

Off-Shore Wind Development Needs and Implications for Regional Planning and Transportation Workshop Agenda

Welcome and Meeting Objectives– Dave Behrend and Anne Strauss-Wieder, NJTPA

What is Off-Shore Wind and What Does it Mean for the Multi-State Region – Matt Shields, National Renewable Energy Laboratory

Off-Shore Wind Developments and Initiatives

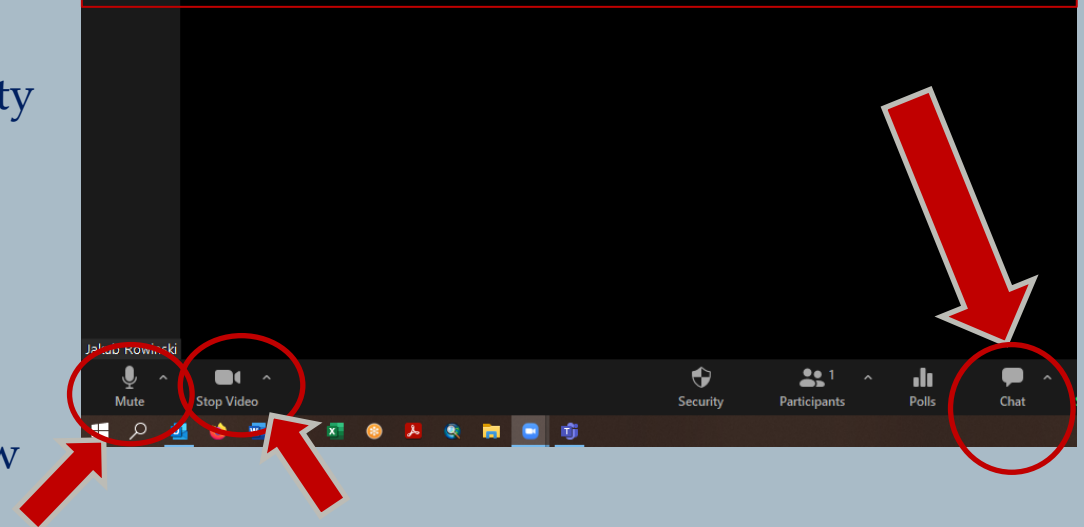
- New York City Developments – Max Taffet, New York City Economic Development Corporation
- New Jersey Developments -- Geoffrey Storr, New Jersey Economic Development Authority
- Connecticut Developments --David Kooris, Chair of the Board of the Connecticut Port Authority
- Off-Shore Wind Workforce Initiatives – Julia Kortrey, New Jersey Wind Institute

Questions & Discussion – Anne Strauss-Wieder

Meeting Wrap-Up & Next Steps – Anne Strauss-Wieder



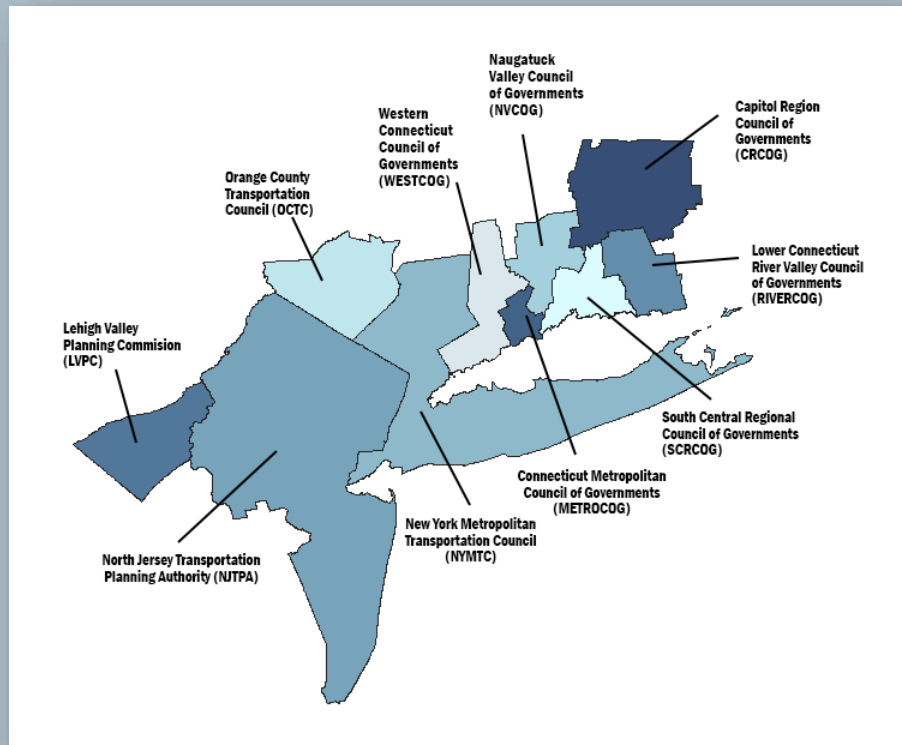
Please use the Chat box to ask questions during the presentations and if requesting credits, please post your name and email, followed by AICP



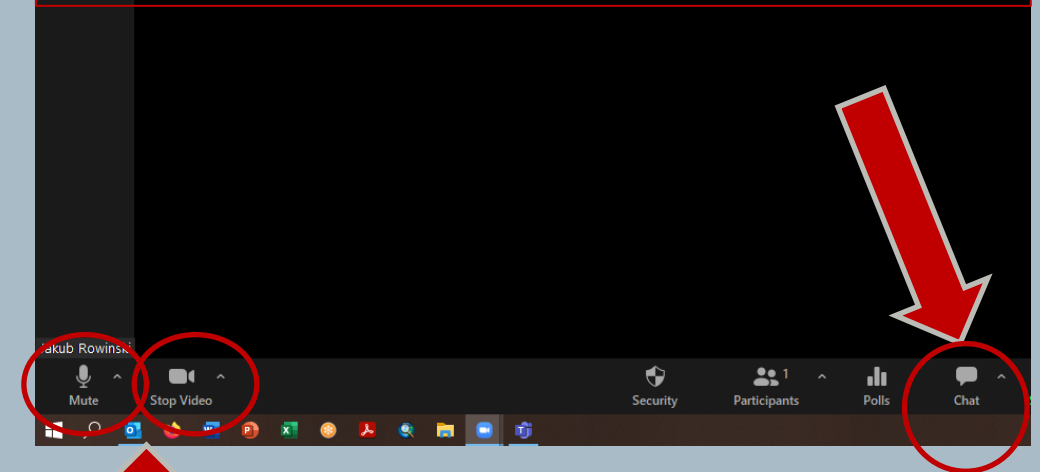
Please mute and turn off your video when not speaking.

Welcome and Meeting Objectives

- Dave Behrend, NJTPA
- Anne Strauss-Wieder, NJTPA



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What is Offshore Wind and What Does It Mean for the Multi State Region?

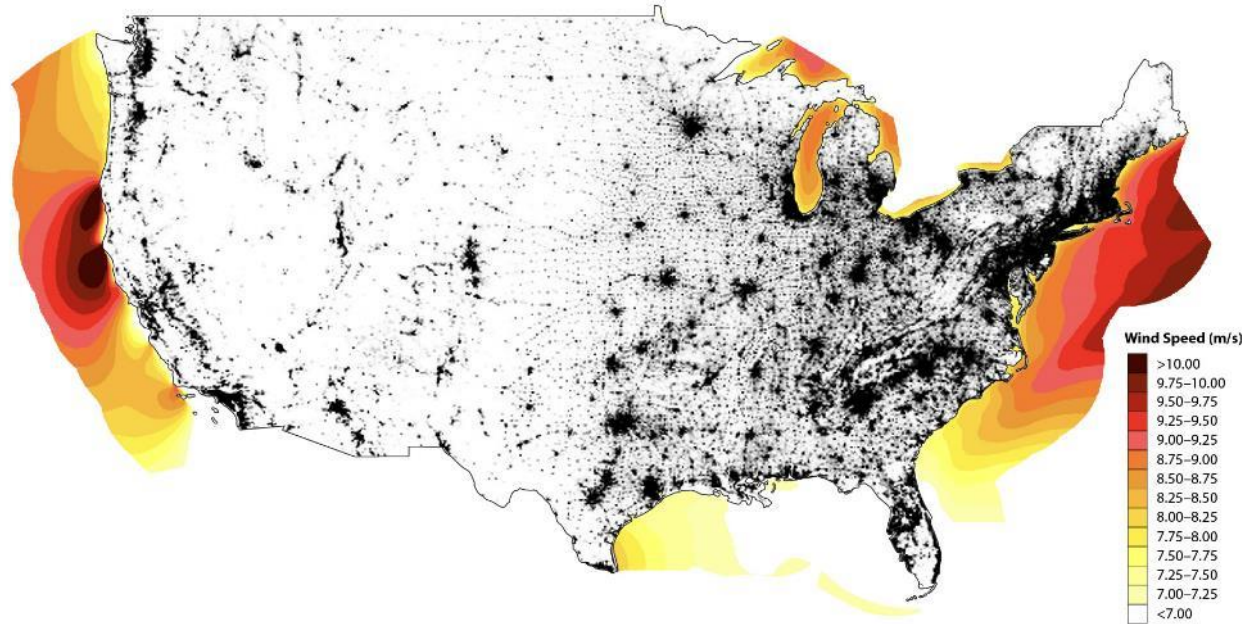
Matt Shields

Senior Offshore Wind Analyst, National Renewable Energy Laboratory

Multi-State Freight Working Group

March 23, 2023

Why Pursue Offshore Wind Energy?

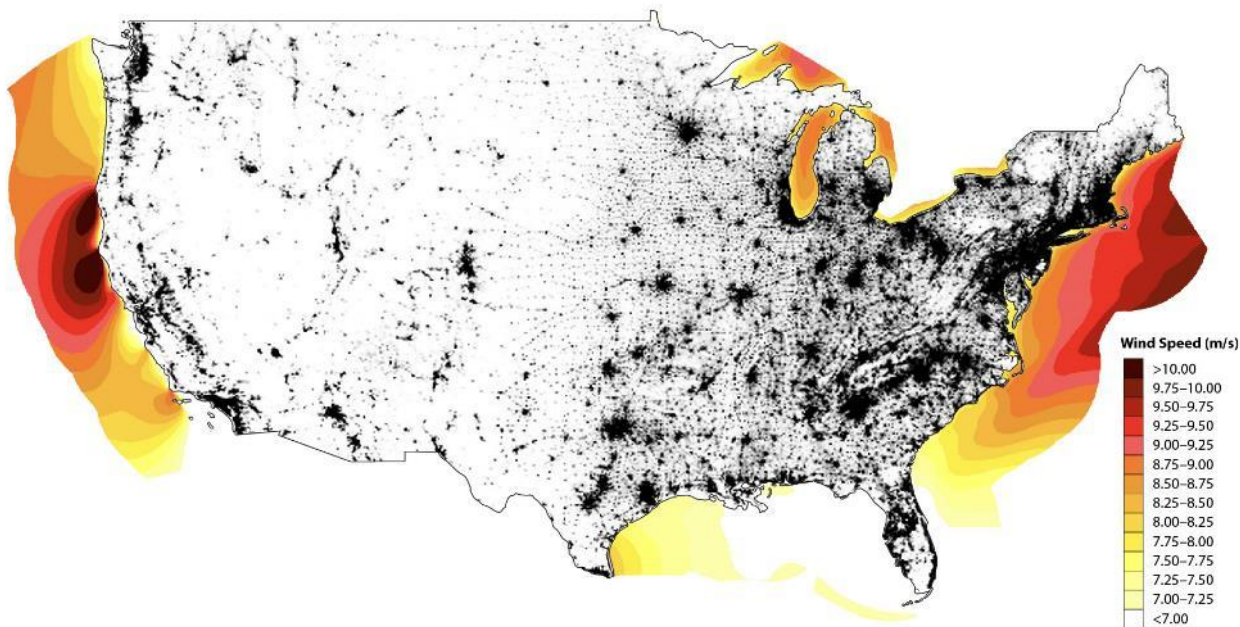


- ✓ Electric generation close to population (80% of U.S. lives near the coast)
- ✓ Stronger, more consistent winds
- ✓ Larger scale projects possible
- ✓ Creates jobs
- ✓ Revitalizes ports and domestic manufacturing

Figure credit: NREL

Offshore resource shown out to 50 nm from the coast. US waters extend to 200 nm from coast

Where Are the Best U.S. Offshore Wind Resources?



U.S. Offshore Wind Technical Resource Area

- Wind resource maps show best offshore wind sites

Best sites are not too deep with high steady winds

Resource Technology Filters

- Water depth greater than 1,000 meters (3,280 feet)

AND

- Average annual wind speeds less than 7 meters/second (15.7 miles per hour; 13.6 knots)

U.S. offshore wind potential is 2 times more than current U.S. electric energy use

The 30-MW Block Island Wind Farm is the First Offshore Wind Plant in the United States



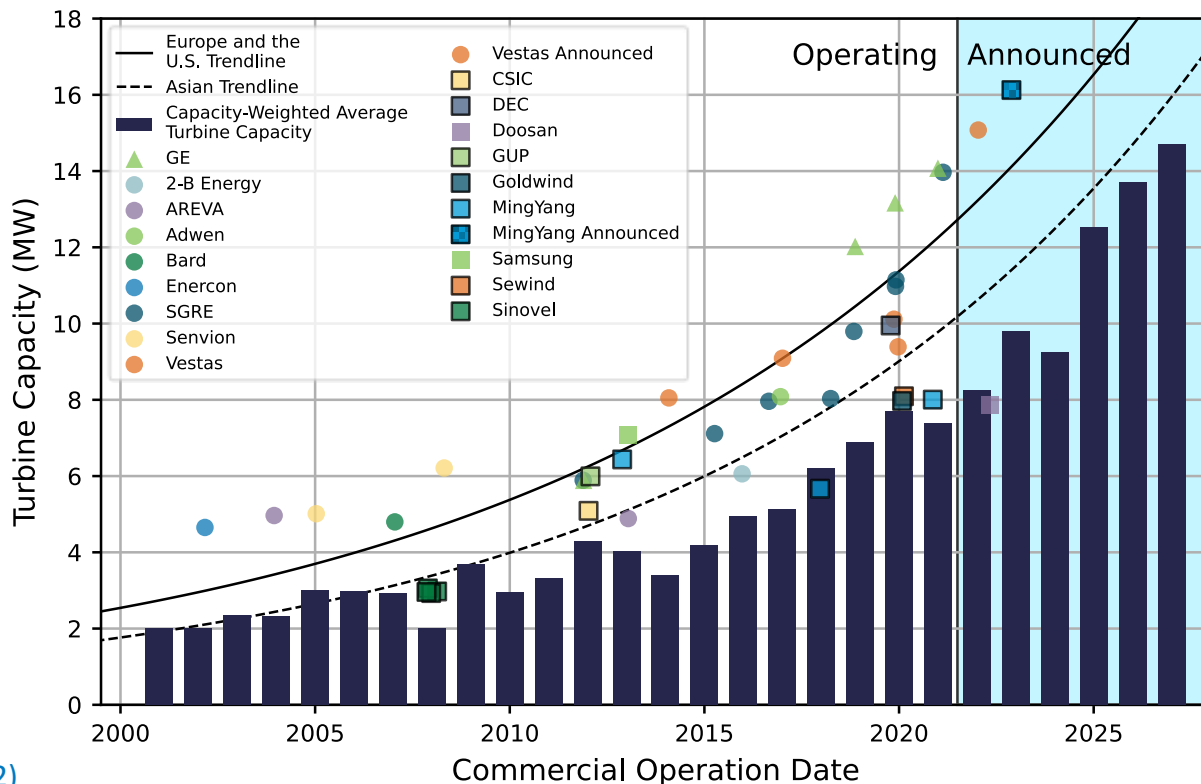
photo credit: Dennis Schroeder



Photo credit: <https://www.endiprev.com/case-study/block-island-offshore-wind-farm>

- **Five 6-Megawatt (MW) GE Haliade Turbines were installed in 2016 off Block Island, RI**
- **The wind plant provide enough power for up to 16,000 Rhode Island homes**

Offshore Wind Turbine Ratings Have Grown Significantly in Recent Years and Now Features >100m Long Blades



Note: GE is General Electric, SGRE is Siemens Gamesa Renewable Energy, CSIC is China Shipbuilding Industry Company, DEC is Dongfang Electric Corp., and GUP is Guodian United Power Technology Co., Ltd.

