

Fisheries Technical Working Group

A Stakeholder Engagement and Advisory Process to Advance the Environmentally Responsible Development of Offshore Wind Energy for New York State



May 13, 2021

Introductions







CADMUS

- > F-TWG Lead: NYSERDA (518) 441-9811
- Morgan Brunbauer, <u>Morgan.Brunbauer@nyserda.ny.gov</u>
- Gregory Lampman , Gregory Lampman@nyserda.ny.gov
- > Technical Support: Tetra Tech
- Brian Dresser, brian.dresser@tetratech.com

- > Facilitation Support: CBI and Cadmus
- Pat Field, <u>pfield@cbi.org</u>
- Ashley Arayas, <u>ashley.arayas@cadmusgroup.com</u>

Zoom Orientation

- > This meeting is being held as a Zoom Webinar.
- Core F-TWG Members (Fishing Industry and Developer members) are Panelists. Meeting presenters are also Panelists.
- > All other attendees are in listen-only mode (see controls below). If you have questions during the meeting, please feel free to enter them into the meeting Q&A (click on Q&A in your control bar).

Webinar Panelist (Core F-TWG Members and Presenters) Controls:



Webinar Attendee (All Other Attendees) Controls:



Meeting Agenda

- Welcome
- F- TWG Topics for Discussion
 - NYSERDA process for research funds and mitigation plans
 - BOEM update on activities in the New York Bight
 - Developer updates on New York PPAs (Equinor Empire 1, Empire 2, and Beacon Wind; Orsted – Sunrise Wind)
 - Tetra Tech update on Compensation Overview Document
- General Updates
- Wrap Up & Next Steps



Mission Reminder

- > The mission of the Fisheries Technical Working Group (Fisheries TWG or "F-TWG") is to provide advice and guidance to help steer the State of New York's efforts to advance offshore wind development in an environmentally responsible way and to protect and sustain the State's and region's fisheries and fishing communities
- > For purposes of this framework, the term "fisheries" includes commercial and recreational fishing as generally used in fisheries management-related discussions.

F-TWG Objectives

- >Enhance communication and coordination
- >Disseminate information
- >Provide advice and input
- >Support scientific research

FTWG Ground Rules

- > Engage constructively with one another
- > Acknowledge and articulate differences with respect and clarity
- > Provide input and advice to the State of New York, including broadly shared advice where possible
- > In lieu of agreement among F-TWG members, articulate the range of advice clearly and the reasons for differences

Membership and Participation

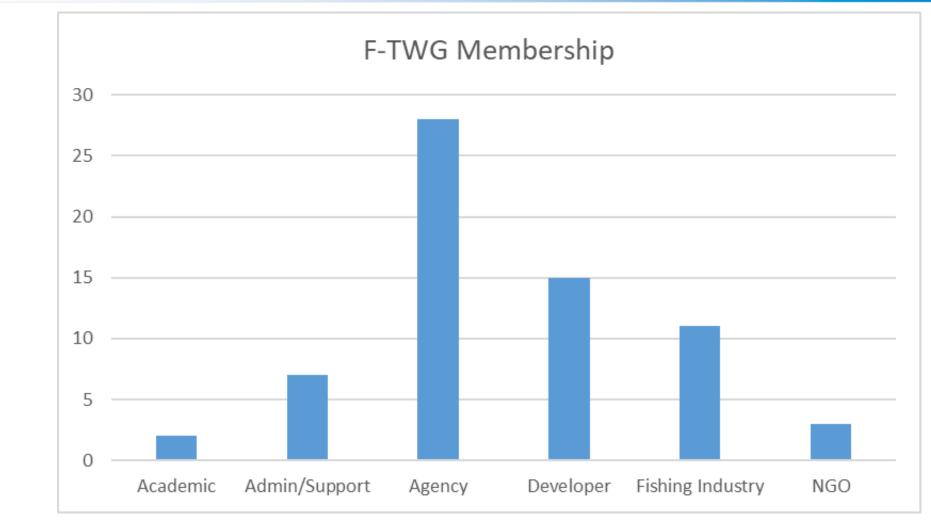
Name	Company	
Emerson Hasbrouck	Cornell University Cooperative Extension	
Scott Curatolo-		
Wagemann	Cornell University Cooperative Extension	
Greg Lampman	NYSERDA	
Kate McClellanPress	NYSERDA	
Morgan Brunbauer	NYSERDA	
Sherryll Huber	NYSERDA	
Brian Hooker	Bureau of Ocean Energy Management (BOEM)	
Luke Feinberg	Bureau of Ocean Energy Management (BOEM)	
Ursula Howson	Bureau of Ocean Energy Management (BOEM)	
	Connecticut Department of Energy and	
Justin Davis	Environmental Protection	
	Connecticut Department of Energy and	
Matthew Gates	Environmental Protection	
Dan Burgess	Governor's Energy Office, Maine	
Laurie Nolan	MAFMC	
Stephanie Watson	Maine Governor's Energy Office	
Meredith Mendelson	Maine Department of Marine Resources	
Kathryn Ford	Massachusetts Division of Marine Fisheries	
Mike Pol	Massachusetts Division of Marine Fisheries	
Julia Beaty	Mid-Atlantic Fishery Management Council	
	New Jersey Department of Environmental	
Colleen Brust	Protection	
	New Jersey Department of Environmental	
Elizabeth Lange	Protection	
	New Jersey Department of Environmental	
Joe Cimino	Protection	
	New Jersey Department of Environmental	
Megan Brunatti	Protection	

Name	Company
	New Jersey Department of Environmental
Peter Clarke	Protection
Kevin Hassell	NJDEP
Doug Christel	NOAA, GARFO
Sue Tuxbury	NOAA, GARFO
Andy Lipsky	NOAA, NEFSC
Vince Guida	NOAA, NEFSC
Rihanna Bozzi	NYSDEC
Laura McLean	NYSDOS
Michael Snyder	NYSDOS
Peter Clouse	NYSDOS
	Rhode Island Department of Environmental
Julia Livermore	Management RIDEM
Michele DesAutels	USCG
Jenny Briot	Avangrid Renewables
Doug Copeland	EDF
Elizabeth Marchetti	Equinor
Scott Lundin	Equinor
Joel Southall	Mayflower Wind
John O'Keeffe	Orsted
Julia Prince	Orsted
Rodney Avila	Orsted
Anne Marie McShea	OW Ocean Winds
Koen Broker	Shell
Ruth Perry	Shell

Name	Company
Caela Howard	Vineyard Wind
Christa Bank	Vineyard Wind
Matt Robertson	Vineyard Wind
Rachel Pachter	Vineyard Wind
Tony Dilernia	Dilernia Marine Services
Mary Bess Phillips	F/V Illusion, Alice's Fish Market
Julia Lofstad	F/V Julie Rae, Sea Breeze Fisheries
David Frulla	Fisheries Survival Fund
Greg DeDomenico	Garden State Seafood Association
Scot Mackey	Garden State Seafood Association
Bonnie Brady	Long Island Commercial Fishing Association
Dave Wallace	MAFMC Clam Advisory Panel/David Wallace and Associates
Meghan Lapp	Seafreeze Ltd.
Tom Dameron	Surfside Foods LLC
Katie Almeida	The Town Dock
Annie Hawkins	RODA
Lane Johnston	RODA
Lyndie Hice-Dunton	ROSA
Ashley Arayas	Cadmus Group
Patrick Field	Consensus Building Institute
Brian Dresser	Tetra Tech, Inc.

Membership and Participation

Affiliation	Count
Academic	2
Admin/Support	7
Agency	28
Developer	15
Fishing Industry	11
NGO	3
Grand Total	66



Fisheries Mitigation Plans Process Update



Fisheries Mitigation Plans

- Project status updates at F-TWG meetings
- Flexible FMP meeting schedule driven by significant updates and project milestones
- NYSERDA will solicit questions and feedback from TWG on FMP updates prior to FMP meeting
- Meeting summaries will capture questions and answers raised during the meeting
- Meeting summaries and redline updates of the FMP will be posted on the F-TWG website

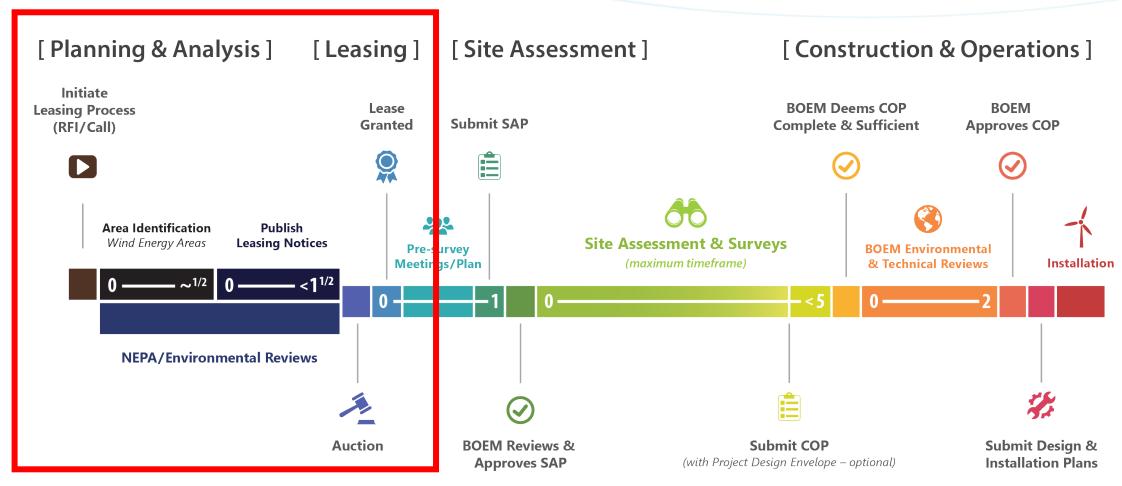


Outer Continental Shelf Wind Energy Leasing in the New York Bight

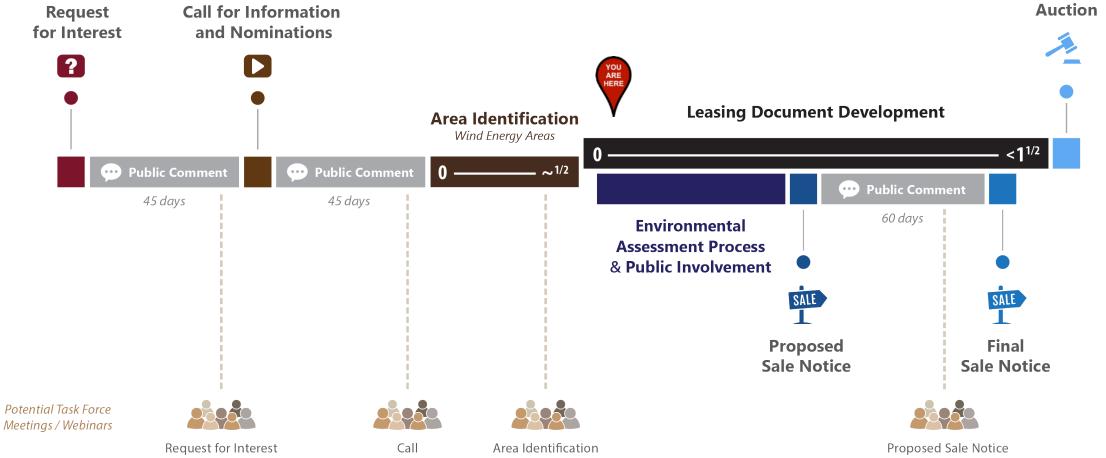
Luke Feinberg and Brian Hooker
Office of Renewable Energy Programs



Renewable Energy Process: From RFI/Call to Operation



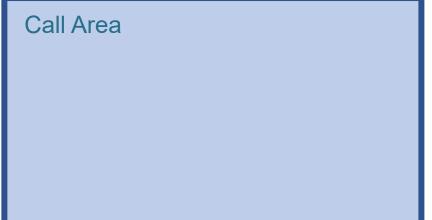
Request for Interest to Lease Sale



Call for Information and Nominations

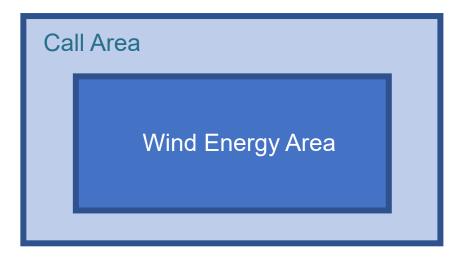
Request comments on:

- Areas for special consideration and analysis
- Conditions in the Call Area
- Areas to be considered for leasing



Wind Energy Area

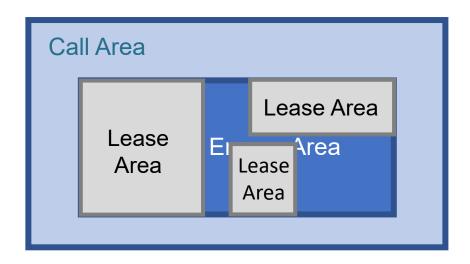
- A portion of the Outer Continental Shelf (OCS) identified by BOEM for NEPA analysis (Environmental Assessment)
- The basis for a Lease Area





