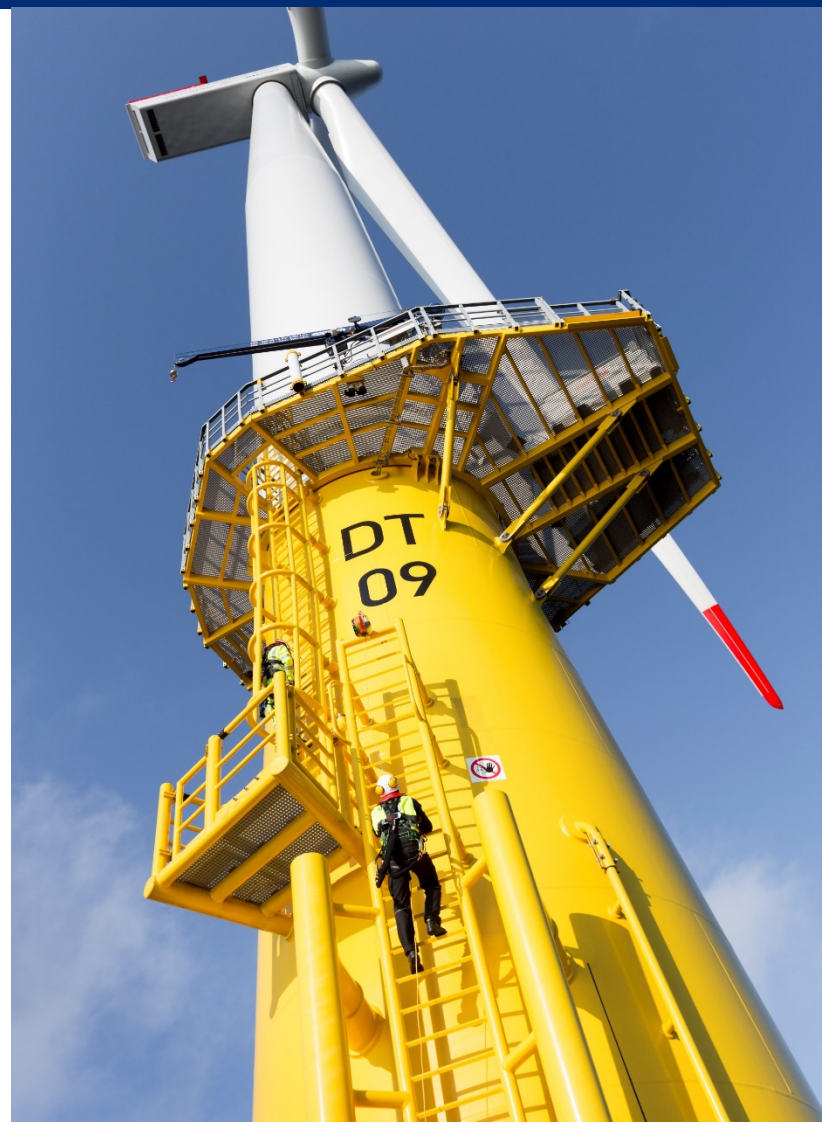
Offshore Wind Policy Options Paper

- 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
- 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



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Ongoing Activities to Advance Offshore Wind

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NYSERDA

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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.

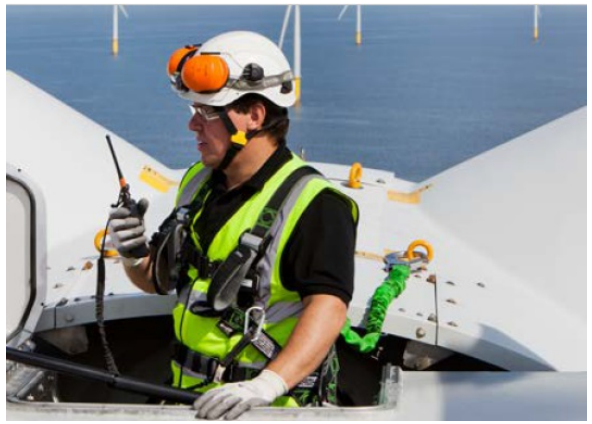
Commercial and Recreational Fishing

- 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.

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Environmental Technical Working Group

Environmental

New York State (NYS)

Provide advice and recommendations to inform decision-making by State

Environmental Technical Working Group (E-TWG)

Offshore Wind Developers	Environmental NGOs	State Agencies	Federal Regulators
advisory members		observers	

Provide taxonomic or other expertise and develop guidance to inform recommendations

Specialist Committee	Specialist Committee	Specialist Committee	...
SMEs, others	SMEs, others	SMEs, others	

Broader stakeholder community

Use 'State of the Science' workshops & other outreach mechanisms to encourage two-way information flow

