

Senator Addabbo, Senator Sanders, Assembly Member Pheffer Amato & Assembly Member Anderson Welcome You:

OFFSHORE WIND ENERGY: The Promise of Good Jobs & Clean Energy



Joseph
ADDABBO
NYS Senator



James
SANDERS JR
NYS Senator



Adrienne
DOWNEY
NYSERDA



Michael
YEE
IBEW



Jennifer
GARVEY
Ørsted



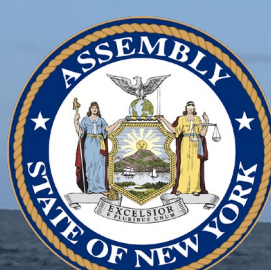
Julia
BOVEY
Equinor



Marj
ISSAPOUR
SUNY Farmingdale



Eric
JOHANSSON
SUNY Maritime



WORKFORCE
DEVELOPMENT
INSTITUTE

Event brought to you by Senator Joseph P. Addabbo, Senator James Sanders Jr., Assembly Member Stacey Pheffer Amato, and Assembly Member Khaleel M. Anderson; co-hosted by Workforce Development Institute of New York.

With support from: Brooklyn Workforce Innovations, City College, City Tech, College of Staten Island, CUNY, IBEW Local 3, Jamaica NAACP, Kingsborough Community College, LaGuardia Community College, NYCEDC, NYSERDA, Opportunities for a Better Tomorrow, SBIDC, Sheltering Arms, SUNY Farmingdale, SUNY Maritime, New York Automotive & Diesel Institute



NYSERDA



Offshore Wind Energy:

*The Promise of Good Jobs
& Clean Energy*

WDI Webinar | 04.28.2021

Adrienne Downey, Principal Engineer, Offshore Wind



New York's Climate Law


Signed into law in 2019,
the Climate Leadership
and Community
Protection Act (CLCPA)
charts a path towards a
clean energy economy





New York is committed to
100% clean
carbon-free electricity
by 2040

most aggressive in the nation

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 soft, white clouds. The base of the turbines is a dark blue line representing the ocean surface.

9,000 MW
of offshore wind
by 2035

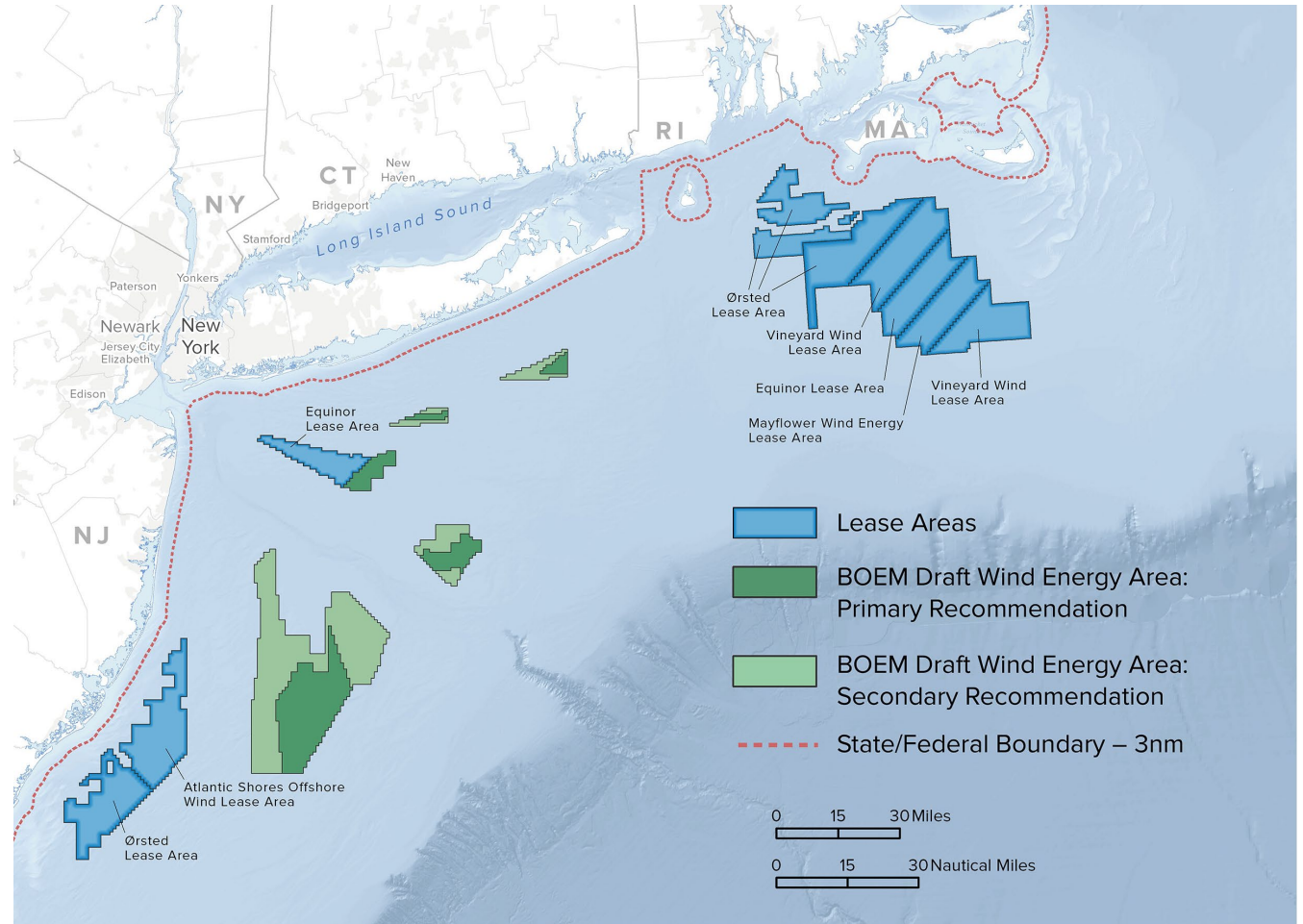
10,000 JOBS

**ENOUGH TO POWER
6 MILLION HOMES**

**BILLIONS IN
INFRASTRUCTURE**

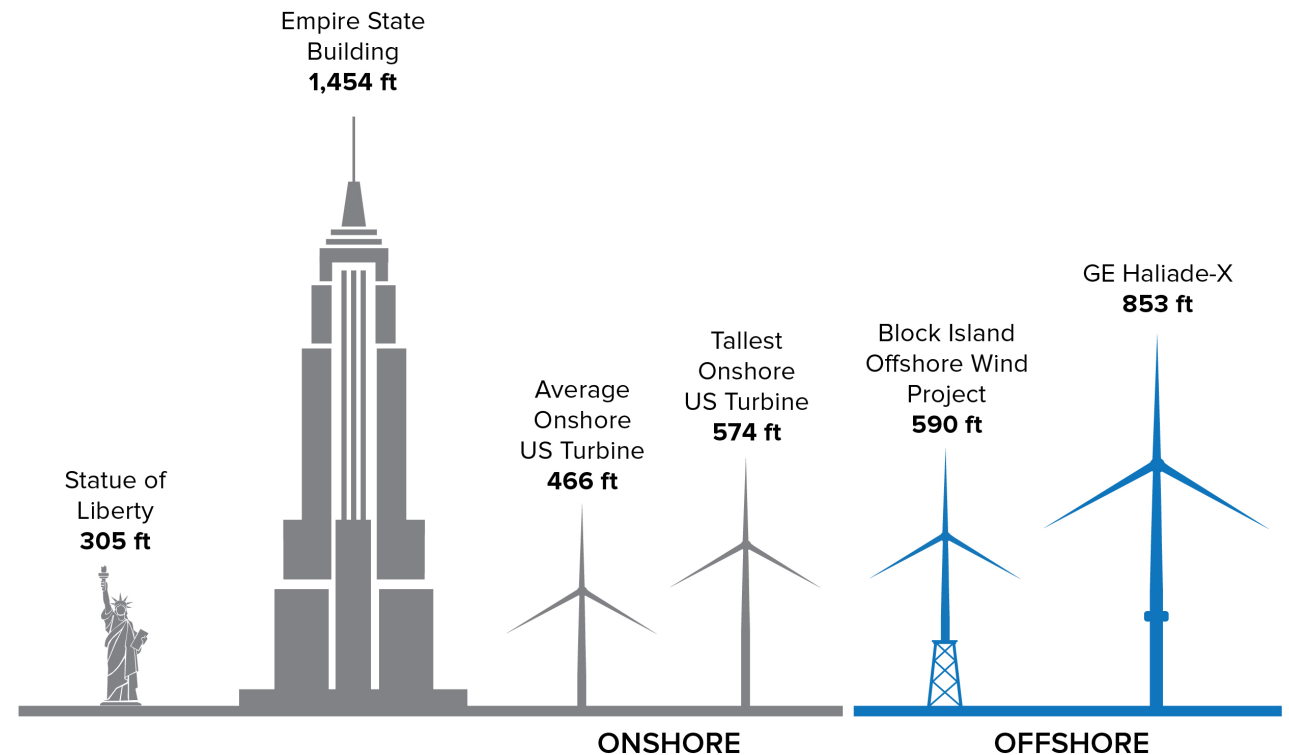
**30% OF NEW YORK'S
ELECTRICITY LOAD**

What is Offshore Wind?



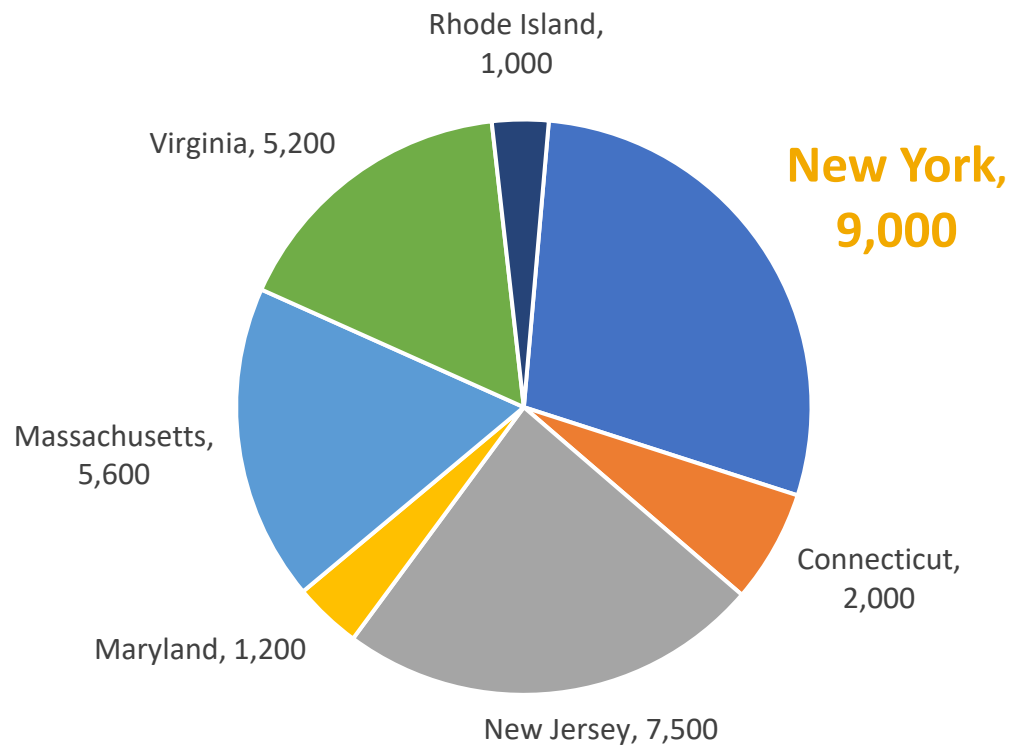
Why Offshore Wind?