Lease Areas

 Wind Energy Areas have the potential for further division into Lease Areas

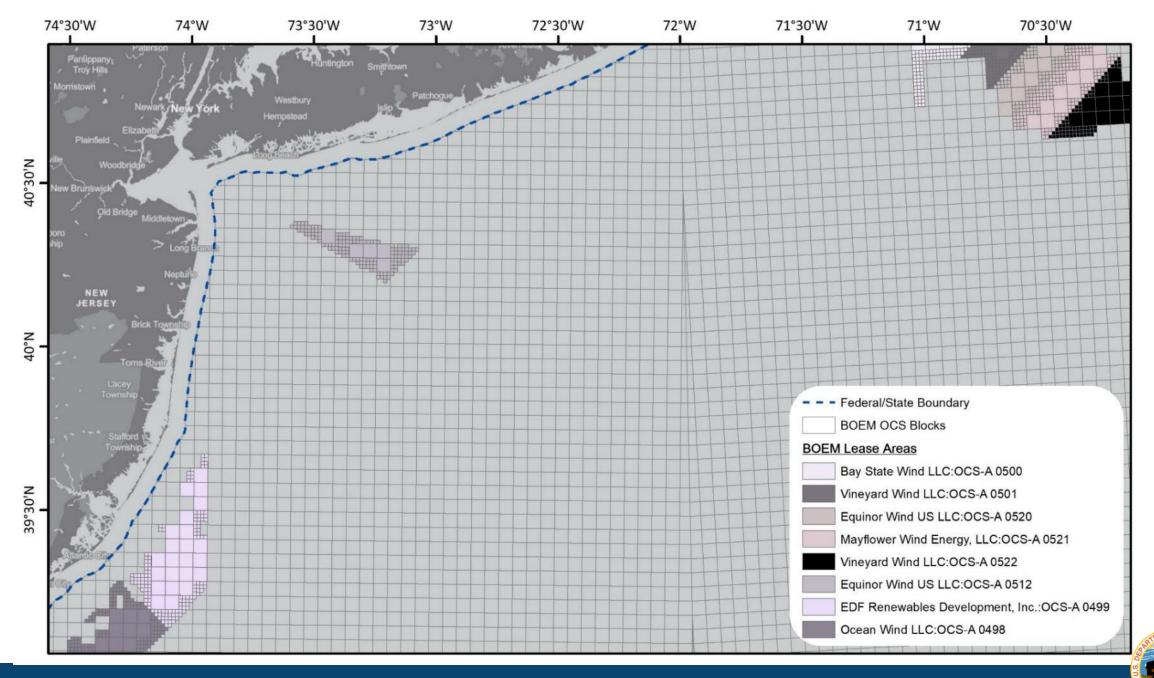


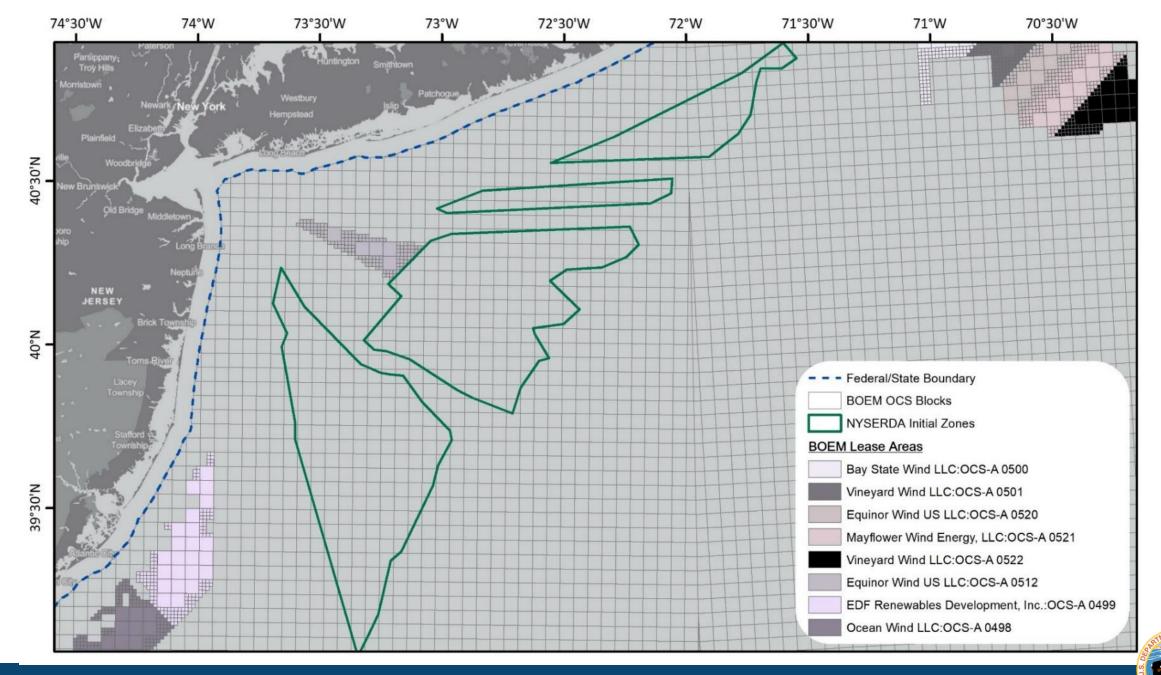
NY Bight Timeline

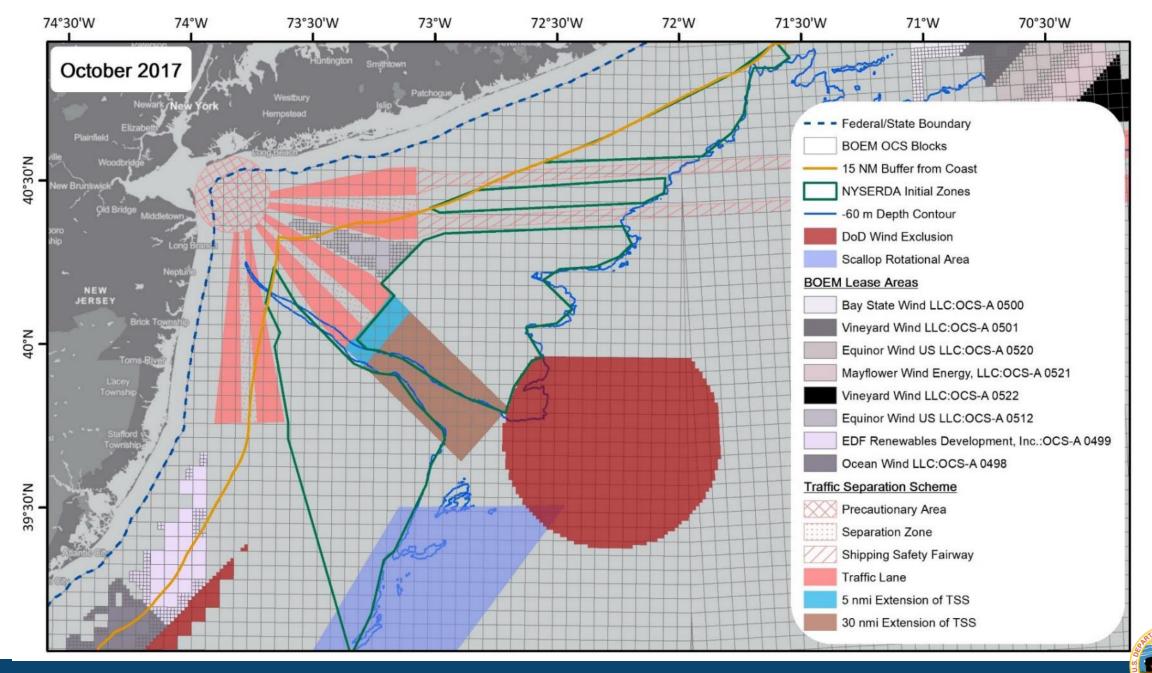
- September 2017
 - Request from NY
- April 2018
 - Call For Information and Nominations
- Nov 2018
 - Task Force meeting Draft WEAs
- March 2019
 - New York Bight Transit LaneWorkshop

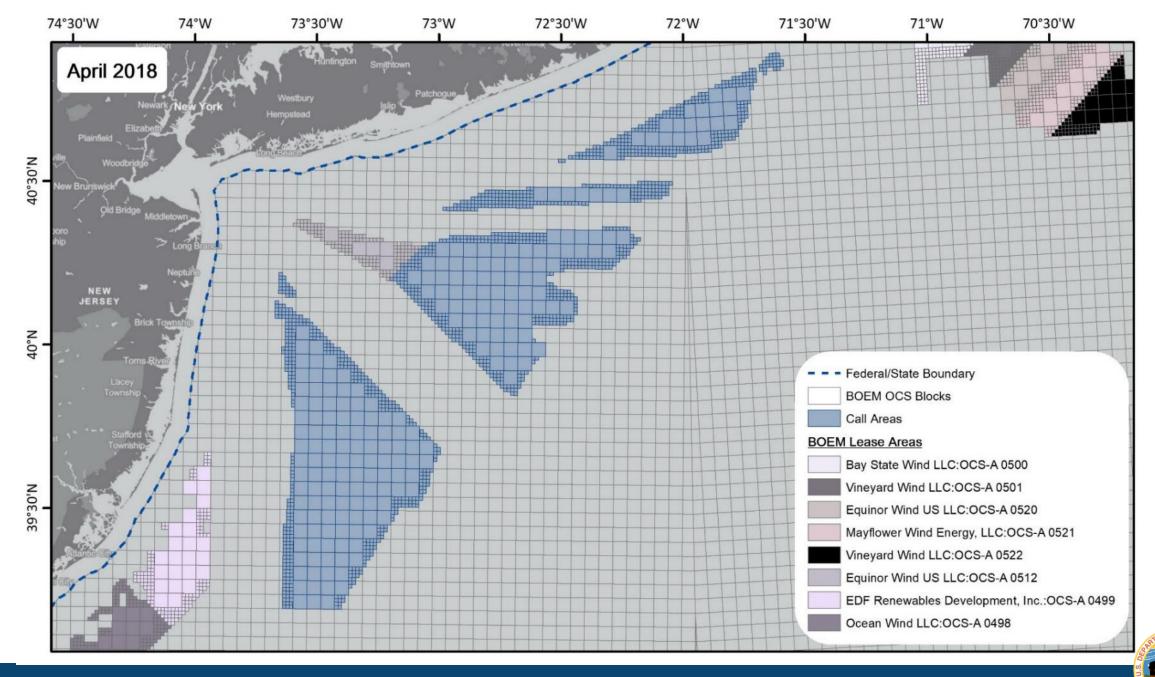
- December 2020
 - Revised Department of Defense Analysis
- March 2021
 - WEAs announced
- April 2021
 - Task Force Meeting Proposed Sale Notice
- Anticipated June 2021
 - Publish Proposed Sale Notice