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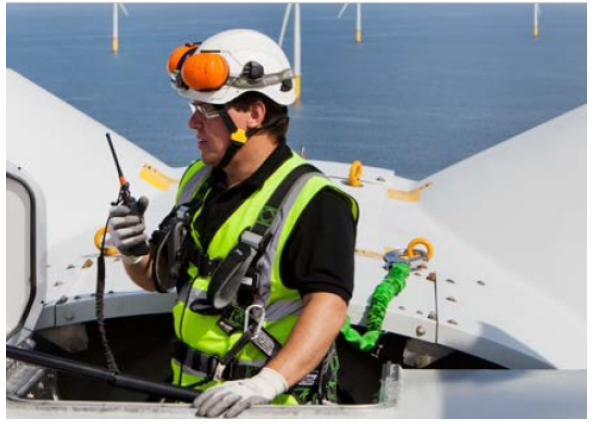
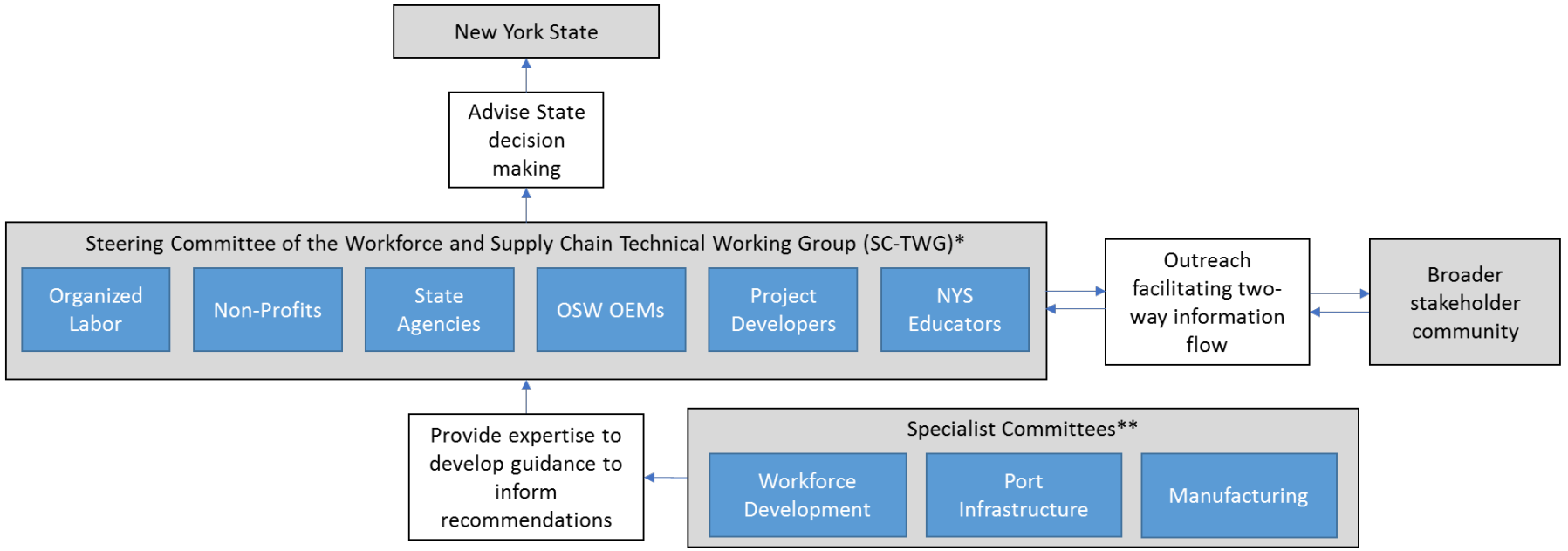
Jobs and Supply Chain Technical Working Group

Jobs and Supply Chain





Organized Labor	Non-Profits	State Agencies	OSW OEMs	Project Developers	NYS Educators
• Building Trades • Manufacturing Trades • Carpenters • NYS AFL CIO • LI Federation of Labor • *Others, per stakeholder and Chamber review*	• Workforce Development Institute • Center for Economic Growth • Worker Institute • *Others, per stakeholder and Chamber review*	• NYSERDA • Empire State Development • Department of Labor • Port Authority of New York and New Jersey • DEPARTMENT OF STATE	*Large-component manufacturers*	*Knowledgeable representatives from companies holding offshore wind leases in the region*	• SUNY Maritime • Merchant Marine Academy • *Other representatives from SUNY/CUNY systems*

*Steering Committee is ideal structure, though alternative models could be considered depending on ability to consolidate representation of stakeholder groups.
**Specialist Committees will be co-chaired by State Agencies.

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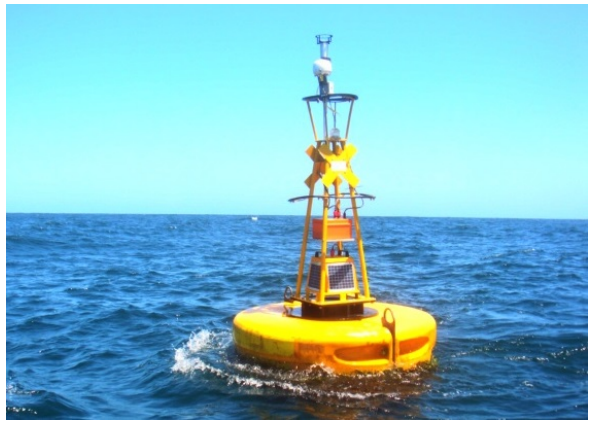
Future Studies and Analysis

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.

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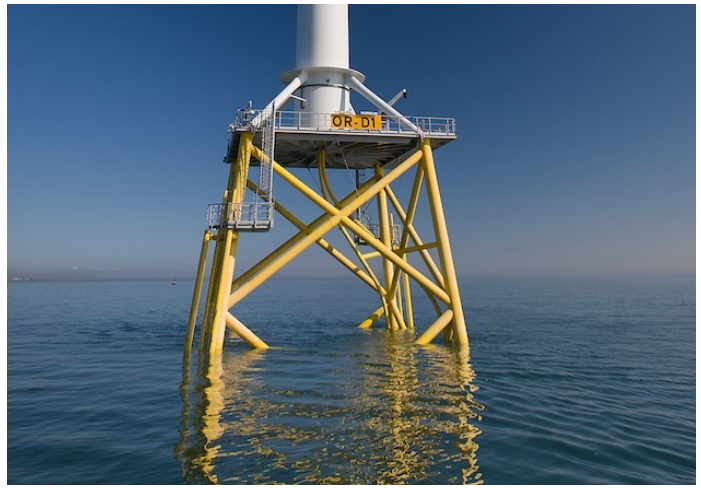
Research and Development



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

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Department of State

DOS Regulatory Role

Coastal Zone Management Act

- DOS is home to New York's federally-approved Coastal Management Program (CMP)
- DOS concurrence or objection to projects is based on "consistency" with State coastal policies
- NOAA may grant review authority for projects outside State waters if effects NY coastal resources and uses

DOS Role in Interstate, Interagency Coordination

BOEM-NY Task Force

- Federal, state, local, tribal gov't
- Offshore Renewable Energy focus
- BOEM leasing process emphasizes coordination to proactively address potential impacts
- DOS leads NYS involvement in strong partnership with NYSERDA, other agencies