- Enormous potential for **clean, renewable, and locally produced power** where demand is highest
- **Significant investments** in infrastructure and communities
- Major new source for **thousands** of short- and long-term **skilled jobs**
- More **diverse, resilient** electricity supply
- **Avoids harmful greenhouse gas emissions** that contribute to climate change

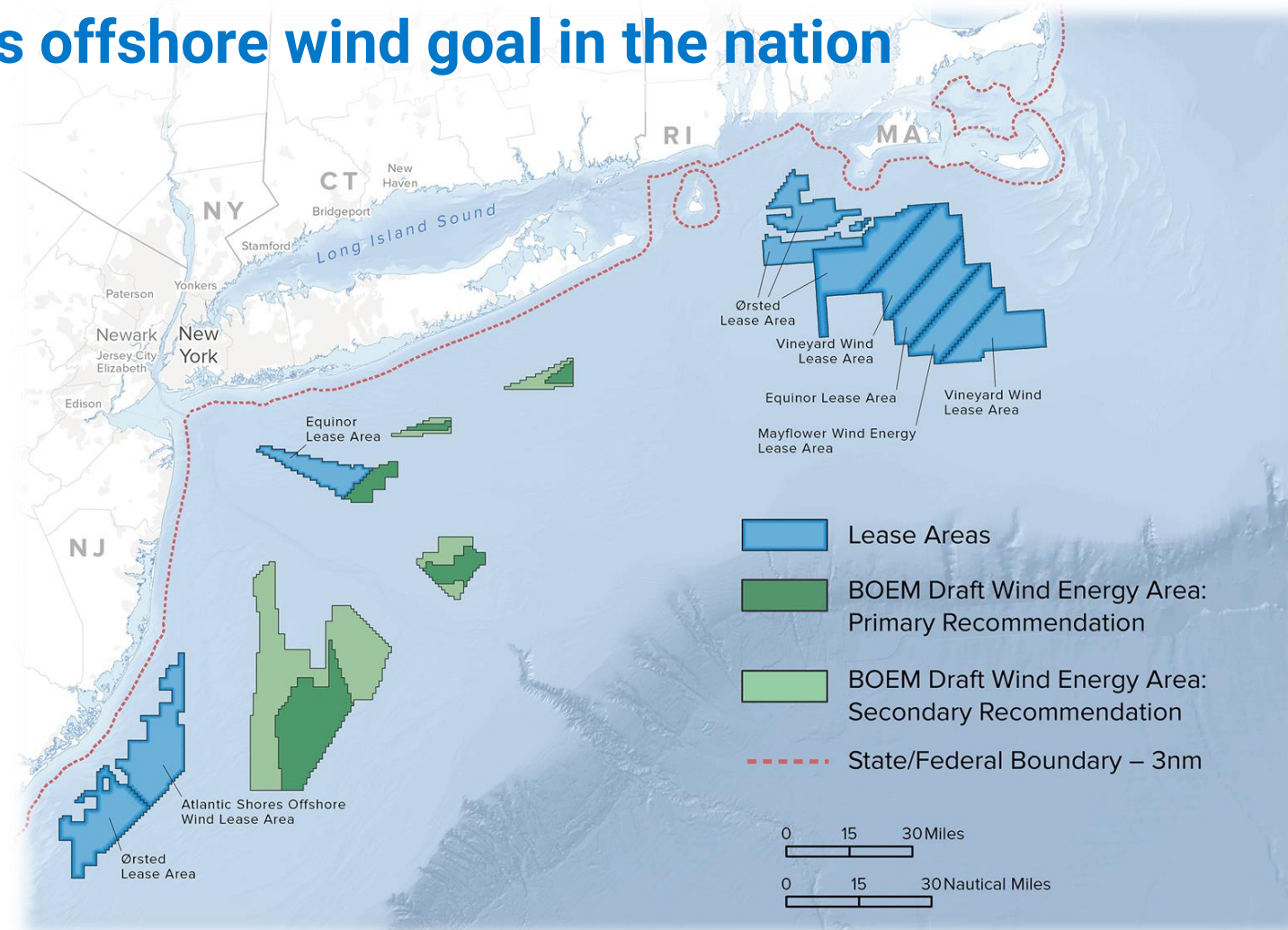


Regional OSW Market Potential of ~30 GW

New York has the most ambitious offshore wind goal in the nation



Offshore Wind Goals by State (MW)



How are the Projects Built?

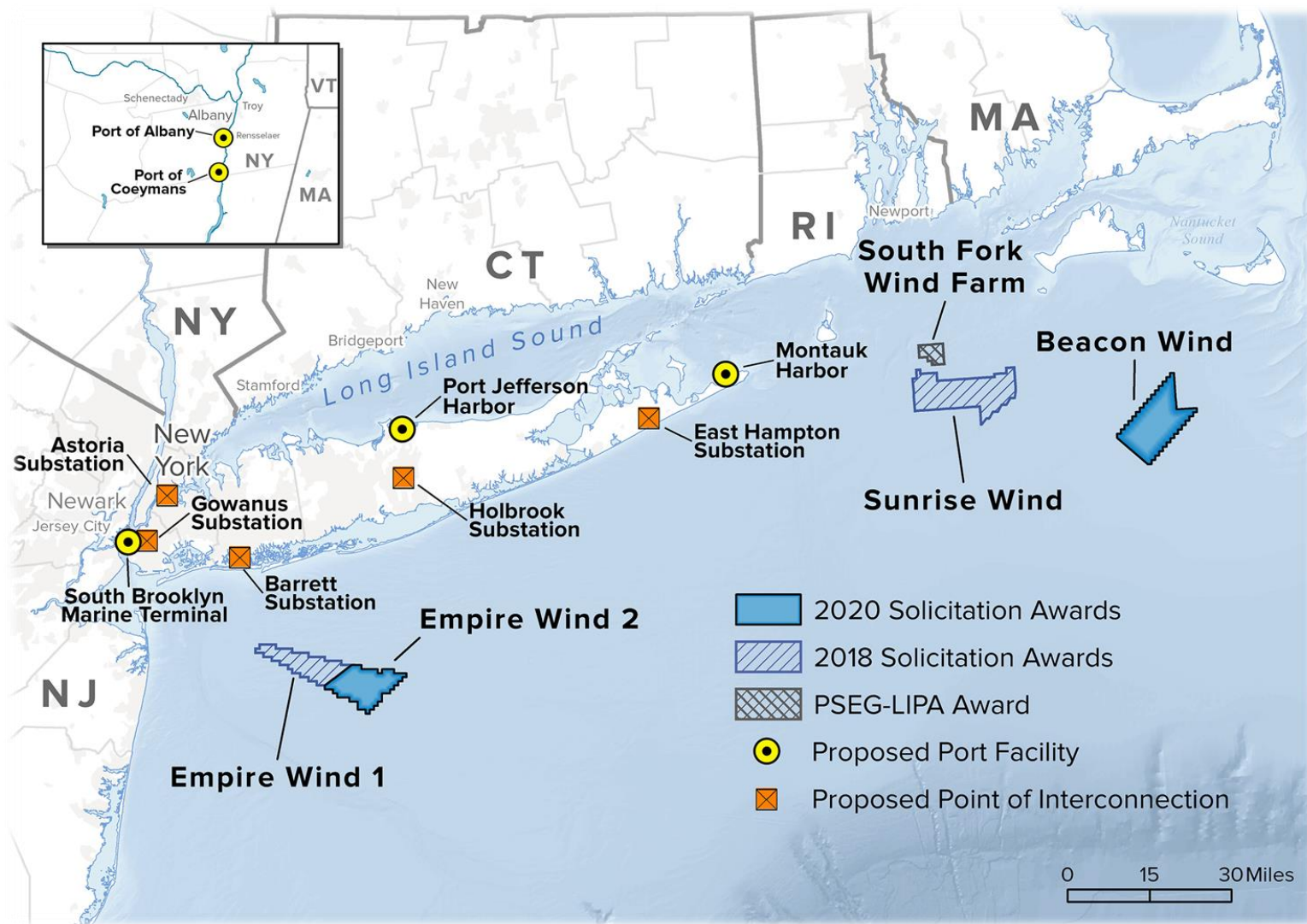


Responsible, Cost-Effective Development

The Atlantic Ocean is a busy place!



+4,300 MW in Active Development!



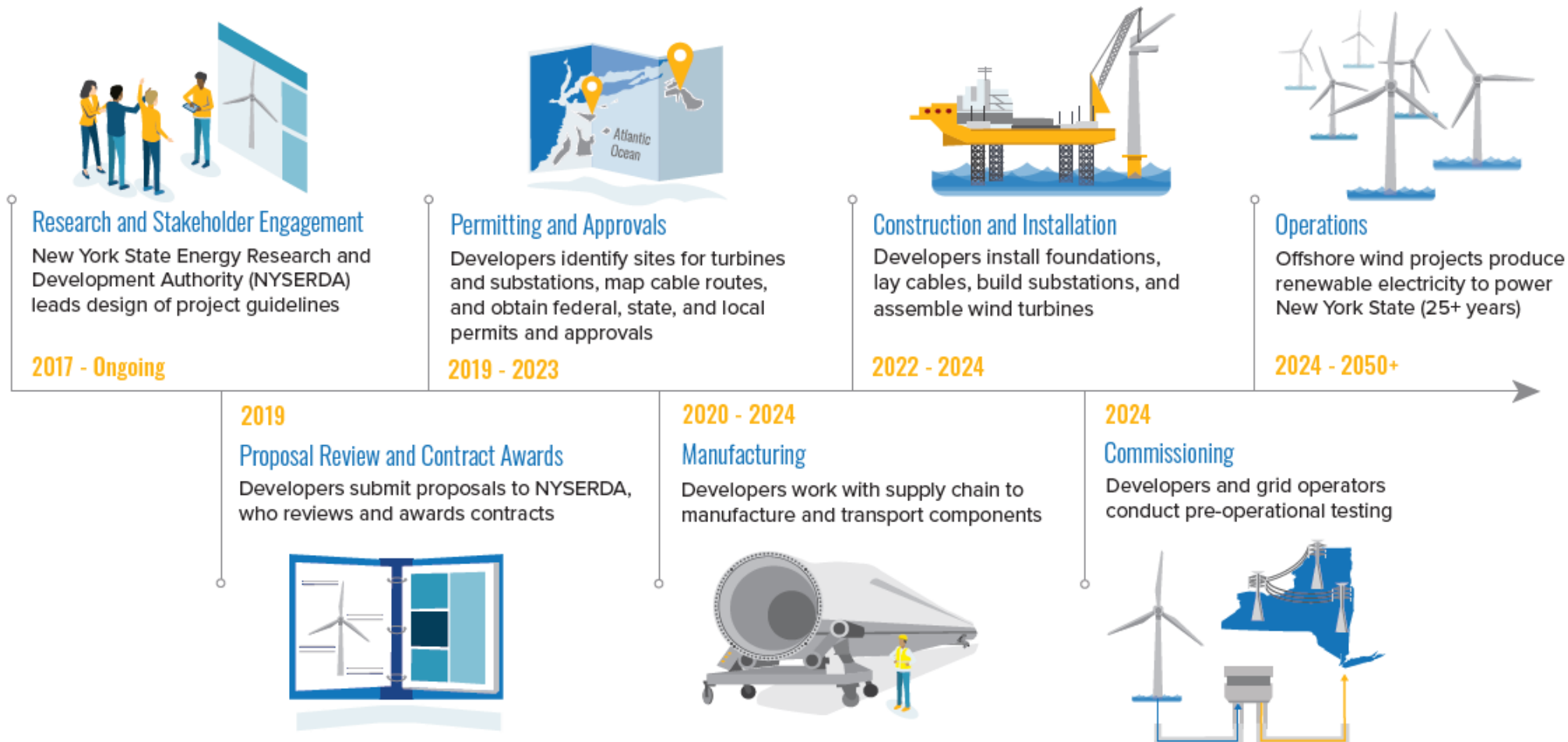
NY has **more offshore wind under development** than any state in the nation.

- \$12.1 billion of direct investments
- +6,800 direct jobs
- 5 ports in active development
- +\$700 million in public and private investments in port infrastructure
- \$45 million in public and private workforce development and training investments starting