Monopile

4-legged
Jacket

Tension Leg
Platform

Spar Buoy

Semi-submersible

Offshore Turbine Substructure Type Depends on Water Depth

0 to 60 meters depth
(fixed bottom)

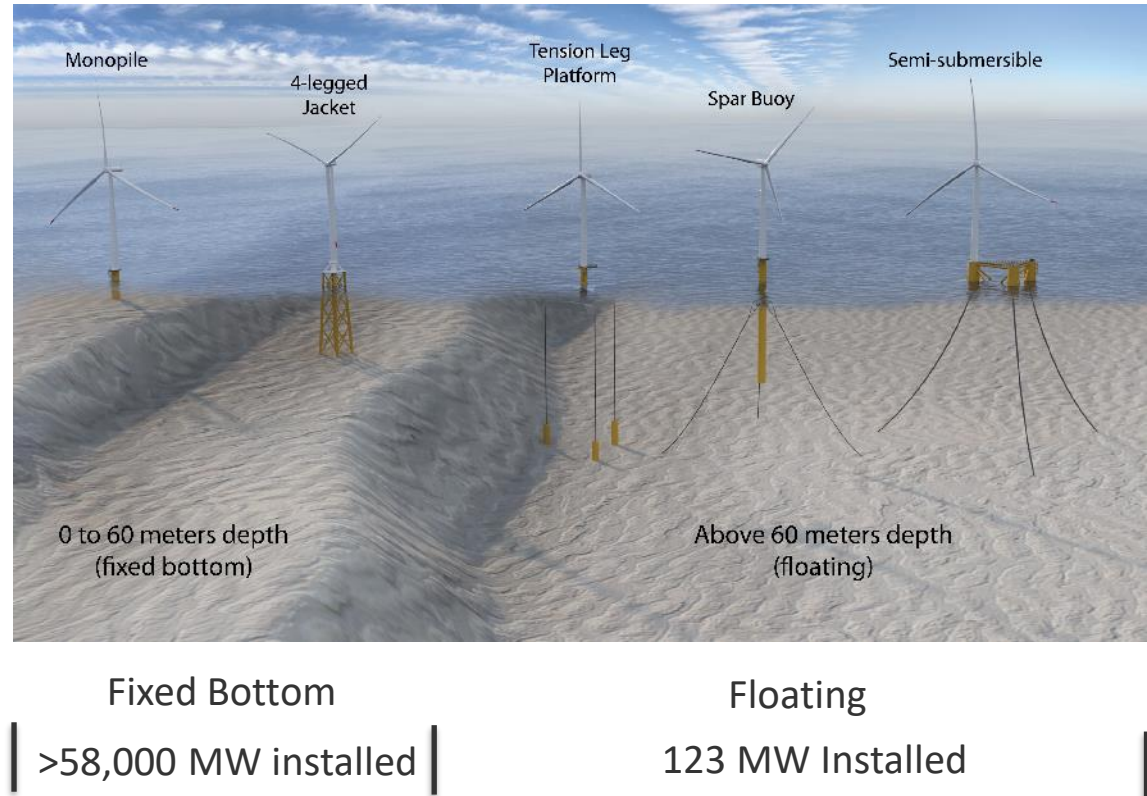
Above 60 meters depth
(floating)

Most Offshore Wind Deployment Has Been on Fixed-bottom Support Structures

Leading Offshore Wind Countries

(Installed Capacity as of the end of 2022)

China	27 GW
United Kingdom	13.5 GW
Germany	8 GW
Netherlands	4 GW
Denmark	3 MW
Belgium	2.5 MW



However, the future Floating Wind Energy market may be bigger than the fixed-bottom market

Offshore Wind Port and Infrastructure Requirements

Image by Harland and Wolff Heavy Industries



Wharf

Reinforced wharf capable of staging, assembling, and lifting heavy components



Navigation Channel

Channel with sufficient depth (10-14 m) for large vessels to transit to sea



Upland Yard

20 – 100 acre storage and staging of blades, nacelles, towers, possible fabrication of floating substructures



Crane

Minimum 40 – 600 ton lift capacity at 500 feet height



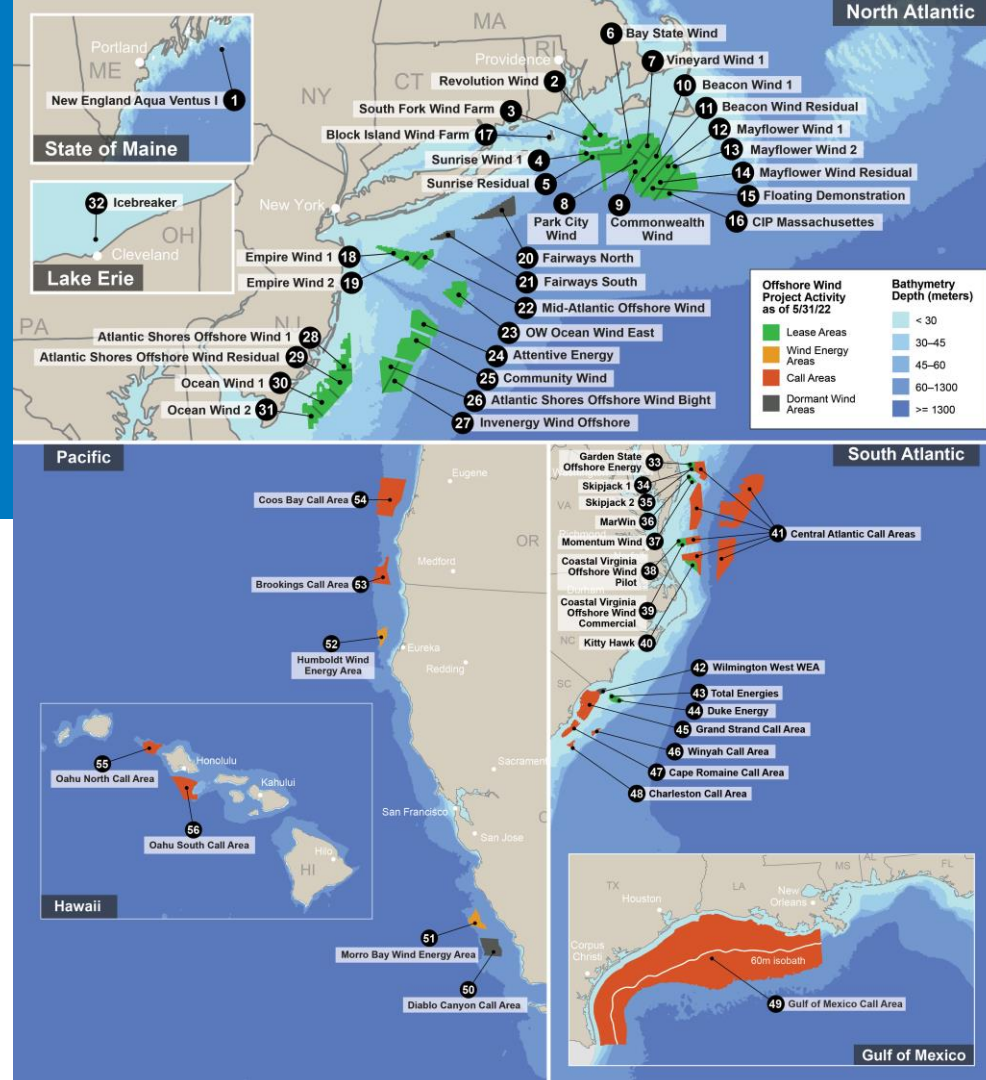
Crew Access & Maintenance

Moorage for crew access vessels. O&M berth for major repairs of full system

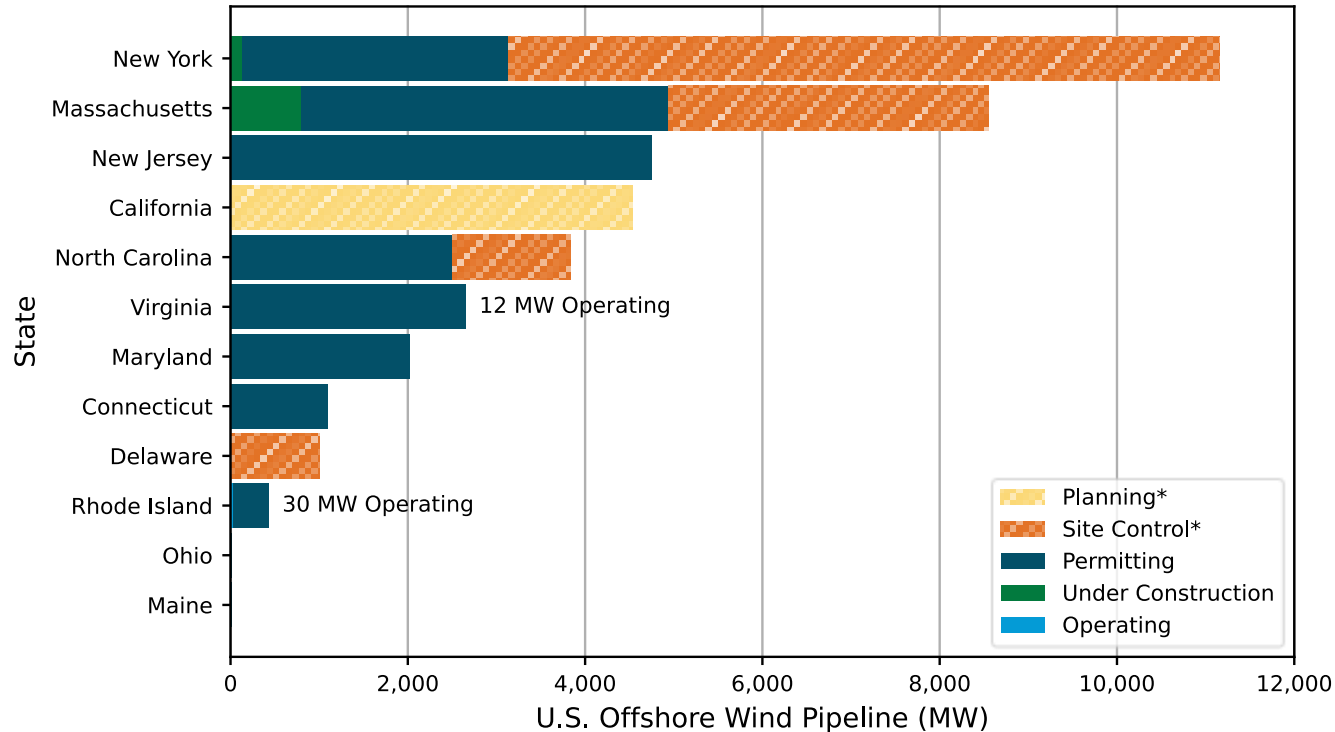
U.S. Offshore Wind Industry Market as of May 31, 2022, Shows Strength in Essential Economic and Policy Areas, Indicating Accelerated Growth

- U.S. Offshore Wind Target set in March 2021 for 30 gigawatts (GW) by 2030 with pathway to 110 GW by 2050
- 39,322 megawatts (MW) of policy commitments from eight eastern states
- 40,083 MW estimated in total project pipeline
- 42 MW installed

Source: [Musial et al. \(2022\)](#)

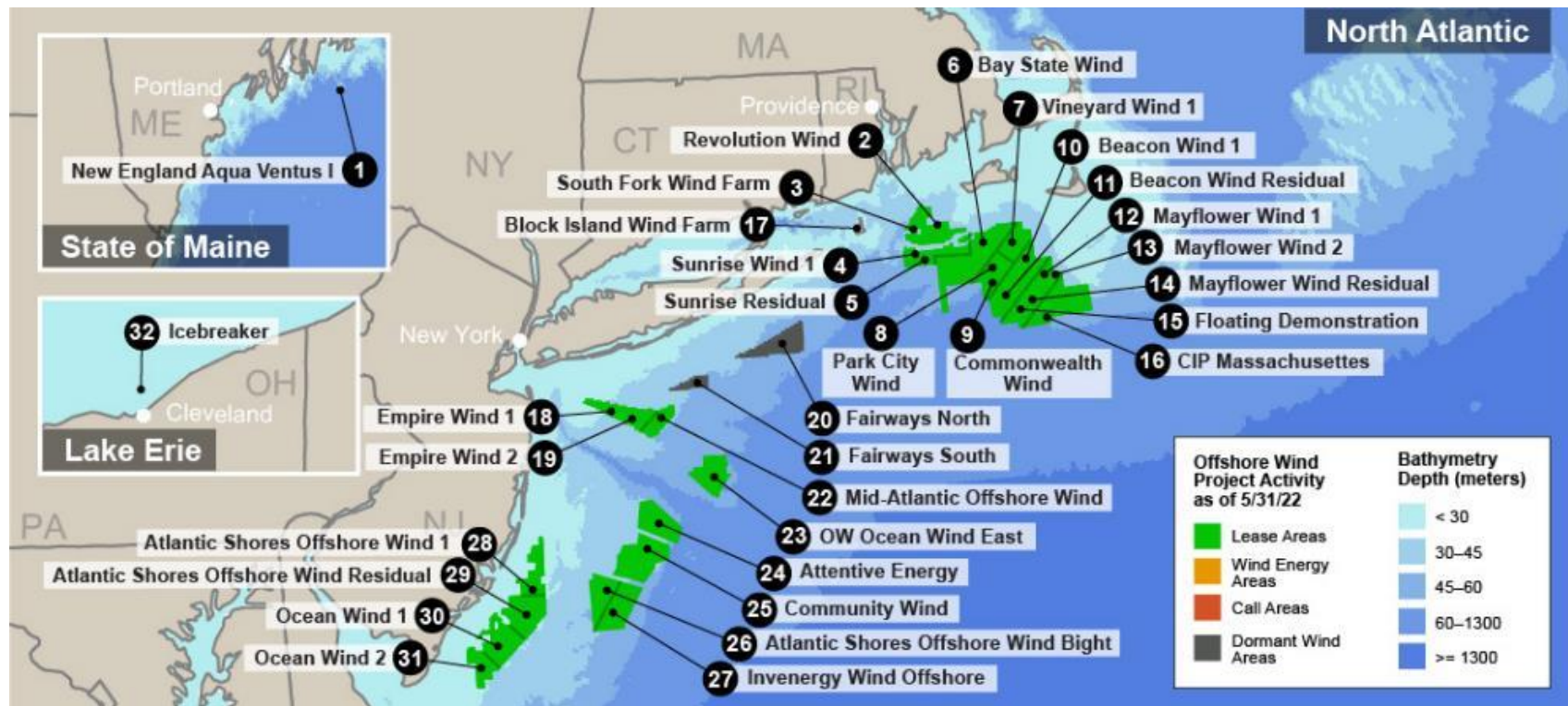


U.S. Project Pipeline by State Indicates That New York, Massachusetts and New Jersey Have the Majority of Capacity

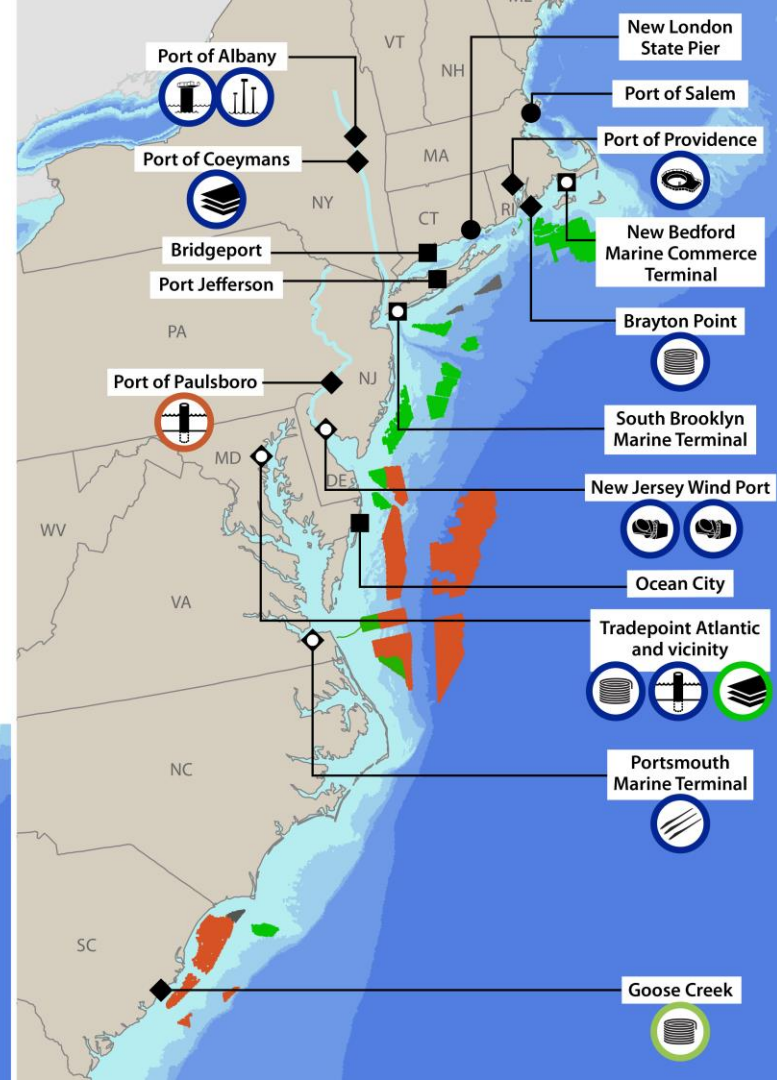
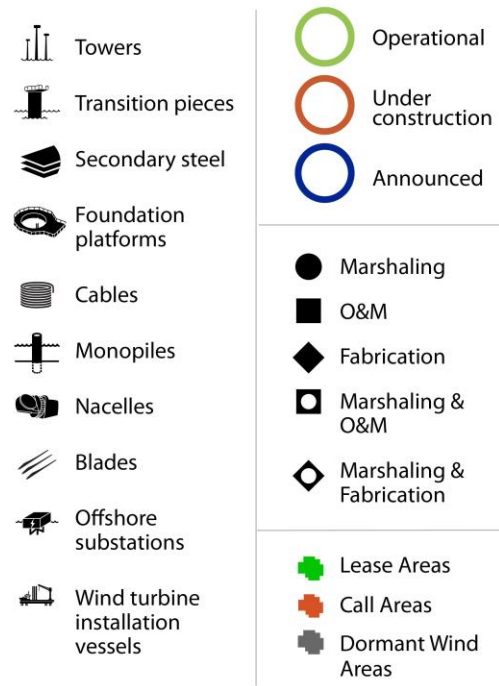


Source: [Musial et al. \(2022\)](#) * Capacity for “Permitting” and “Site Control” categories are assigned to the state where the WEA is geographically located. All other categories are assigned to the state where the power will be delivered.