Mid-Atlantic Regional Council on the Ocean

- 5-State Governors Agreement (NY, NJ, DE, MD, VA)
- Led by coastal programs in all states
- Coordination on shared ocean issues, including offshore wind

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BOEM Leasing Process

- Outer Continental Shelf Lands Act governs offshore wind projects in federal waters (> 3 nm from shore)
- Leasing is separate from construction/operations
- Multiple steps involved in the leasing process
  - NY's Area for Consideration will inform BOEM's "Call for Information and Nominations"
  - BOEM uses this information to identify "wind energy areas", i.e., the areas that will be further analyzed and considered for leasing
  - Wind energy areas undergo environmental review and proceed to lease auctions

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Maritime Technical Working Group

Maritime

- New York is home to the largest port on the East Coast
- Navigation in the New York Bight requires a thoughtful approach to reduce risks from new projects
- Focus on developing best practices
  - Engaging members of the maritime industry (pilots, tug/barge operators, others)
  - Coordinating with agencies (BOEM, Coast Guard, Port Authority)
  - Soliciting input from OSW developers
- Commitment to smart development
  - New ideas, lessons learned from Europe

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Department of Environmental Conservation

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Department of Environmental Conservation Role

- Statutory Party in the PSC Article VII Process for export cables in NYS waters (3 nautical miles)
- Provide input to DOS's coastal zone consistency determination
- Provide comments to BOEM during NEPA process for WEA leases and individual project reviews
- DEC could be a cooperating agency for the BOEM NEPA process

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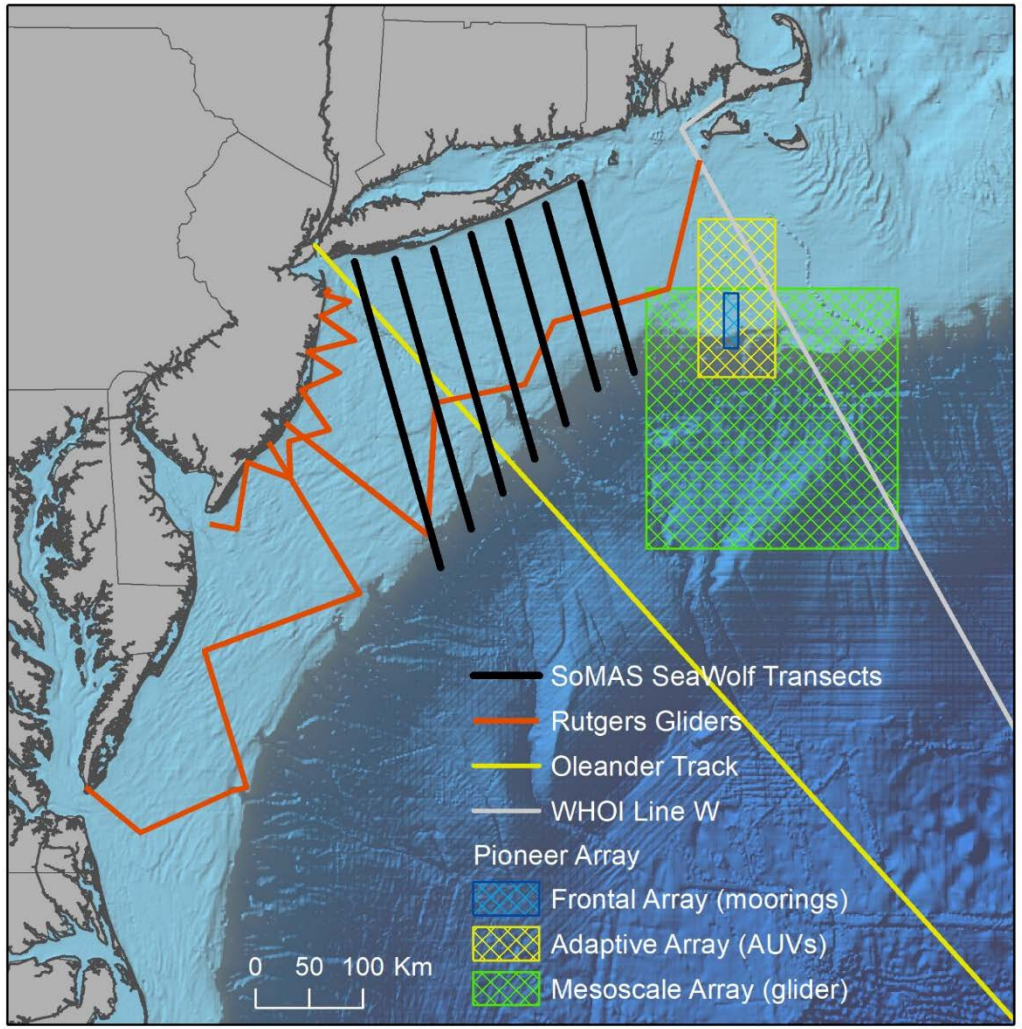
Offshore Surveys - NY Bight aboard the R/V SeaWolf



- Concurrent sampling and surveys will assess:
  - Carbonate chemistry
  - Temperature, salinity and fluorescence
  - Pelagic fish assemblage (trawls, fisheries acoustics)
  - Hydrography (CTD stations)
  - Cetaceans, sea turtle distribution (line transect surveys)
- **Year 1:** 3 x 7-day cruises
- **Future years:** 4 x 8-day cruises