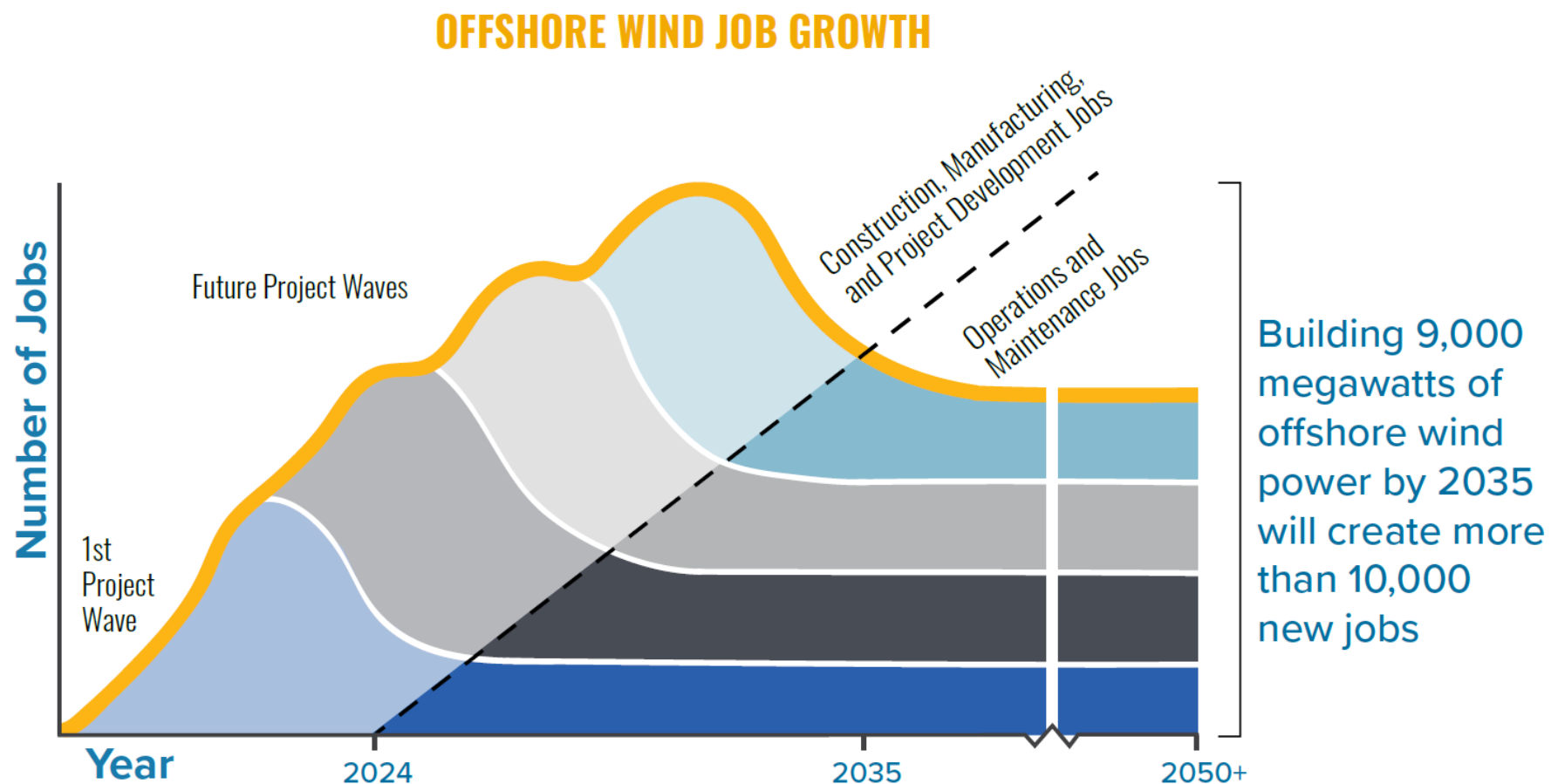
... and growing!

Timeline: Where will you be in 2024..2050?

Timeline for 1st wave of projects (approximate dates)



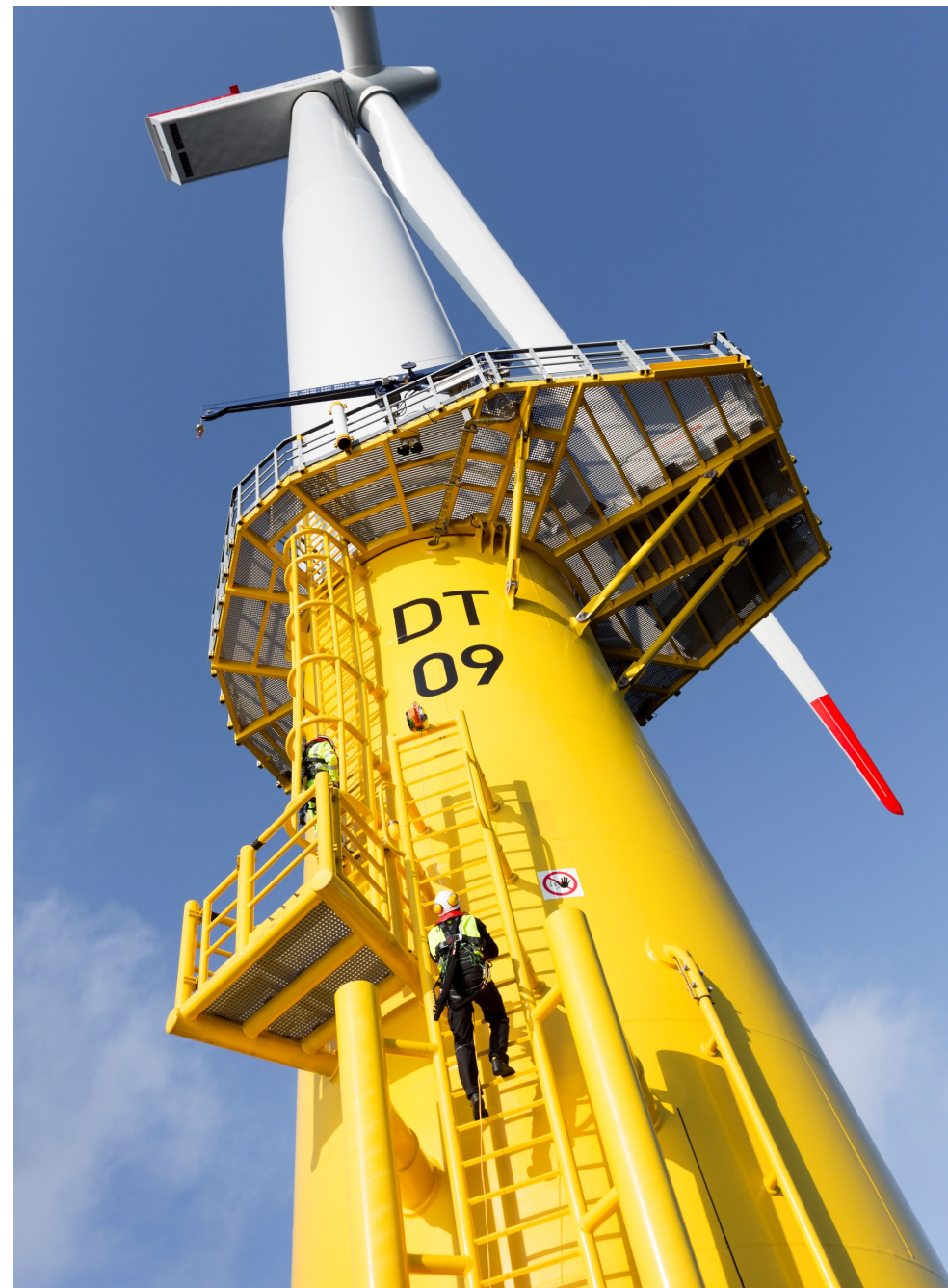
Job Creation Potential



Job Creation Potential

EXAMPLE JOB FUNCTIONS BY PROJECT DEVELOPMENT STAGE

Planning and Pre-Development	Manufacturing and Assembly	Installation and Commissioning	Operations and Maintenance
Attorneys Engineers Financial analysts Permitting specialists Scientists	Assemblers Control systems specialists Engineers Port operators Technicians Welders Administrative staff	Crane operators Dock workers Electricians Iron workers Line workers Painters Pile drivers Plumbers Welders	Administrative staff Engineers Plant managers Support vessel crew Wind turbine technicians



Thank you

For more information please contact:

NYSERDA Offshore Wind Team
offshorewind@nyserda.ny.gov



nyserda.ny.gov

Follow NYSERDA



Ørsted and Eversource
are bringing
unparalleled
experience to New York





Offshore Wind Pioneer

- Built the first offshore wind farm in the world, the first in the U.S. and developing the largest project portfolio in the country

Global Leadership

- 20+ years experience building offshore wind farms
- Ranked the most sustainable company in the world – three years in a row.

Proven Expertise

- 26 successful offshore wind farms totaling 6.8GW capacity



National Energy Leader with Northeast Roots

- 100+ year history of operation in Northeast
- Deep-rooted knowledge of the region's electrical experience with unparalleled experience in energy transmission

Catalyst for Clean Energy Solutions

- National leader in energy efficiency; record of successful state and regional partnerships
- Leading driver of northeast, clean energy economy supporting economic development across the region
- Trusted ally helping ensure states reach their clean energy goals



New York

Massachusetts

Connecticut

Rhode
Island

Ørsted &
Eversource



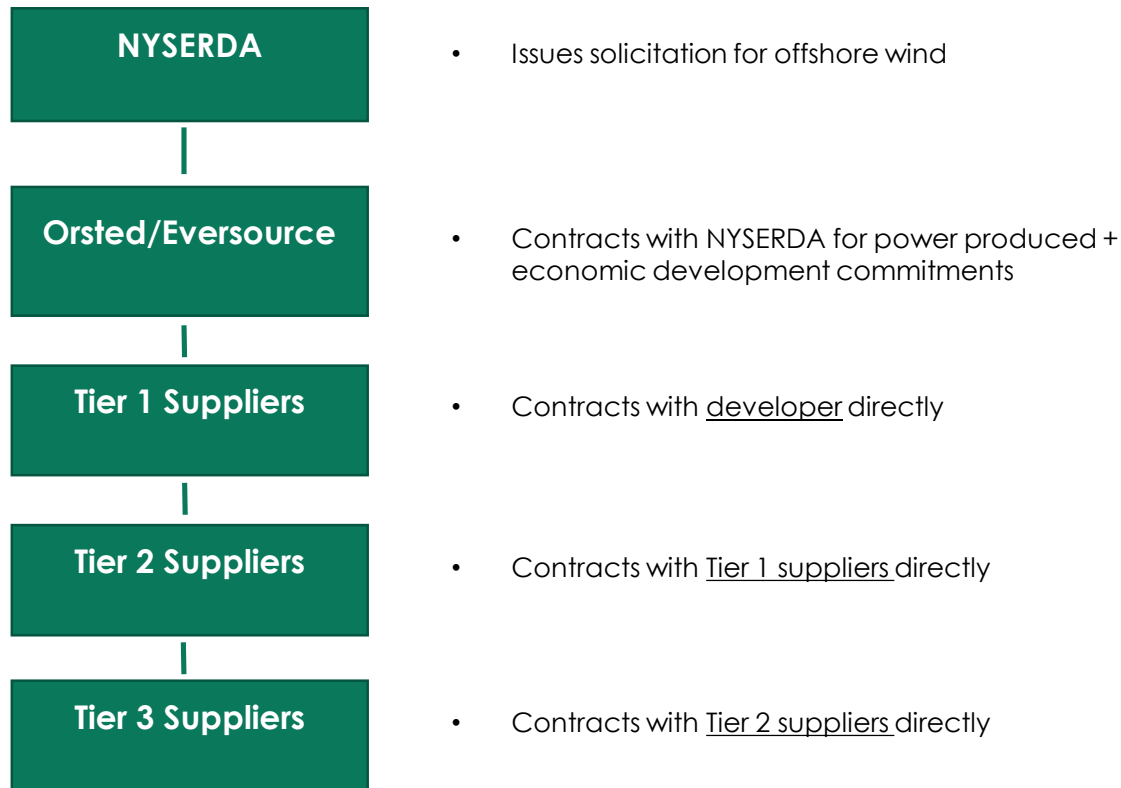
Powered by
Ørsted &
Eversource

Delivering clean, reliable energy to the Northeast

**In December 2016, we entered
into a 50-50 partnership to
develop offshore wind in the
Northeast**

- At least 4,000 MW of offshore wind
- Awarded projects:
 1. South Fork Wind (NY) 132 MW
 2. Sunrise Wind (NY) 924 MW
 3. Revolution Wind (RI+ CT) 800 MW

Supply Chain Overview



Sunrise Wind Is Investing In New Yorkers

\$10 Million to fund the National Workforce Training Center

- Innovative partnership between industry, academia, and labor
- Suffolk County Community College is anchor academic arm

\$1 Million Upper Hudson Workforce Development Fund

- Targeted to advancing the skills of the workforce of the Upper Hudson and Capital Region
- Prepare region to be a hub of OSW fabrication and logistics