Large-Scale Project Development is Underway in the U.S. North Atlantic Region

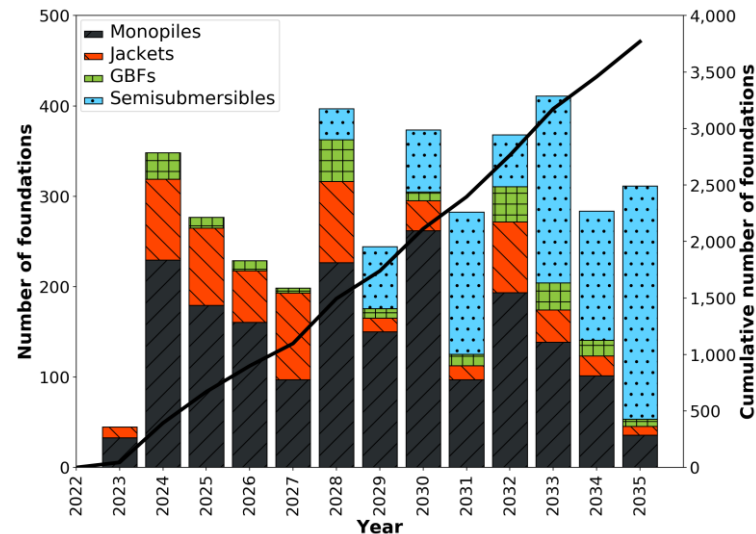


Billions of Dollars Have Been Invested or Announced in Supply Chain, Ports, and Vessels



The Demand for a Domestic Offshore Wind Supply Chain in the United States

- Achieving the Biden Administration's 30 GW by 2030 offshore wind target will require over 2,000 wind turbines to be installed in U.S. waters
 - Anticipated capital expenditures of over \$100 billion ([SLOW, 2021](#))
- Global supply chains are already at or near capacity to meet European demand
- Domestic manufacturing and installation infrastructure are nascent and unprepared to meet the U.S. demand

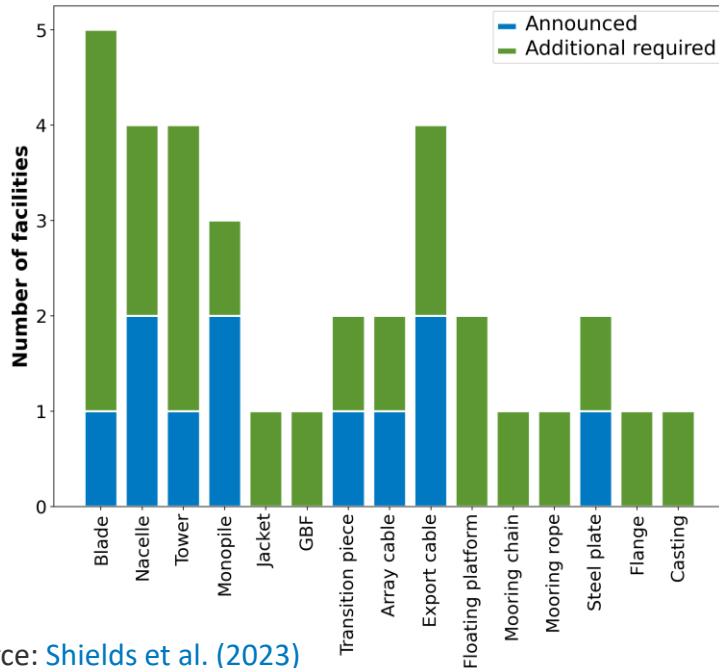


Annual and cumulative demand for fixed-bottom and floating foundations in the U.S. offshore wind industry. [Shields, et al \(2022\)](#)

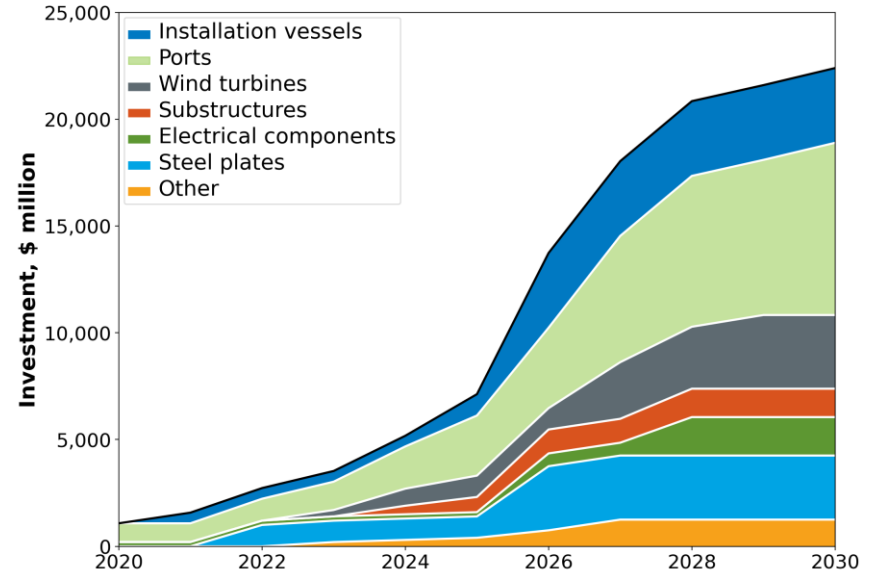
Achieving sustainable offshore wind growth and maximizing the associated economic benefits requires near-term planning and investment to develop a domestic supply chain

A domestic supply chain that can manufacture all major offshore wind components needed to install 4 – 6 GW per year could require \$22.4 billion and 6-9 years to develop

A domestic offshore wind energy supply chain designed to meet the annual demand for major components in 2030 would require at least 34 new manufacturing facilities



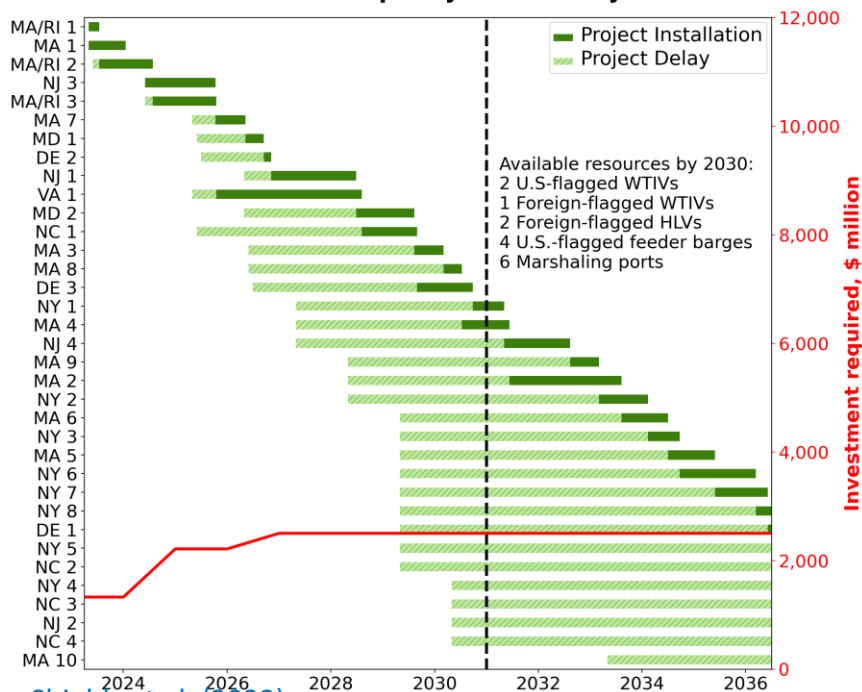
A domestic offshore wind energy supply chain designed to meet the annual demand for major components in 2030 would require an investment of at least \$22.4 billion



The offshore wind sector likely needs to invest around \$6 billion in marshalling ports and large installation vessels to deploy 30 GW by 2030

Baseline scenario:

13.8 GW of fixed-bottom capacity installed by the end of 2030

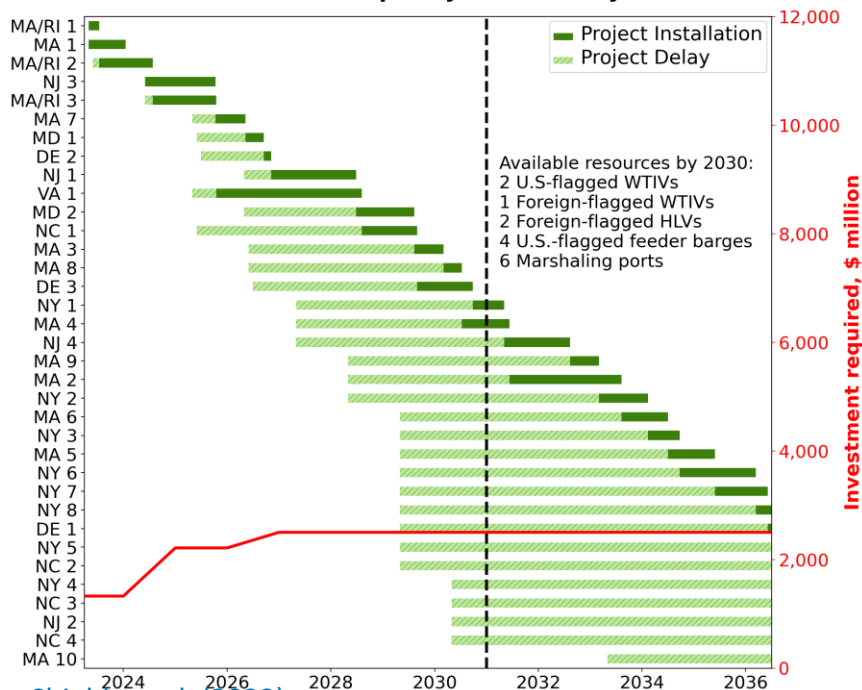


Source: [Shields et al. \(2023\)](#)

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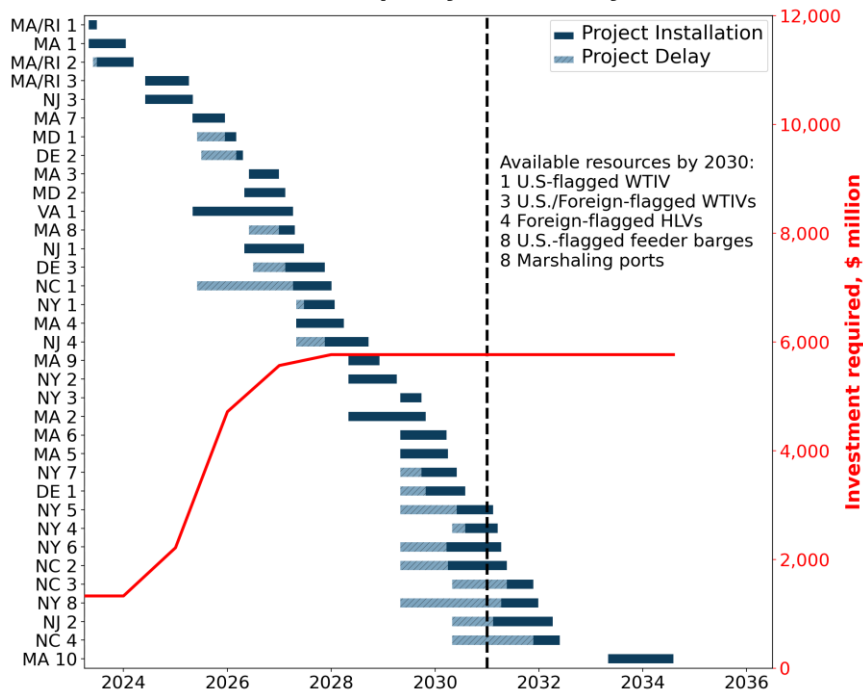
Baseline scenario:

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U.S. Feeder scenario:

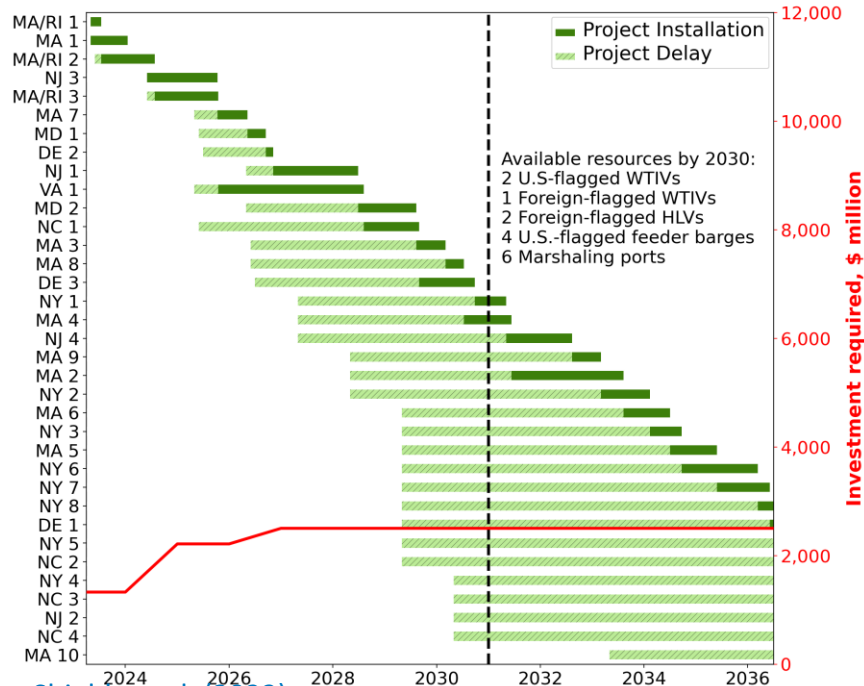
28.4 GW of fixed-bottom capacity installed by the end of 2030



A significant number of additional vessels will be required for construction (survey, transport, cable-lay) and operation (crew transfer, service operation) activities

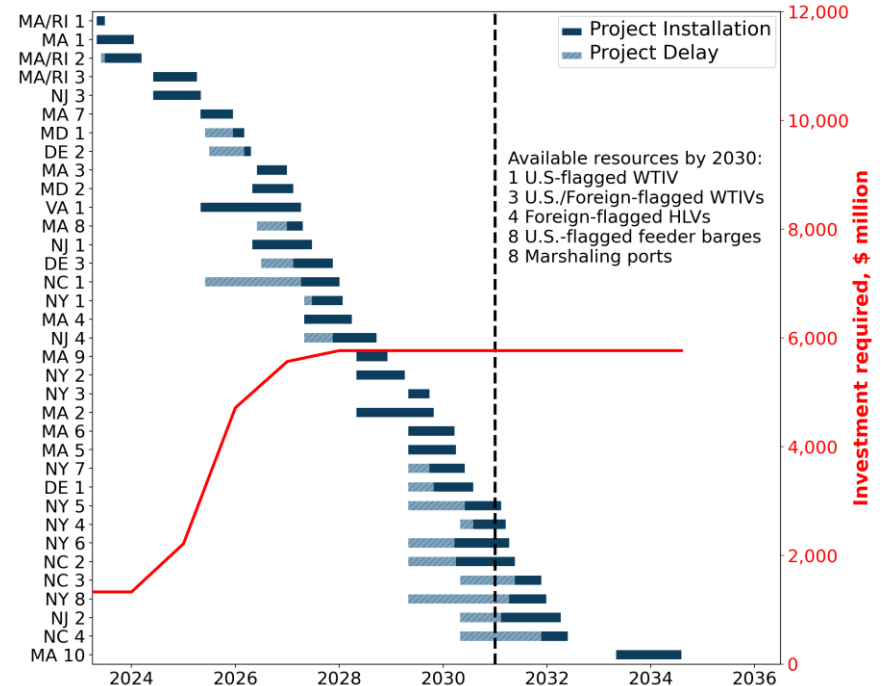
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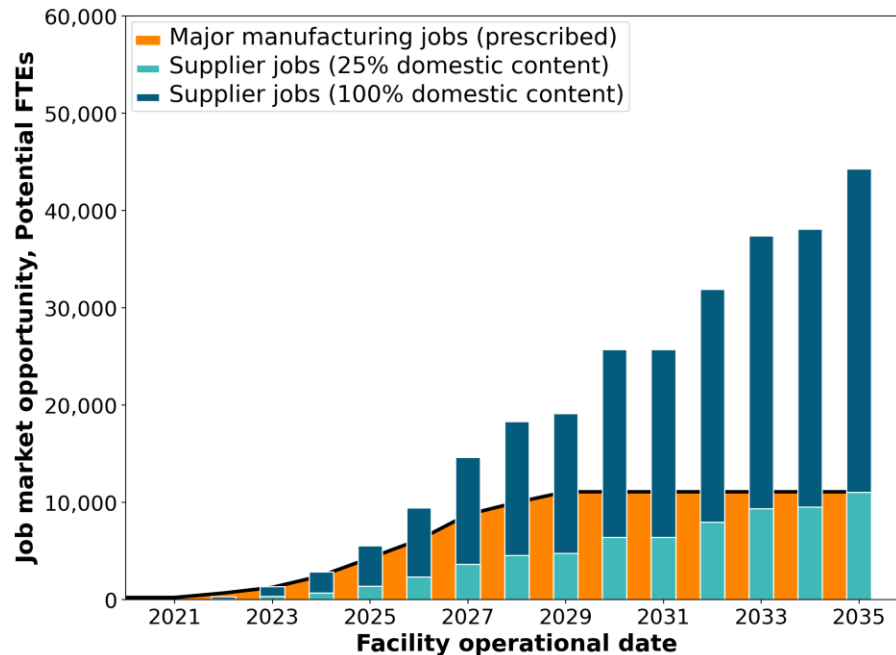