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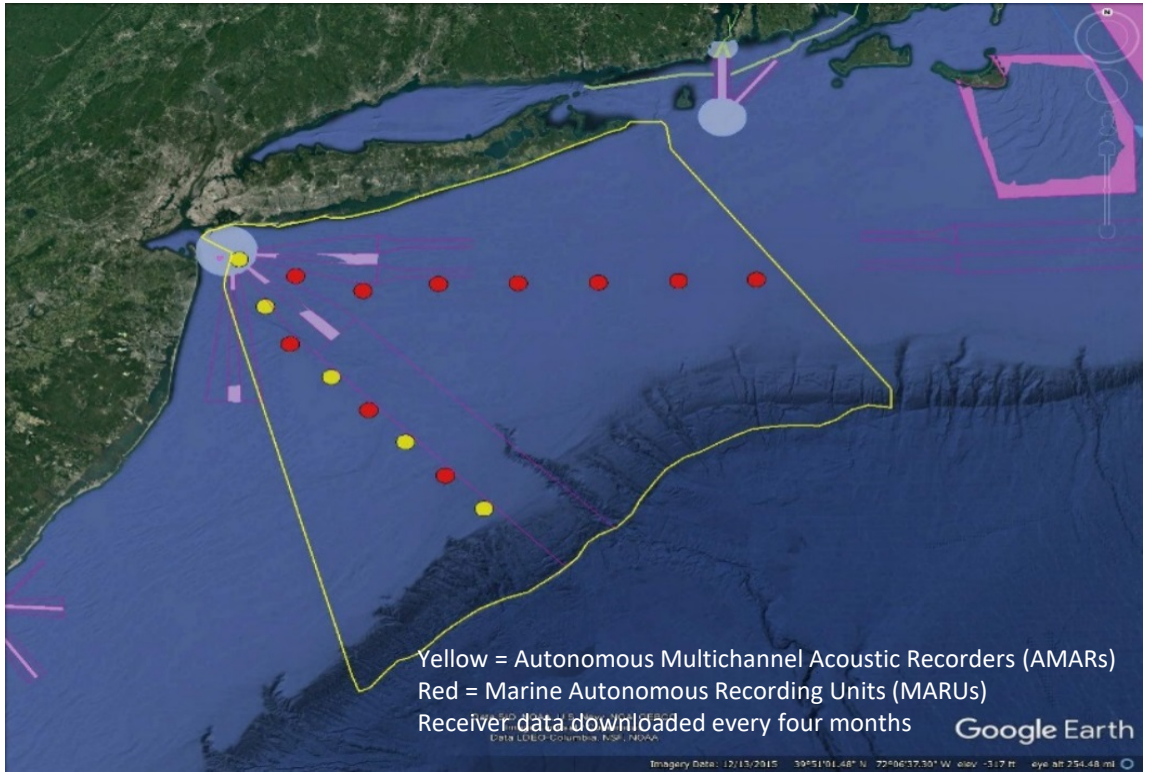
Aerial Surveys (Tetra Tech)

Monthly, starting March 2017

Acoustic Surveys (Cornell University)