**Strategic
initiatives to
position NY for
a new industry**

Sunrise Wind Is Investing In Major Port Infrastructure Upgrades

\$10 Million New York Ports Infrastructure Development Fund

- Supporting major port infrastructure upgrades at multiple New York ports

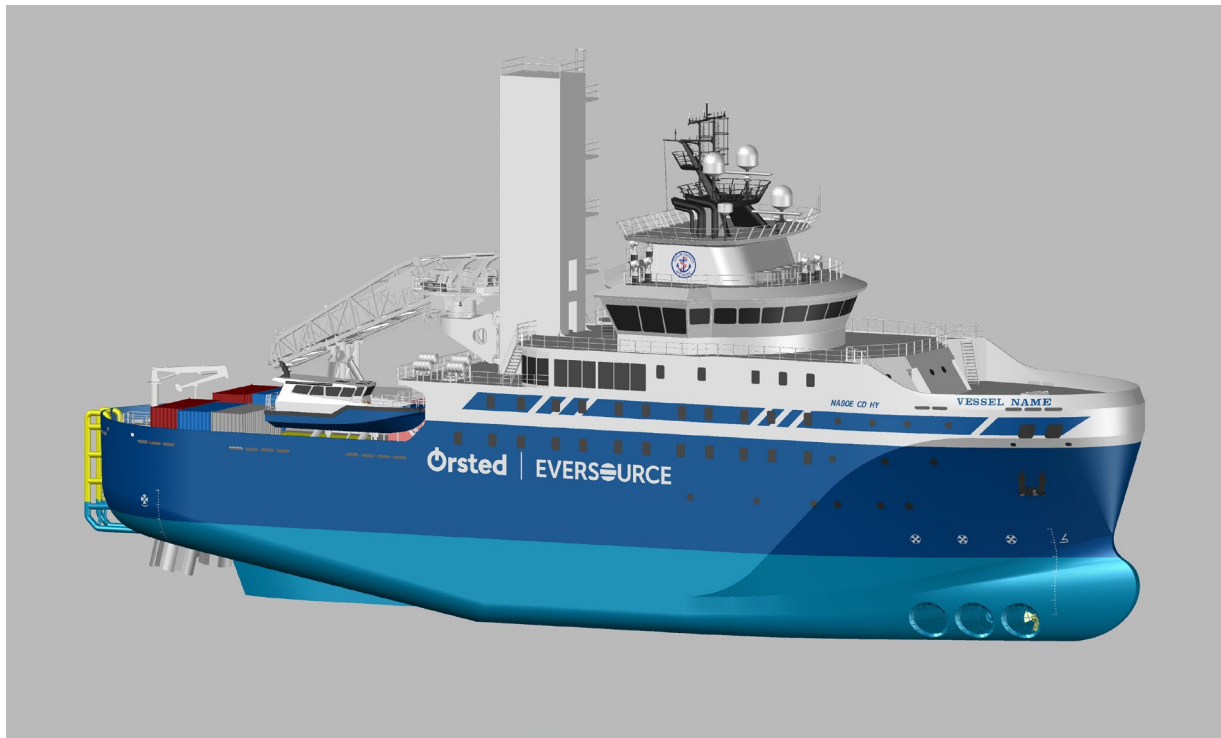
Port Jefferson Regional Operations and Maintenance Hub

- Complementary use of the port that will not conflict with ferry service
- ~100 permanent, full-time jobs over the 25-year life of project and shorter-term construction jobs



Establishing
key foundation
component
construction
capabilities at
a port in the
Capital Region

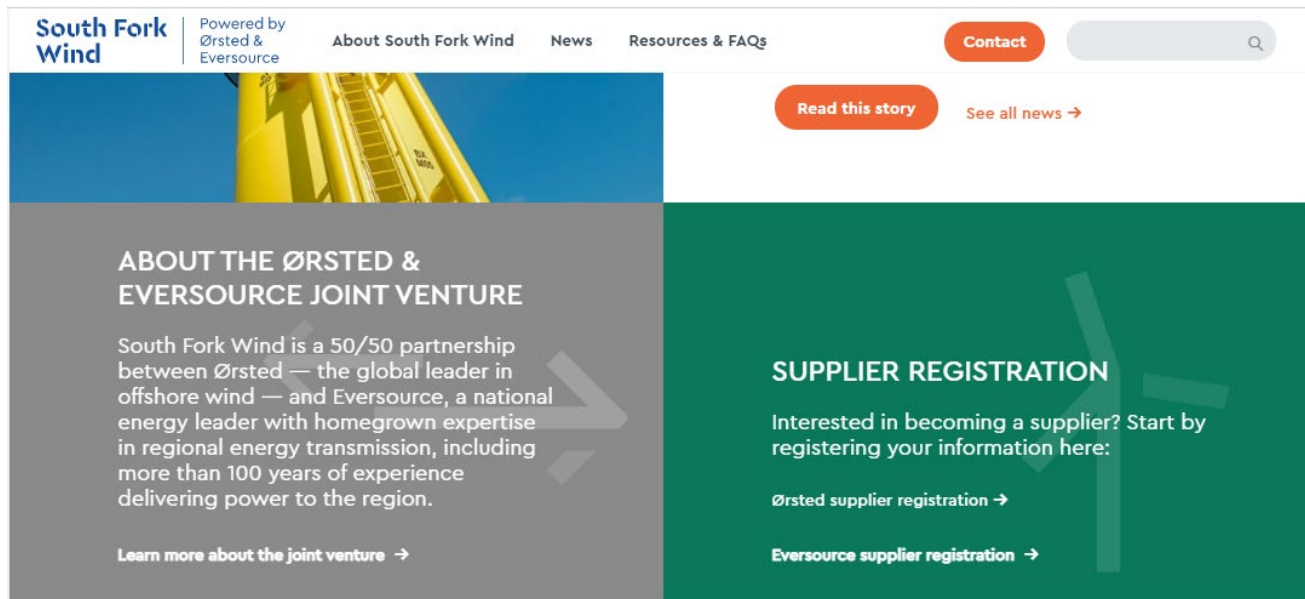
Service Operation Vessel (SOV)



How to get involved

Project Websites:

- [Southforkwindny.com](https://southforkwindny.com)
- [Sunrisewindny.com](https://sunrisewindny.com)