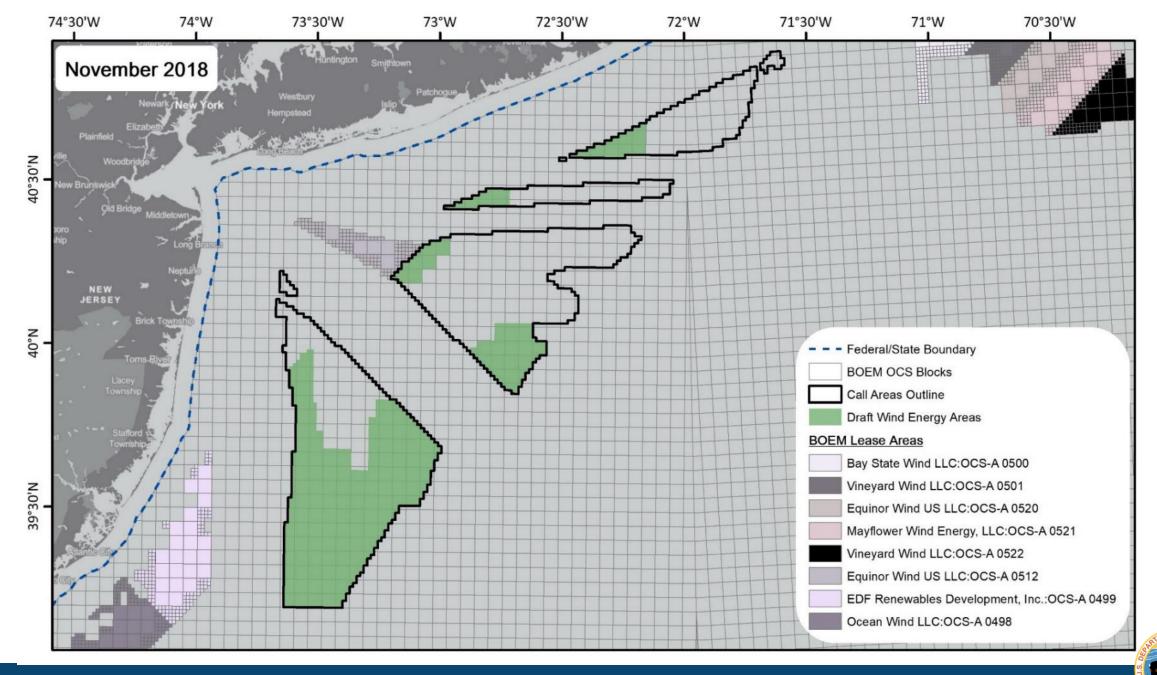


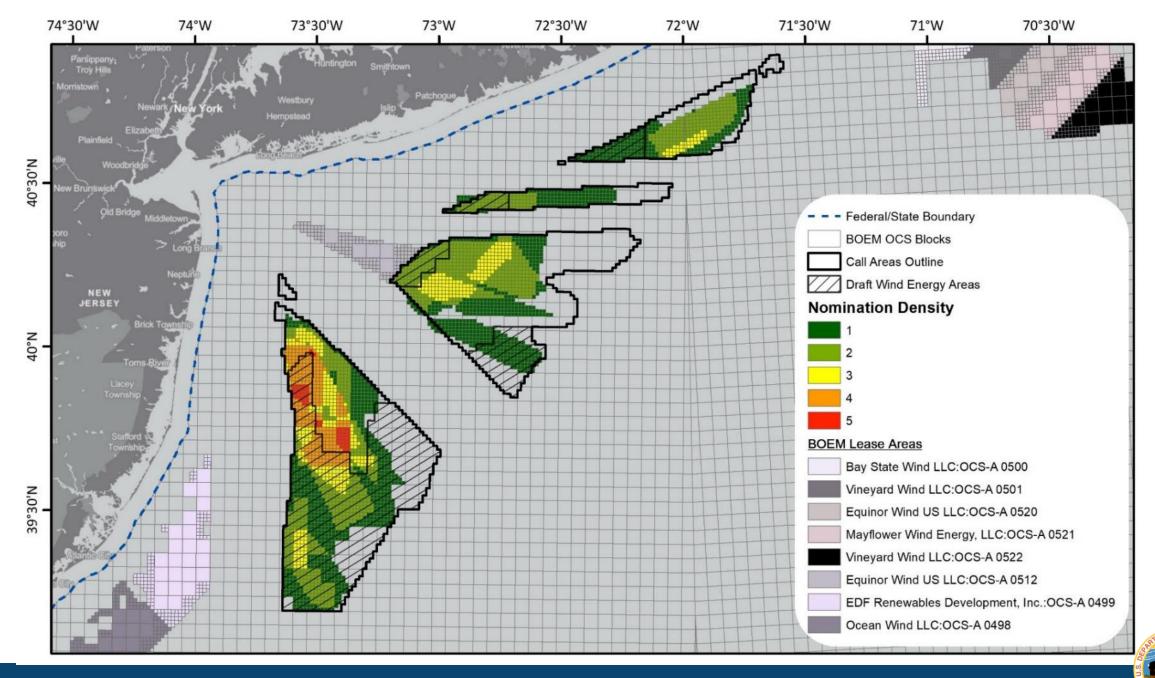


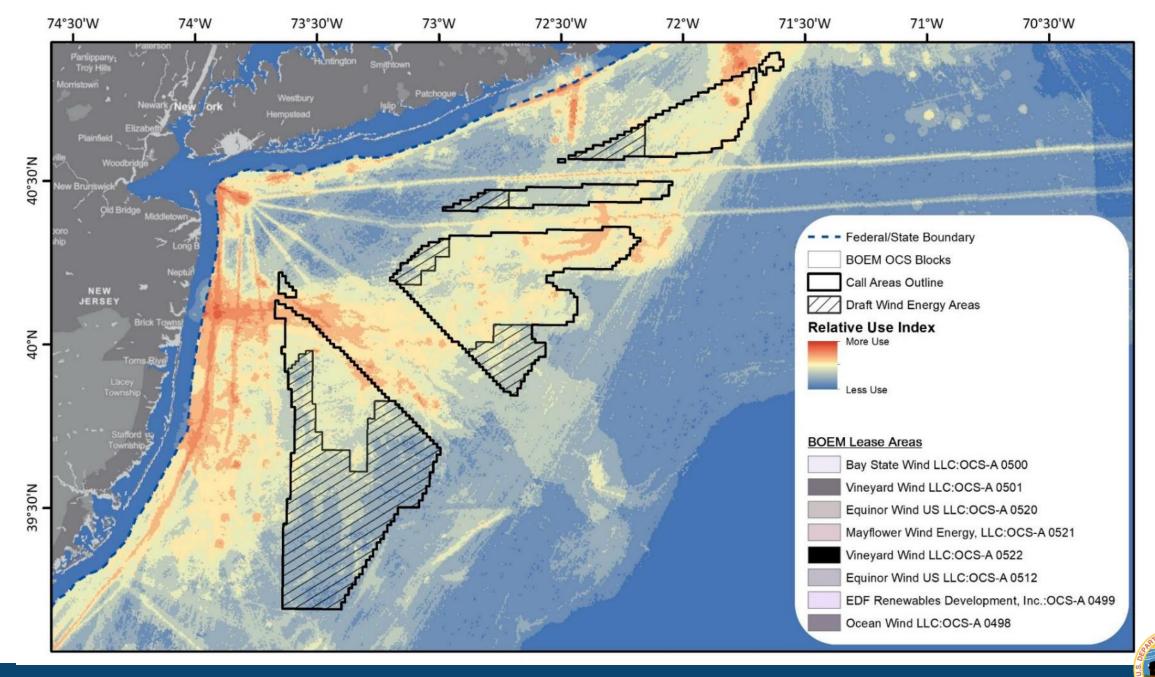


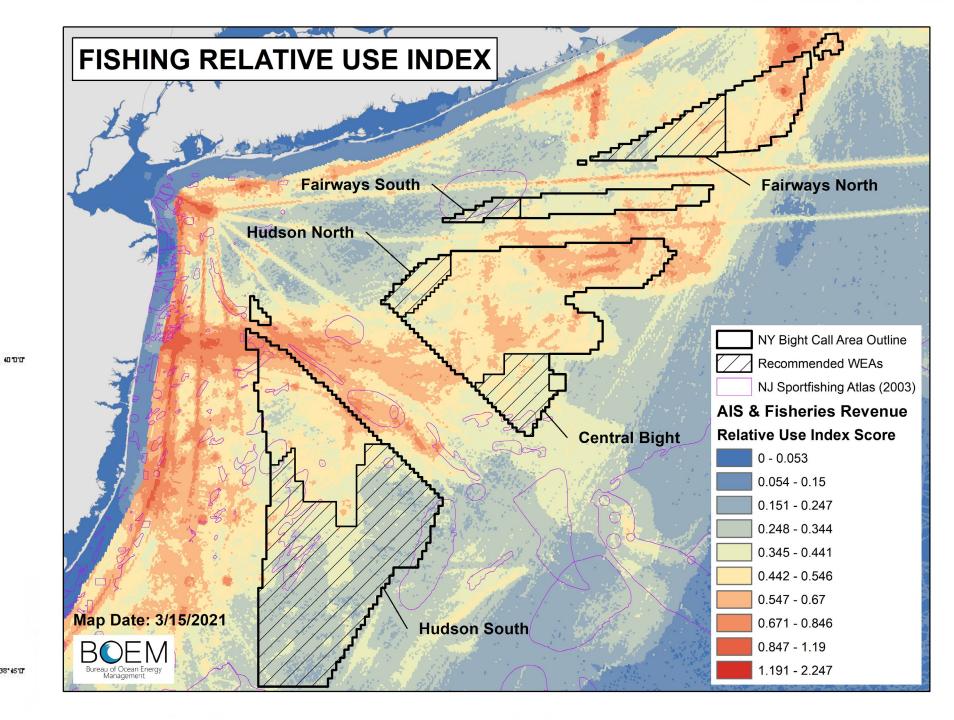


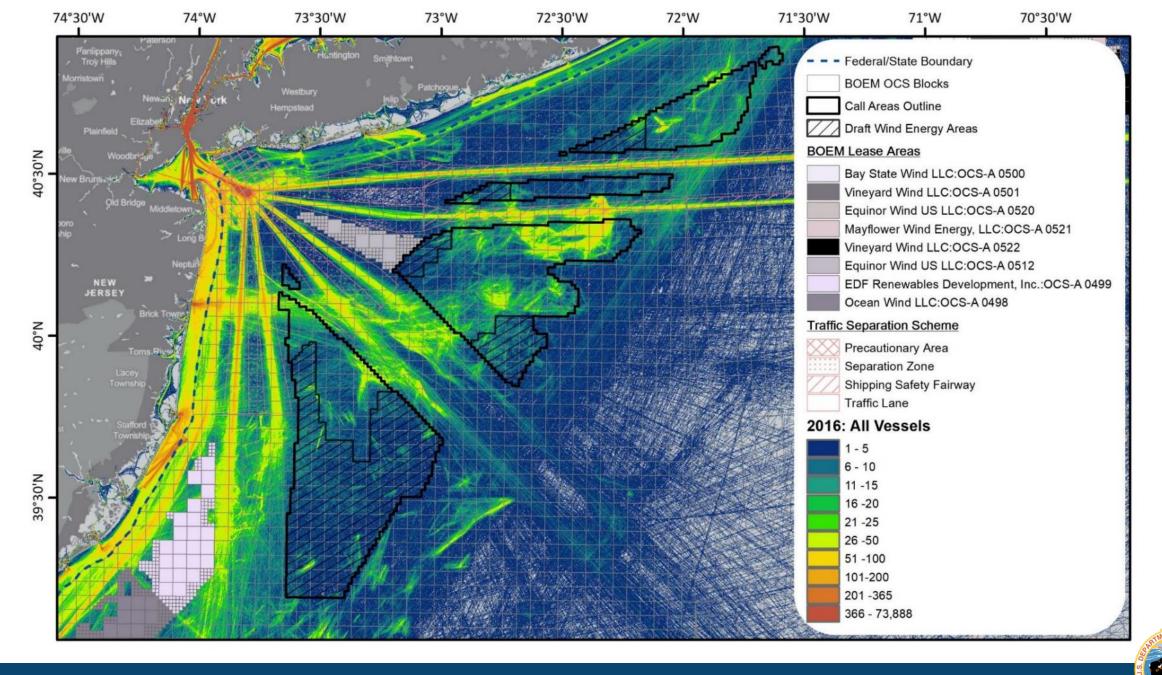


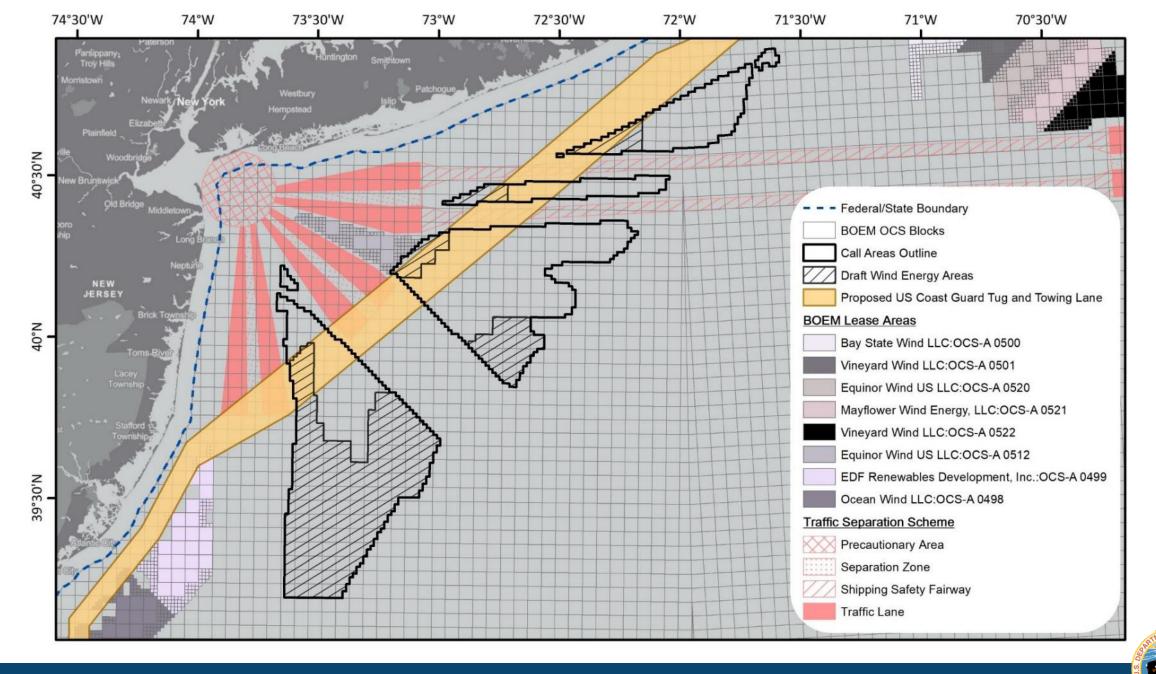




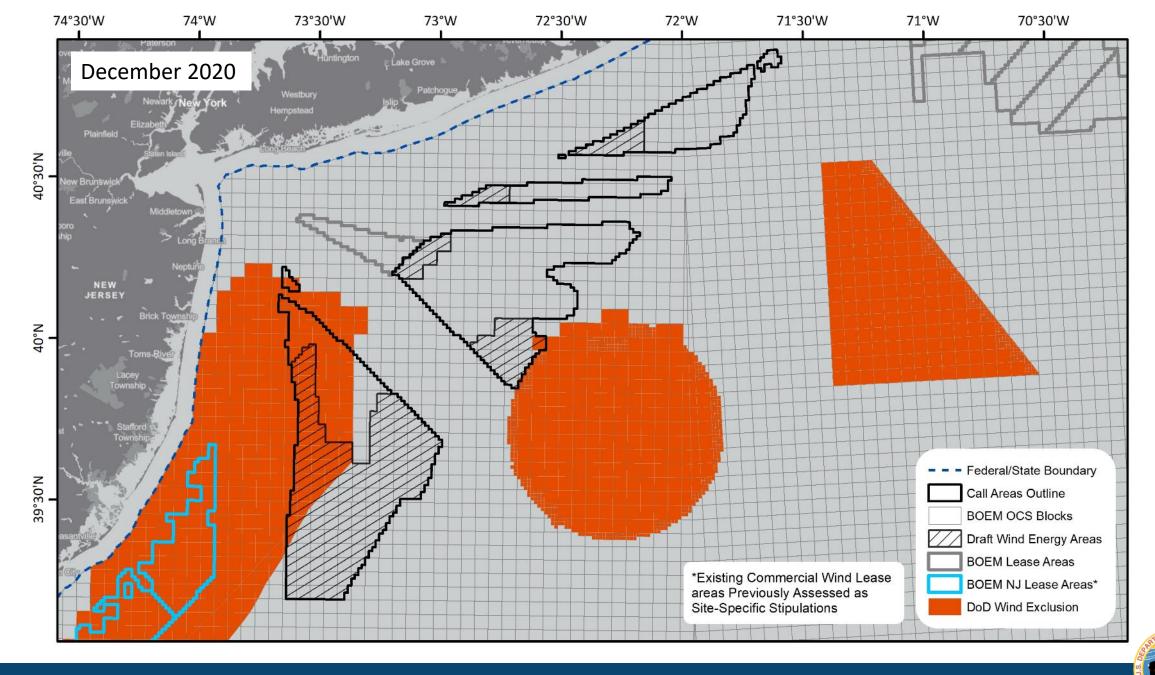




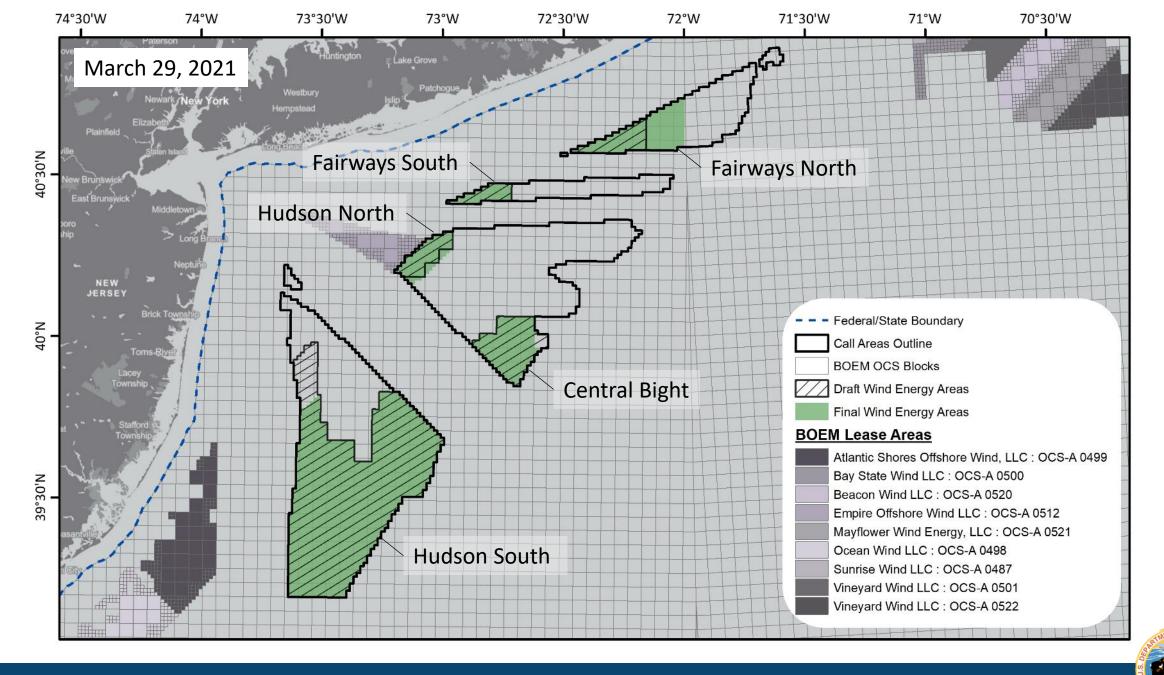






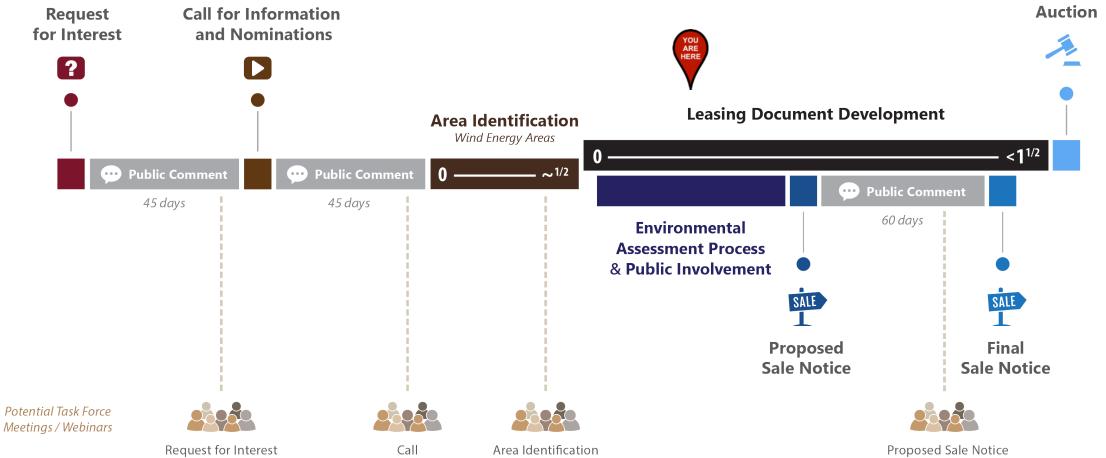








Request for Interest to Lease Sale



Environmental Assessment

Assesses Environmental Effects Associated with Leasing

- Site Characterization Activities
 - biological, geological, geotechnical, and archaeological surveys
- Site Assessment Activities
 - meteorological and oceanographic buoy deployment