Year-round, starting October 2017



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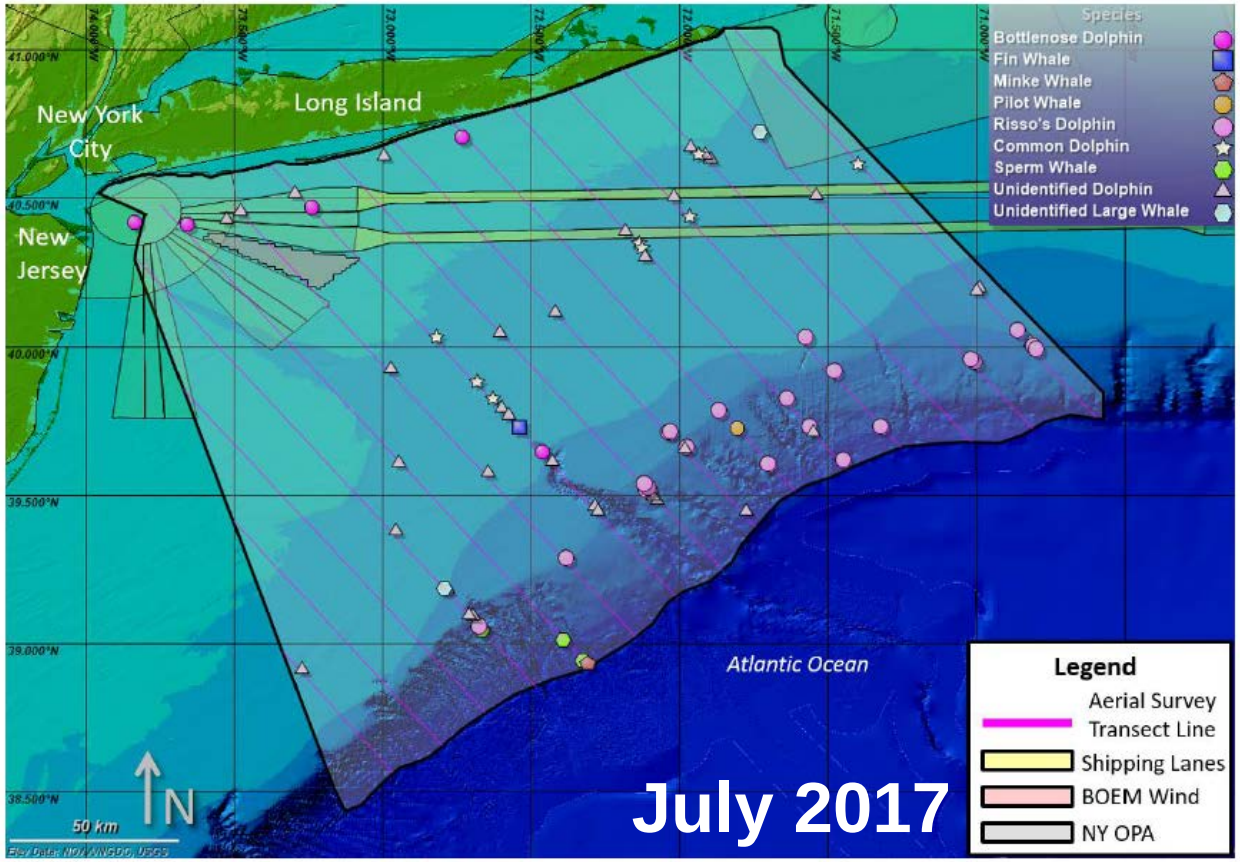
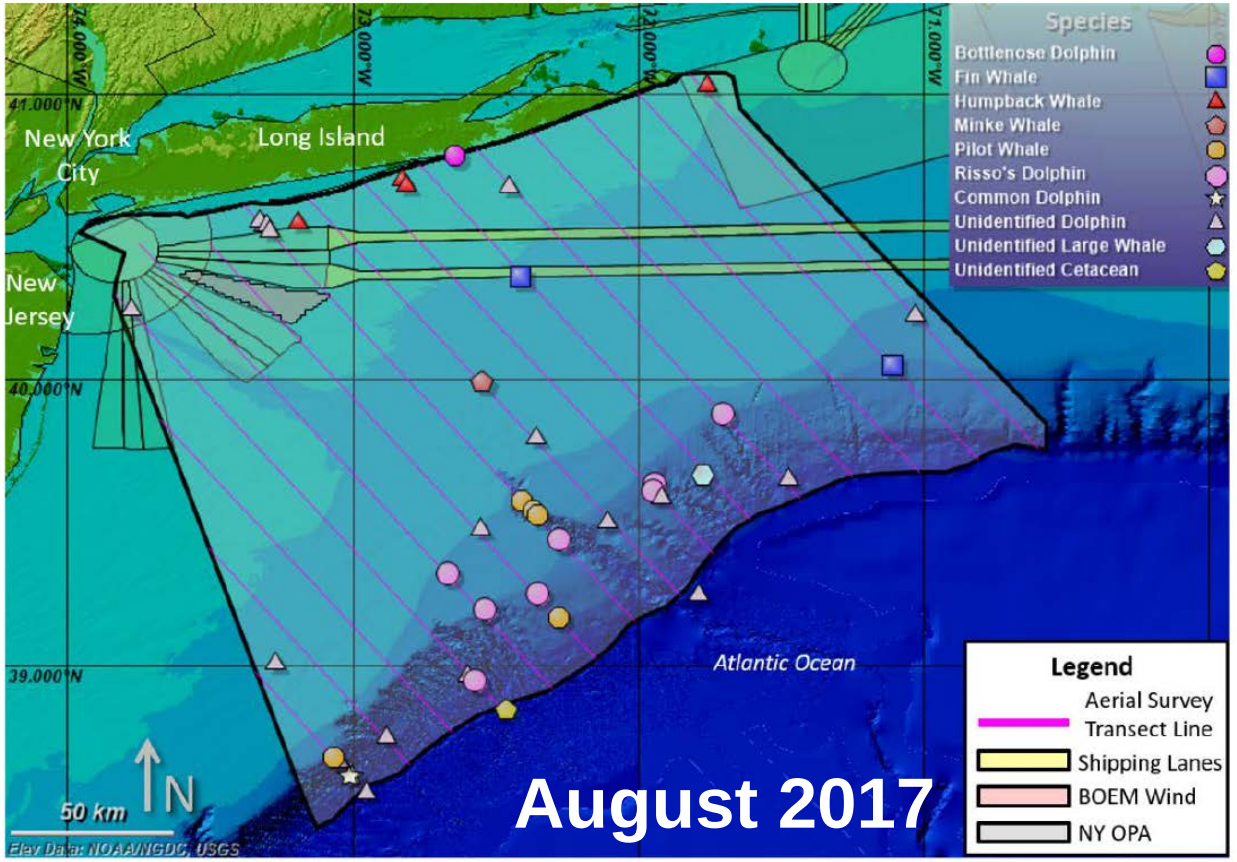
Marine Mammal Observations