Thank you

Jennifer Garvey, New York Market Affairs Manager, Ørsted
Email: jegar@orsted.com

Ørsted | **EVERSOURCE**

Offshore Wind Energy: The Promise of Good Jobs & Clean Energy



Julia Bovey – Equinor Wind US



Driven by purpose, inspired by vision, guided by values

Our purpose

Turning natural resources into energy for people and progress for society

Our vision

Shaping the future of energy

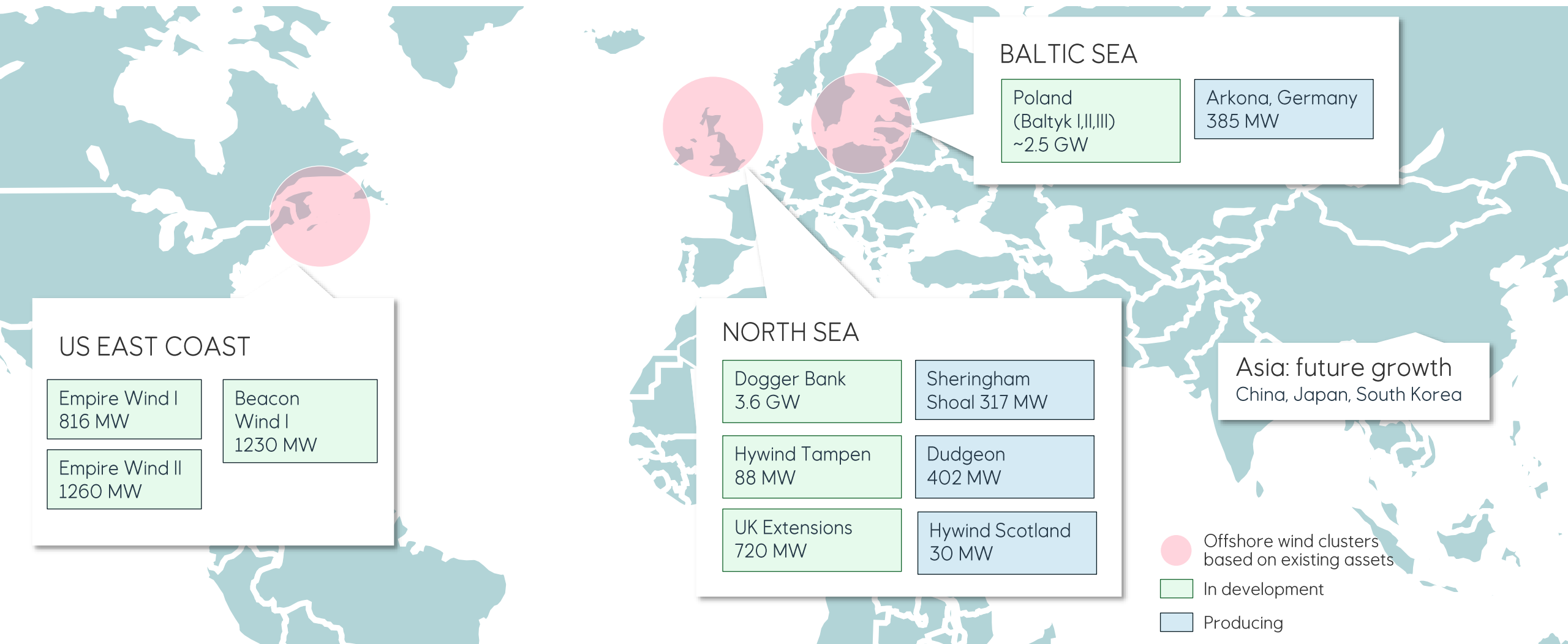
Our values

Open, courageous, collaborative and caring

Our strategy

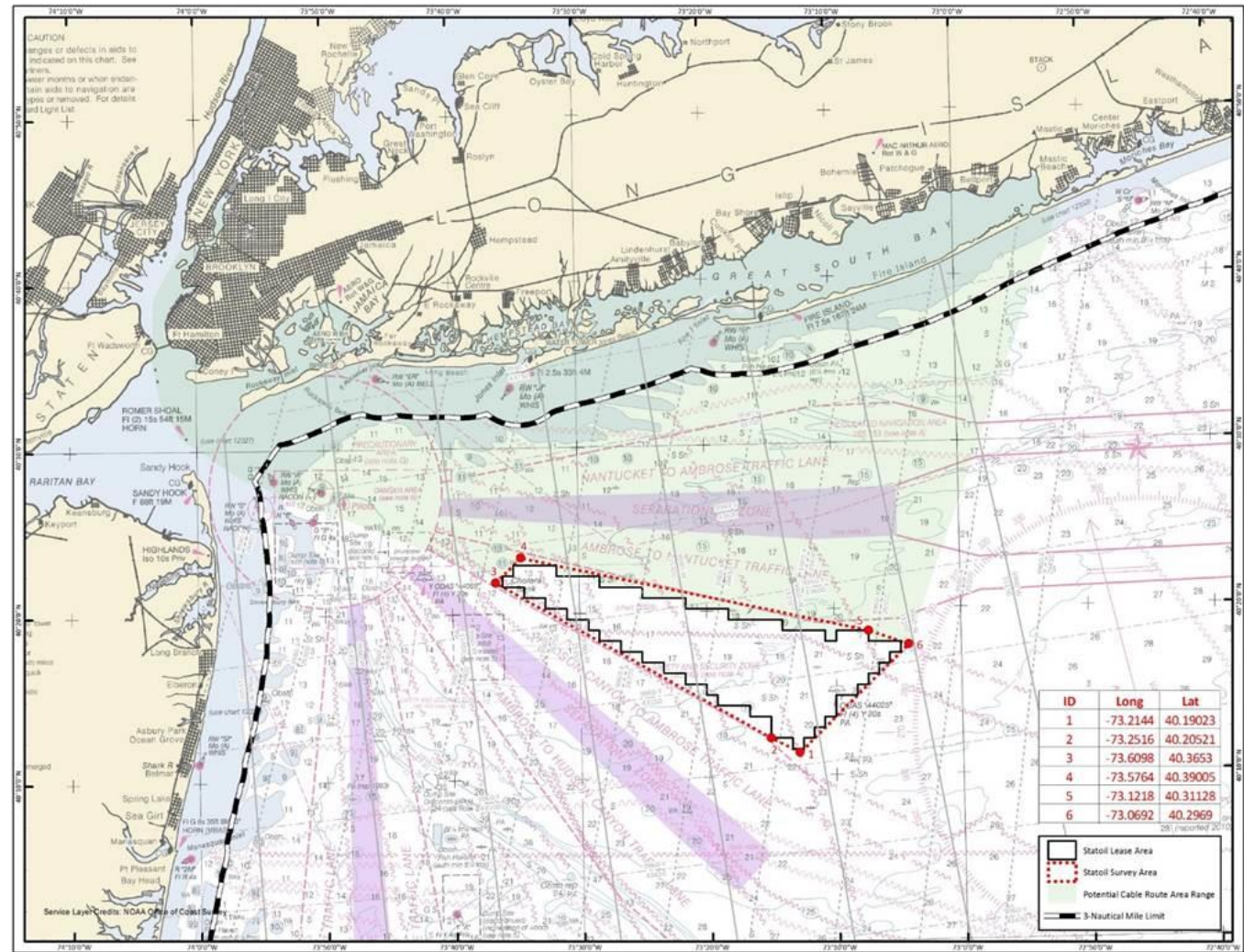
Always safe, high value, low carbon

Creating value from scale in regional clusters



Empire Wind 1

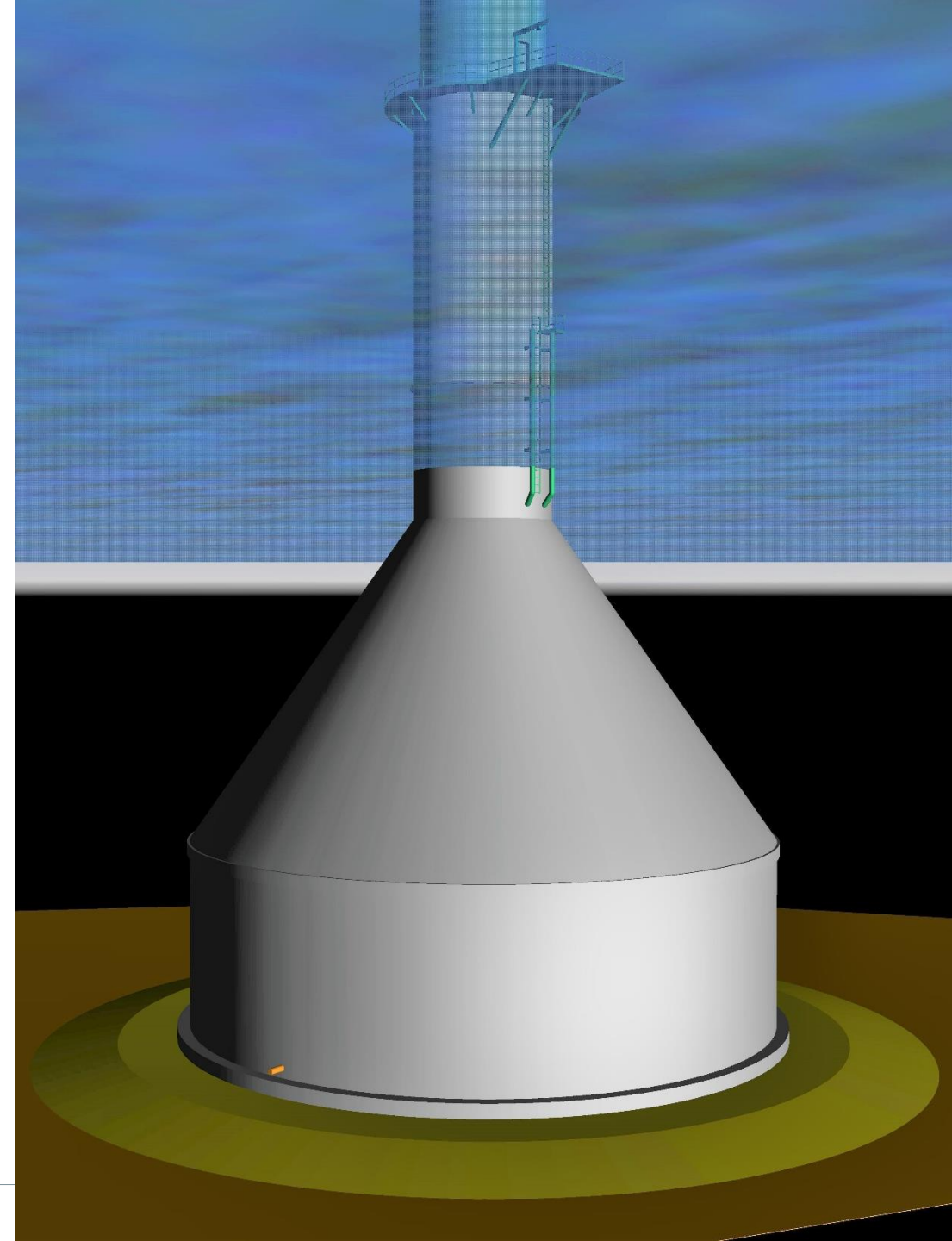
- Awarded by NYSERDA in 2019
- NYSERDA award capacity: 816 MW
- Turbines to be assembled at South Brooklyn Marine Terminal
- Foundations: Gravity-Based (Concrete) manufactured in New York state
- Operations and Maintenance (O&M) base in south Brooklyn
- Proposed onshore substation: South Brooklyn
- Commercial Operations Date: mid-2020s



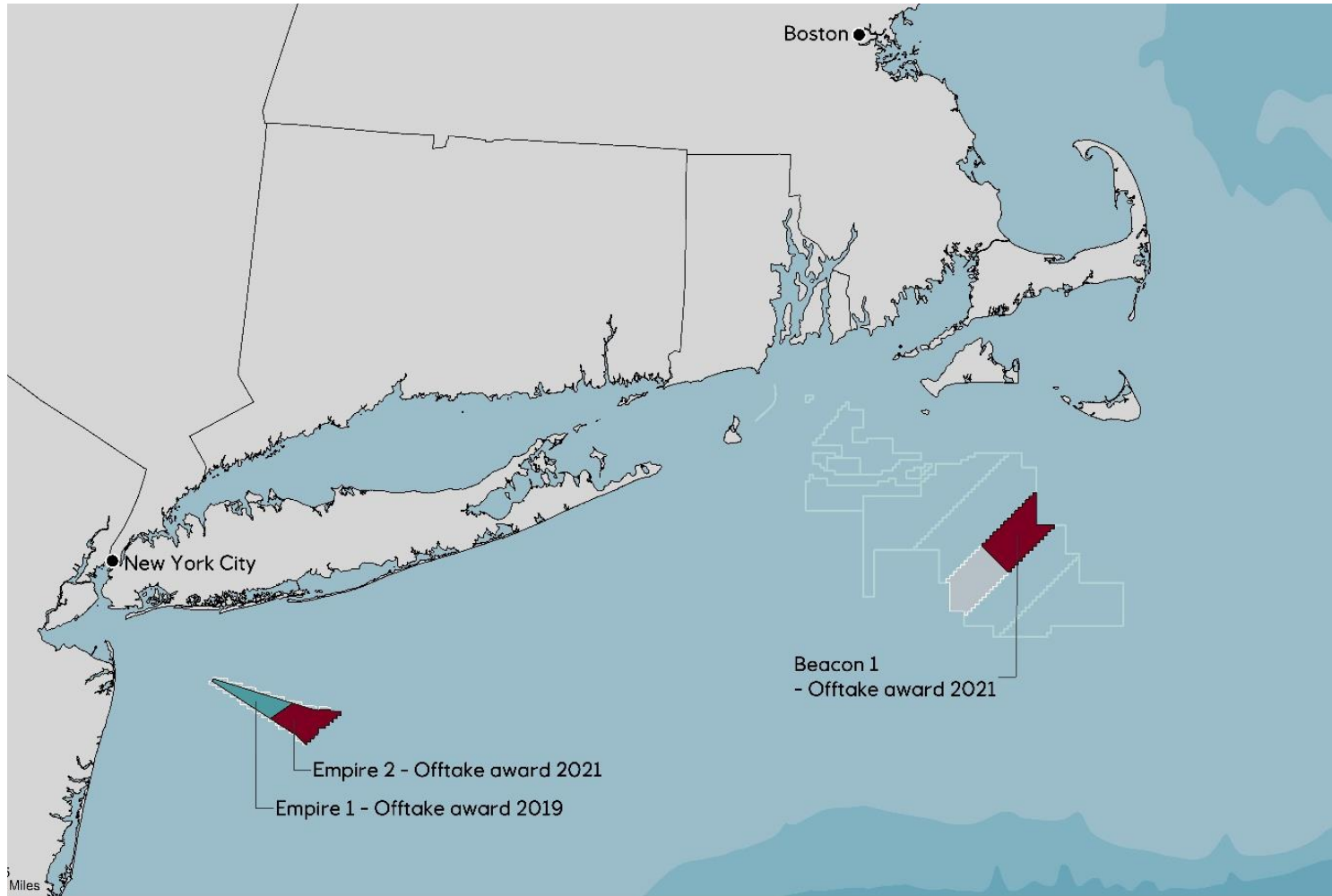
equinor

Empire Wind's "Gravity-Based Structure" (GBS) Foundations

- Creating significant new infrastructure and supply chain opportunities for New York along with new, long-term jobs including manufacturing "Gravity-Based Structure" (GBS) foundations in New York.
- The GBS manufacturing process itself is expected to create more than 1,000 direct jobs and nearly 4,000 indirect jobs in New York.



New Award: Empire Wind 2, Beacon Wind 1



- 2500 MWs of renewable power = 1.3 million homes
- \$47 million in workforce development, innovation and community benefits
- \$25 million to support regional monitoring of wildlife and key commercial fish stocks
- 5,200 total direct jobs supported by both projects
- Combined \$4.5 billion in value added to NYS economy

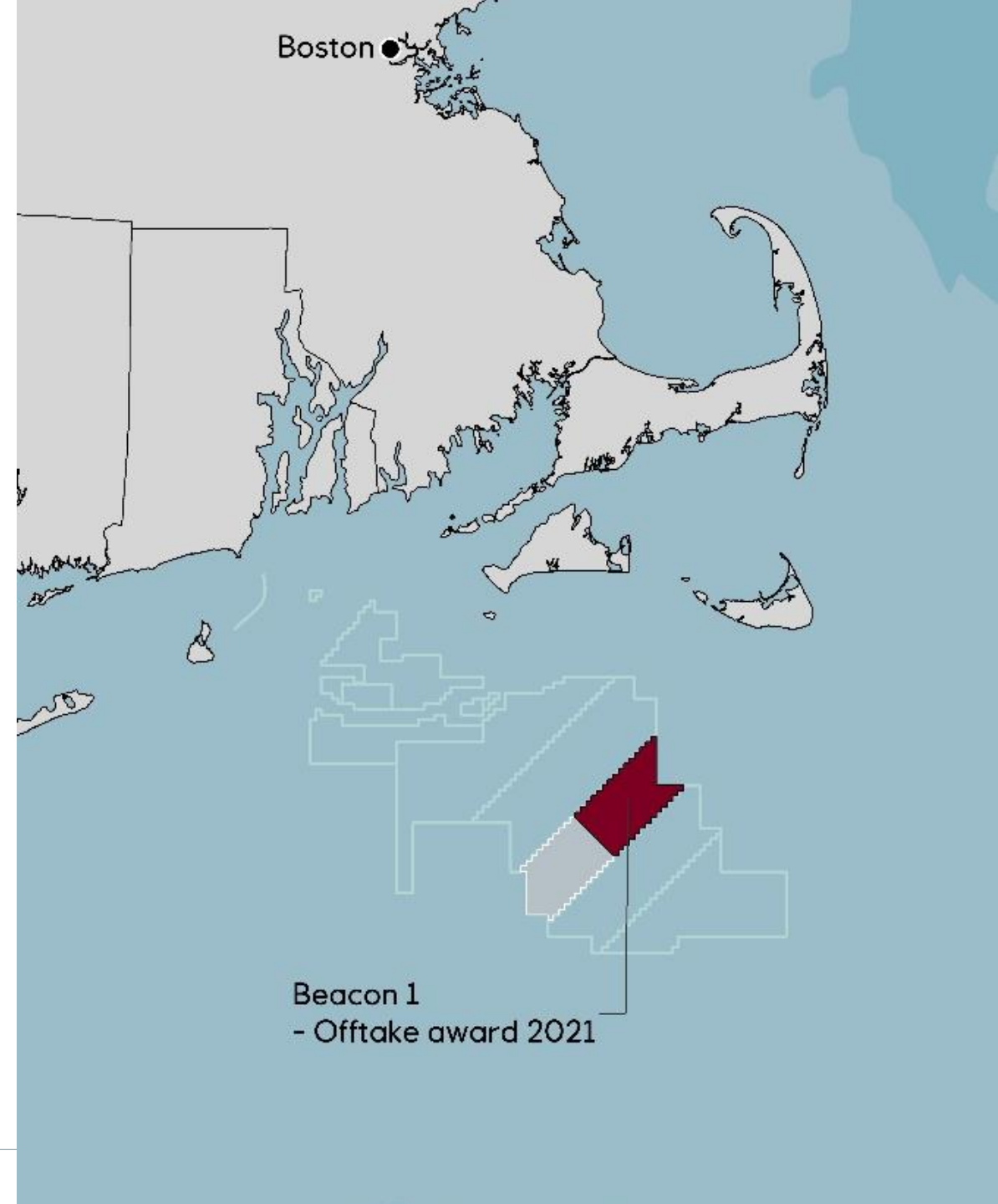


Empire Wind 2 Key Facts

- 1,260 MW project
- Power delivered directly to Nassau County on Long Island' South Shore at the Barrett Substation
- Commercial Operations Date: late 2027
- Continued use of Gravity-Based Foundations fabricated in New York

Beacon Wind 1 Key Facts

- 1,230 MW project
- Power delivered into Astoria substation in Queens
- Commercial Operations Date: 2028
- Use of HVDC technology



- Staging facility for Empire Wind 1, 2, and Beacon Wind
- Assembly for broader New York OSW industry
- One of largest dedicated OSW port facilities in U.S. (73 acres)
- Shared investment by New York State , NYC, and Equinor
- 1,000 short-term jobs by 2028, 200 long-term jobs
- Community engagement center will be established adjacent to SBMT to support education and outreach for the South Brooklyn community

SBMT: Staging and Assembly



SBMT: Long-term O&M Hub



- Equinor's East coast Operations & Maintenance (O&M) Hub
- Base for Empire Wind and Beacon Wind
- Supported by "service operations vessels" which house workers for two-week shifts. Vessels return to base every two weeks for crew change, refueling, and re-provisioning