Scoping Comment Period ended April 28, 2021

Comment period on EA will be concurrent with the Notice of Availability

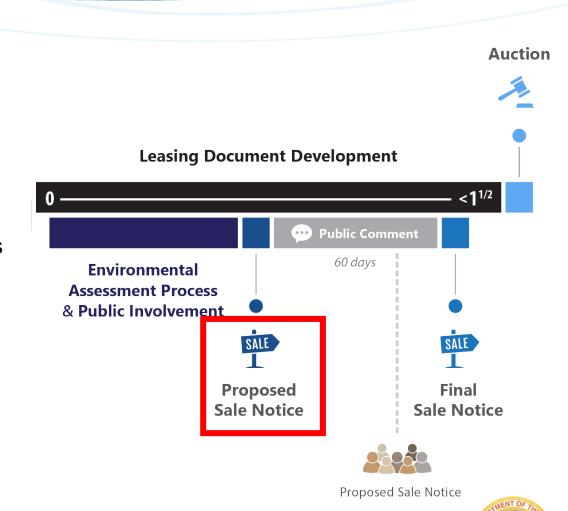


Proposed Sale Notice

What is in a PSN?

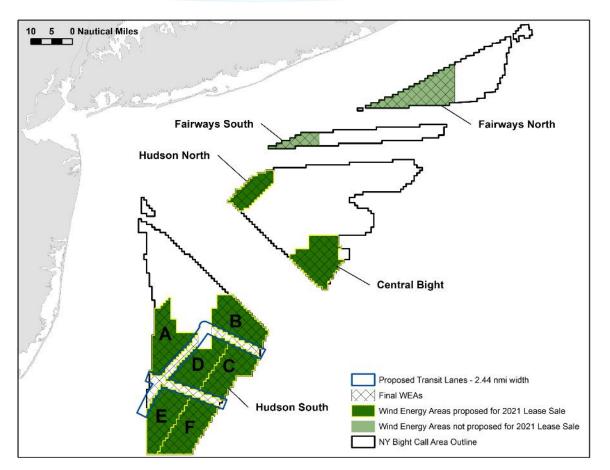
- Area for leasing
- Fiscal terms
- Auction details and format
- Proposed lease terms
- Last opportunity to submit company qualification materials
 - Legal
 - Technical
 - Financial
- Nonmonetary factors

Auction Seminar for potential bidders



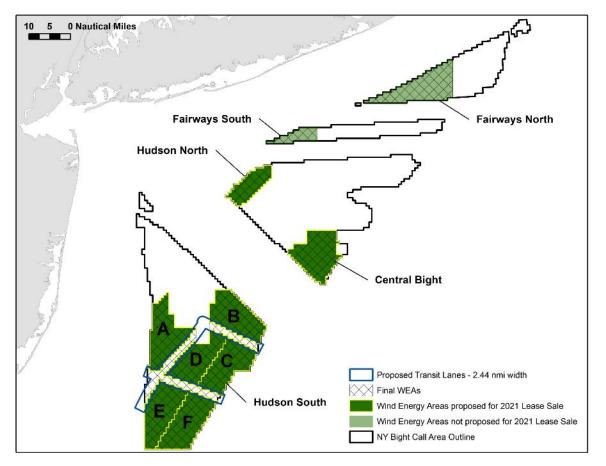
Proposed Lease Areas

- Represents a balance between existing users and emerging industry
- Eight areas
 - 627,000 acres
 - 7.6+ GW, conservatively
 - ~2.7 million homes powered
- Fairways North and South
 - Not considered for leasing, in part, due to maritime traffic, proposed fairway, commercia fisheries, commercial viability



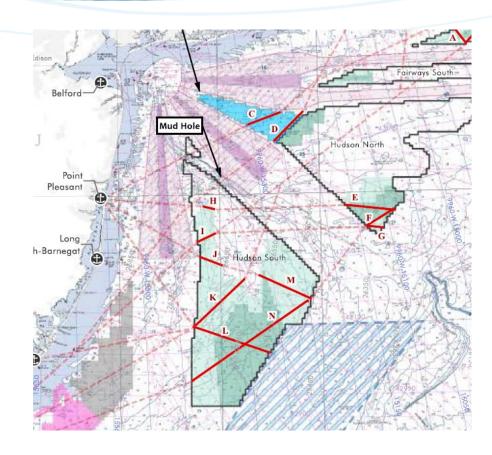
Proposed Lease Areas: Hudson North and HS-A

- Aware of outstanding conflicts
 - Hudson North USCG Proposed Tug Tow
 Lane
 - HS-A DOD Activities
- BOEM looks forward to working with the Task Force to identify a path forward.



Hudson South: Transit Lanes

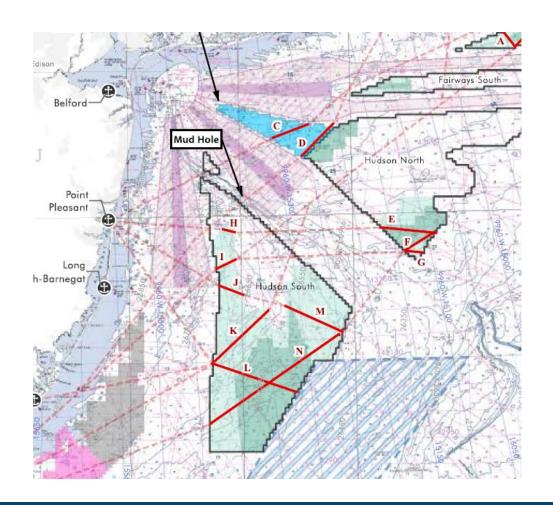
- NYSERDA, NYSDEC, and RODA Workshop and Outreach Summary
 - June 2020
- Transit Lanes Width
 - 2.44 nmi wide
 - Permanent International Association of Navigation Congress (PIANC)
 - Areas of overlap no surface occupancy

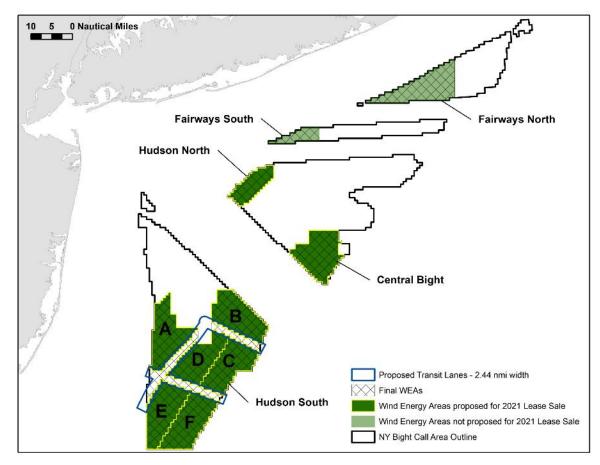






Hudson South: Transit Lanes

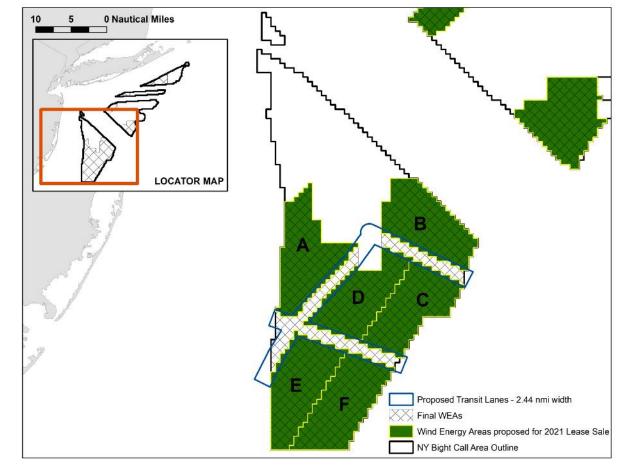




Hudson South

Hudson South was subdivided so each area:

- is of roughly equal commercial viability and size;
- includes transit lanes to account for vessel traffic patterns, fisheries, and DoD concerns;
- is laid out in a manner to reduce wake effect;
 and
- facilitates fair return to the government pursuant to the Outer Continental Shelf Lands Act.

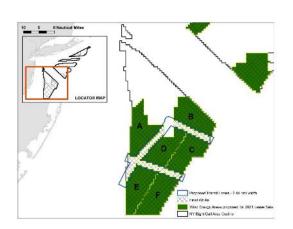


New York Bight Milestones

Milestone	Action	Target Date
Environmental Assessment	NOA Draft EA	July 2021
	30-Day Comment Period	July-August 2021
	NOA Final EA/FONSI	September 2021
Proposed Sale Notice	Publish PSN	June 2021
	60-Day Comment Period	June - August 2021
Final Sale Notice	Publish FSN	Fall 2021
	Minimum 30-Day Waiting Period	
Lease Sale	Sale Date	Late 2021 or Early 2022

Questions for F-TWG Consideration

- Number, size, orientation, and location of the proposed lease areas
 - which lease areas, if any, should be prioritized for inclusion, or exclusion, from this lease sale and/or future lease sales
 - Alternative subdivisions
- Transit Corridors
 - Reflections on proposed transit corridors



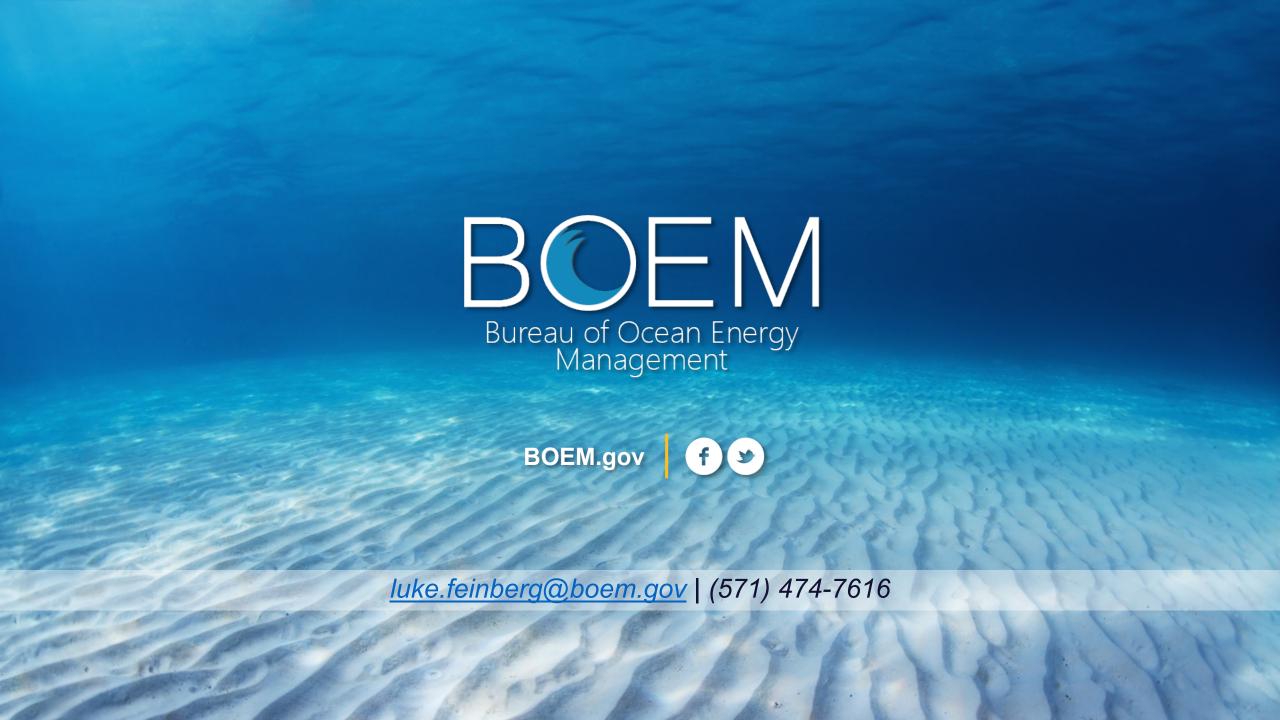
Stakeholder Engagement

- BOEM is proposing a lease stipulation that would require lessees provide a semi-annual progress report that summarizes engagement with existing users
- Methods to improve coordination between lessees, stakeholders, and Tribes

Prescribed layouts

 Should BOEM consider prescribing uniform and aligned turbine layouts to Lease Areas, especially in the Hudson South WEA?