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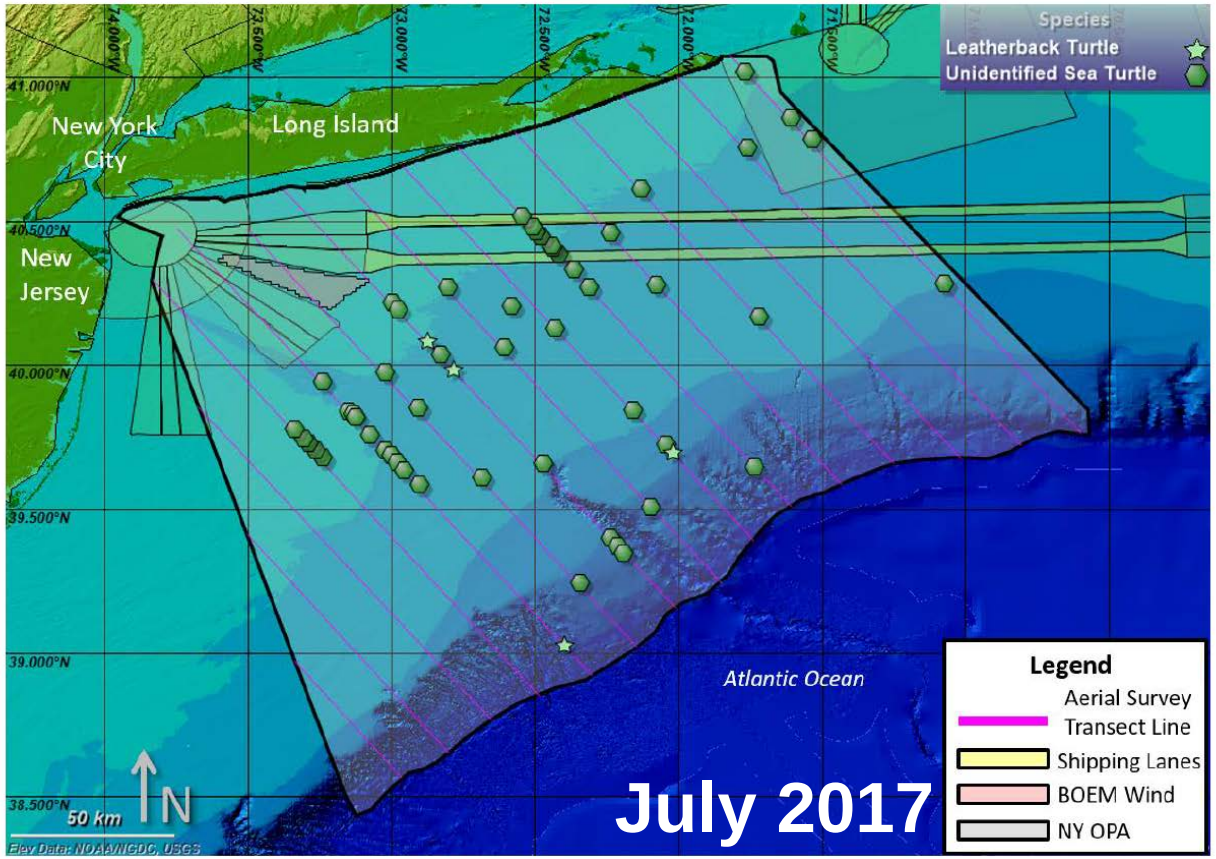
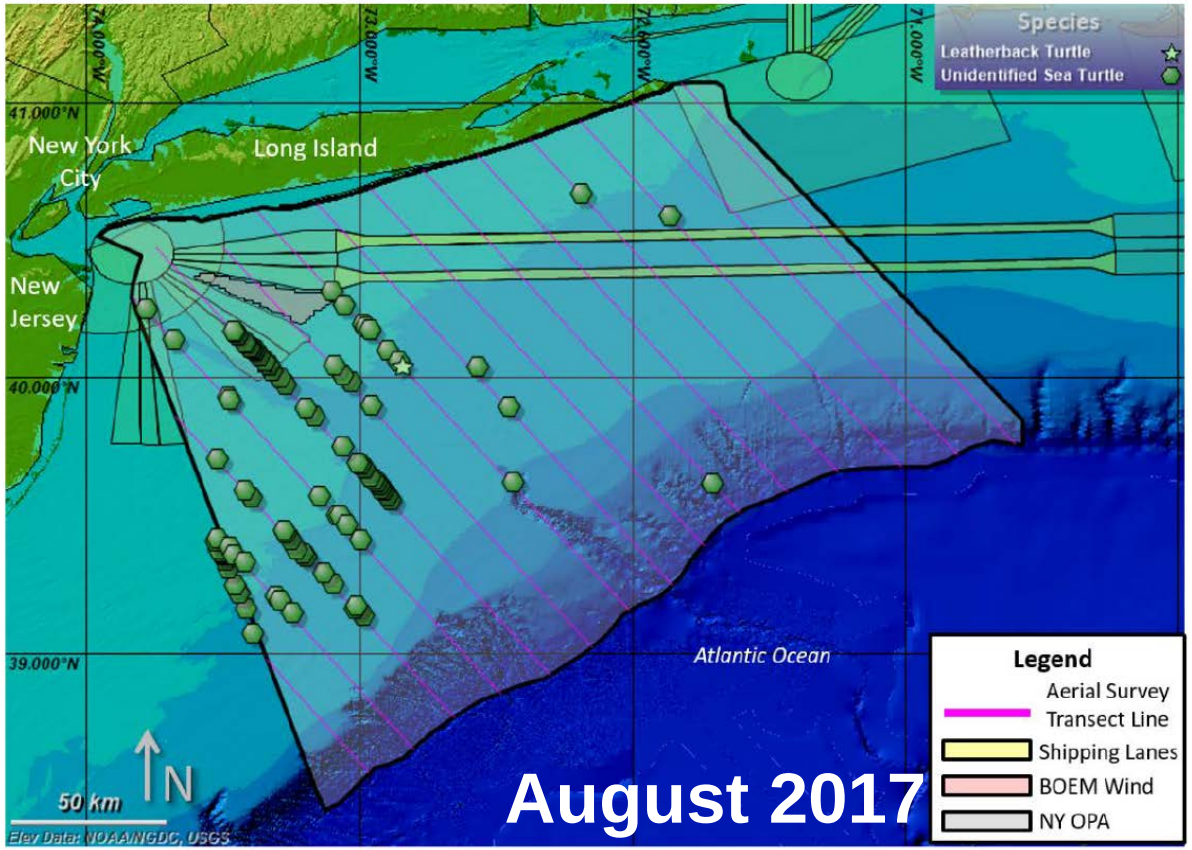
Sea Turtle Observations