Port of Albany: Key Facts



- First offshore wind tower manufacturing facility in U.S.
- Partnering with Marmen, Inc. and Welcon A/S
- Produce components for Empire Wind 1, 2, and Beacon Wind
- Shared investment by New York State, Equinor, and others
- 500 short-term jobs, 300 long-term jobs, in operation in 2023

- Continued collaboration and planning with **NY Offshore Wind Training Institute**, Farmingdale State College, and SUNY Maritime College
- Ongoing collaboration with NY **labor unions** to identify and fill any potential skills gaps for assembly ports
- Focus on **“just transition”** with recruitment for permanent O&M workers in the communities surrounding each project’s interconnection point
- Ongoing analysis of current US certification and how they correspond to Global Wind Organization certifications to **ease workforce transition**

Workforce development





Julia Bovey

Director, External Affairs
jbov@equinor.com

www.empirewind.com

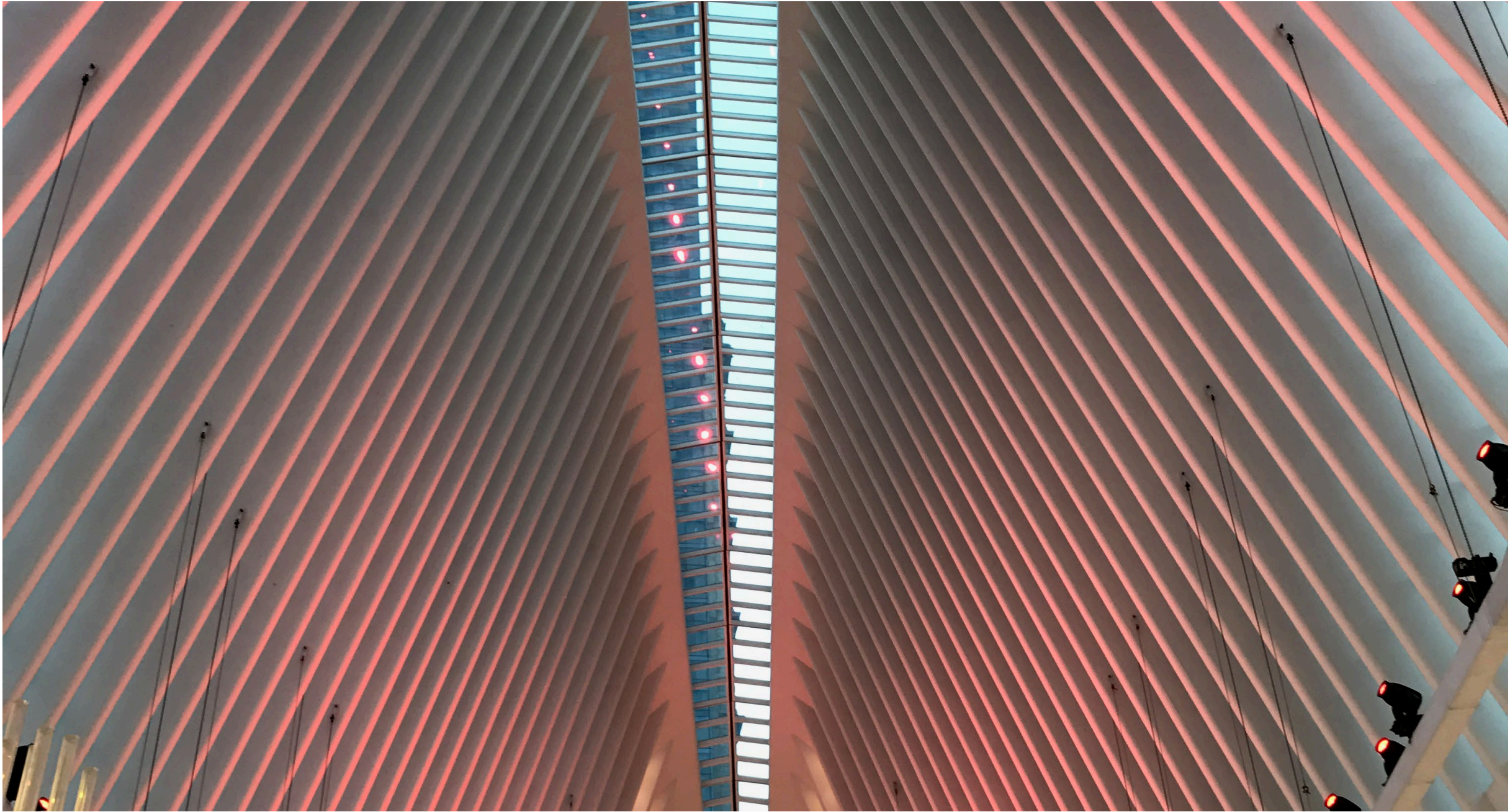
Twitter: @EquinorWindUS





















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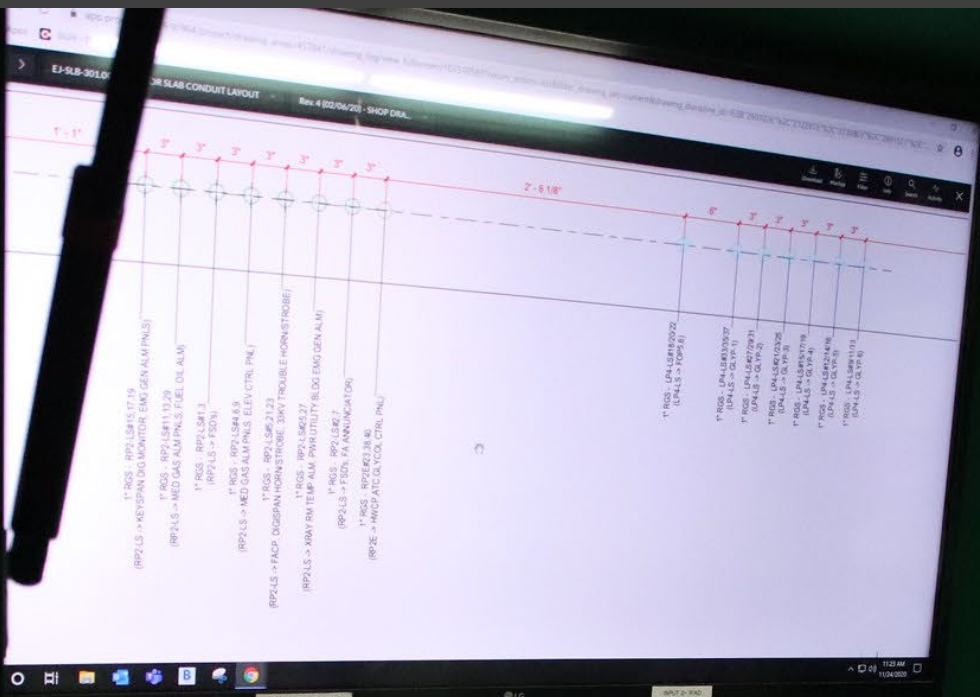




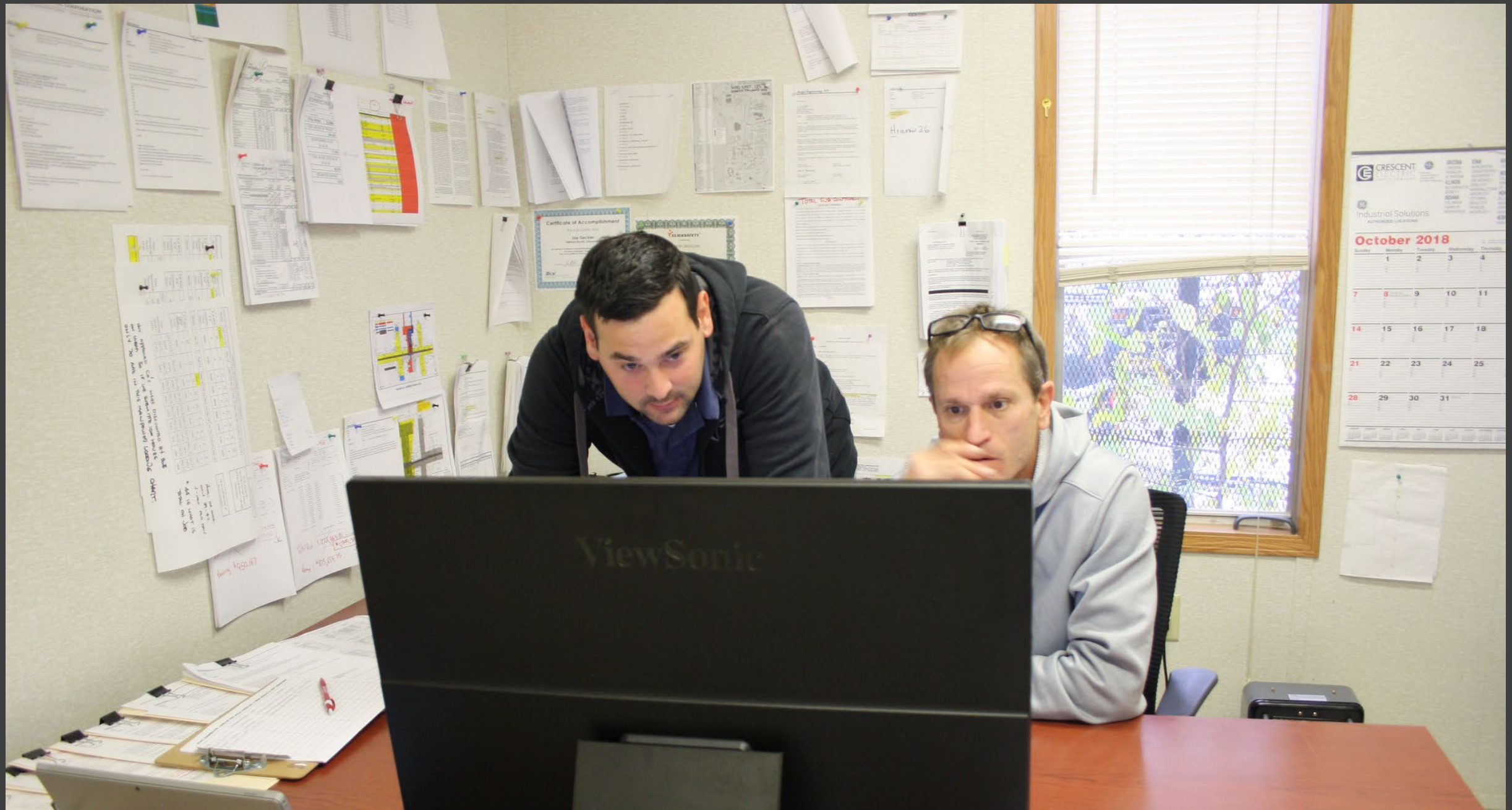




















TRAFFIC CONTROL
NEW YORK CITY

OPEN - 2.17 - Needs work














































Exit  **Hudson Blvd East**
&  **Buses** 

TAKE THE LOCAL.
New York's Hometown Airline.™



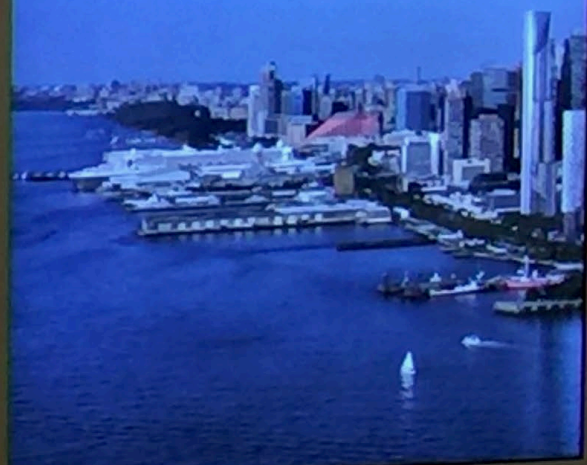
TAKE THE LOCAL.
New York's Hometown Airline.™