Developer construction plans identify a high demand (and potential range) for transport vessels

Project	Installation window	Min. transport vessels	Max. transport vessels
South Fork	2023	9	16
Vineyard Wind	2023	1	6
Revolution Wind	2023-2024	8	15
Ocean Wind 1	2024-2026	10	50
Coastal Virginia	2025-2027	2	2
US Wind	2025-2026	15	27
Empire Wind	2025-2026	2	5
New England	2026-2027	2	6
Atlantic Shores	2026-2028	5	6
Mayflower Wind	2026-2028	1	20
TOTAL		57	143

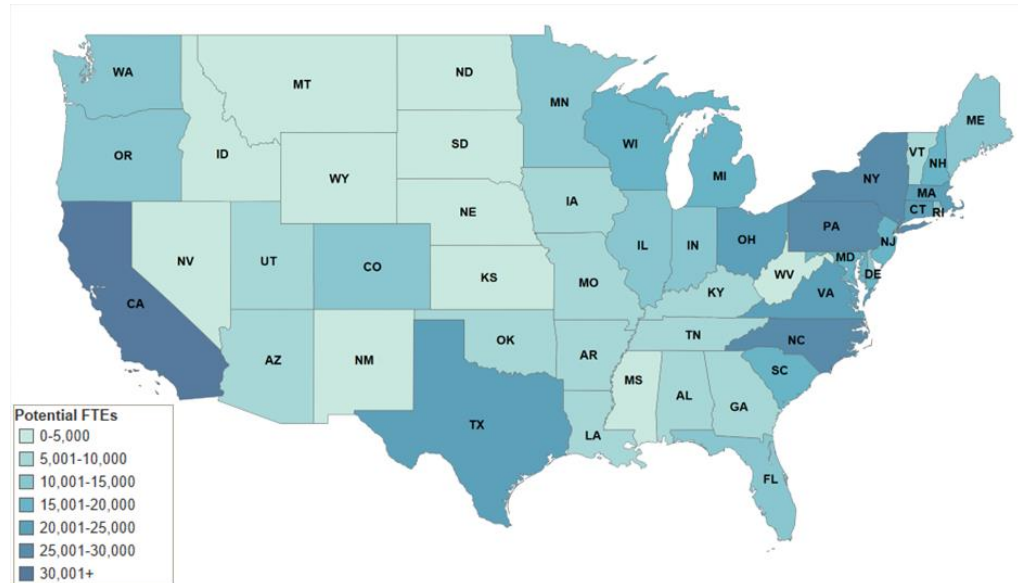
Manufacturing major components could require 10,000 direct jobs – but there is an opportunity space for up to 5 times as many jobs in the supporting supply chain

An offshore wind supply chain could create a vast number of jobs, with a higher market opportunity in the supporting supply chain than in major manufacturing facilities



Many states have existing capabilities that can fill the manufacturing demand. Regional coordination could create a more efficient supply chain with broad benefits

Job market opportunity space for major manufacturing and supporting supplier jobs by 2035



Supply chain investments will directly impact vulnerable (port) communities. Development should consider potential positive and negative impacts through a common framework of measurable indicators

Category	Indicator
Contextual	Social vulnerability
	Impoverished community members
	Community members with educational barriers
	Unemployed community members
	Racial or ethnic composition of community members
	Health of community members
	Environmental health
Procedural	Community group engagement
	Community member participation
	Agency and decision-making power
Impact (socioeconomic)	Local workforce
	Local businesses
	Local homes/families
	Community support
Impact (health, safety, environmental)	Monitoring
	Workforce safety
	Community safety

Source: [Shields et al. \(2023\)](#)

Key Takeaways

- **The U.S. offshore wind industry is poised to grow rapidly in the next several years, with a target of 30 GW installed by 2030**
- **Much of the leasing, state activity, supply chain investment is concentrated in the North Atlantic**
- **There will be significant need for ports, vessels, marine logistics to ensure that development can be accomplished on time**
- **There is a strong pipeline of projects that will create a demand for workforce through the 2030s (and this pipeline will continue to expand)**

Thank you!

www.nrel.gov

Matt.Shields@nrel.gov

This work was authored by staff from the Alliance for Sustainable Energy, LLC, the manager and operator of the National Renewable Energy Laboratory for the U.S. Department of Energy (DOE) under Contract No. DE-AC36-08GO28308. Funding was provided by the Department of Energy's Wind Energy Technologies Office. The views expressed in this document do not necessarily represent the views of the DOE or the U.S. Government. The U.S. Government retains and the publisher, by accepting the document for publication, acknowledges that the U.S. Government retains a nonexclusive, paid-up, irrevocable, worldwide license to publish or reproduce the published form of this work, or allow others to do so, for U.S. Government purposes.



Off-Shore Wind Developments and Initiatives

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OFFSHORE WIND NYC

Offshore Wind Opportunity In NYC

www.edc.nyc/OSW

March 23, 2023

NYC / EDC





New York is committed to
100% clean
zero-emission electricity
by 2040

most aggressive goal in the nation

Slide Courtesy of NYSERDA

An illustration of several offshore wind turbines in a row, receding into the distance. The turbines are grey with three blades each. They are set against a light blue background with stylized clouds. The base of the turbines is a dark blue line representing the ocean surface.

9,000 MW
of offshore wind
by 2035

10,000 JOBS

**ENOUGH TO POWER
6 MILLION HOMES**

**BILLIONS IN
INFRASTRUCTURE**

**30% OF NEW YORK'S
ELECTRICITY LOAD**

THE PLAN

15 Years
\$191+ Million
3 Core Strategies



Sites and Infrastructure

Developing best-in-class infrastructure that will support the construction and operation of 12 GW of offshore wind

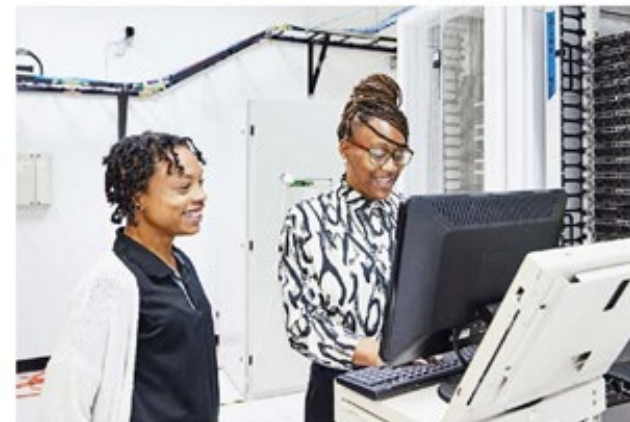


Businesses and Workforce

Preparing local workers and businesses to seize upon the opportunities that will be created by infrastructure investments

Research and Innovation

Promoting innovation in offshore wind to ensure that new technologies and approaches are created in New York City



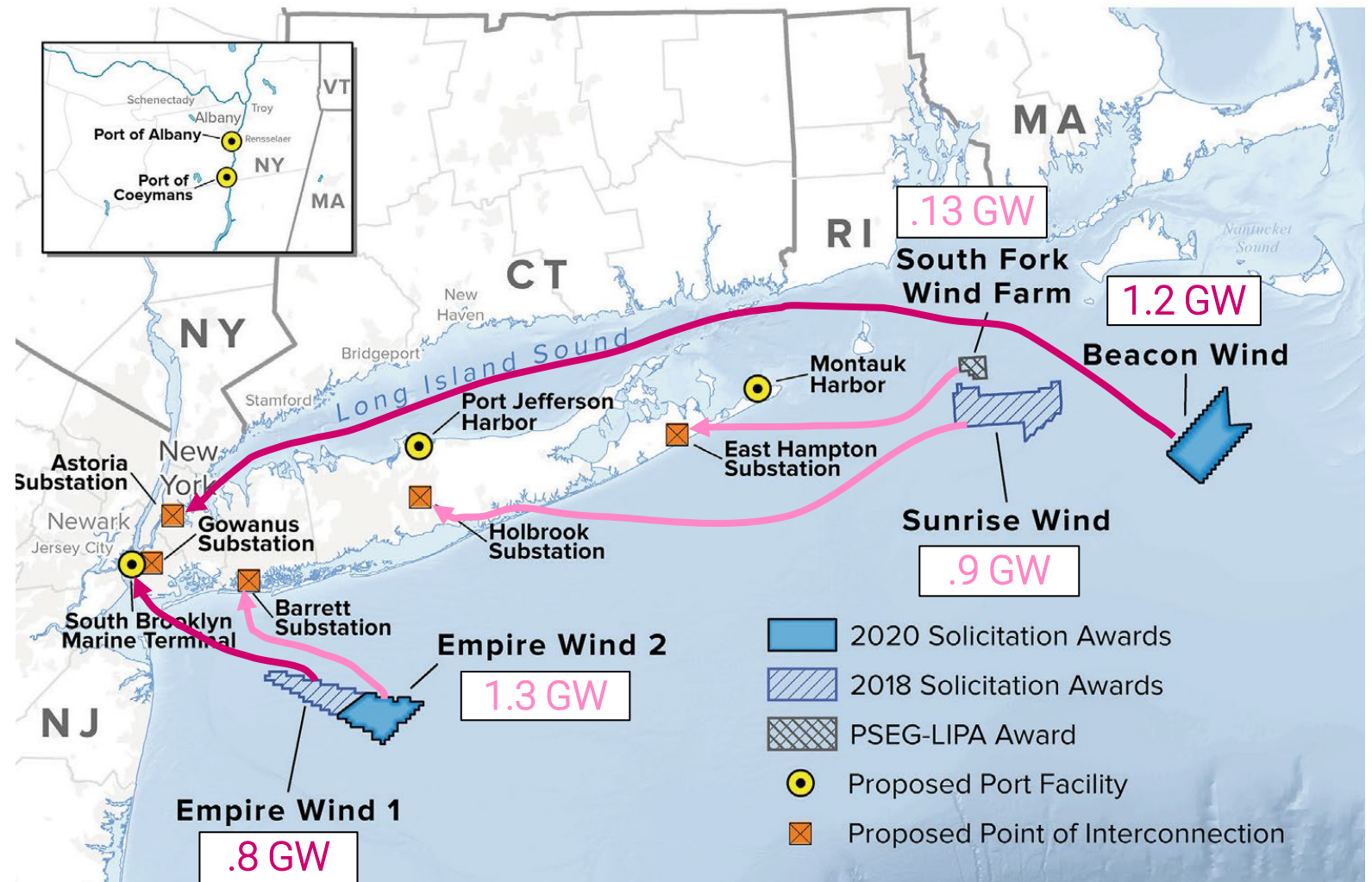
NYSERDA contracted for 4.4 GW (~50%) of **9 GW** OSW goal,
estimate 60% needs to go direct to NYC grid

~Up to 4.6 GW
Into NYC

Max 1.3 GW
into LI for NY3

NY will host multiple onshore sites to support these wind farms:

- Manufacturing
- Staging – at SBMT
- O&M – at SBMT & Port Jeff
- Interconnection



New York Third OSW Solicitation 2022: ORECRFP22-1

70% Price

20% Economic Benefits

10% Viability

Case 18-E-0071 | CES 15-E-0302
offshorewind.ny.gov

Proposal Due

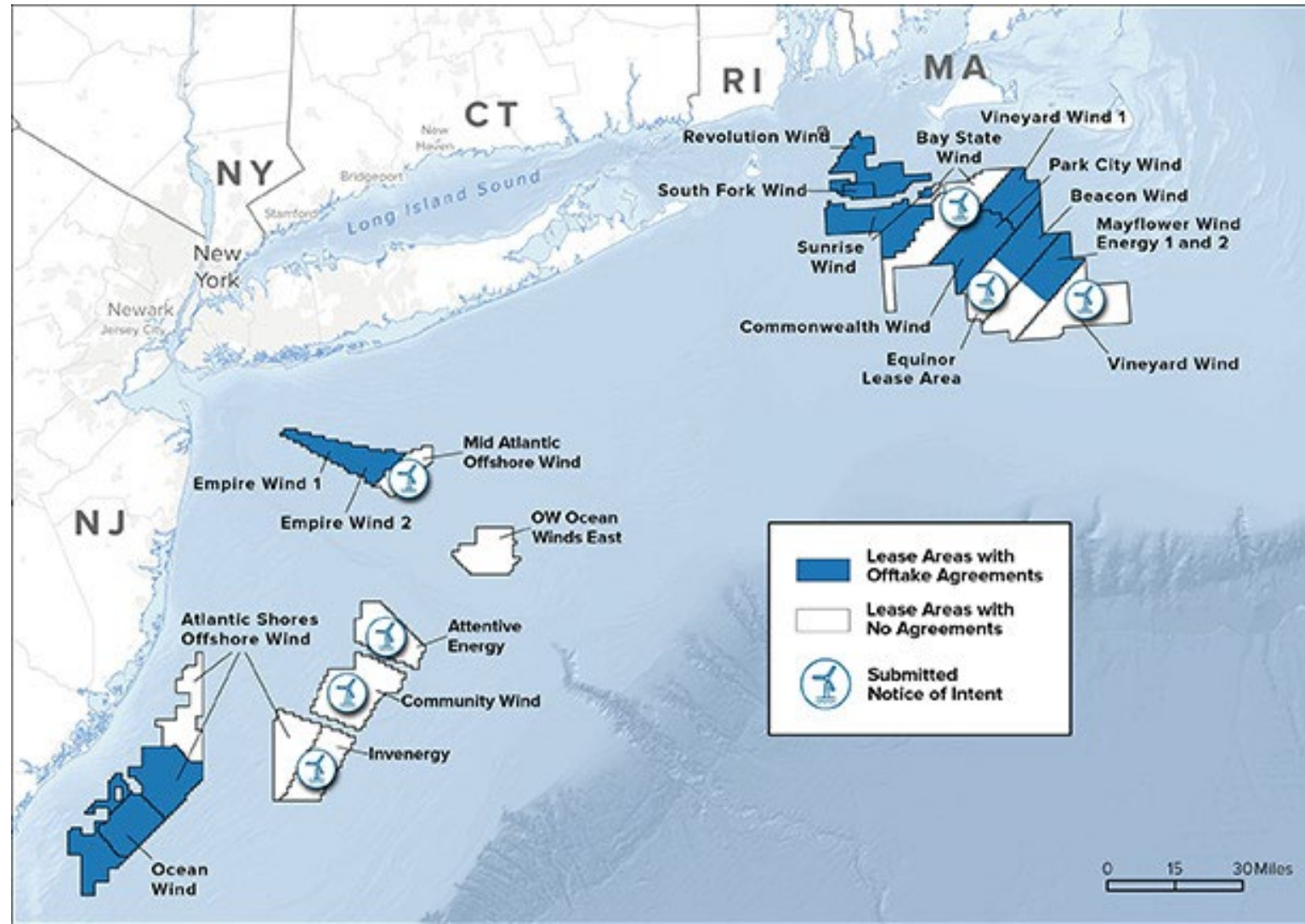
January 26, 2023

- Target of at Least 2 GW
- \$500 Million Funding to Catalyze Multiple Marquee Investments and stimulate a local supply chain
- Stakeholder Engagement and Environmental/Technical Stewardship
- Building Equity and Delivering Benefits to NYS Disadvantaged Communities
- 2021 NYS PSL Obligations: Prevailing Wage, PLAs, and Project Peace Agreements (O&M)

2022 Offshore Wind Solicitation Proposal Submitters

- Vineyard Wind & Mid Atlantic OSW (Copenhagen Infrastructure Partners)
- Beacon Wind 2 (Equinor/BP)
- Sunrise Wind 2 (Orsted/Eversource)
- Leading Light Wind (Invenergy/EnergyRe, aka Related Co)
- Attentive Energy (TotalEnergies)
- Community Offshore Wind (National Grid/RWE)