Developer Updates





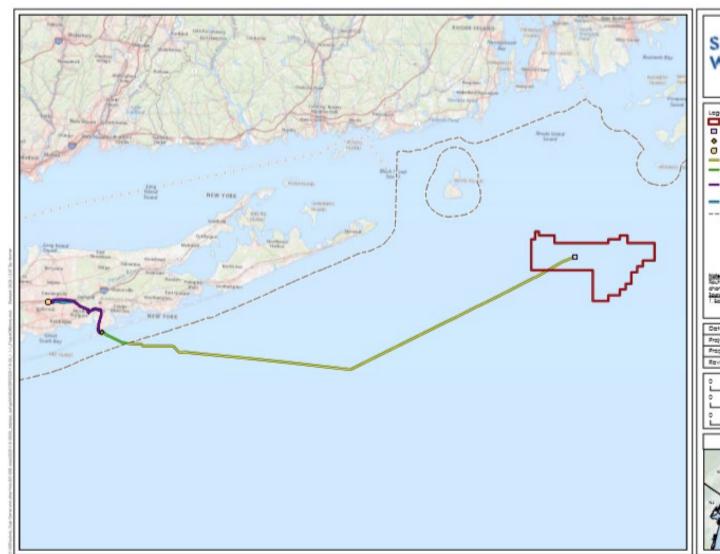
Project Overview

Overview

- Up to 122 WTGs
- 1 Offshore Convertor Station
- 106-mi SRWEC corridor
- 17-mi Onshore Transmission Cable and OnCS in Town of Brookhaven

Status

- COP Submitted Sept 2020; Supplemental filing Dec 2020
- Article VII Submitted Dec 2020: Docket <u>20-T-0617</u> ← Link
- Updated EMP & FMP submitted Dec 2020





Ongoing Survey Efforts

Offshore Surveys	Dates
Geotechnical Survey- Each WTG Foundation	April 2021 – August 2021





THANK YOU

Contact Us

www.sunrisewindny.com

info@sunrisewindny.com





NYSERDA F-TWG Project Update

13 May 2021



Empire Wind COP

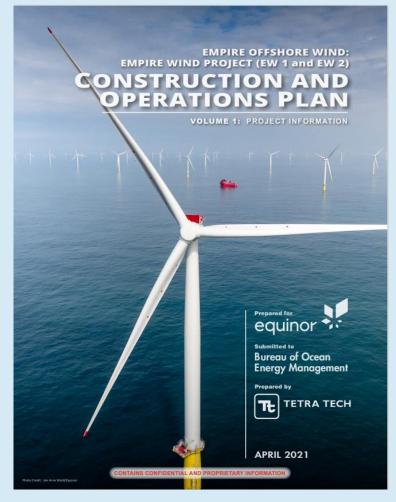
submitted Jan 2020, revised Sept 2020 & April 2021

- Volume 1:
 - Executive Summary
 - Introduction
 - Project Design Development
 - Project Description
- Volume 2:
 - Physical Resources
 - Biological
 - Cultural
 - Visual
 - Social

Anticipated COP Review Process

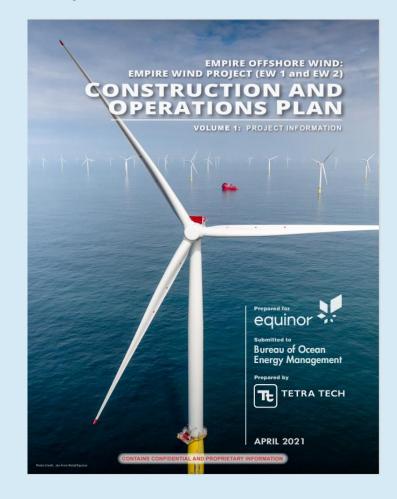
Notice of Intent / COP publicly available – spring, 2021 Public Meeting re: scoping EIS – summer, 2021 Public Meeting re: DEIS – spring, 2022 Record of Decision – spring, 2023

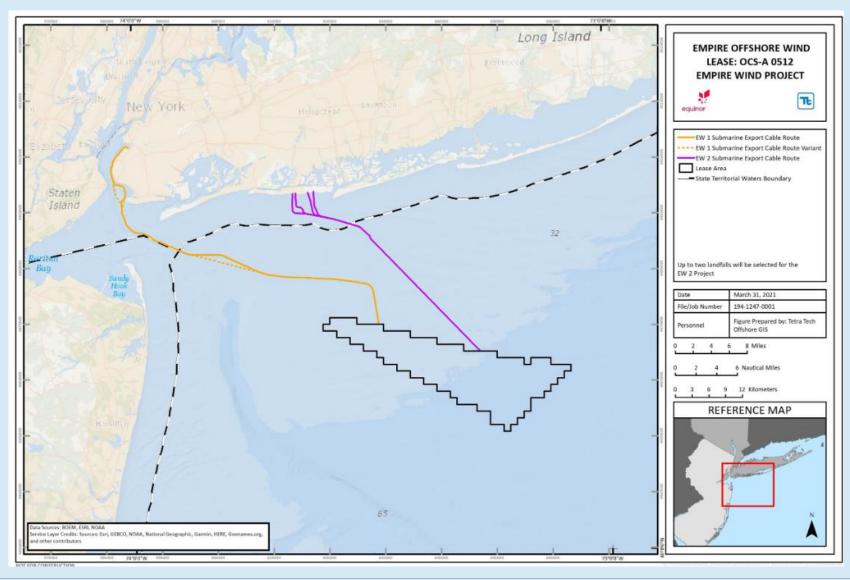




Empire Wind COP







Layout rules



Voluntarily applied by Equinor Wind

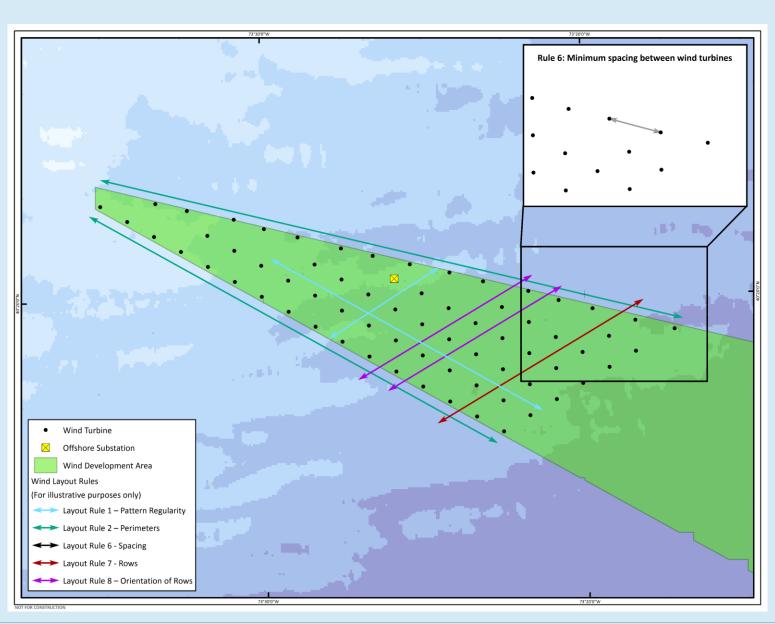
Designed to provide flexibility on timing and design of final layouts, but within known and assessed limits

Rules reduce navigational risk and facilitate continued access to traditional fishing grounds

Safety: developed to ensure effective Search & Rescue (SAR) operations

Used in development of the Navigation Safety Risk Assessment

Developed in consultation with fisheries, maritime stakeholders & previous experiences since 2018



Layout outreach – since 2018



Draft Wind Farm Layouts for Consultation

As described in this brochure, Equippor Wind has developed layout principles and indicative turbine layouts for consultation with the fishing community. It is acknowledged that consultation may be limited to these principles at this stage and that layouts may continue to evolve based on consultations, the permitting process and technological developments. The example: considering the following:

- 1 Potential phased development of up to three (3) wind farms of approximately 800MW each at different stages within the
- 2. Different wind turbine sizes and associated spacing and numbers ranging from 10 MW (earliest phase) to 18MW (later phase) wind turbines;
- Turbine alignment as close as feasible to straight rows following the bathymetric curves of the area, consistent with

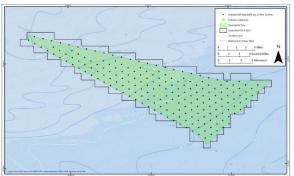
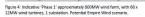
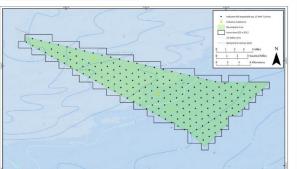


Figure 5: Indicative full Lease Area build out, three individual phases totalling 200 x 12MW wind turbines, minimum spacing 0.71 nm



Empire Wind Fisheries Mitigation Plan

Equinor Wind has developed a Fisheries Mitigation Plan for the Empire Wind project as part of its application to supply offshore renewable energy certificates to New York - Equipor Wind will consult on the plan with the New York Fisheries Technical Working Group (F-TWG) and wider fishing industry.



Empire/Boardwalk Wind **Farm Layouts Consultations**



Indicative Offshore Wind Farm: Equinor constructed and operated Dudgeon, UK

In 2017 Equinor Wind US, LLC was awarded the lease to study and develop OCS-A 0512, the area now known as Empire/Boardwalk Wind, in the New York Bight (see map). The lease area starts about 14 miles south of Jones Inlet, Long Island and 17 miles east of Sea Bright, New Jersey, It extends approximately 22 nautical miles (nm) to the southeast in water denths of between 60-130 feet (10-22 fathoms). The lease area has the potential to support a generating capacity in excess of 2GW of electricity, which equates to over 1 million New York

On July 18, 2019, New York Governor Andrew M. Cuomo awarded Equinor Wind from the Empire Wind project within OCS-A 0512. This project will be able to

Equinor Wind is committed to successfully coexisting with commercial and recreational fishing and aims to achieve this by proactively avoiding or minimizing impacts on fishing throughout all phases of the project lifecycle. This brochure focuses on the operational phase, where thoughtful spatial planning is a key factor in minimizing impacts, for example through continued safe access to traditional fishing grounds. Equinor Wind plans to consult with stakeholders on these layout principles in the coming months.

Inputs from fishermen

Since lease award. Equinor Wind has been engaging with the fishing industry to identify the spatial and temporal distribution of fishing, the target species and gear types, the key concerns fishermen have with operating in offshore wind farms and the minimizing impacts. Consultations and feedback with fishermen from Massachusetts to New Jersey enerally indicate, and are not limited to:

- Fishermen want assured access to offshore wind areas with lawnuts and cable installation that support safe effective fishing and transit:
- Fishermen using trawls and dredges prefer
- straight rows of turbines for towing access: Typical tows may be made in any direction depending on catch depth seabed wind and tide, but in many cases, fishermen prefer to tow along consistent depth contours (see Figure 5):

Site investigation

To make meaningful commitments to wind farm layouts, it

is important to understand the geological and

environmental conditions of the Lease Area to ensure all

factors are taken into consideration. Equinor Wind has

invested in surveys to help inform this process, that

Full geophysical survey coverage of the entire project

cable burial and preliminary foundation suitability.

· Geotechnical sampling across the project area - to

Boreholes at varied locations across the project area -

Benthic surveys across the full project area - to

While the surveys to date help inform design decisions

boreholes may be required in spring 2020 and therefore

Fishermen representatives (OFLRs) are onboard Equinor's

survey vessels to help avoid possible conflicts with fishing

during surveys and to provide information on fishing

they do not 'lock in' a design. Foundation specific

flexibility remains in turbine positioning.

identify sensitive habitats that may require avoidance.

inform cable burial and seabed geology for foundation

- Align turbine rows for compatibility with traditional practices that facilitate coexistence; Bury electrical cables deeper than gear penetration and avoid the use of concrete
- Space wind turbines as far apart as possible
- Requests have ranged from 1 nm to 4 nm:
- on vessel navigation equipment (e.g. radars); Avoid building on Cholera Bank;
- Maintain Search & Rescue capabilities;

Other inputs to layout planning came from various sources including squid trawler plotter tracks, VMS data from portals AIS tracks from trawlers and dredgers and direct observations



all the fishing activity in the area.



Project Design Envelope

Equinor Wind is adopting an extensive project design envelope (PDE) to maintain flexibility to adapt to advancements in technology and consultation feedback The PDE includes:

- Foundations that include Gravity Base Structures (GBS), Monopiles, and Jackets (both pile driven and
- · Wind turbines ranging from approximately 10MW to 18MW generating capacity.
- . Up to a maximum of 240 wind turbines (based on smallest size wind turbines).
- Up to 3 offshore substations

Equinor Wind will be working closely with fisheries representatives, commercial and recreational fishing organizations, and individual fishermen where appropriate to arrange meetings to solicit feedback on the Layout Rules and indicative layouts. Larger scale charts will be brought to these meetings along with Equinor's Wind's 3D wind farm simulation. Feedback can

Elizabeth Marchetti, Fisheries Manager emarc@equinor.com_+1-401-954-2902; and Steve Drew, Fisheries Liaison Officer sdrew@searisksolutions.com_+1-908-339-7439

Draft Layout Rules

The fishing industry and maritime communities have expressed concern about layouts where design envelopes and timing of projects leave uncertainty. Therefore, Equipor Wind has established draft "Layout Rules." to apply when designing wind farm layouts. The draft layout rules are summarized below and shown in Figure 3.

Rule 1 - Layout Pattern and Regularity: The position of all wind turbines and substation platforms shall, as far as practicable, be arranged in straight and easily understandable patterns.

Value to fisheries: Supports existing fishing practices where tows are predominantly in straight lines, reduces the risk of collisions with

Rule 2 - Perimeters: The position of all wind turbines forming the perimeter around a wind farm area shall, as far as practicable, be arranged in straight or gently curved lines in an easily understandable pattern.

Value to fisheries: Consistent, easily recognizable perimeters at and around the wind farms benefit the wider maritime community that use the adjacent waters and the existing Traffic Separation Schemes (TSS). Clearly distinguishable perimeter of the wind farms by reducing the risk of disorientation to fishing vessels which may start trawl tows outside the wind farm and finish inside, or finish outside

Rule 3 - Layout Clarity: Any changes in wind turbine size and separation distance within the Lease Area will be introduced to minimize potential visual confusion for any vessel navigating through the wind farm. For example, should the Lease Area be built out as individual wind farms in phases, a future wind farm with larger wind turbines should be designed to be distinguishable from, but not significantly different in orientation as to earlier wind farms with

Value to fisheries: Supports consistency and minimizes potentia disorientation to fishermen in later phases of development. For example, if a fisherman gets accustomed to towing in a set heading n the first phase of the wind farm, the same tow heading will apply

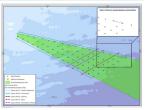
Rule 4 - Boundary Clarity: Opposing site boundaries of individual wind farms within the Lease Area shall be aligned broadly parallel with one another and appropriately marked and lit to distinguish between the separate wind farms, for example an early phase wind farm followed by a later phase wind farm.