TAKE THE LOCAL.
New York's Hometown Airline.™



↓ 7 Times Sq, Grand Central
& Queens

↑ 7

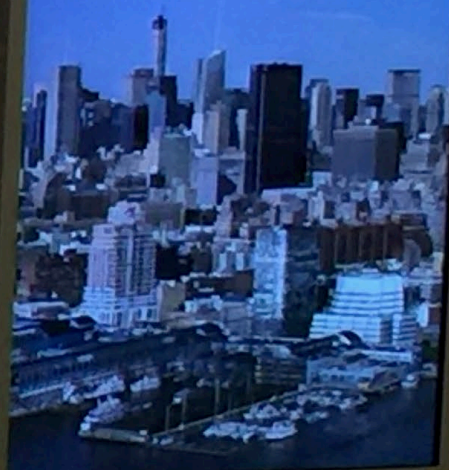
THIS ARRIVAL



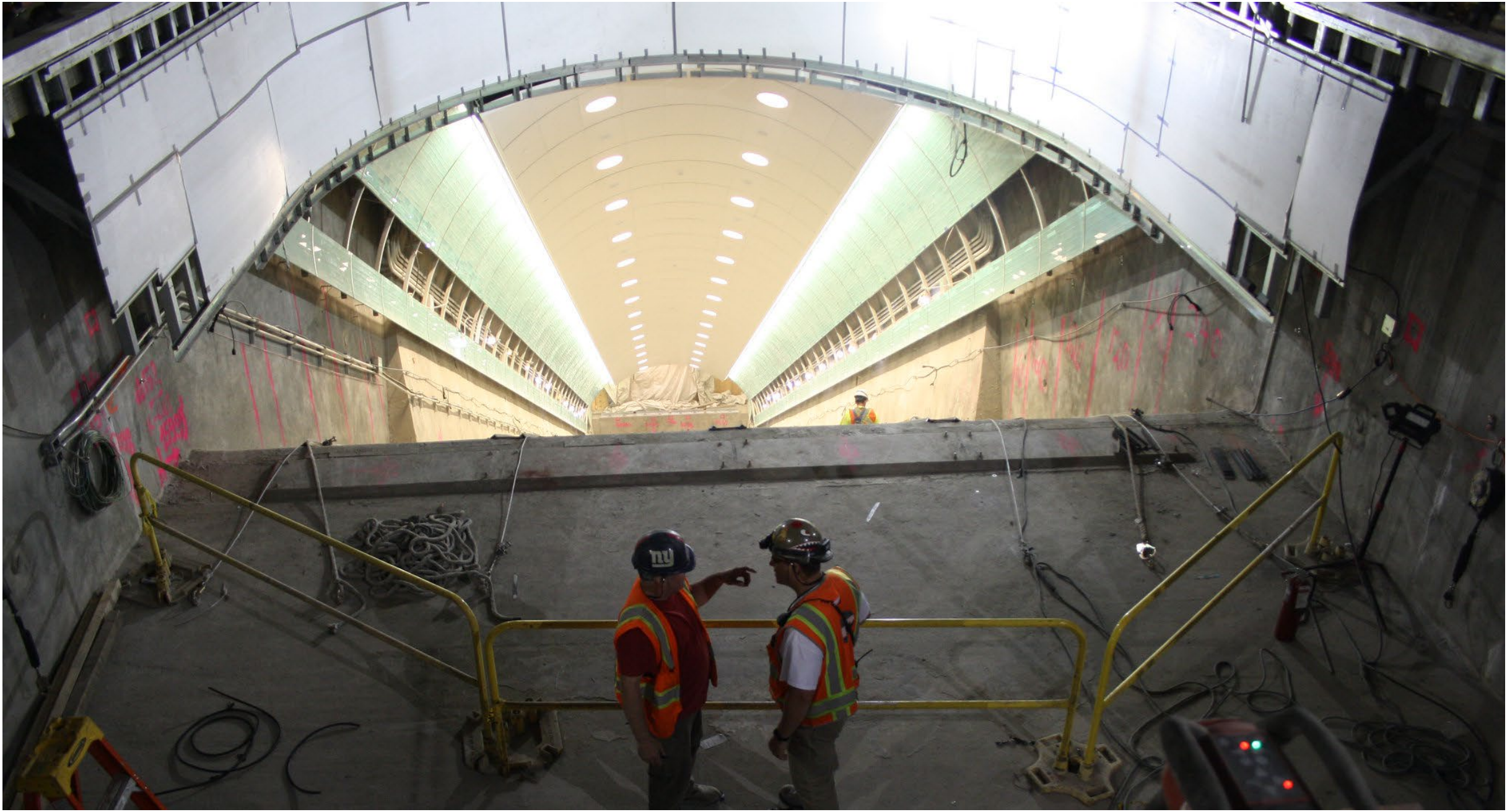
IS A TRUE
DEPARTURE



WELCOME
TO THE NEXT



Exit
Hudson
& Buses











The image shows the exterior of a modern building with a white and grey facade. A large, grey, cantilevered sign extends over the entrance, featuring the text "ELECTRICAL INDUSTRY TRAINING CENTER" in gold, raised, sans-serif capital letters. The building's facade is composed of large white panels with vertical gold-colored accents. A glass-enclosed upper level is visible on the right. The entrance area below the sign has a dark ceiling with several recessed square lights. A yellow structural beam is visible on the left side of the entrance.

ELECTRICAL INDUSTRY TRAINING CENTER









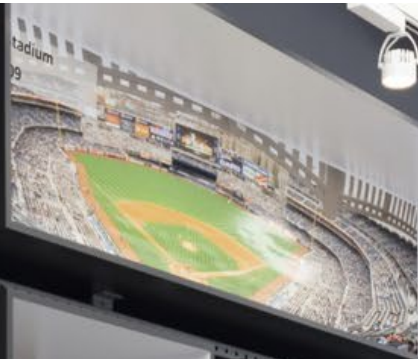
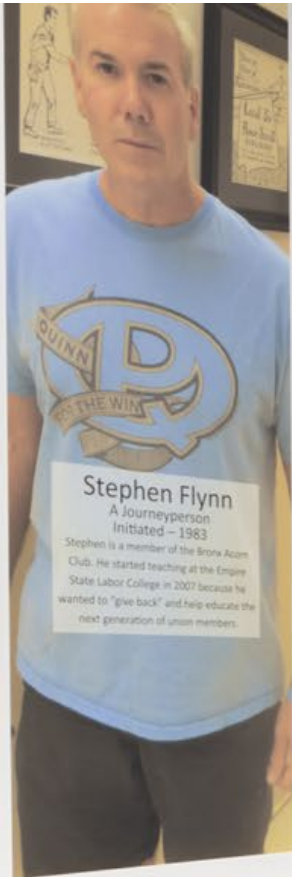












"Each one, Teach one, Lead it on!"
The Goal of the Local Union #3 Mentoring Program is to produce the most highly skilled electricians. By giving each new apprentice a mentor. The Local 3 Mentoring Program is committed to the education, advancement and success of all new apprentices entering our electrical industry. It is this commitment we make today, that will aid in producing the most highly skilled electricians of tomorrow.
Follow us on Facebook at: [L3Electricians](#)
Mentor@l3electricians.org
Contact: 781.235.4444 ext. 344