7 Lease Areas
6 Respondents
100+
Distinct Proposals



New York Harbor

The Five Boroughs

Staten Island

Brooklyn

Manhattan

Bronx

Queens

North Shore
West Shore
South Shore
Red Hook
Sunset Park

NY Harbor distance to

Empire Wind Lease Area

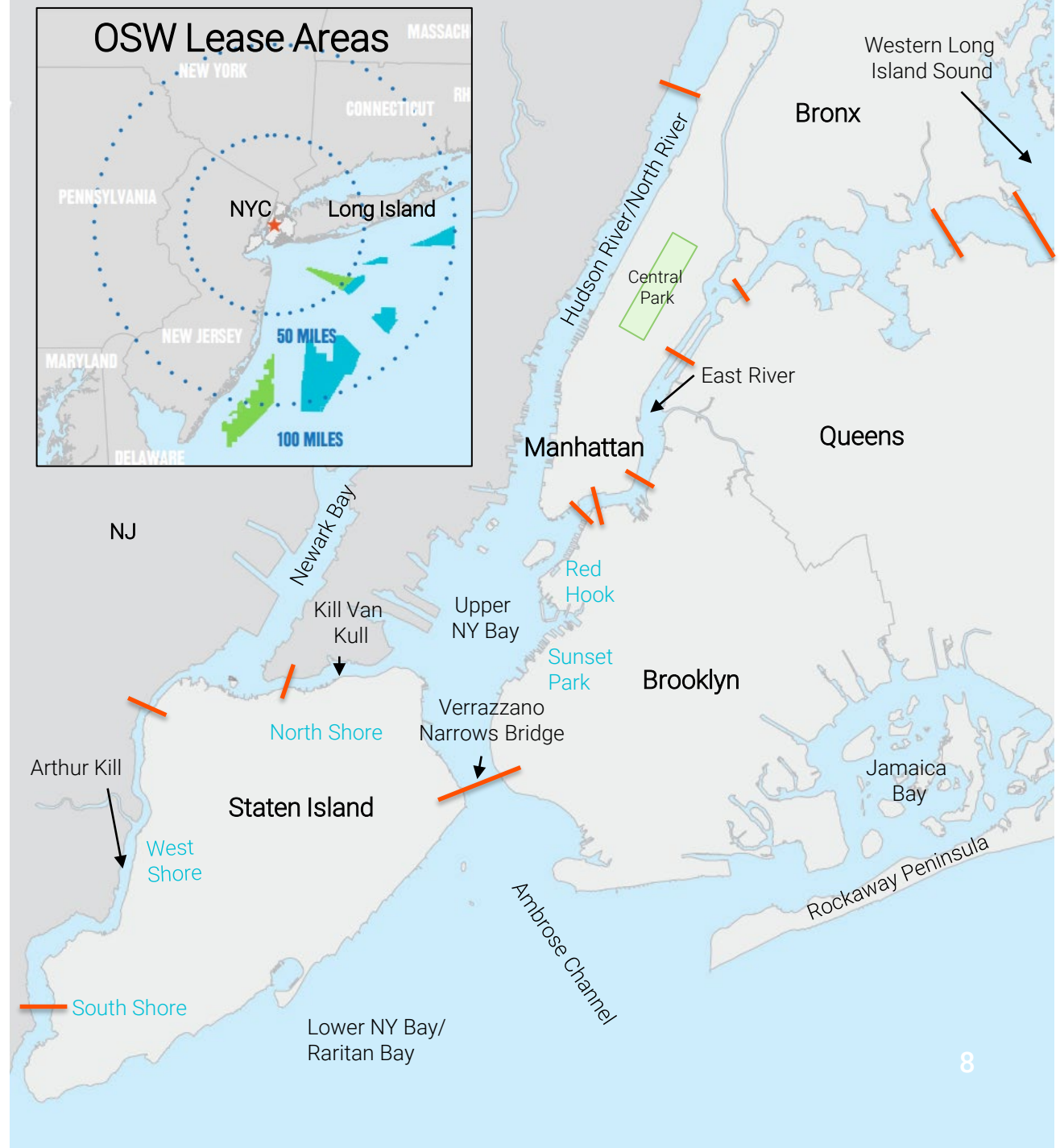
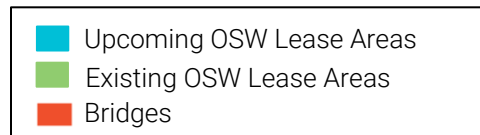
Closest turbine is 15 miles/24 Km

Closest harbor to new leases

The Hudson River by Water

145 miles/233 Km to Albany

130 miles/48 Km to Coeymans



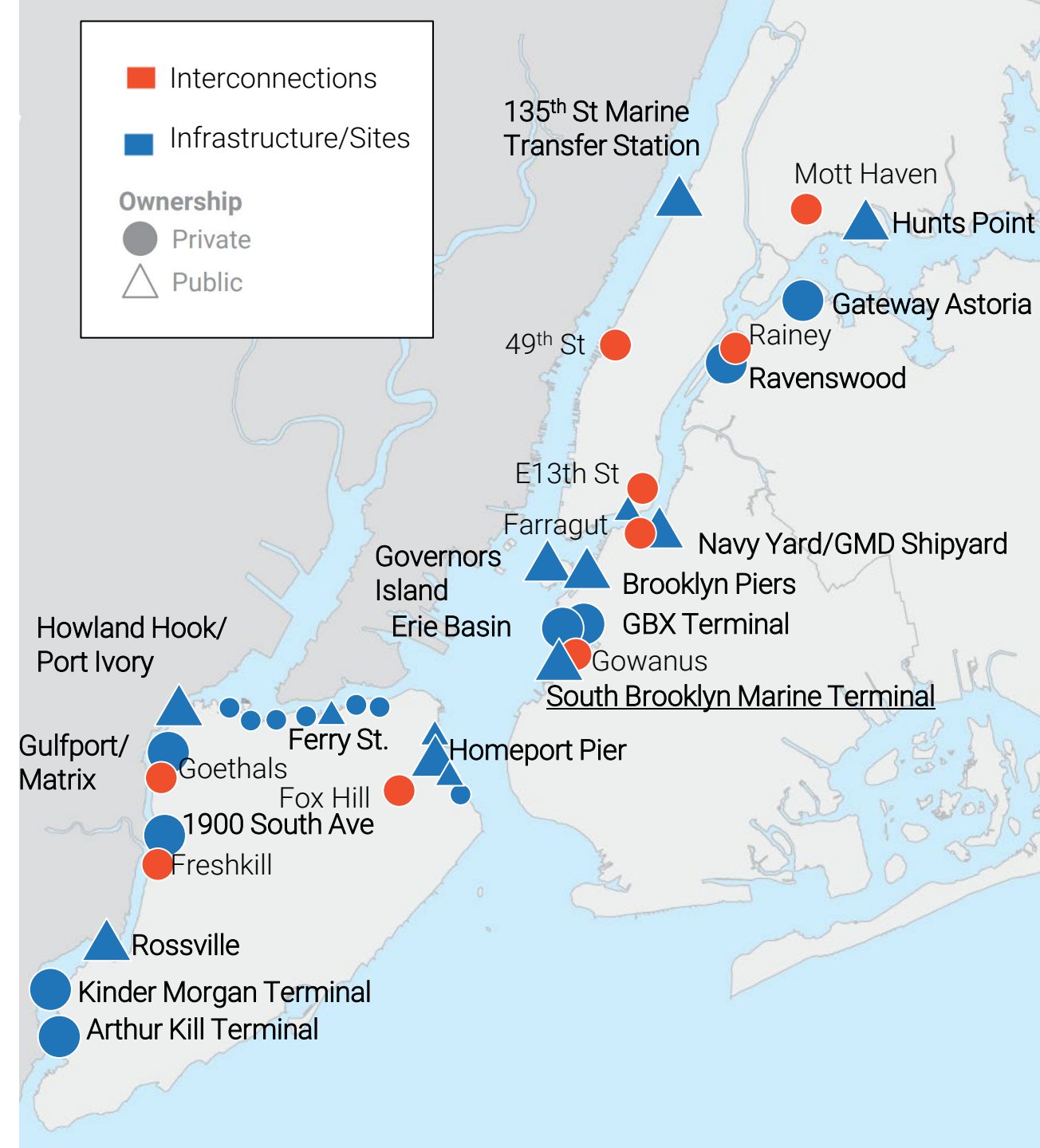
NYC has the Waterfront Assets and Waterways

NYC 520 Miles of Waterfront

Port of NY/NJ largest most diverse port complex on East Coast of the US

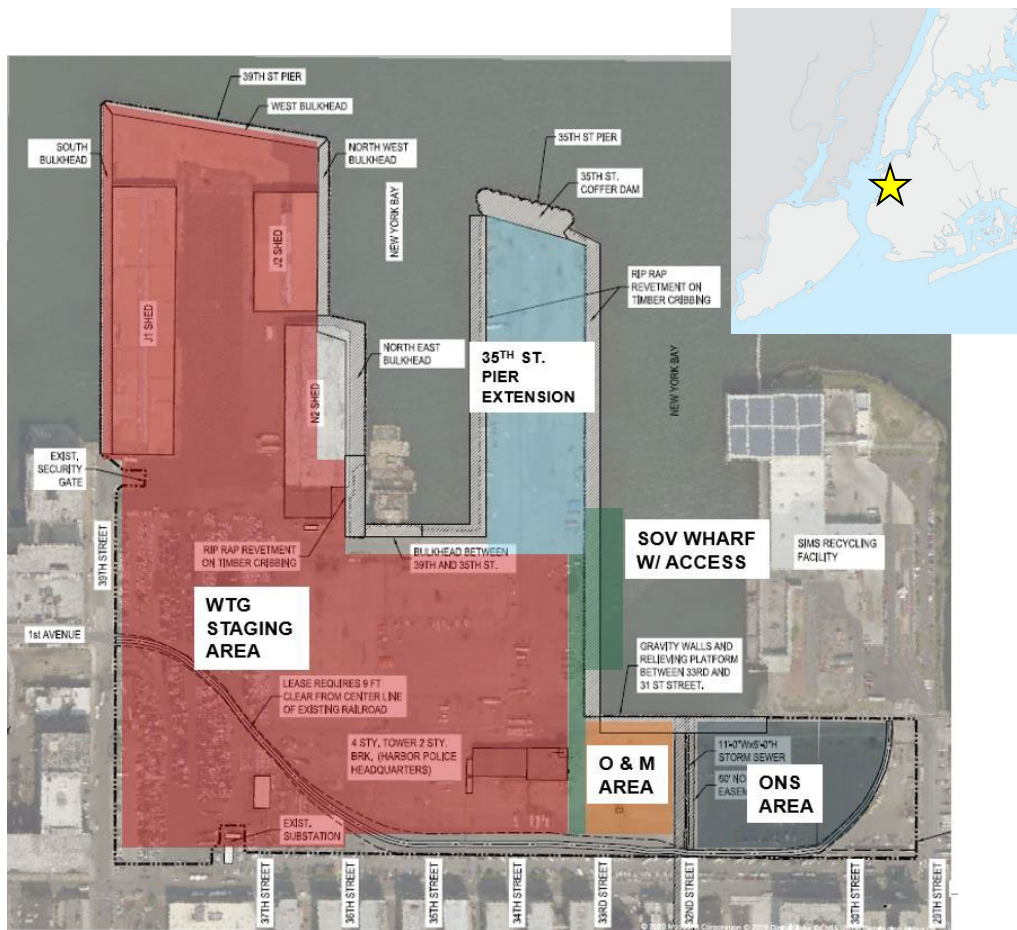
Water Conditions (vessel draft, pinch points)

Federally Maintained Shipping Channels



NY Round 1 & 2 NYC Infrastructure

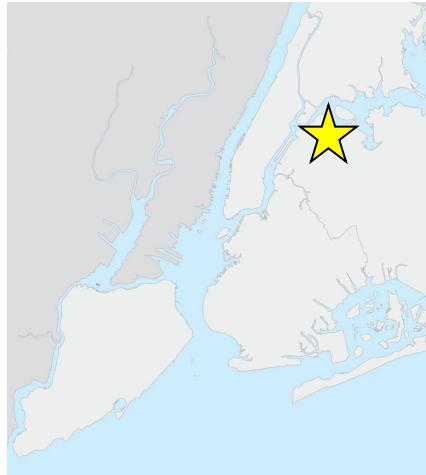
SBMT is EDC's first investment in a broad portfolio of OSW projects



- Equinor to use site for **staging** and the **O&M** + interconnection (over 32-years), creating ~1200 jobs
- \$270M port improvement of 39th St Pier and O&M work anticipated to start in Q1 2024 - funded w/ state, city and private funds
- Equinor to deliver on community benefits, including:
 - Developing SBMT as a low-emissions facility
 - Establishing a \$5M Ecosystem Fund
 - Reaching 30% MWBE target & supporting an M/WBE capacity building program
 - Building OSW learning center in Sunset Park



Astoria Gateway for Renewable Energy



NY Round 3 Possible NYC Infrastructure

Brooklyn Navy Yard: Dry Dock 4



Image Source: Turnstyle Tours



Image Source: Flickr



Ravenswood Generating Station

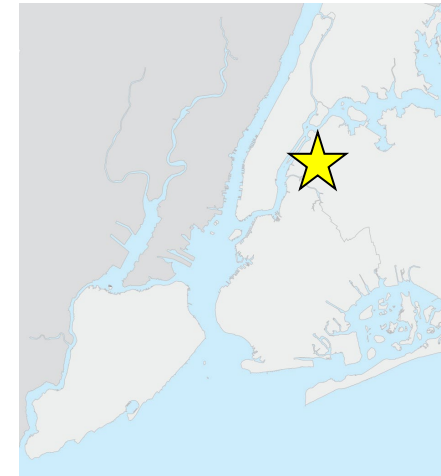
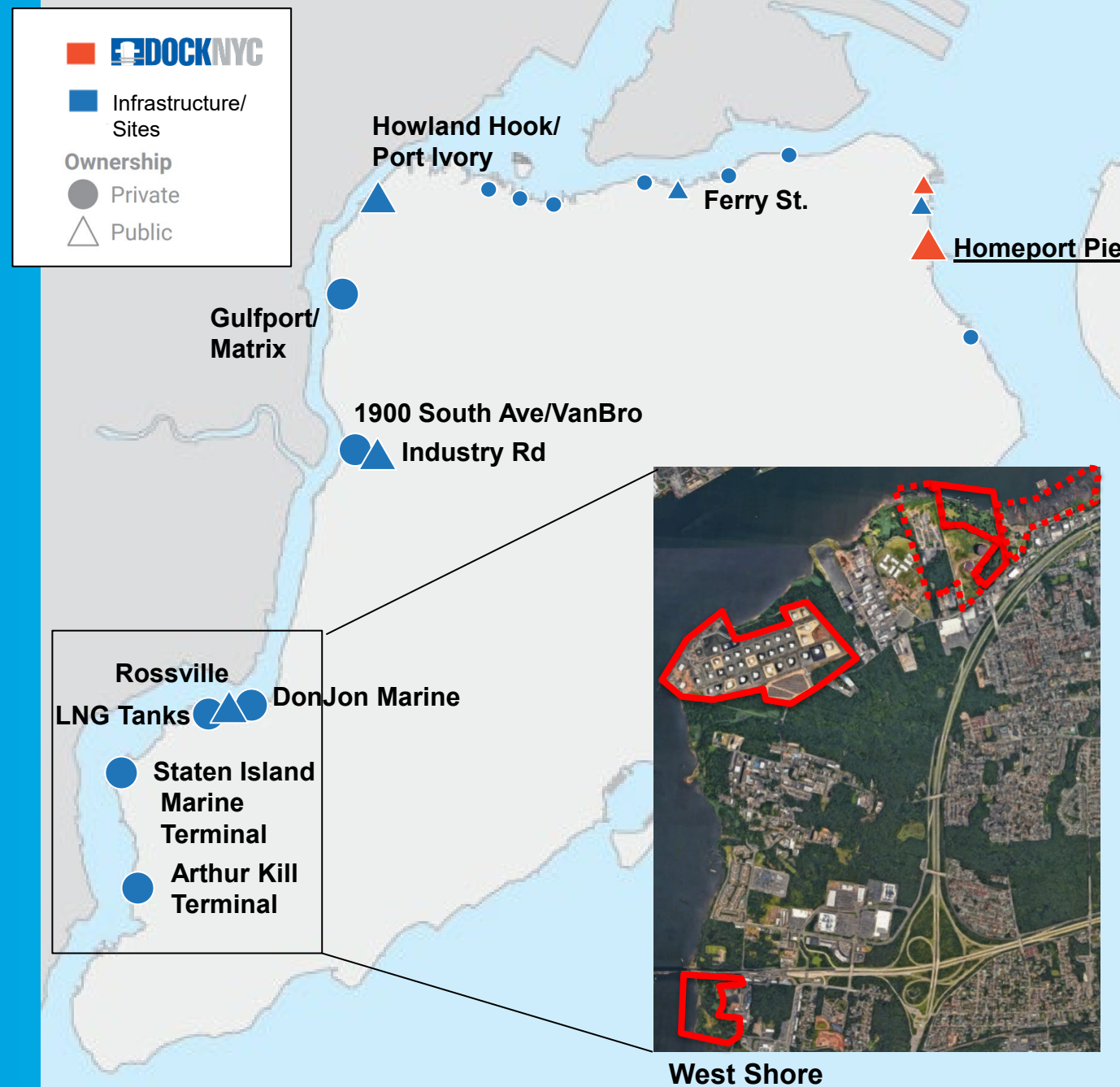