Value to fisheries: Supports safer navigation of fishing vessels within the wind farm areas, by allowing an increased understanding of which charted wind farm they are in, and the associated spacing Rule 5 - Proximity to Project Boundaries: All wind farm surface and sub-surface structures, including rotor swept areas, will be located wholly within the permitted wind farm or Lease Area boundarie

there will be no uncharted or unassessed hazards related to the wind farm development outside of the prescribed project limits

Rule 6 - Turbine Spacing: Wind turbine spacing should be consistent in one orientation and as far apart as feasible to suppor fishing practices and wind development. Minimum spacing in any direction to not be below 0.65 nm

Value to fisheries: To ensure the space between wind turbine rows facilitates continued fishing opportunities within the offshore wind



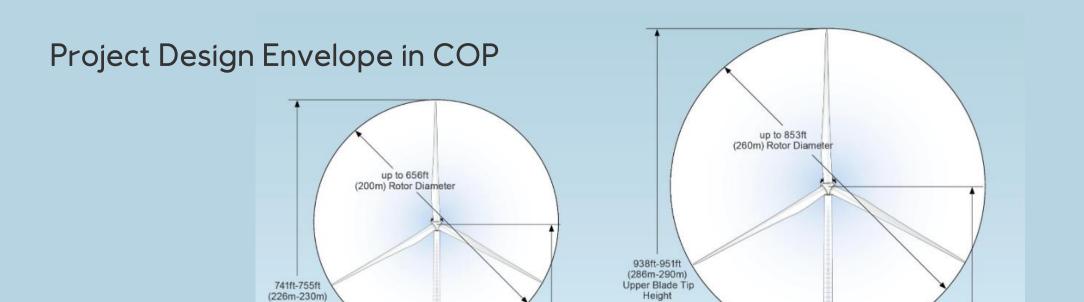
The Rule 7 - Rous: There should be at least one line of orientation of rows of turbines with a clear line of sight (assuming good visibility) and heading from one entrance at the perimeter to an exit and the opposite perimeter

Value to fisheries: Facilitates existing mobile fishing practices with the ability to maintain a fixed heading from start to finish of trawl

oriented in rows that are sympathetic to the dominant trawi directions of most active and potentially affected fisheries. For example, for the Lease Area, a southwest to northeast orientation in line with bathymetry.

Value to fisheries: Reduces the need for mobile fishermen to modify existing practices

Empire Wind Layouts Brochure – circulated October, 2019 (link)



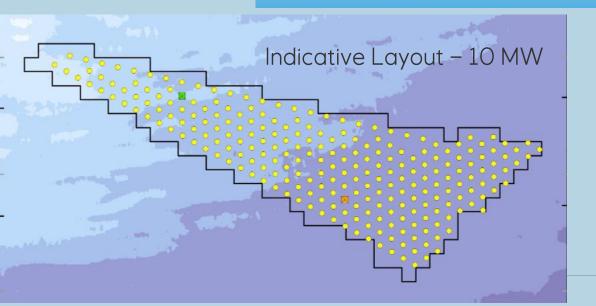
413ft-427ft (126m-130m) Indicative Hub

85ft-98ft (26m-30m) Lower

Blade Tip

18-MW Wind Turbine



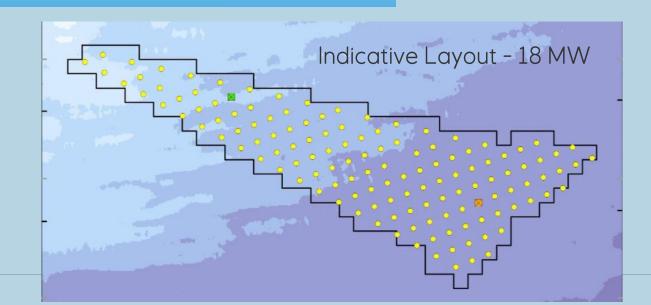


741ft-755ft (226m-230m) Upper Blade Tip Height

85ft-98ft (26m-30m)

Lower Blade Tip

10-MW Wind Turbine

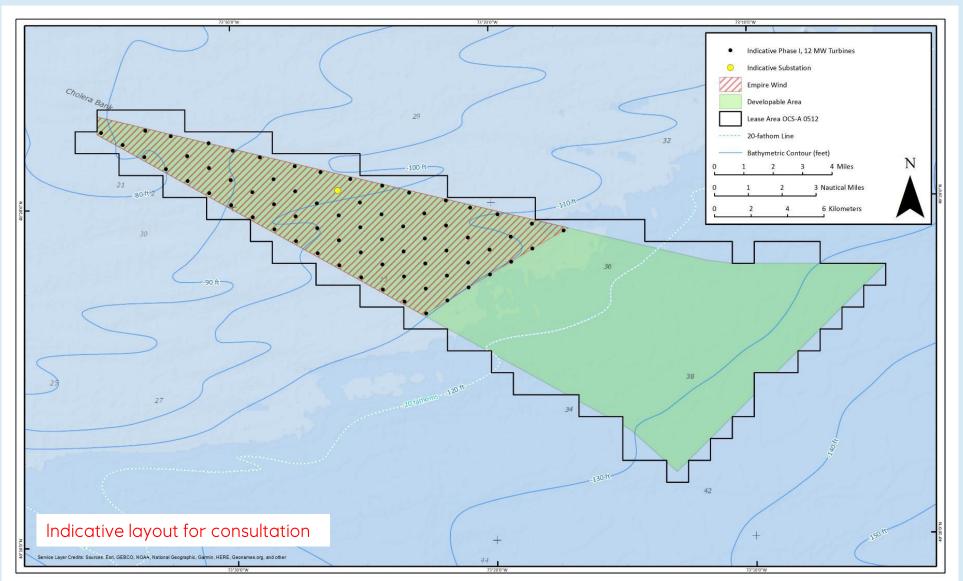


512ft-525ft (156m-160m)

Indicative Hub

Empire Wind: indicative layout for workshop – January, 2020



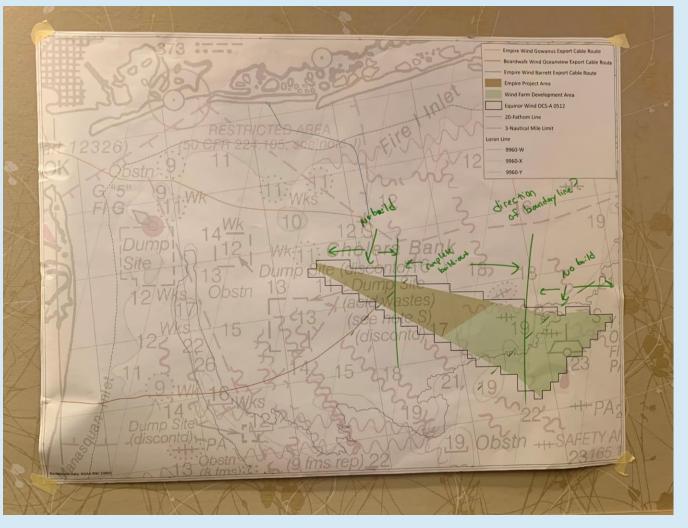


- Defined Empire Wind project area (hashed area)
- equivalent wind turbines indicative example case
- Southwest to northeast dominant rows orientation (understood as being dominant trawling direction)
- Equal spacing 0.7nm x 0.7nm
- 1 x offshore substation
- Layout using 'Layout Rules'
- Remainder of Lease Area (Phases2/3) to support 2 x 800MW equivalent wind farms (134 x 12MW equivalent wind turbines example case)

Workshop feedback: example proposed layouts from fisheries







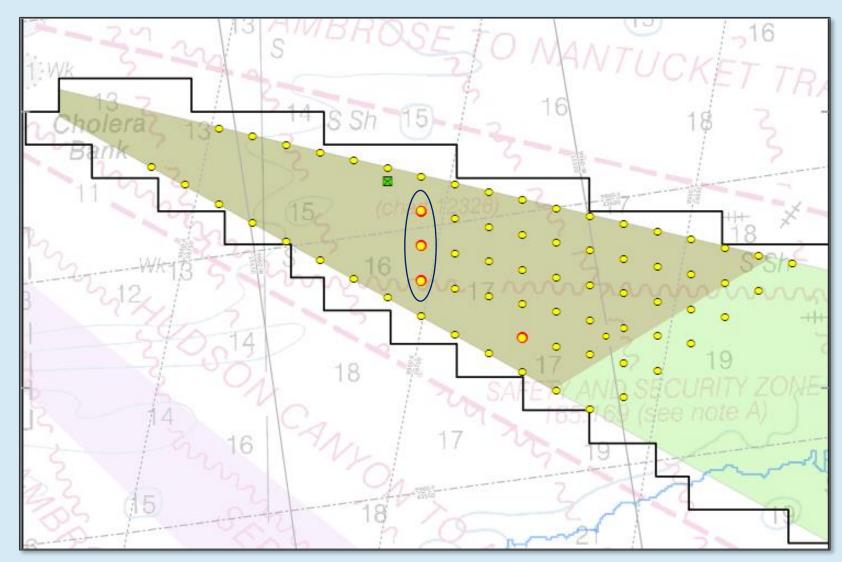
Closer spaced perimeters to provide more spacing in the Lease

No turbines in the west (Cholera) and east (east of 20 fathoms) of the Lease

Summary of Equinor proposed mitigation commitment:



- Consistent approach to turbine row orientations and lighting/marking to facilitate transit, navigation safety, and search & rescue.
- Equinor supports an Open Area Layout Subject to ongoing consultations and approvals with fishing and maritime communities, BOEM, and US Coast Guard.
- If Equinor procures turbines >12 MW, circled positions would be removed.
- Maximum number of turbines to be installed in EW 2 area would be 90.
- Final positions will be subject to other considerations, including those of technical and /or commercial nature, for example geotechnical conditions, cultural resources, etc.

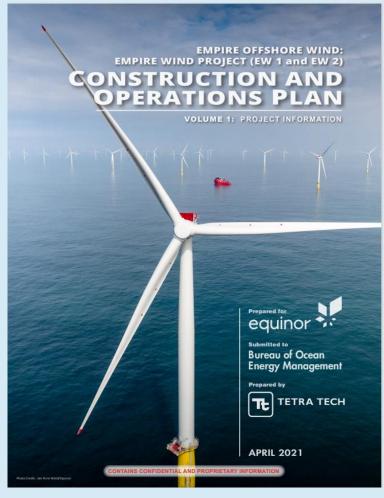


Equinor has committed to removing ~ 400 MW of generating capacity from lease area to accommodate trawl fishing

Empire Wind COP



- Volume 1:
 - Executive Summary
 - Introduction
 - Project Design Development
 - Project Description
- Volume 2:
 - Physical Resources
 - Biological
 - Cultural
 - Visual
 - Social
 - Section 8.8 Commercial & Recreational Fishing
 - 8.8.1 Data Relied Upon and Studies Completed
 - 8.8.2 Baseline Characterization
 - 8.8.3 Impacts Analysis for Construction, Operations, and Decommissioning
 - 8.8.4 Summary of Avoidance, Minimization, Mitigation, and Monitoring Measures
 - 8.8.5 References





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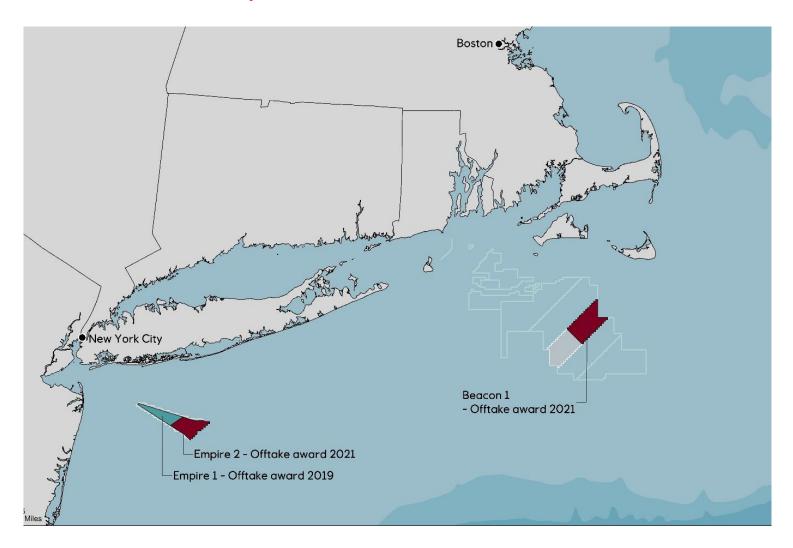
We're on a 10minute break

Please return by 2:30 pm ET





New Award: Empire Wind 2, Beacon Wind 1

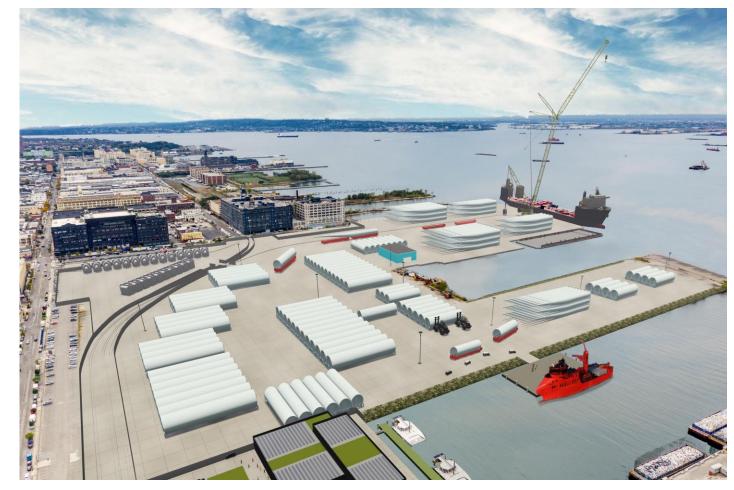


- 2500 MWs of renewable power = 1.3 million homes
- \$47 million in workforce development, innovation and community benefits
- \$25 million to support regional monitoring of wildlife and key commercial fish stocks
- 5,200 total direct jobs supported by both projects
- Combined \$4.5 billion in value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



- Staging facility for Beacon
 Wind 1 and Empire Wind 1, 2
- Assembly for broader New York OSW industry
- One of largest dedicated OSW port facilities in U.S. (73 acres)
- 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







- Equinor's East Coast Operations
 & Maintenance (O&M) Hub
- Base for Beacon Wind and Empire 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 reprovisioning



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 Beacon Wind 1 and Empire Wind 1, 2
- Over \$350 million in investment, including grants from New York State
- 500 short-term jobs, 300 longterm jobs
- In operation in 2023