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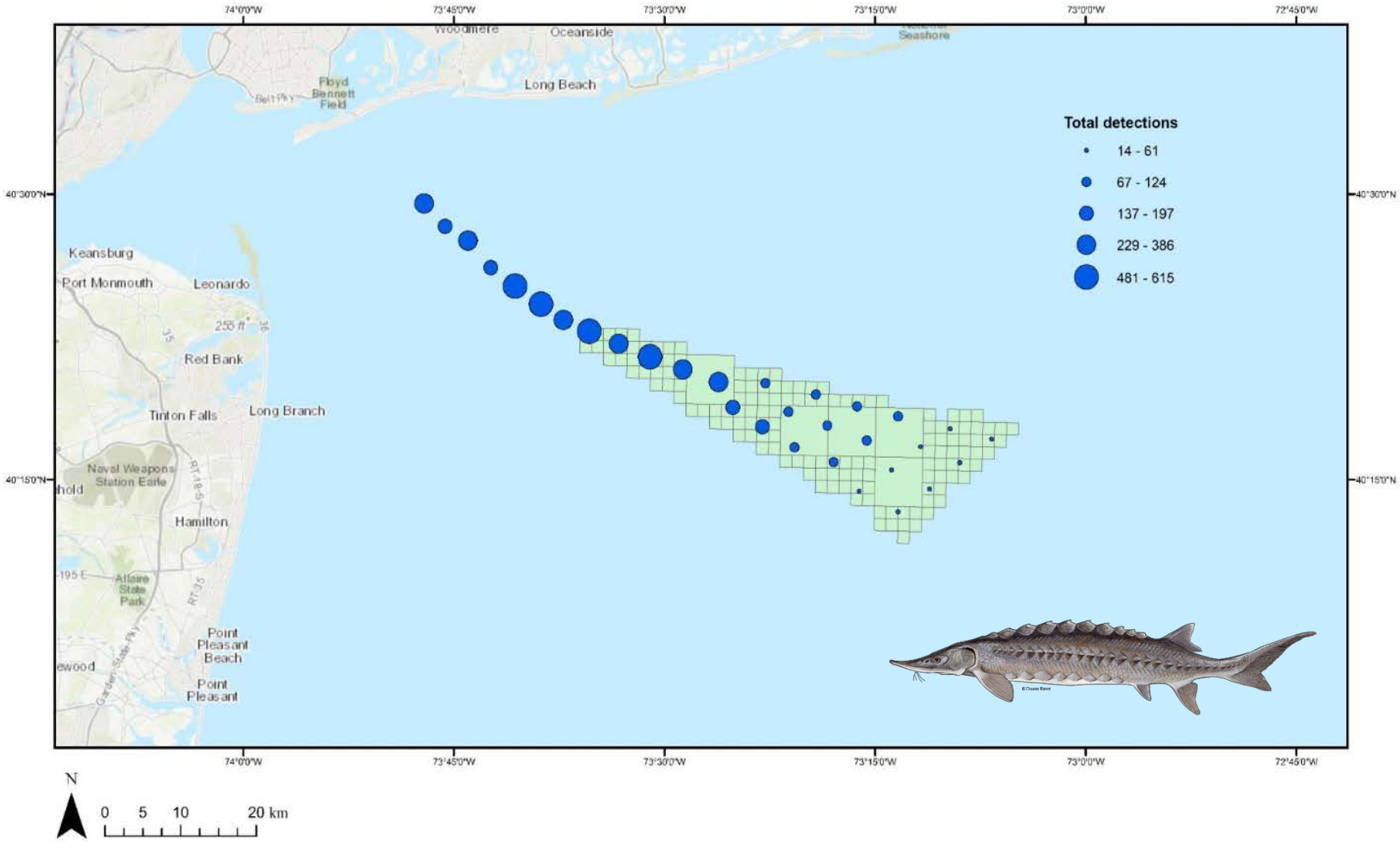
Total Detections of Atlantic Sturgeon by Receiver



At least **226 unique Atlantic sturgeon** representing **5,651 total detections** have been identified from the August 2017 download cruise

This includes **3,365 detections of 155 individual Atlantic sturgeon** on NY WEA array receivers and **2,286 detections of 125 individual Atlantic sturgeon** on the connector array receivers

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Fishing Technical Working Group

Commercial and Recreational Fishing

- Will provide **advice and guidance** while protecting the State and region's valuable fisheries and fishing communities
- Develop fisheries **Best Management Practices**
- Identify **research needs** for fishers and OSW developers
- Develop a **framework for understanding impacts** to fishing and mitigation of these impacts
- Develop a Commercial and Recreational Fisheries **Communications Plan**

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Department of Public Service

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Commission Offshore Wind Proceeding - Timeline

- **January 29, 2018** - NYSERDA submitted its Offshore Wind Policy Options Paper.
  - Among other things, the Options Paper provides an assessment of alternatives for addressing a wide range of policy issues pertinent to the deployment of offshore wind energy.
  - In response, the Commission instituted a new proceeding - Case 18-E-0071.
- **February 22, 2018** - Staff files a Draft Generic Environmental Impact Statement (DGEIS).
- **March 7, 2018** - DGEIS filed in the Environmental Notice Bulletin.
- **April 2018** - SAPA Notice seeking comment on the Offshore Wind Policy Options Paper will be published in the State Register.
- **April 6, 2018** - comment period expires on the DGEIS Notice.
- **May 2018** - Staff submits Final Generic Environmental Impact Statement (FGEIS).
- **June 2018** - 60-day comment period expires on the Policy Options Paper Notice.
- **Summer 2018** - Commission accept FGEIS.
- **Late Summer 2018** - Commission issues an Order defining OSW Phase 1 procurement methodology and timing.
- **4th Quarter 2018** - NYSERDA releases RFP for OSW proposals.

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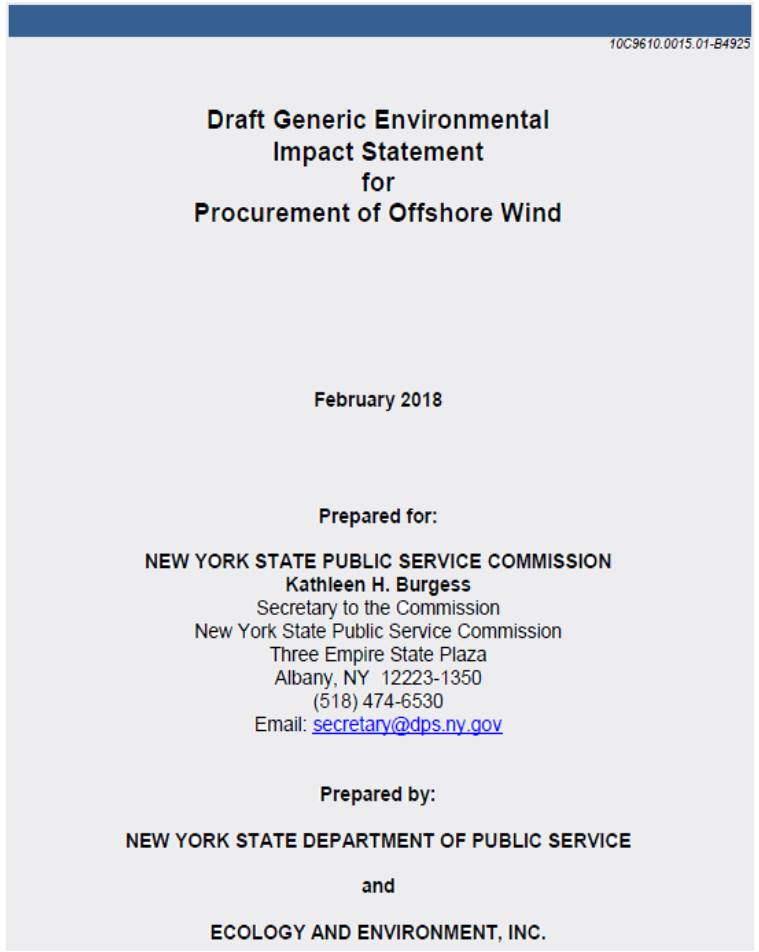
Draft Generic Environmental Impact Statement