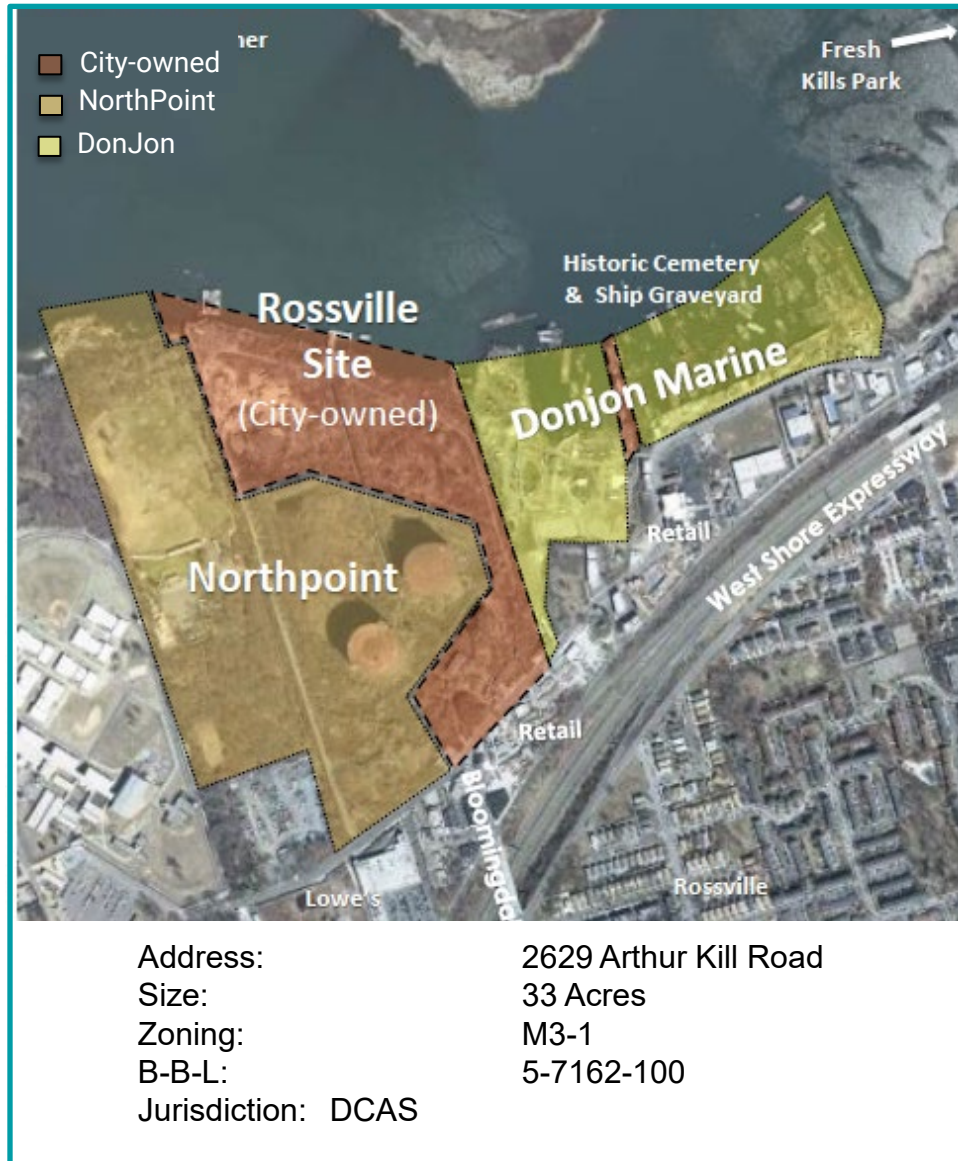
Image Source: Attentive Energy One

Local Firms & Sites

- Atlantic Salt/Celtic Marine
- Billybey Marina Services
 - www.docknyc.com
 - Pier 1
 - Homeport Pier at Stapleton
- Caddell Dry Dock
- D'Onofrio General Contractors
- Reinauer/Wind Serve
- Great Lakes Dredge
- Kirby Offshore Marine
- May's Shipyard
- McAllister Towing and Transport
- Miller's Launch
- Reynolds Shipyard
- Sterling Equipment Inc.



Rossville Offshore Wind Port

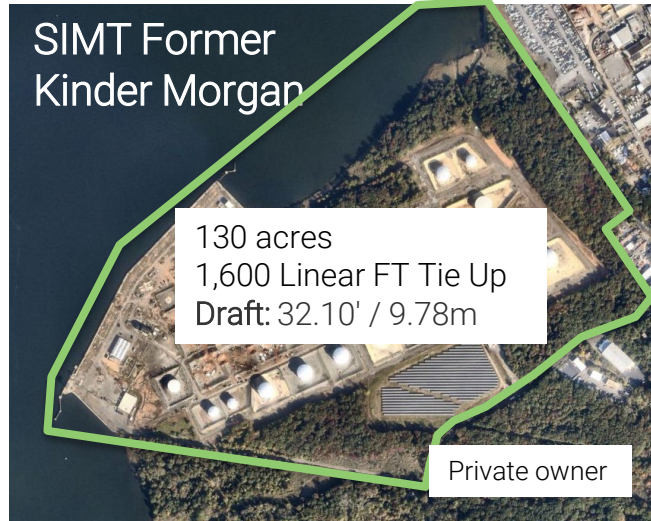


City-owned site on SI West Shore available for siting largescale OSW component manufacturing:

- West Shore is the only NYC geography that can host *OSW sized manufacturing* footprint
- Site *location* near other ports + bight drives competitive position
- Goal is to secure an OSW Original Equipment Manufacturer (OEM) to *manufacture wind components*, opening growth opportunities for local sub suppliers; other uses possible
- RFP encourages underutilized *neighboring sites* to activate for OSW

RFP timed to leverage NYSERDA's solicitation by issuing conditional designation letter(s) before power solicitation due:

- *Maximizes site demand* –NY's solicitation asks OSW developers to use NYS sites in their plans
- *Provides access to funding* –RFP respondent can apply for portion of \$500M in OREC
- *Bolsters economic benefits* by giving City opportunity to shape economic development package OSW developers propose to State



Distance from SBMT:
12 to 20 Miles / 19 Km to 32 Km

Distance from Arthur Kill Terminal
to 1900 South Ave:
1.5 to 7 Miles / 2.4 Km to 11 Km

Adjacent Waterway:
Arthur Kill

Outerbridge Crossing Air Draft:
141.00' / 42.98m

Q&A

Contact: mtaffet@edc.nyc

[www.nyserda.ny.gov/All-Programs/Offshore-Wind/Focus-Areas/
Offshore-Wind-Solicitations/2022-Solicitation](http://www.nyserda.ny.gov/All-Programs/Offshore-Wind/Focus-Areas/Offshore-Wind-Solicitations/2022-Solicitation)

The background of the slide is a collage of two images related to offshore wind energy. The top half shows a row of white wind turbines in the ocean under a clear sky. The bottom half shows a large blue crane lifting a massive white cylindrical component, likely a turbine nacelle or tower section, using red slings. The entire slide is framed by a large blue 'X' shape that divides the background images. On the left side, there is a green triangle pointing towards the center.

New Jersey's Offshore Wind Economy

March 2023



New Jersey is an emerging hub for offshore wind



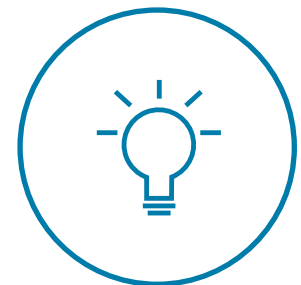
Strong **political commitment** and **central location**



11,000 MW of **procurement** through 2040 & **novel transmission strategy**

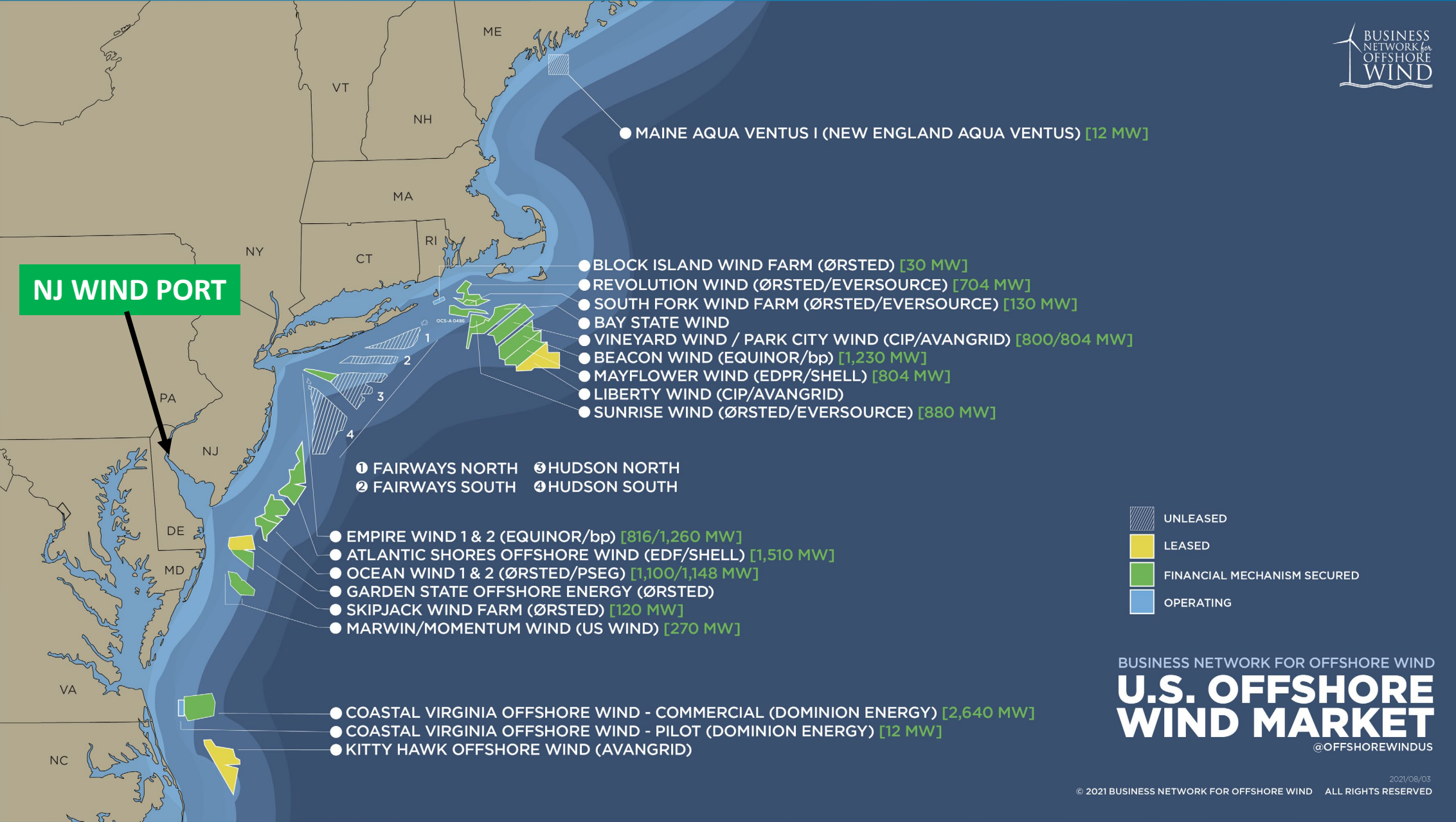


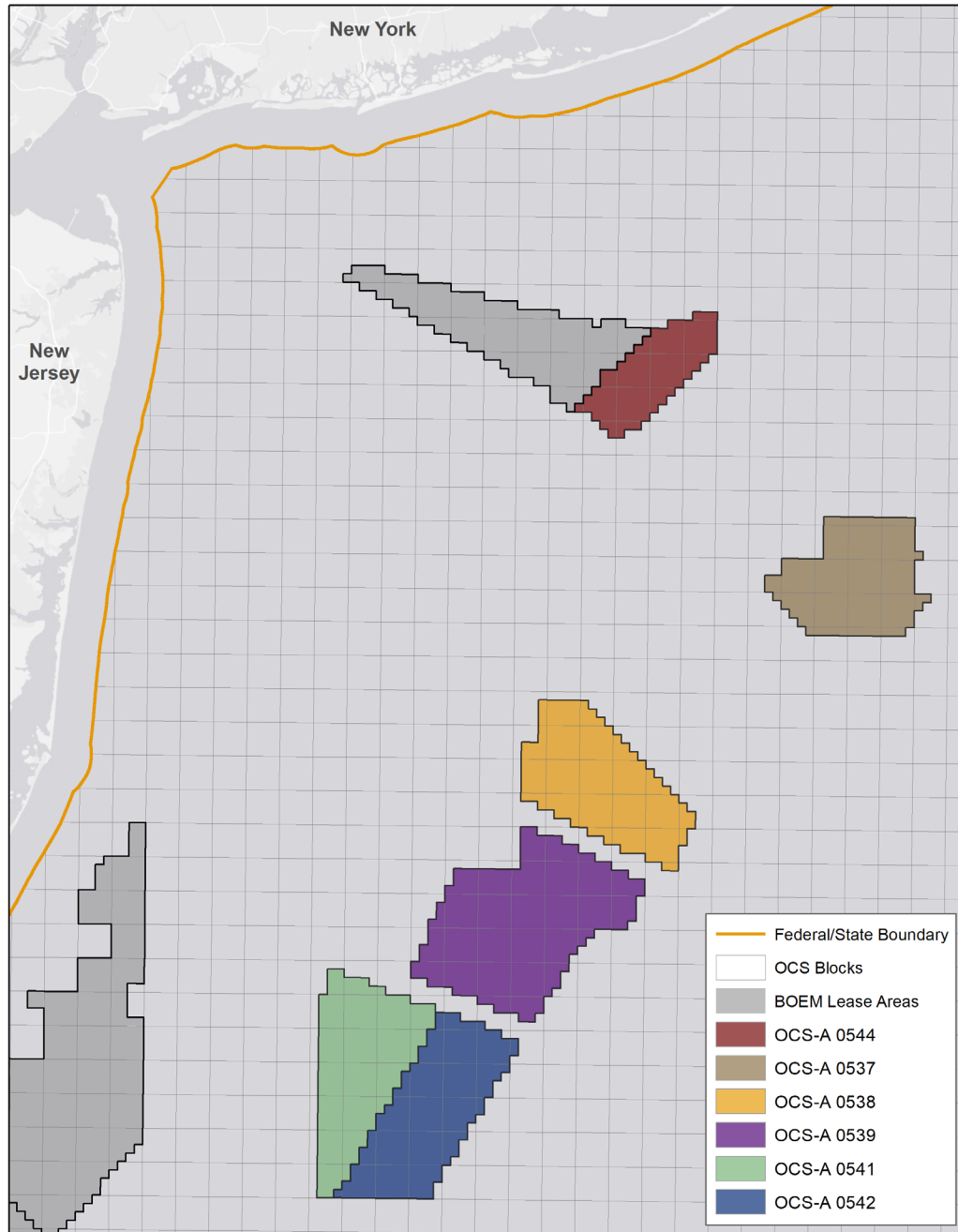
Supply chain investments to support wind projects & localize supply chain



Strong workforce, research, & innovation infrastructure

CENTRALLY LOCATED ALONG THE WIND BELT, THE NJWP WILL SERVE AS A REGIONAL ASSET





Five new offshore wind developers have entered the New Jersey market this year

- ▶ Vineyard Mid-Atlantic (Copenhagen Infrastructure Partners)
- ▶ OW Ocean Winds East
- ▶ Attentive Energy (TotalEnergies)
- ▶ Community Offshore Wind (RWE/ National Grid)
- ▶ Atlantic Shores
- ▶ Invenergy

New Jersey has a steady and consistent procurement of offshore wind every two years through the NJ Board of Public Utilities

Solicitation	Minimum Capacity Target (MW)*	Capacity Awarded (MW)	Issue Date	Submittal Date	Award Date	Estimated COD
1	1,100	1,100	Q3 2018	Q4 2018	Q2 2019	2024-25
2	1,200 – 2,400	2,658	Q3 2020	Q4 2020	Q2 2021	2027-29
3	1,200 - 4,000		Q1 2023	Q2 2023	Q4 2023	2030
4	1,200**		Q3 2024	Q4 2024	Q2 2025	2032
5	1,200**		Q3 2026	Q4 2026	Q2 2027	2034
6	1,200**		Q3 2028	Q4 2028	Q2 2029	2036
7	1,200**		Q3 2030	Q4 2030	Q2 2031	2038
Total Awarded + Target	11,000					

*The Board may award projects above or below the target

**To be adjusted based on previous solicitation awards

Note: More information on NJBPU's solicitations can be found [here](#)

