



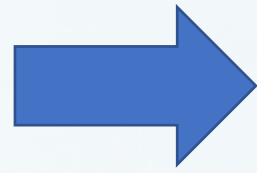
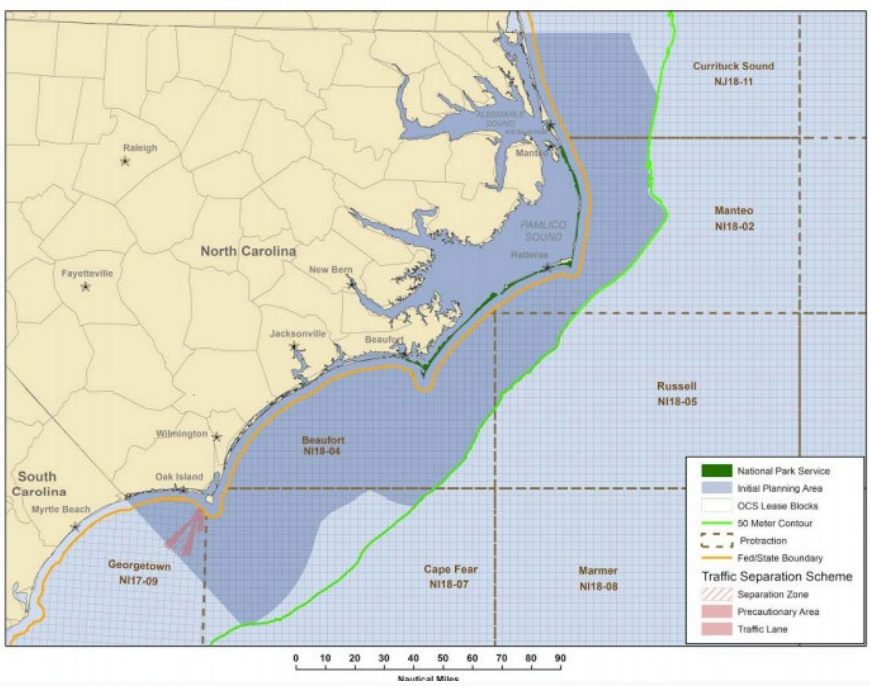
Kitty Hawk Wind



**South Atlantic Fisheries Management Council
November 2, 2022**

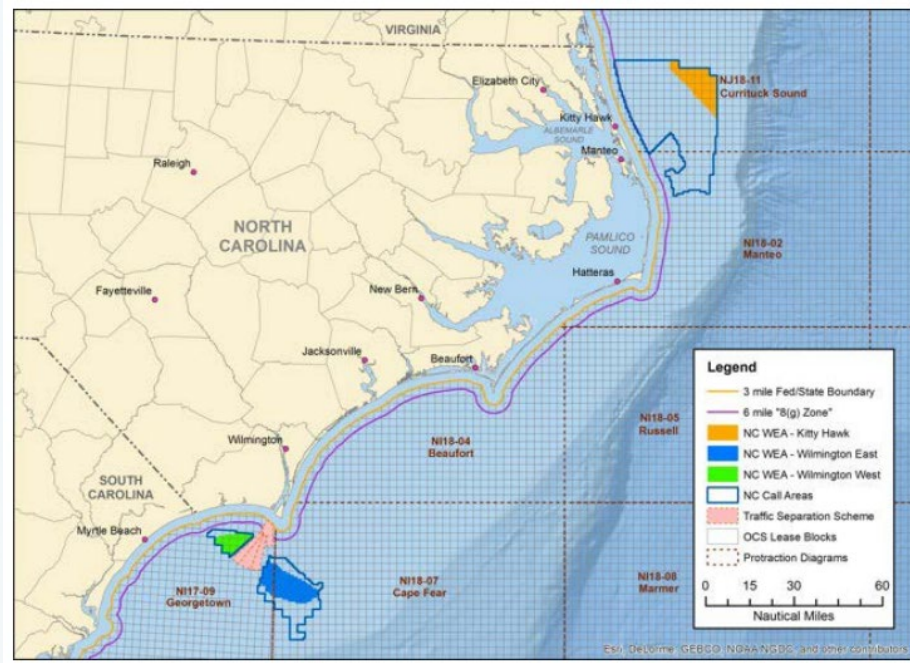


Identification of the Kitty Hawk Lease Area



Lease areas were identified based on the following:

- Fish habitat and fisheries conflict areas
- Military use and commercial shipping routes
- Environmental review including avian and bat data, benthic habitat, proximity to National Park Service property



In 2011, the NC Intergovernmental Task Force, including the Bureau of Ocean Energy Management (BOEM), analyzed entire coastline seaward to 50nm or 50m depth.