Empire Wind 2

Empire 2 - Offtake award 2021 Empire 1 - Offtake award 2019 Miles 3

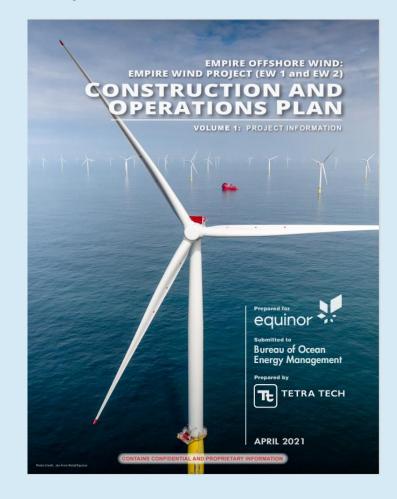
Empire Wind 2 Key Facts

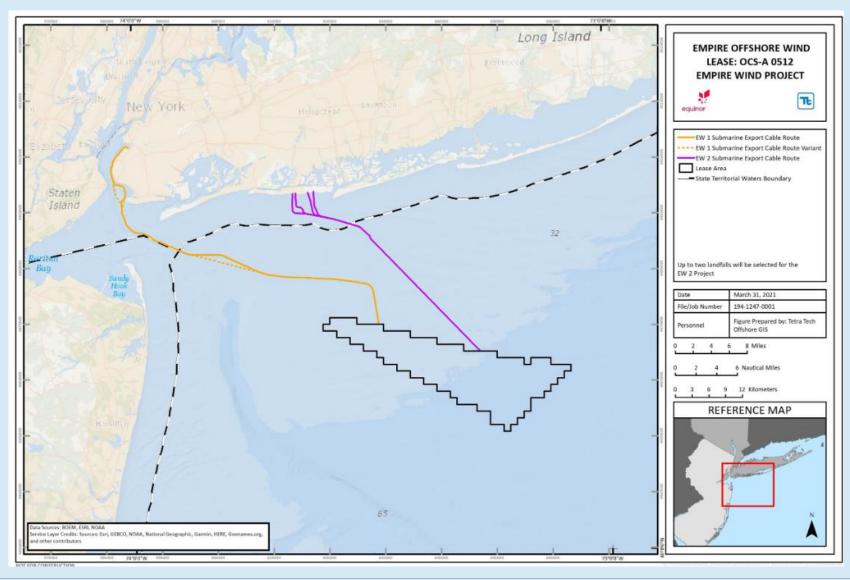
- 1,260 MW project
- Power delivered directly to Nassau County on Long Island' South Shore at the Barrett Substation
- Commercial Operations Date: late 2027
- Continued use of Gravity-Based Foundations fabricated in New York



Empire Wind COP

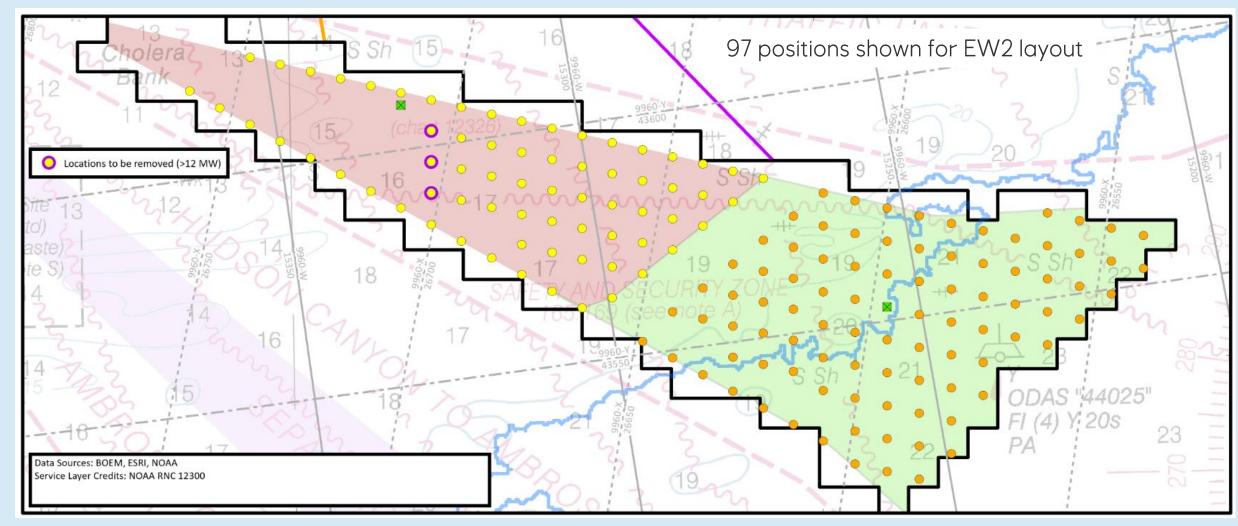






Equinor & RODA initiated a discussion on EW2 layout on April 12th





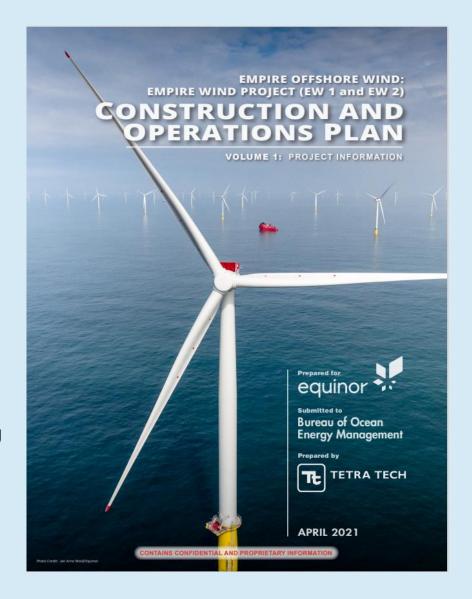
Equinor has committed to limiting EW2 layout to 90 positions

Empire Wind COP



- Volume 1:
 - Executive Summary
 - Introduction
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 - Project Description
- Volume 2:
 - Physical Resources
 - Biological
 - Cultural
 - Visual
 - Social
 - Section 8.8 Commercial & Recreational Fishing
 - 8.8.4 Summary of Avoidance, Minimization, Mitigation, and Monitoring Measures

Additional mitigation measures are expected as COP is reviewed

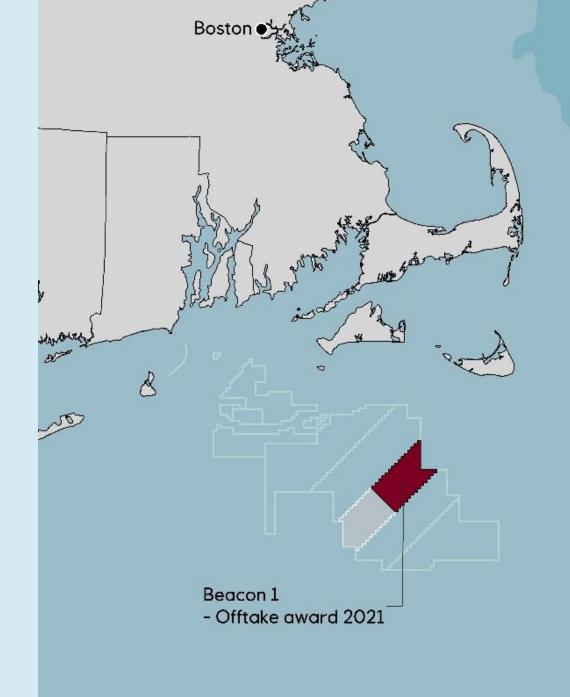




Beacon Wind

Beacon Wind 1 | Key Facts

- First phase of development of Lease OCS-0520
- 1,230 MW project
- Power delivered into Astoria substation in Queens
- Construction to commence in 2025 with COD in 2028
- Developing the world's longest offshore wind HVDC cable
- Utilizing New York fabricated offshore wind towers
- Staging and central O&M base at South Brooklyn Marine Terminal in NY



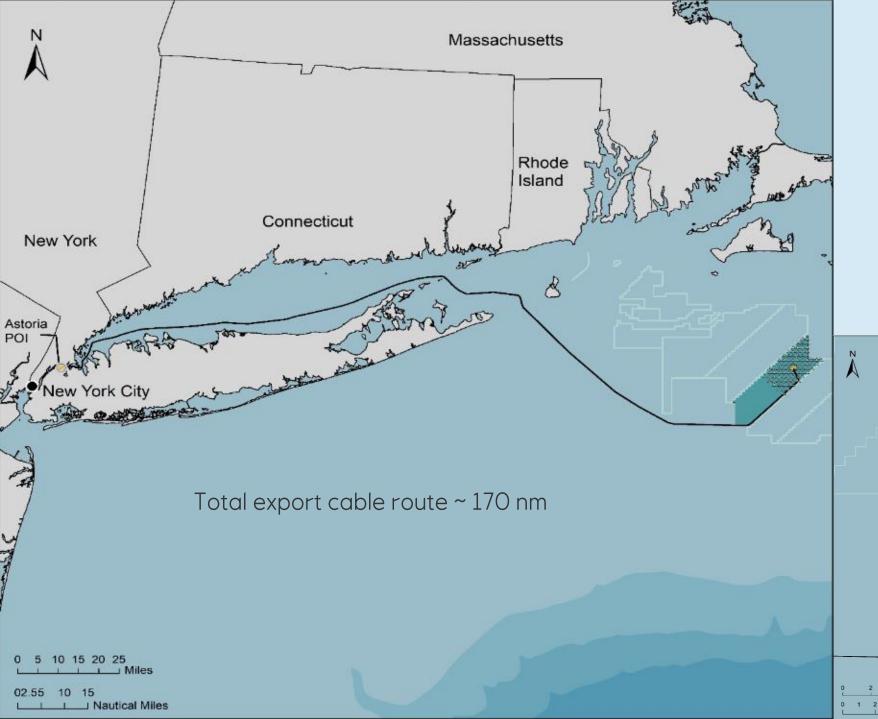


Beacon Wind | Point of Interconnection Astoria, Queens



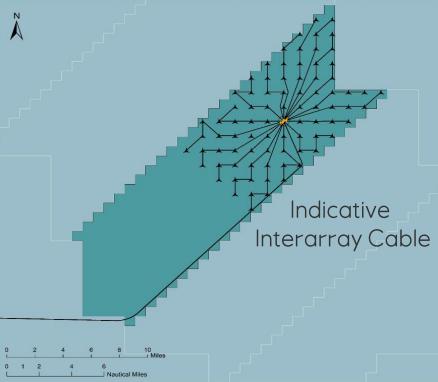
Local Benefits include:

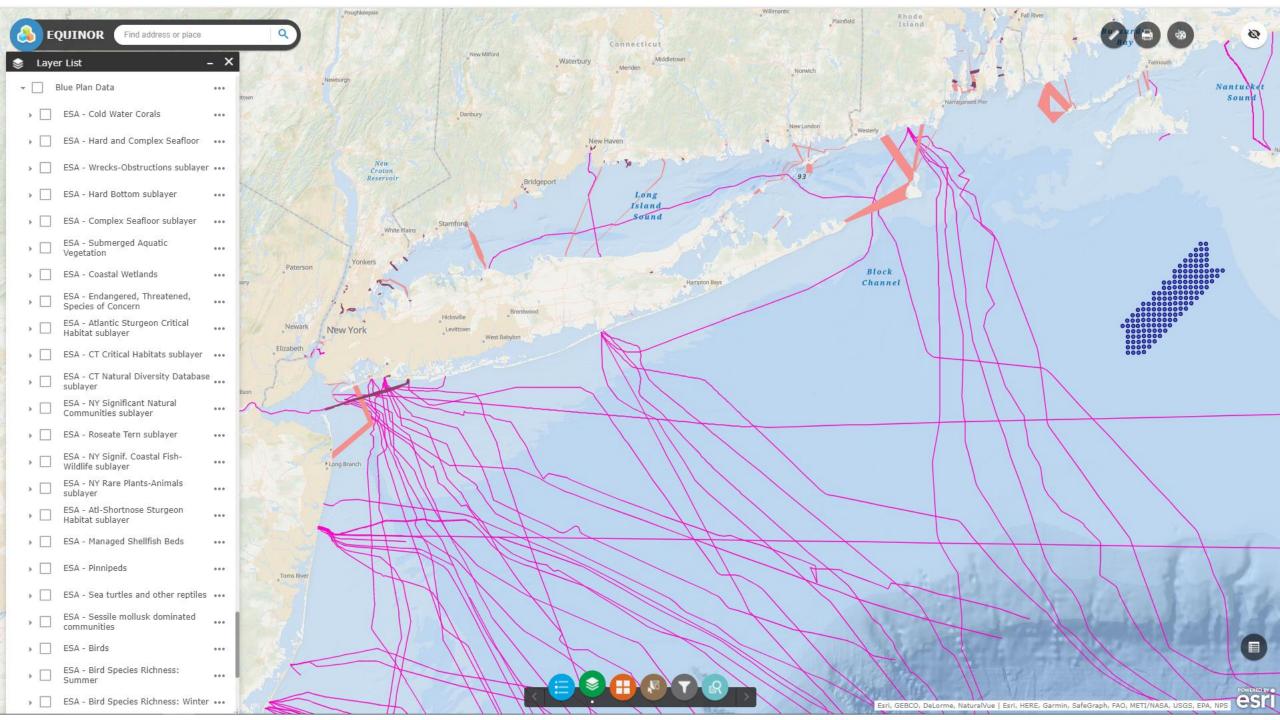
- 1,230MW emission-free renewable energy into EJ community
- Minimize residential, recreational, public road disturbance during construction or operations
- Utilizing previously disturbed industrial area