- The DGEIS was prepared pursuant to the New York State Environmental Quality Review Act. It analyzes the potential environmental impacts associated with the State's procurement of **2.4 GW of offshore wind energy by 2030**, and builds upon and incorporates by reference relevant materials from NYSERDA's Offshore Wind Master Plan.
- The DGEIS notes that the offshore wind procurement contemplated by the Offshore Options paper is a separate action and procurement program from the Renewable Energy Standard (RES) or the Zero Emission Credit (ZEC) programs previously approved by the Commission.



10C9610.0015.01-B4925

Draft Generic Environmental Impact Statement for Procurement of Offshore Wind

February 2018

Prepared for:

NEW YORK STATE PUBLIC SERVICE COMMISSION
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Offshore Wind Options Paper

- The Offshore Wind Policy Options Paper lays out a path for meeting a goal of **2,400 MW of offshore wind energy generation by 2030** and recommends a **phased approach** to achieving the procurement of that goal.
- As part of Phase 1, the Commission is considering adopting a requirement to jump-start the deployment of offshore wind resources to serve New York consumers.

  To that end, it is likely that each New York LSE would be required to serve their retail customers by procuring wind generation from new offshore wind resources, evidenced by the competitive procurement of qualifying Offshore-wind Renewable Energy Credits (ORECs), obtained in solicitations to be conducted in 2018 and 2019.

  - With contributions towards achievement of the goal from each New York LSE serving retail customers - including the non-jurisdictional Long Island Power Authority (LIPA) and New York Power Authority (NYPA).
    - LIPA and NYPA may participate in solicitations conducted by NYSERDA, or may conduct solicitations on their own.

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Offshore Wind Options Paper – Feedback

In response to an forthcoming SAPA Notice, Staff seeks stakeholder feedback on:

Phase 1 Competitive Solicitations

- Who should the soliciting entity be?

Phase 1 Project Eligibility

- Including - location; vintage and minimum distance from shore.

Phase 1 Scoring Criteria

- What is the relative weighting on which bids will be ranked?

Phase 1 Procurement Option

- What is the best method based on associated benefits, costs, legal risks?
- Options beyond those highlighted in the Options Paper.

Phase 1 Funding Options

- Each option assumes an LSE obligation as the source of funding. Is there a better method?

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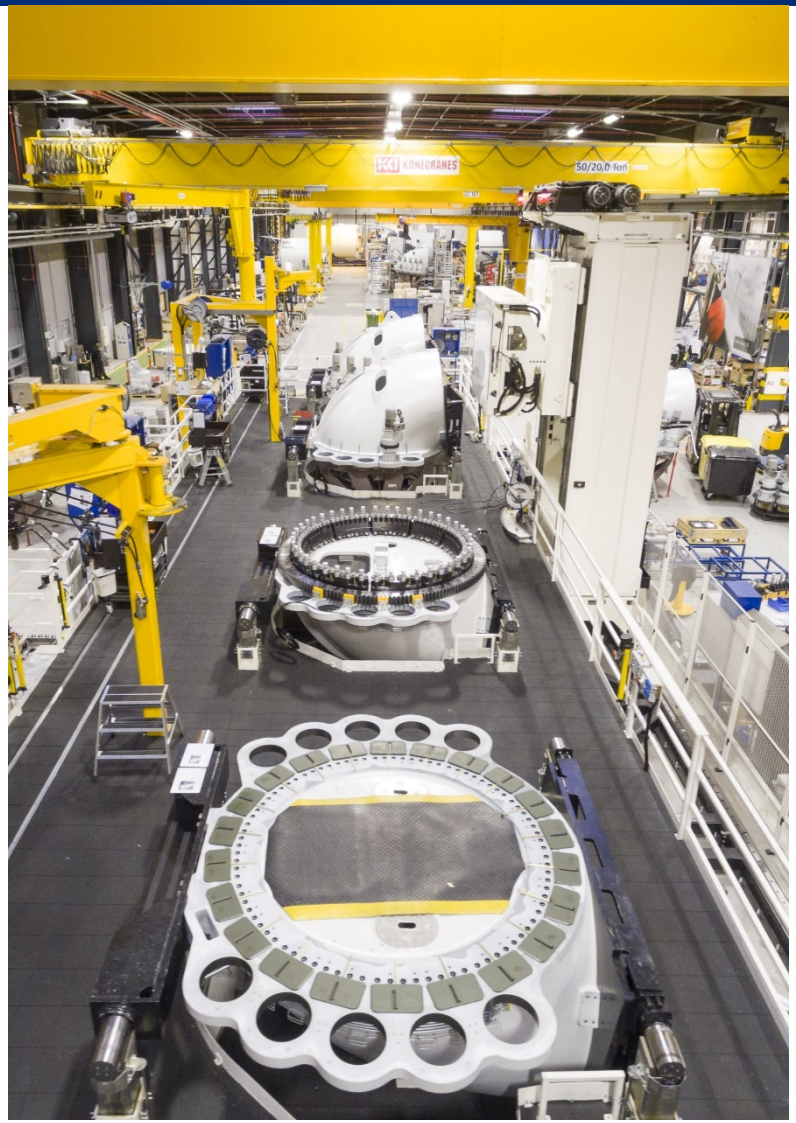
Summary of Ongoing Activities to Advance Offshore Wind Development

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



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Questions?

Doreen Harris, NYSERDA

Greg Lampman, NYSERDA

Mike Snyder, DOS

Karen Chytalo, DEC

Tom Rienzo, DPS

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