PORTS ARE **THE** CRITICAL ENABLER OF A TIMELY & COST-EFFECTIVE OSW TRANSITION

	Marshalling	Manufacturing	O&M
Use period	Short-term/ project-based	Medium-long term (10-20 years)	Long-term (25+ years/project life)
Air-draft	Unrestricted	Standard	Standard
Dredge (ft)	35-40	<35*	Standard
Size (acres)	30 minimum	Facility dependent (30 – 90 acres)	<10
Weight bearing	>6k psf (wharf) >4k psf (uplands)	>4k psf (wharf) >4k psf (uplands)	Standard
Max distance to farm (miles)	<200	N/a**	<50 (CTVs) <140 (SOV)
Intermodal connectivity	Nice to have but not essential	Rail is beneficial if steel-intensive (e.g., monopiles)	Not essential
Current availability	Very limited	Limited	Less limited

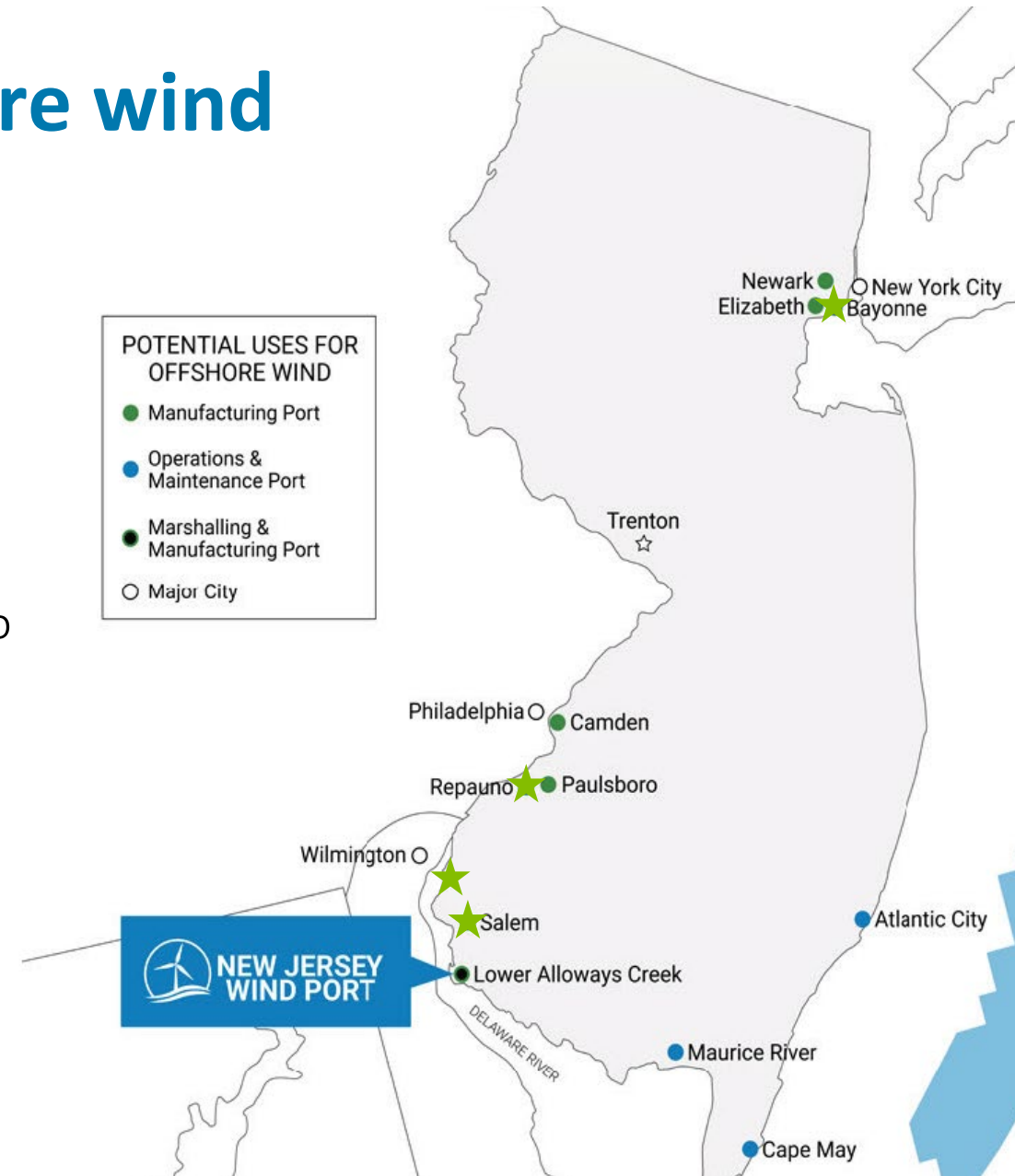


**Excludes gravity-based foundations; **Assumes turbine components are barged to a marshalling port. Foundations typically barged directly out to site* Sources: NJEDA analysis; BVG Associates, 2021

Additional sites available for offshore wind component manufacturing

- ▶ **Repauno Port & Rail Terminal** – Tier 1 manufacturing, rail-linked, ~2-3 years to be supply chain ready
- ▶ **Bayonne** – Tier 1 manufacturing, ~2-3 years to be supply chain ready
- ▶ **Port of Salem** – Tier 2-3 manufacturing, rail-linked, ~<5 years to be supply chain ready
- ▶ **Chemours Chambers Works** – Tier 1 manufacturing, ~<7 years to be supply chain ready
- ▶ **Other sites to consider:** Sayreville, Chemours Linden, Naval Weapons Station Earle, North & McLester

Contact [Choose New Jersey](#) for support in site selection



An aerial rendering of the New Jersey Wind Port facility. The image shows a large industrial site with numerous white wind turbine components, including nacelles and blades, arranged in neat rows on the ground. A large red and white ship is docked at a pier, with a crane lifting a tall white nacelle. Another ship is visible in the water. The facility is situated along a body of water, with green fields and a road visible in the background.

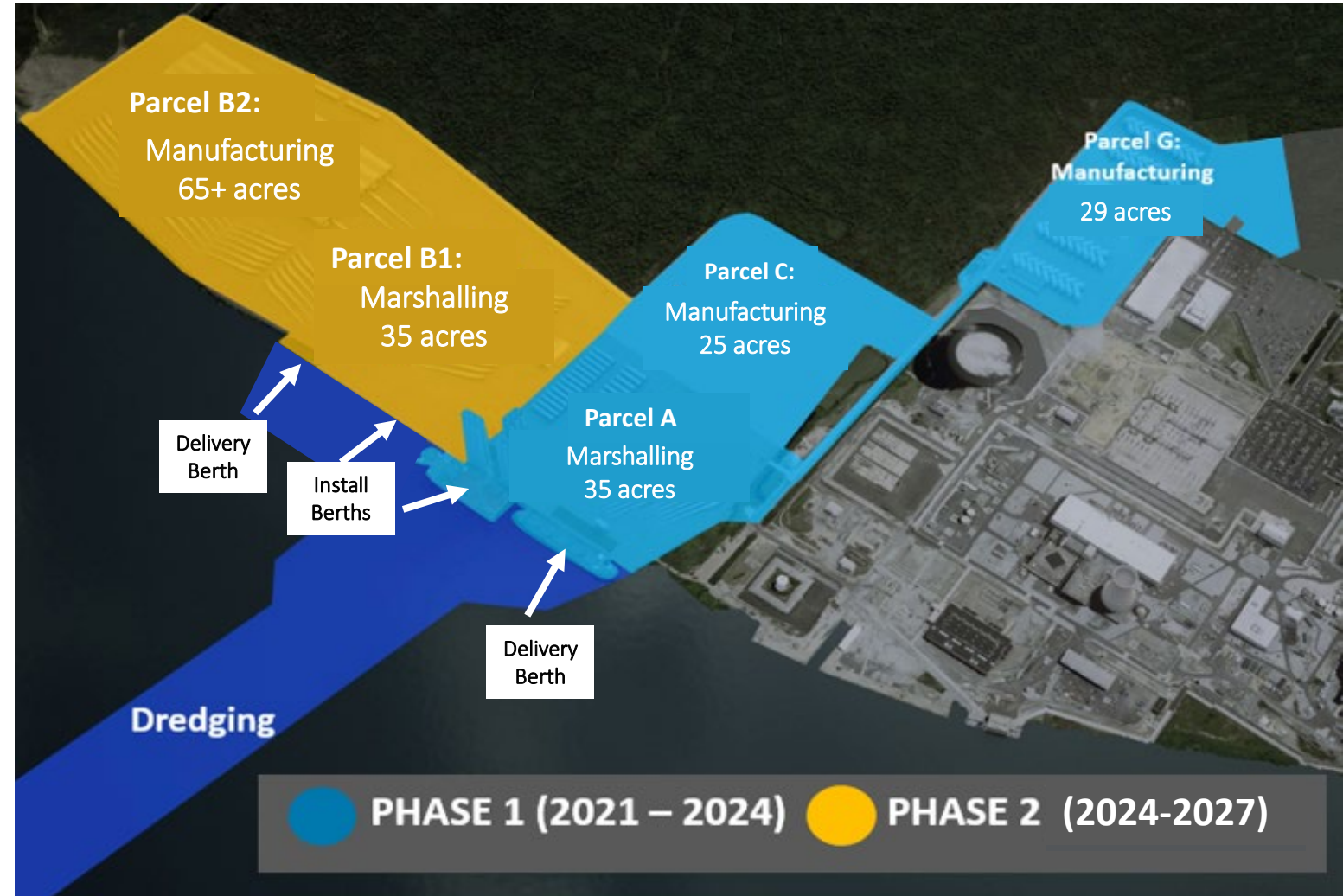
The New Jersey Wind Port is the first purpose-built wind port in the U.S.

Lower Alloways Creek, NJ

- ▶ Uniquely able to service the offshore wind marshalling and manufacturing needs
- ▶ Construction has begun with phase one expected to be completed in 2024
- ▶ Will create up to 1,500 manufacturing and operations jobs

The Port will be developed in phases from 2021 to 2027

- ▶ Marshalling specifications
 - ▶ 35 acres x 2
 - ▶ Purpose-built heavy lift install and delivery berths
 - ▶ Heavy-haul road connections from inland manufacturing to the wharf
 - ▶ Install berths exclusive to marshalling, delivery berths shared with manufacturing tenants
- ▶ Parcel A construction commenced Q4 2021 – due to complete Q1 2024
- ▶ Parcels G, C, D, E and B at permitting stage
- ▶ B1 to start construction Q1 2024



What types of traffic will the port create?



- Most materials and components will arrive to the port by sea
- Some smaller components may be imported via truck



**NEW JERSEY
WIND PORT**
LOWER ALLOWAYS CREEK



**NEW JERSEY
WIND PORT**



Offshore wind developers and manufacturers have committed to locate at the New Jersey Wind Port

Orsted's Ocean Wind II, 1,148 MW project is committed to nacelle assembly with GE



Atlantic Shores' 1,510 MW project is committed to nacelle assembly, preliminarily with Vestas



NJEDA received 16 non-binding bids from six bidders in Oct 2021

EEW monopile foundation fabrication facility is being developed in Paulsboro, NJ



- ▶ EEW is a German monopile foundation company opening a [new facility in 2023](#)
- ▶ Potentially 300 to 500 new jobs will be created, primarily in welding and painting



Looking ahead in New Jersey

- ▶ New Jersey's third offshore wind solicitation released by NJBPU - March 2023
- ▶ New Jersey Wind Port leasing **65+ acre parcel** for Tier 1 manufacturing (Timing TBD)
- ▶ **Updated NJ port analysis** in Offshore Wind Strategic Plan



March 2023

2018 Maritime Strategy for the State of Connecticut



- Manage the State Pier to Increase Utilization and Profitability
- Build More Volume in Our Commercial Ports
- Support Dredging of Connecticut's Ports and Waterways
- Support the Small Harbor Improvement Projects Program (SHIPP)
- Create Intermodal Options
- Leverage Emerging Opportunities
- Enhance Ferry Systems and Cruise Coordination Activities
- Ensure Future Support of CPA

Economic Impacts of Connecticut's Maritime Industry



IMPACTS of the CONNECTICUT MARITIME INDUSTRY

Prepared for Connecticut Port Authority
Prepared by Connecticut Economic Resource Center, Inc.

July 2019



In 2019, an Authority-commissioned study found that the maritime industry in Connecticut generates an estimated **\$11.2 billion dollars annually** and supports an estimated **59,800 jobs** across the state.



Connecticut's Maritime Profile

Deepwater Ports



BRIDGEPORT



NEW HAVEN



NEW LONDON

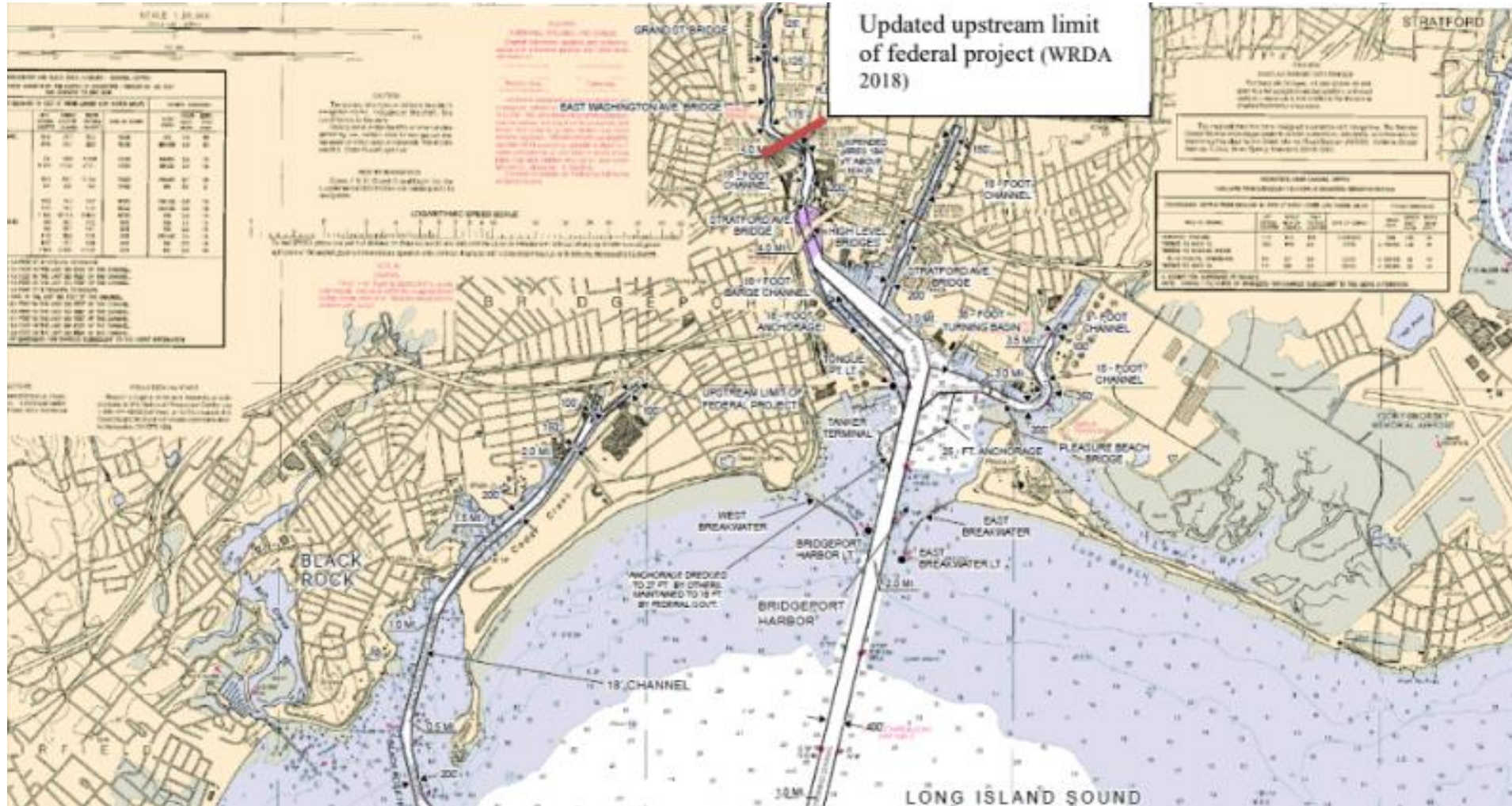
Small Harbors and Waterways

Small harbors in shoreline towns support additional marine activity.

Domestic goods go into and out of Stamford and other small harbors, while a range of recreation and tourism activities drive related sectors of the economy.