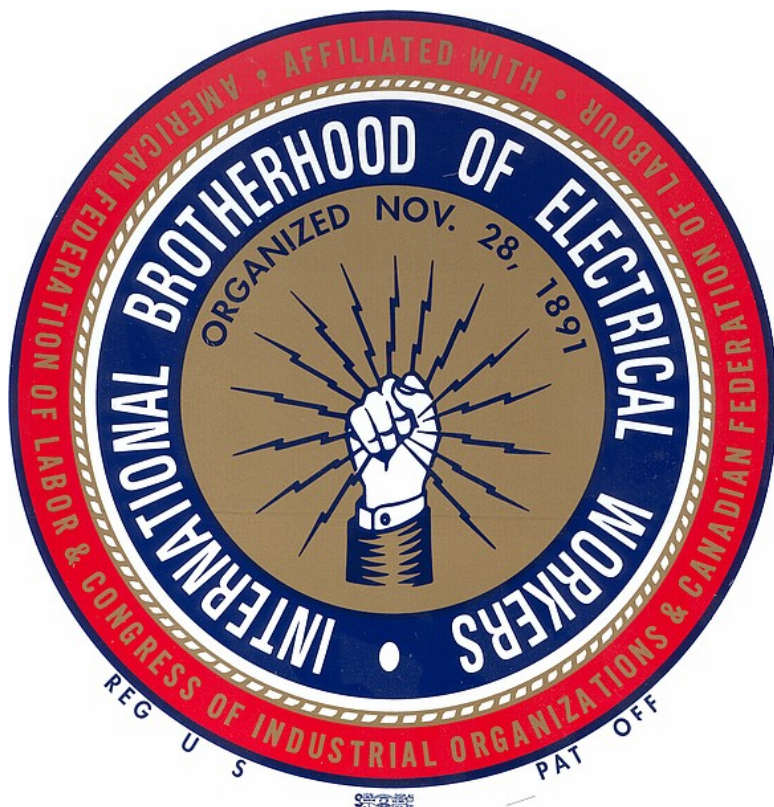












IBEW Local 3

<https://www.youtube.com/watch?v=XlozyvjNCbw>

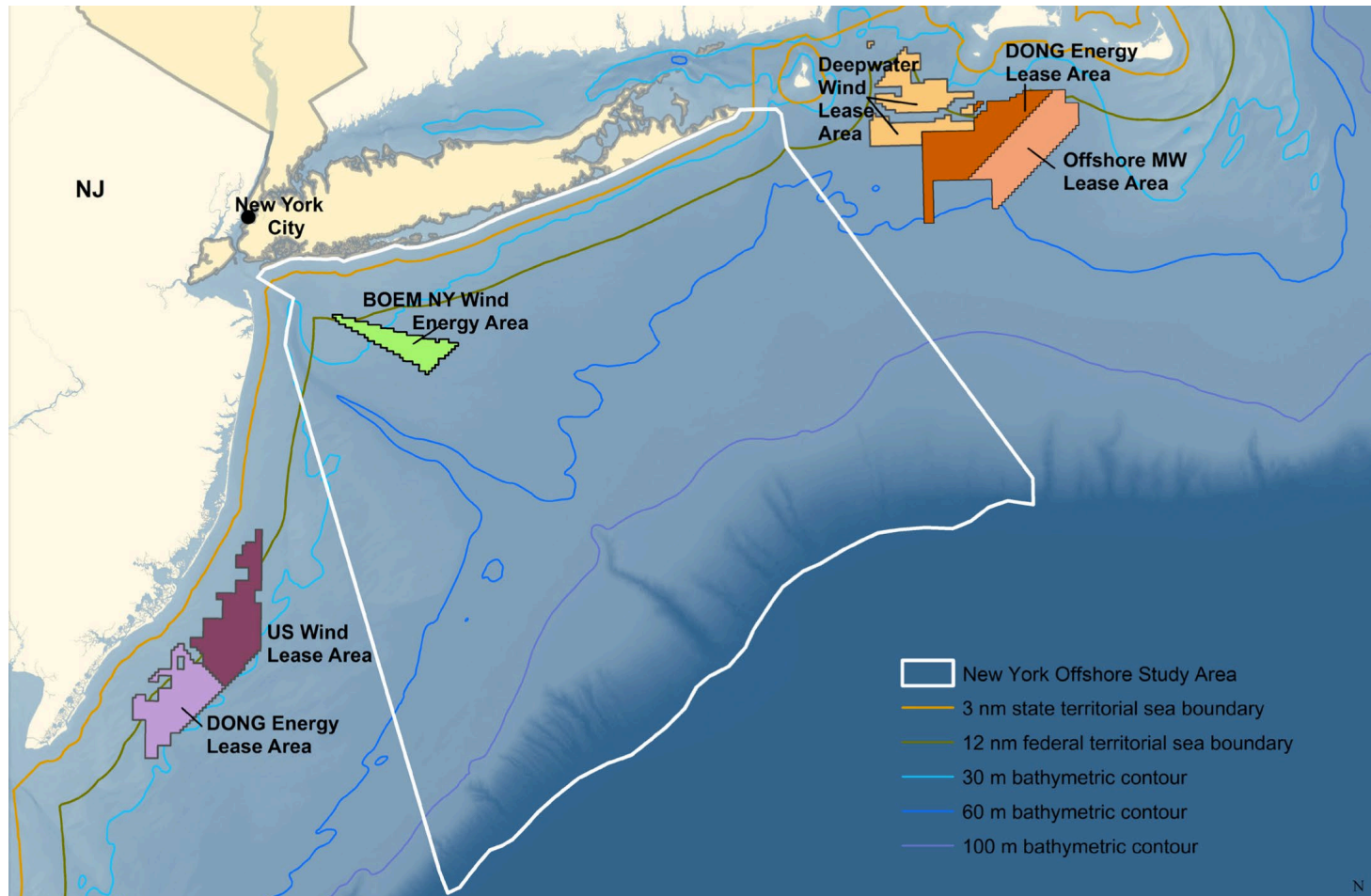


OFFSHORE WIND ENERGY GOOD JOBS CLEAN ENERGY

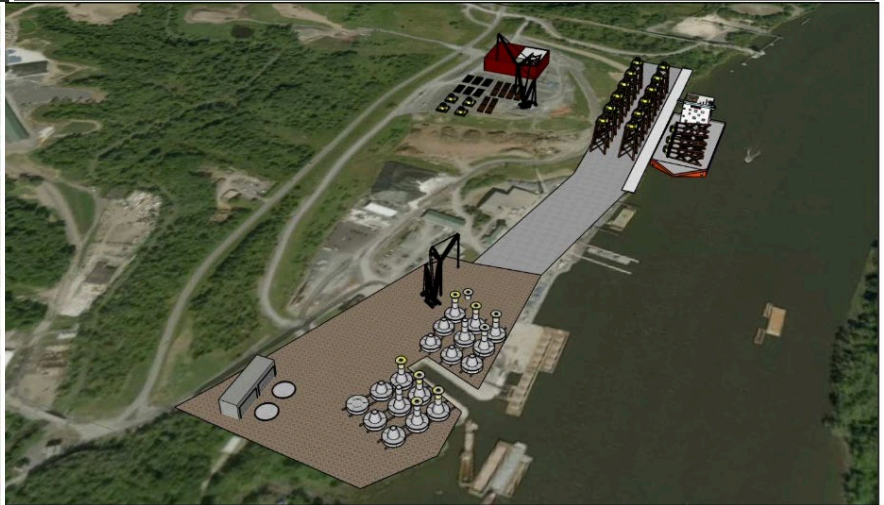
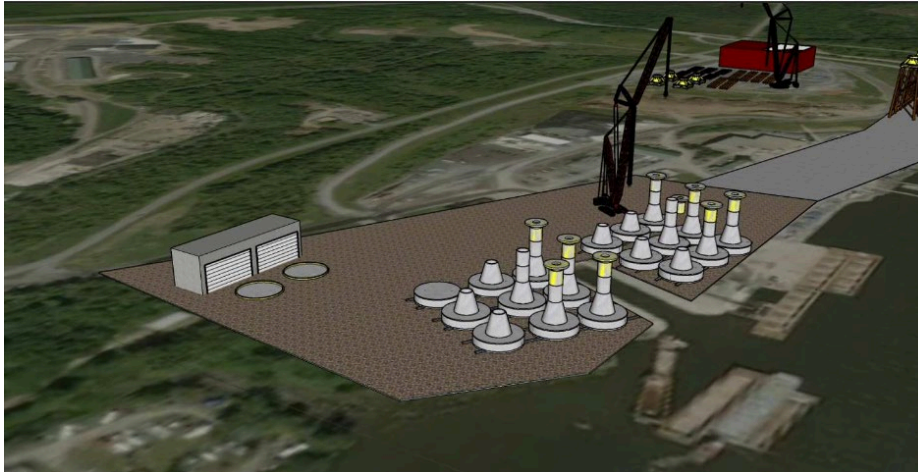


Captain Eric Johansson
Distinguish Professor Maritime Technology and Operations
Chair Energy Sub Committee
Member NYSDOS – Maritime Technical Working Group

OFFSHORE ENERGY



OFFSHORE SUPPORT



OFFSHORE TRANSPORTATION



OFFSHORE INSTALLATION



OFFSHORE MAINTENANCE



OFFSHORE ENERGY JOBS

- CREDENTIAL LICENSED MARITIME PROFESSIONALS
 - TOW MASTERS
 - MARINE CONSTRUCTION
 - MARINE WARRANTY SURVEYORS
- TERMINAL MANAGEMENT
 - PORT OPERATIONS
 - SUPPLY CHAIN MANAGEMENT
 - LOGISTICS
- MARITIME OPERATIONS
 - MARINE FINANCE
 - MARINE INSURANCE
 - SHIPYARD MANAGEMENT
 - VETTERS
- ENGINEERING
 - MARINE ELECTRICAL ENGINEERING
 - MARINE ENGINEERING
 - NAVAL ARCHITECTURE
 - MECHANICAL ENGINEERING
 - FACILITIES ENGINEERING
- MARINE ENVIRONMENTAL STUDIES

ACADEMIC PROGRAMS

Masters of Science

International Transportation
Management

Maritime and Naval Studies

Bachelor of Engineering ABET Accredited

Electrical – Facilities – Marine
Mechanical -Naval Architecture

Bachelor of Science

International Transportation &
Trade - Marine Environmental
Science - Marine Operations (Deck
and Engine) - Marine Transportation
Maritime Studies

Associates of Applied Science

Maritime Technology (Deck and
Engine)

PROFESSIONAL MARINER TRAINING

STCW

- BASIC TRAINING
- 100t MASTER
- ABLE SEAMAN
- LIFEBOATMAN
- ADVANCE FIREFIGHTING
- VPDSD (SECURITY)
- ELECTRONIC CHART
DISPLAY AND
INFORMATION SYSTEM
- RFPNW

CURRENT/FUTURE GWO

- BASIC SAFETY TRAINING
- ADVANCED RESCUE
TRAINING STANDARD
- ADVANCE RESCUE
TRAINING REFRESHER
STANDARD
- ENHANCED FIRST AID
STANDARD
- ENHANCED FIRST AID
REFRESHER STANDARD
- BLADE REPAIR STANDARD
- SLINGER SIGNALER

<https://www.sunymaritime.edu/page/professional-mariner-training>

MARITIME COLLEGE

STATE UNIVERSITY OF NEW YORK



AMERICA'S OLDEST AND LARGEST MARITIME COLLEGE

1864

Thank You!





CONTACT US!



admissions@sunymaritime.edu



718 – 409 – 7221



www.sunymaritime.edu/admissions/contact-us



SUNY Maritime College Admissions



[@sunymaritimeadm](https://www.instagram.com/sunymaritimeadm)



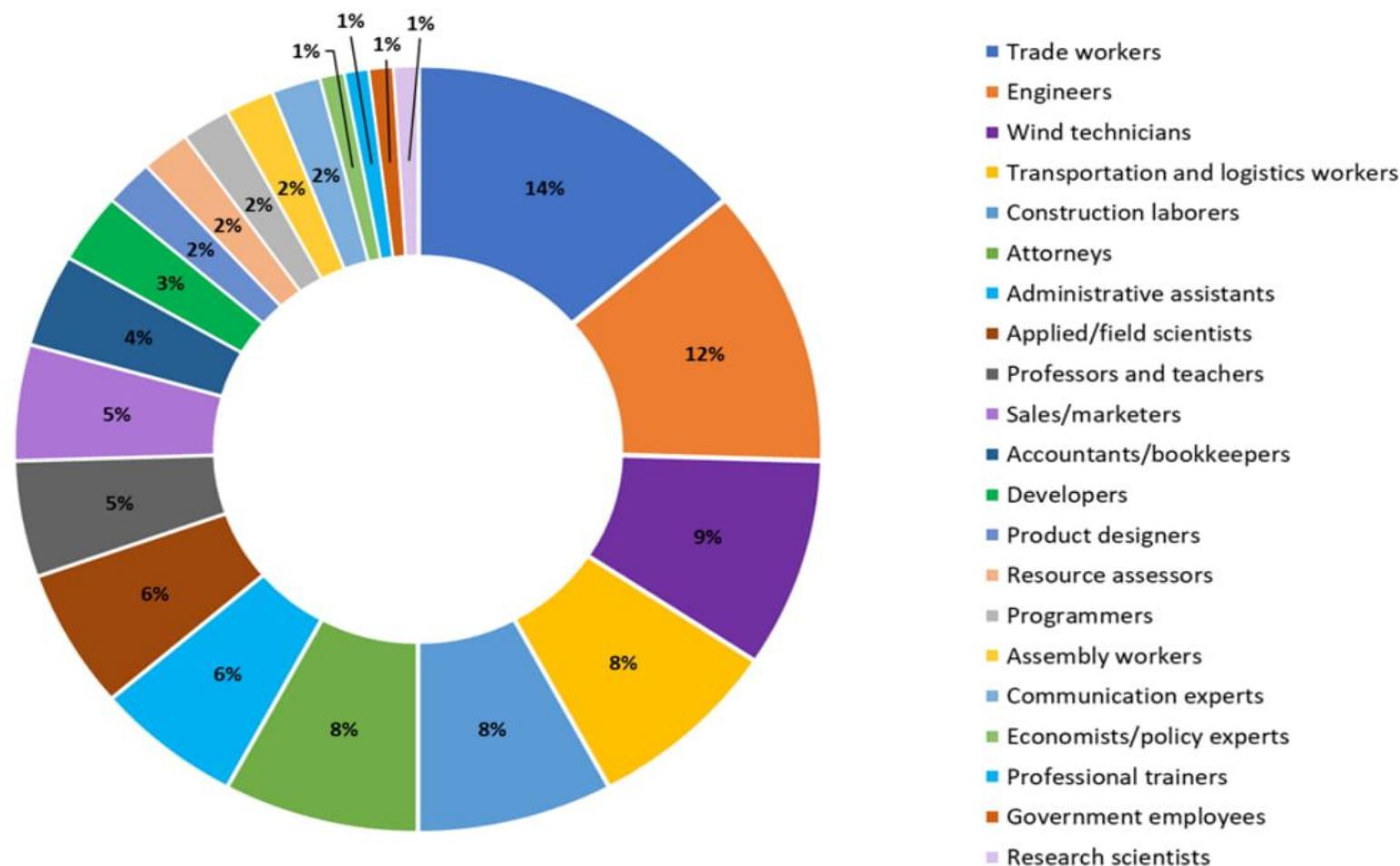
[@SUNYMaritimeADM](https://twitter.com/SUNYMaritimeADM)



Training the Workforce for OSW – Initial Steps by Higher Education Institutions

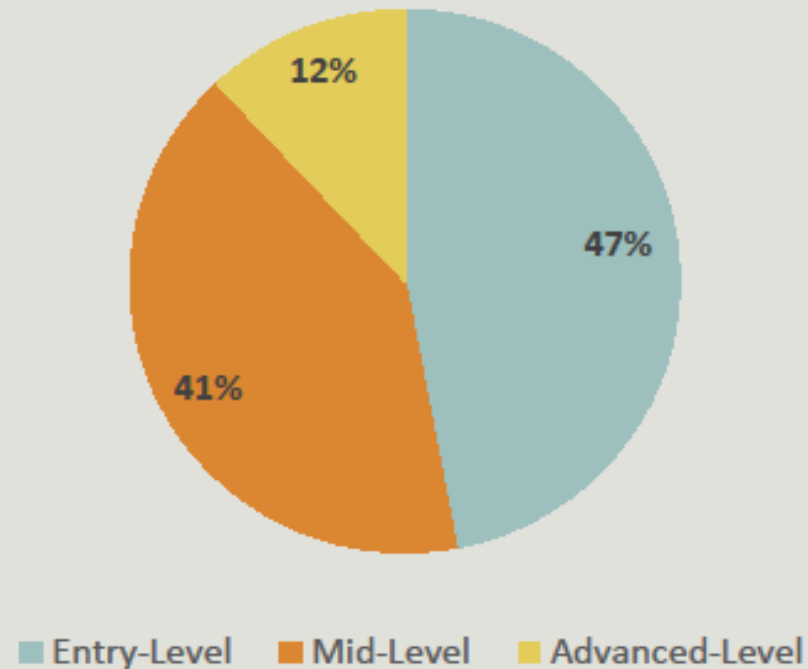
Marjaneh Issapour-Director of Renewable Energy and Sustainability Center and Professor of Electrical Engineering Technology

The Wind Energy Workforce in the United States: Training, Hiring, and Future Needs



NREL: 2016 wind energy occupations in the United States
(according to industry surveys with 249 firms)

Educational Requirements



- **Entry-Level** includes high school diplomas, associate degrees, and apprenticeships
- **Mid-Level** includes bachelor's degrees
- **Advanced-Level** includes master's and doctoral degrees

Challenges of preparing the work force from my personal perspective

- Defining the scope and Format as per institution/entities mission
 - Credit bearing certificate program
 - Pathway to a degree
 - Financial aid
 - College semester and/or quarter style
 - Lab, theory separate
 - Boot camp style with no College Credit
 - 20-24 weeks 8am to 5pm mix and lab and theory
 - Cost of training
 - Micro-credentials
 - Bitwise training

Planning the workforce

- Recruitment and retention
- Diversity and inclusion
- Learner dependent factors
 - Technical background
 - Technology aptitude- Hands on
 - Working in heights
 - Working in ocean
 - Ability to follow protocol and work in unfavorable conditions

Wind Turbine Technician O&M - basics

- Wind Turbine Technology Certificate Program . It is a one-year certificate program. Students are eligible for financial aid. Collaborators is GE renewables, Vineyard wind and Equinore. Developers Courses include the following
- Working with SUNY Maritime to create a multi campus certificate to provide the work in height, safety and sea survival (GWO)

Summer Wind Readiness program at FSC

1. Wind Turbine Technical Training in Collaboration with GE(5weeks)
2. Introduction to Wind Energy- focused on from disadvantage communities, EOC population, DOL and veterans(2 weeks)
3. Micro credential in Wind Energy Technology(2 summer sessions and 3 courses)

Summer Training Readiness programs at FSC

1. Wind Turbine Technical Training
 2. Introduction to Wind Energy
 3. Micro credential in Wind Energy Technology
- <https://www.farmingdale.edu/resc/wind/index.shtml>