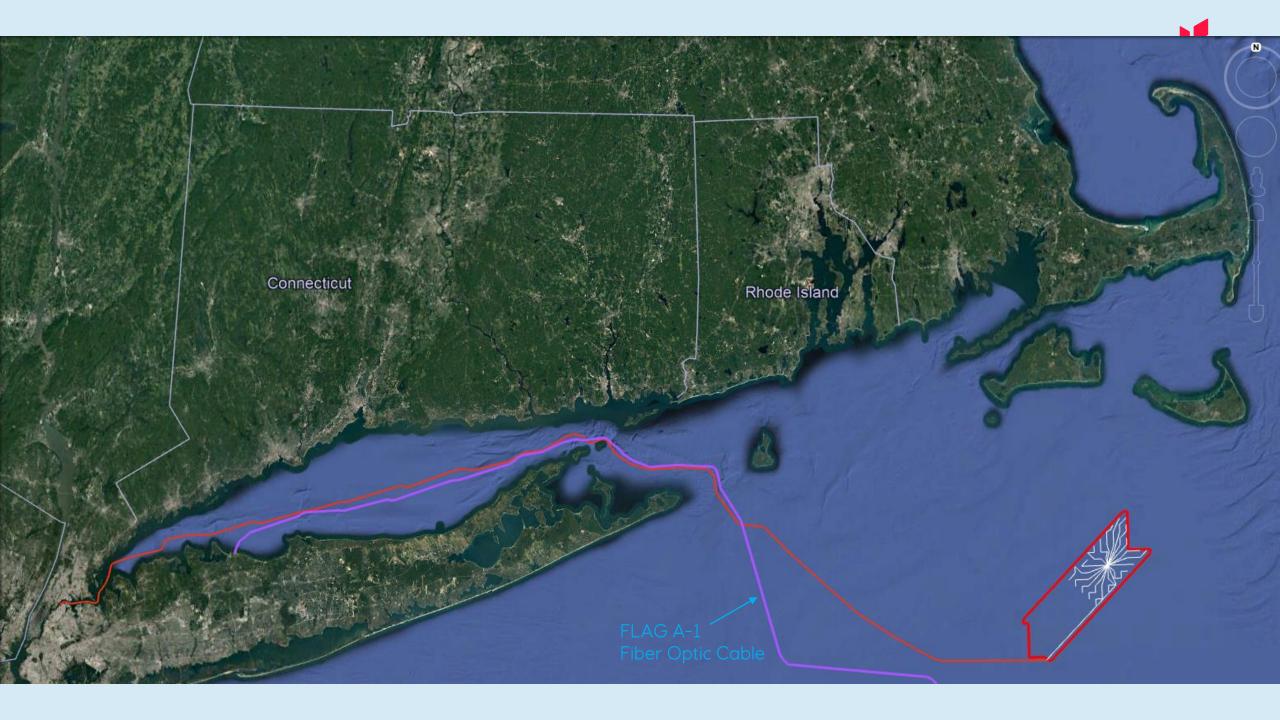


Beacon Wind 1







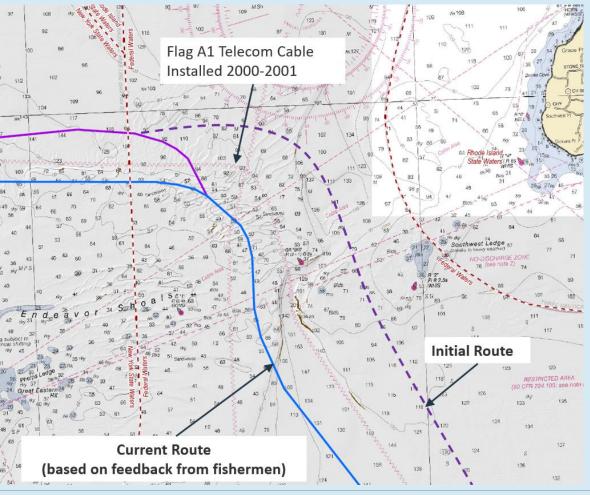


Beacon Cable Routing Consultations to date



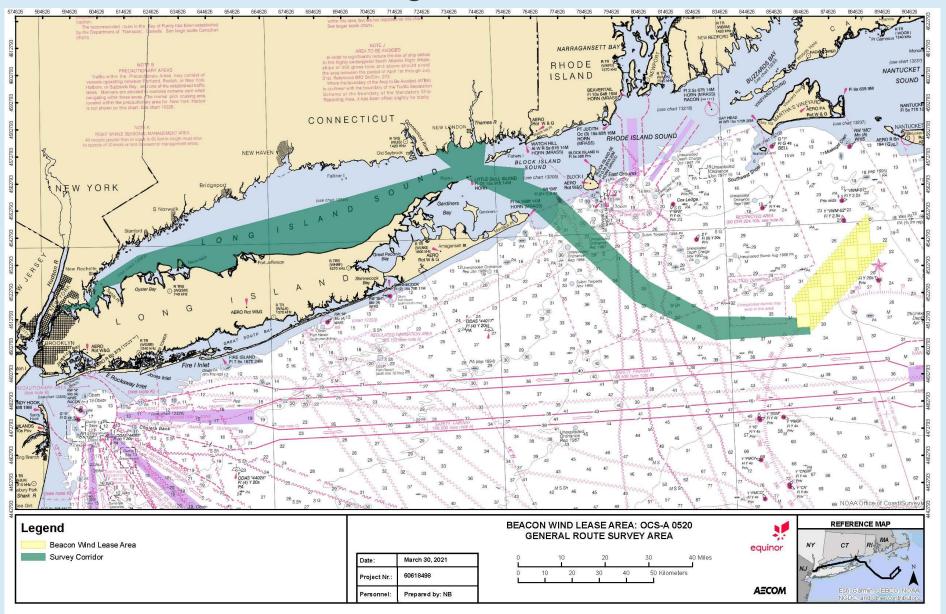
- > Port visits: Northport, Mt. Sinai, Montauk NY, New London & Stonington CT, Point Judith, RI and New Bedford MA.
- Long Island Sound fishermen in NY & CT
- LIS Fishermen Workshop May 5, 2021 on Long Island
- Scout vessel F/V Karoline Marie supporting survey activities in LIS





USCG Notice to Mariners - Starting in late March, 2021

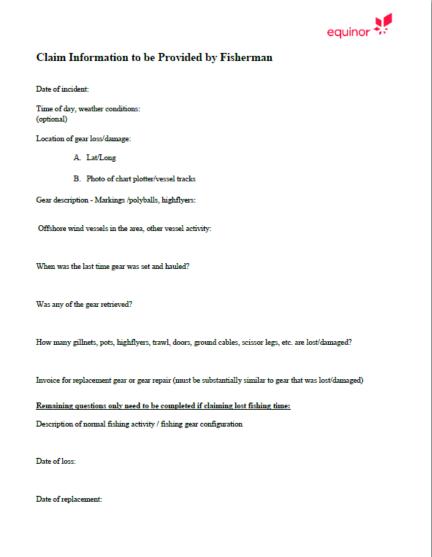




In the event there is gear loss or damage caused by, or resulting from, Equinor activity:



- 1. Contact FLO and notify them of the incident as soon as safe and practicable.
- 2. Complete information request w/in 30 days
- 3. Details will be reviewed by Equinor's fisheries manager and fisheries industry representatives
- 4. A written explanation of the decision will be provided w/in 30 days.
- 5. If claim is approved, a check will be issued.





Proof of fish landing history through VTR, sales slip, or similar type of documentation:

Tag replacement application/receipt, both state and federal if applicable:

By submitting this Application, Applicant authorizes Equinor to make whatever reasonable inquiries and investigations it deems necessary to verify my application and request for compensation. Applicant tunderstands that submitting this Application does not guarantee payment. Applicant further agrees that if this claim is accepted and paid in its entirety, that acceptance of such payment constitutes full, final and complete payment for this particular claim and that neither developer nor any of its affiliates shall have any further outstanding or ongoing obligation with respect to this specific claim and Applicant shall not, directly or indirectly, assert any claim, or commence, join in, prosecute, participate in, or fund any part of, any suit or other proceeding of any kind against developer or any of its affiliates, based upon this specific claim. If a claim is demied in part, Applicant may accept payment for the undisputed part without waiving Applicant's right to appeal the disputed part of the claim. Applicant recognize that submission of this Application does not affect Applicant's rights concerning matters other than those specifically identified in this specific Application.

I attest, under penalty of perjury, that to the best of my knowledge the information in this Application is true and

Signature: Da

Equinor Fisheries Liaison Contacts:

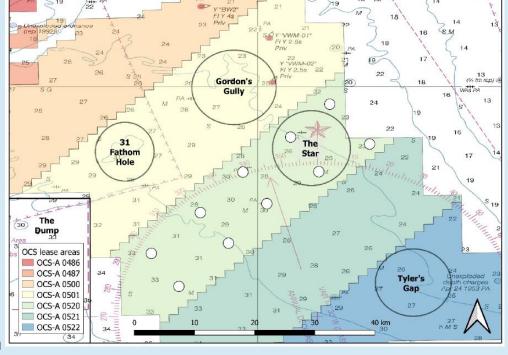
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mobile: 401.954.2902

Steve Drew
Fisheries Liaison
sdrew@searisksolutions.com
mobile: 908.339.7439

New England Aquarium – Highly Migratory Species acoustic telemetry and equinor 👯

recreational fishery monitoring

- Goal: Assess impacts on highly migratory species (HMS) and the large recreational fishery that targets them
 - Part 1: Passive acoustic monitoring
 - 10 acoustic receivers in lease area
 - 50 tags to be deployed (25-2021 / 25-2022)
 - 4 target species
 - Part 2: HMS recreational fishery monitoring in lease area
 - · Report on baseline recreational fishing effort in lease area
 - Monitoring of recreational effort in the 2020 and 2021 fishing season



White circles = 1,000 m max detection range



Atlantic bluefin tuna
Thunnus thynnus



shortfin mako Isurus oxyrinchus



blue shark

Prionace glauca



common thresher shark *Alopias vulpinus*

Equinor Fisheries Support



Equinor Wind is committed to coexistence with the commercial and recreational fisheries and aims to achieve this by proactively avoiding or minimizing impacts on fishing throughout all phases of the projects' life-cycle. Consultations with fishermen from Massachusetts to New Jersey are ongoing to receive their valuable feedback. Fisheries liaisons are always standing by.



Elizabeth Ann Marchetti <u>emarc@equinor.com</u> 401.954.2902

Over 20 years working with the commercial and recreational communities as a fisherman and field scientist.



Steve Drew sdrew@searisksolutions.com 908.339.7439

Over 40 years working with the commercial fishing and sub-sea cable industries



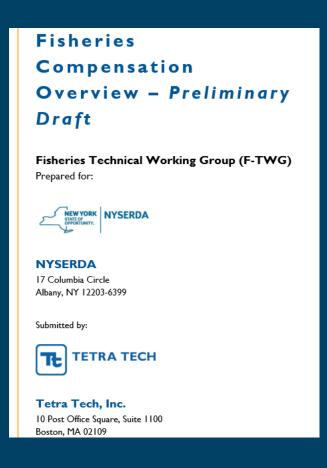
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Fisheries Compensation Document Updates





Fisheries Compensation Overview Document - Status



- Draft Report development, Oct 2020 Feb 2021
 - Initial outline developed by NYSERDA
 - Initial Draft Report submitted for NYSERDA review on Jan 3, 2021
 - Distribution for F-TWG review on March 10, 2021, and received comments by April 16, 2021
- Next steps: Incorporate F-TWG comments and further develop the document



Fisheries Compensation Overview Document – Utility & Applications

- The Document *DOES*
 - Provide a background of existing fisheries compensation programs
 - Europe
 - U.S.
 - Other maritime industries
 - Intend to foster communication
 - Summarize what others have considered
 - Provide examples of what is already in-place

- The Document *DOES NOT*
 - Establish/recommend a compensation framework or criteria
 - Establish a valuation of potential fisheries compensation
 - Make recommendations (or pass judgement) on if/how fisheries compensation should be implemented



Fisheries Compensation Document - Feedback

- Received 68 comments, facilitated through the F-TWG
 - 9 Individual Reviewers, represented by 17 separate agencies,
 - Agencies
 - NYSERDA
 - NYSDEC

developers, and groups

- MA DMF
- NOAA NMFS
- Fishermen/Fishery Groups
 - Garden State Seafood Association
 - Wallace and Associates
 - Fisheries Survival
 Fund

- Developers
 - Vineyard Wind
 - Ørsted
 - Avangrid Renewables
 - EnBW
 - RWE
 - Mayflower Wind
 - Shell
 - US Wind
 - Atlantic Shores
 - Equinor



NOAA FISHERIES







offshore wind

























Fisheries Compensation Overview Document – Summary of Feedback

- Elaboration on what fisheries compensation agreements are, what they are intended to do, and clarify between direct and indirect compensation protocols
- Include more information on other countries with offshore wind projects and determine if fishing is allowed within the projects, whether compensatory mitigation programs have been established, as well as the originator/scope of these programs
- Provide more compensation program examples from the oil and gas industry as well as the submarine cable industry
- Provide details on sources of the offshore wind/commercial fishing job estimates
- Update/revisit values within the document (FMP values, compensation values)
- Additional opportunities for comments going forward for this "living document"



Fisheries Compensation Overview Document – Discussion Questions

- How should compensation be defined? Direct and indirect compensation? Other means?
- Traditional approach to impact assessment is:
 - Avoid \rightarrow Minimize \rightarrow Mitigate \rightarrow Compensate
 - Does this general approach align with what is envisioned by developers/regulators/fishing industry?
 - Should compensation be discussed in parallel to other steps in the approach above and why?
- Where do we go from here? What is the next iteration of this document?
 - Process...
 - Common Themes...

General Updates



OFFSHORE WIND SUBMARINE CABLING Fisheries Technical Working Group Final Report | Report Number 21-14 | April 2021

The Offshore Wind Submarine Cabling Overview Document is now live!

Please use the following link to access the document https://www.nyserda.ny.gov/-

/media/Files/Programs/offshore-wind/21-14-Offshore-Wind-Submarine-Cable-Report.pdf





Webinar Series and Library

NYSERDA "Learning from the Experts" Webinar Series

- First two webinars in March/April on permitting process and Offshore Wind 101
- Upcoming webinars can be found here:
 https://www.nyserda.ny.gov/All-Programs/Programs/Offshore-wind/Announcements-and-Events
 - Article VII Permitting Process for Offshore Wind
 - Transmission Systems
 - Cabling Activities
- Planning of future webinars

Webinar Series and Library

Webinar Topics

Looking for additional input on topics and potential speakers

Webinar Library

E-TWG Website development is ongoing



Offshore Wind Webinar Library

Offshore Wind Webinar Library

NYSERDA has put together a library of existing webinars related to offshore wind energy development and wildlife to serve as a resource for stakeholders. Click on the images below to navigate to the webinars on the listed topic.

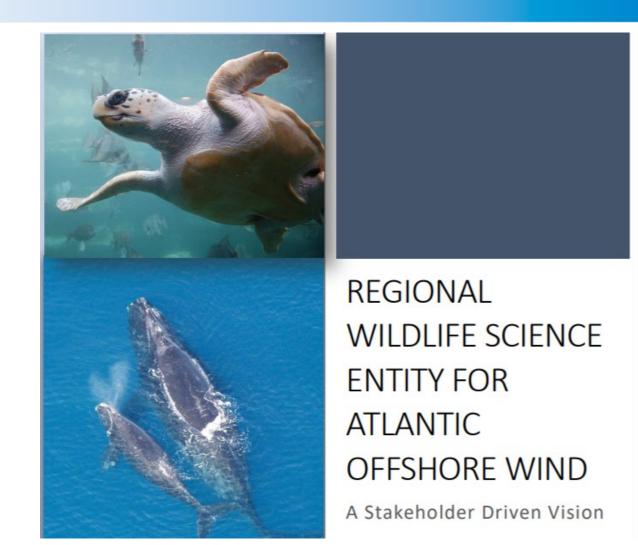






RWSE Status Update

- Request For Qualifications (RFQL)
- Department of Energy Funding Opportunity Announcement (FOA)



Wrap Up & Next Steps

Next Steps

Future Agenda items?

Upcoming Meetings

- State of the Science Workshop Culmination Webinar –May 21, 12-2 pm EDT
- Next F-TWG meetings FMP Updates Early Summer, Full F-TWG Late Summer/Early Fall