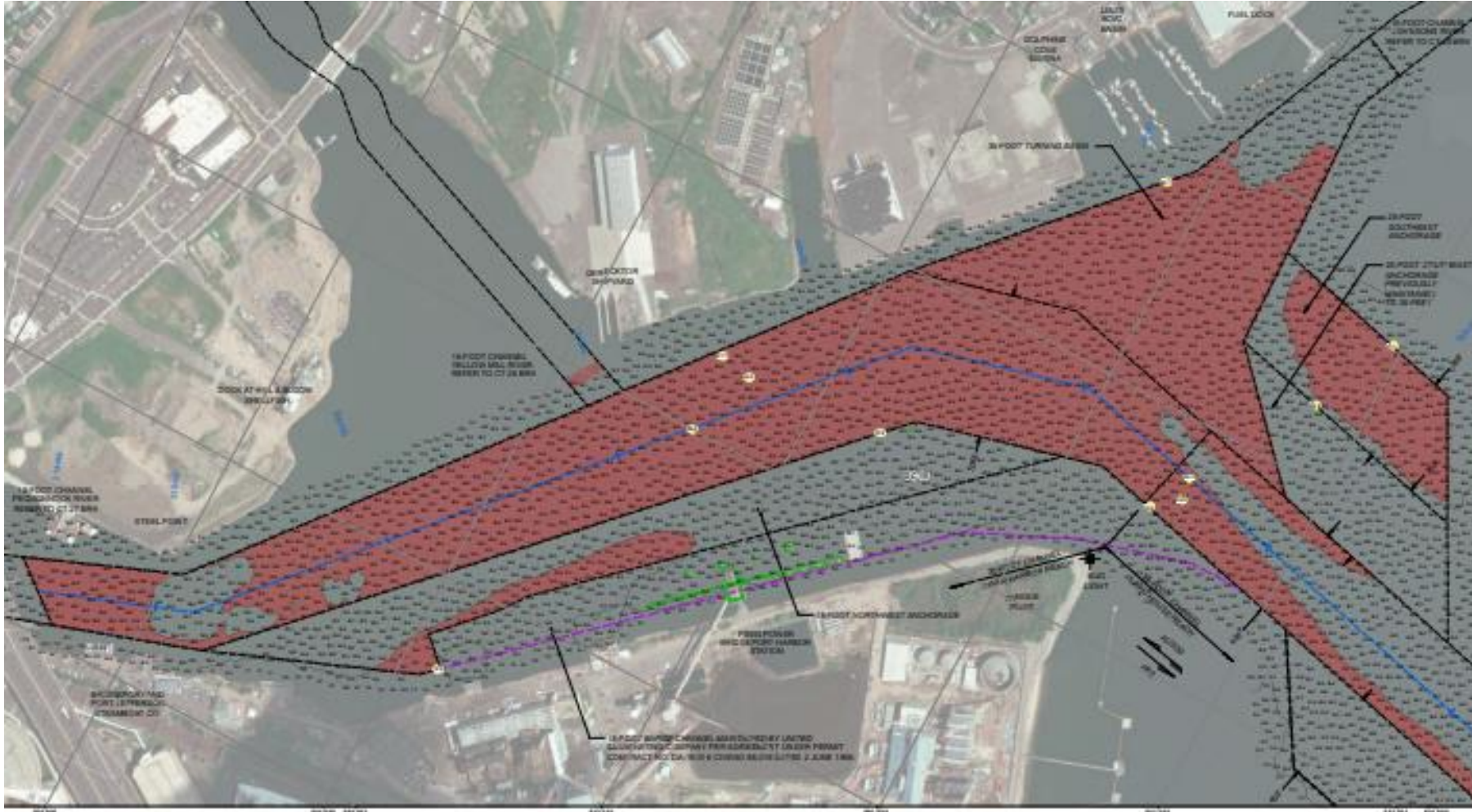
Deepwater Ports Overview

Bridgeport at-a-Glance



Deepwater Ports Overview

Bridgeport Maintenance Dredge



Deepwater Ports Overview

Bridgeport East Harbor Availability



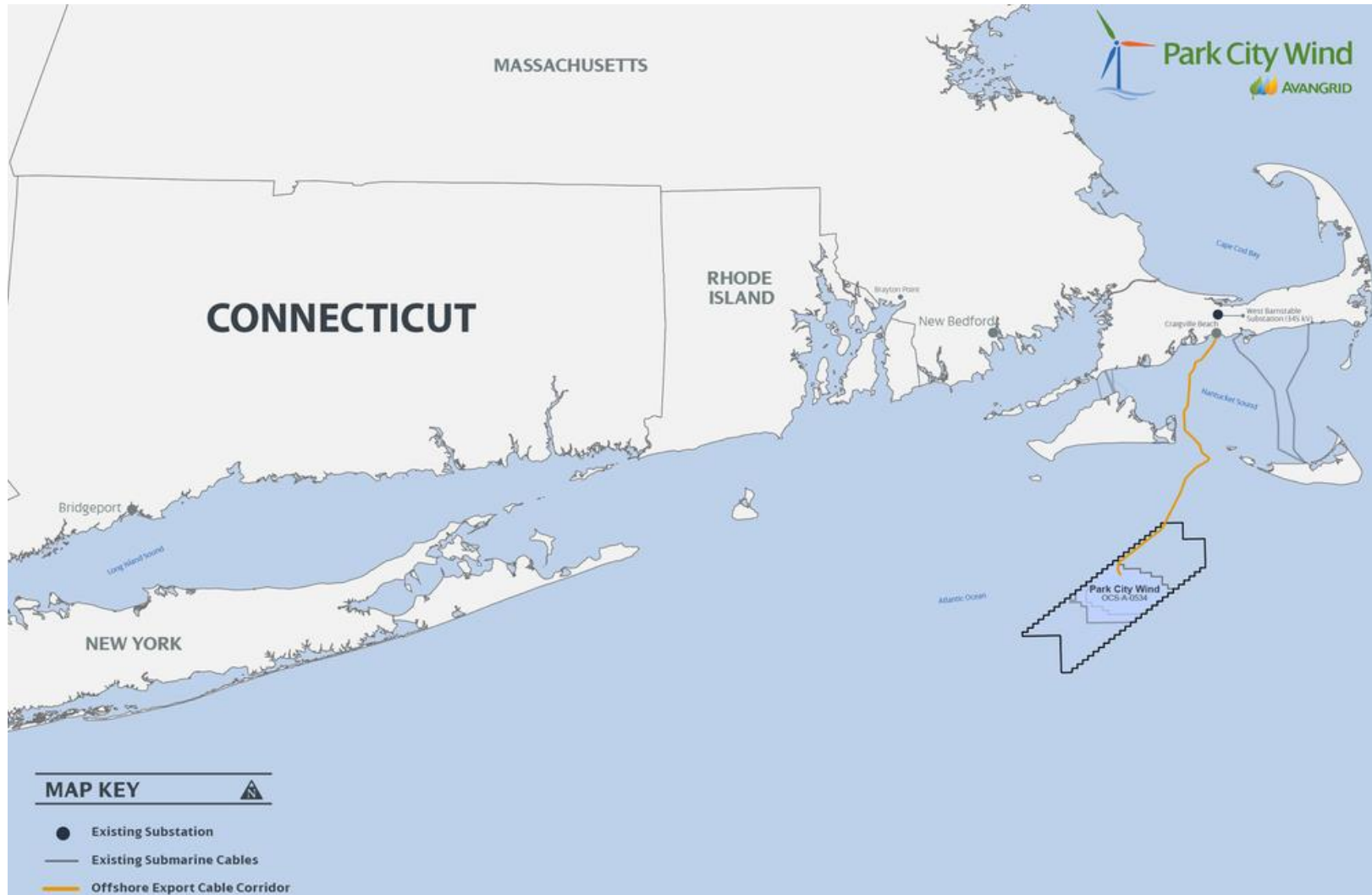
Deepwater Ports Overview

Bridgeport – Avangrid Component Staging



Deepwater Ports Overview

Bridgeport – Park City Wind Lease Area



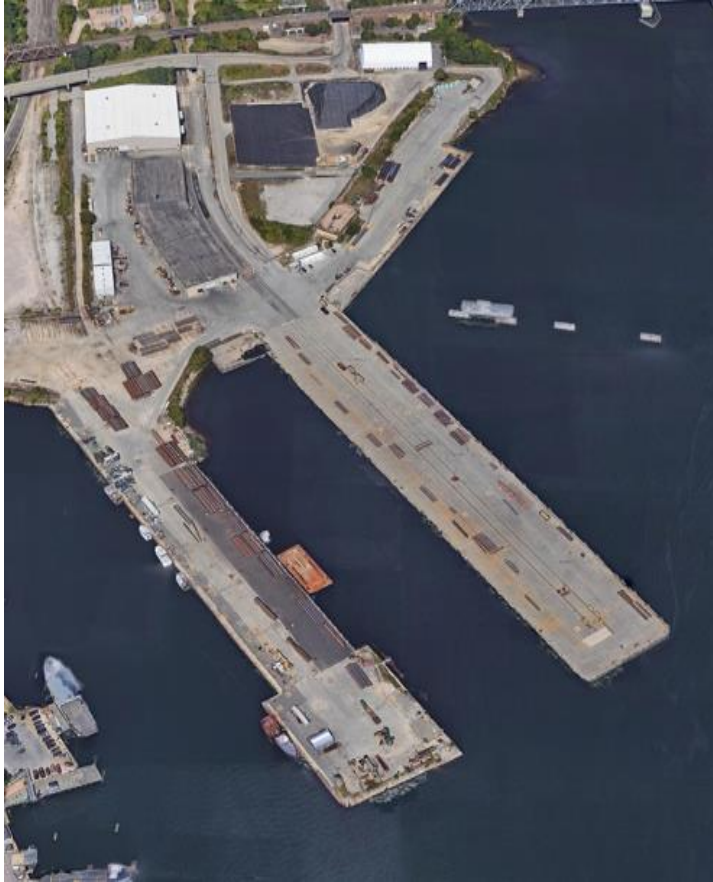
Deepwater Port Overview

New London at-a-Glance



Transforming State Pier

Before



After



- The Connecticut Port Authority (CPA) and State of Connecticut have invested \$180.5 million and private partners Ørsted and Eversource have invested \$75 million to redevelop State Pier – a total investment of \$255.5 million.
- Expanded and leveled footprint for increased laydown area.
- Enhanced facility with added heavy-lift capability, expands the State Pier's uses.
- Generational improvements, plus long-term lease of the facility with market-leading operator Gateway Terminal in place to maximize utilization of the facility and start an exciting new chapter for State Pier, New London and the state.

WIND FARM LOCATIONS

Under construction

South Fork Wind: 130MW

Awarded

Revolution Wind: 704MW

Sunrise Wind: approximately 924MW

 Awarded
 Under construction

South Fork Wind  Revolution Wind
Sunrise Wind



- The first ever Jones Act-compliant offshore wind turbine installation vessel (WTIV) is under construction in Texas
- The vessel has been chartered by Orsted and Eversource for their Revolution Wind and Sunrise Wind projects
- New London will be the first port to host the working vessel

Charybdis
472'x184'x38'
main crane boom
length of 426' and
lifting capacity of
2,200 tons



Connecticut Offshore Wind Strategic Action Plan



A strategic plan for the State of Connecticut to capitalize on its investment in the emerging offshore wind industry.



CHAMBER of COMMERCE
EASTERN CONNECTICUT

Connecticut

PREPARED BY

MCALLISTER
MARINE
ENGINEERING



FUNDED BY

Revolution
Wind

Powered by
Ørsted &
Eversource

Connecticut

Department of Economic and
Community Development



SOUTHEASTERN
CONNECTICUT
ENTERPRISE REGION



EWIB
EASTERN CONNECTICUT
WORKFORCE INVESTMENT BOARD



Connecticut Center for
Advanced Technology, Inc.

SCCOG

Southeastern Connecticut
Council of Governments



NORWICH
COMMUNITY
DEVELOPMENT
CORPORATION



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www.StatePierNewLondon.com



New Jersey Wind Institute for Innovation and Training





ACCELERATE DEVELOPMENT OF A
ROBUST AND DIVERSE OFFSHORE
WIND WORKFORCE



CHAMPION RESEARCH AND
INNOVATION THAT UNLOCKS
MARKET POTENTIAL

- ▶ Galvanizing cross-stakeholder efforts to foster offshore wind workforce, education, research and innovation efforts
- ▶ \$12M in private funding and \$26.5M in public funding to date



Wind Institute for Innovation and Training

Workforce Development and Education

- ▶ Coordinate and partner with education institutions from K-12 to four-year universities to prepare New Jersey offshore wind workforce
 - Offshore wind activity book for K-6 grade students
 - [KidWind](#) K-12 offshore wind curriculum, teacher training, [ReCharge Academy 2023](#) in Atlantic City
- ▶ Partner directly with industry to address workforce needs
 - Work with EEW to expand [welding and painting training programs](#) at votech schools in south Jersey (Gloucester, Salem, and Camden counties)
 - Rowan College of South Jersey [wind turbine tech training programs](#) under development in collaboration with Orsted
 - Atlantic Cape Community College [GWO Basic Safety & Sea Survival facility](#) in progress
- ▶ Identify and address emerging workforce gaps and opportunities
 - [OSW Workforce Gap Analysis Study](#)
 - Currently reviewing applications from [Offshore Wind Workforce and Skills Development Grant Challenge](#)



EEW Painting and Welding Case Study

- ▶ **Partnership between EEW AOS, NJEDA/Wind Institute, and local votech high schools/community colleges:** Gloucester County Institute of Technology (GCIT), Salem County Vocational Technical School (SCVTS), Camden County Vocational Technical Schools, and Camden County College
- ▶ Identified EEW's specific **training needs for submerged arc welding and marine coating**, including specific equipment, materials, specs, and end of course testing requirements
- ▶ **Assessed local schools' existing programs and capacity/interest** to expand programs to meet EEW's needs
- ▶ Provided **funding and coordination support** for “train the trainer” sessions, curriculum development, equipment and material purchases, instructor fees, marketing materials, and scholarships
- ▶ GCIT's programs began September 2022, SCVTS and Camden programs will begin in Summer 2023
 - Daytime courses provide high school students with welding training, with subarc welding added for juniors and seniors
 - Evening courses include 7-month intro to welding course, and multiple sessions of submerged arc welding (6 weeks), and marine coatings (3 weeks)
 - Afterschool program planned for Camden for secondary students at traditional public high schools



Wind Institute for Innovation and Training

Research and Innovation

- ▶ **Champion research and innovation that unlocks market potential**
 - [University Initiatives](#) to support research, curriculum development and expanded learning opportunities at R1 and R2 public universities
 - Annual [Wind Institute Research Symposium](#) to highlight offshore wind research priorities and activities in New Jersey
 - [Wind Institute Fellowship](#) to support university student research and exposure to offshore wind
 - First cohort supporting 26 fellows at Rutgers, Rowan, Montclair State and NJIT
 - Next year's cohort expanding to include Stockton and potentially students from Princeton, Stevens and Seton Hall
- ▶ **Invest in offshore wind R&D ecosystem to further develop supply chain and promote job creation**
 - Joined the National OSW R&D Consortium and supporting national and regional research projects
 - Conducted feasibility study for flagship OSW research and testing

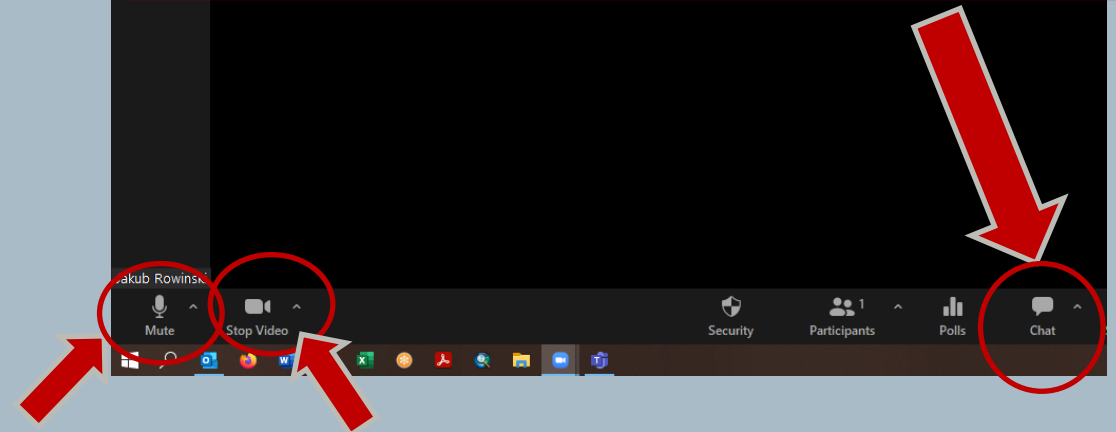
Feasibility Study for Flagship Wind Innovation Center

- ▶ R&D facility envisioned as a physical anchoring asset for testing, validating, and refining emerging technological and innovations that demonstrate promise for OSW market and establish New Jersey as a **hub for OSW technology research and innovation**
- ▶ Bring together leading researchers and start ups with industry leaders in **lab and office space** combined with **unique test facilities**. This will be complemented with a virtual network, focusing digital resources on priority wind topics and a developing a data library for research products
- ▶ **Potential focus areas:** Climate-smart modeling, environmental impact assessment technologies, future transmission technologies and electrical infrastructure, power-to-X and storages solutions, and enabling component design and production
- ▶ **Potential testing sites facilities:** **Transmission equipment testing and grid performance** (high voltage testing and ancillary equipment, inter-operability of HVDC systems, Power-to-X and grid optimization) and **deep tank**
- ▶ Implementation will require **industry investment and partnerships**

Off-Shore Wind Development Needs and Implications for Regional Planning and Transportation Workshop



Please use the Chat box to ask questions during the presentations and if requesting credits, please post your name and email, followed by AICP



Please mute and turn off your video when not speaking.