BOEM held a competitive lease auction after completion of an Environmental Assessment, which included a public comment period. Avangrid was awarded the Kitty Hawk Lease Area in 2017.

Kitty Hawk Wind Lease Area

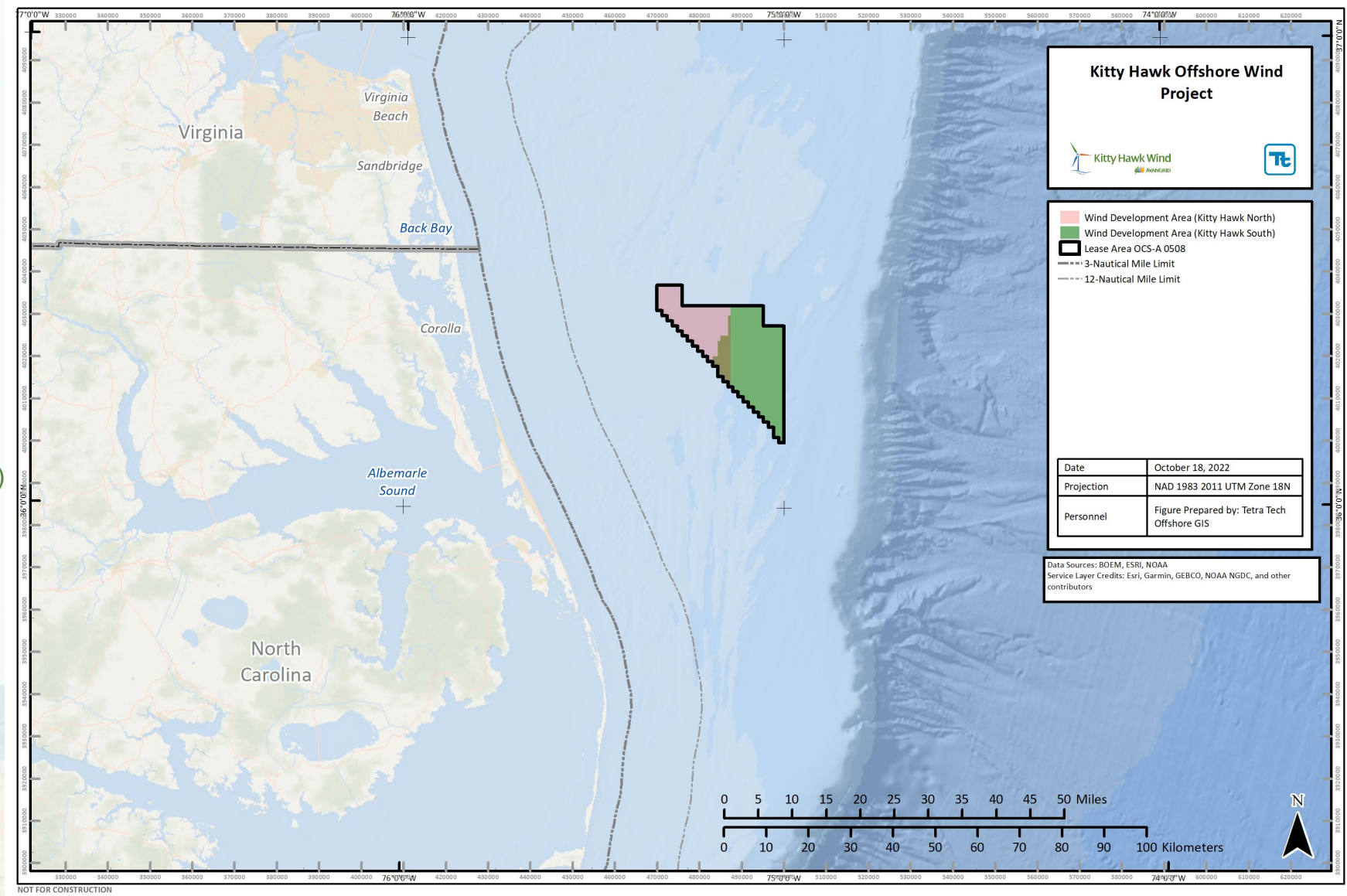
Location: Due 27 miles east of Corolla, NC

Lease Area Total area: 122,405 acres

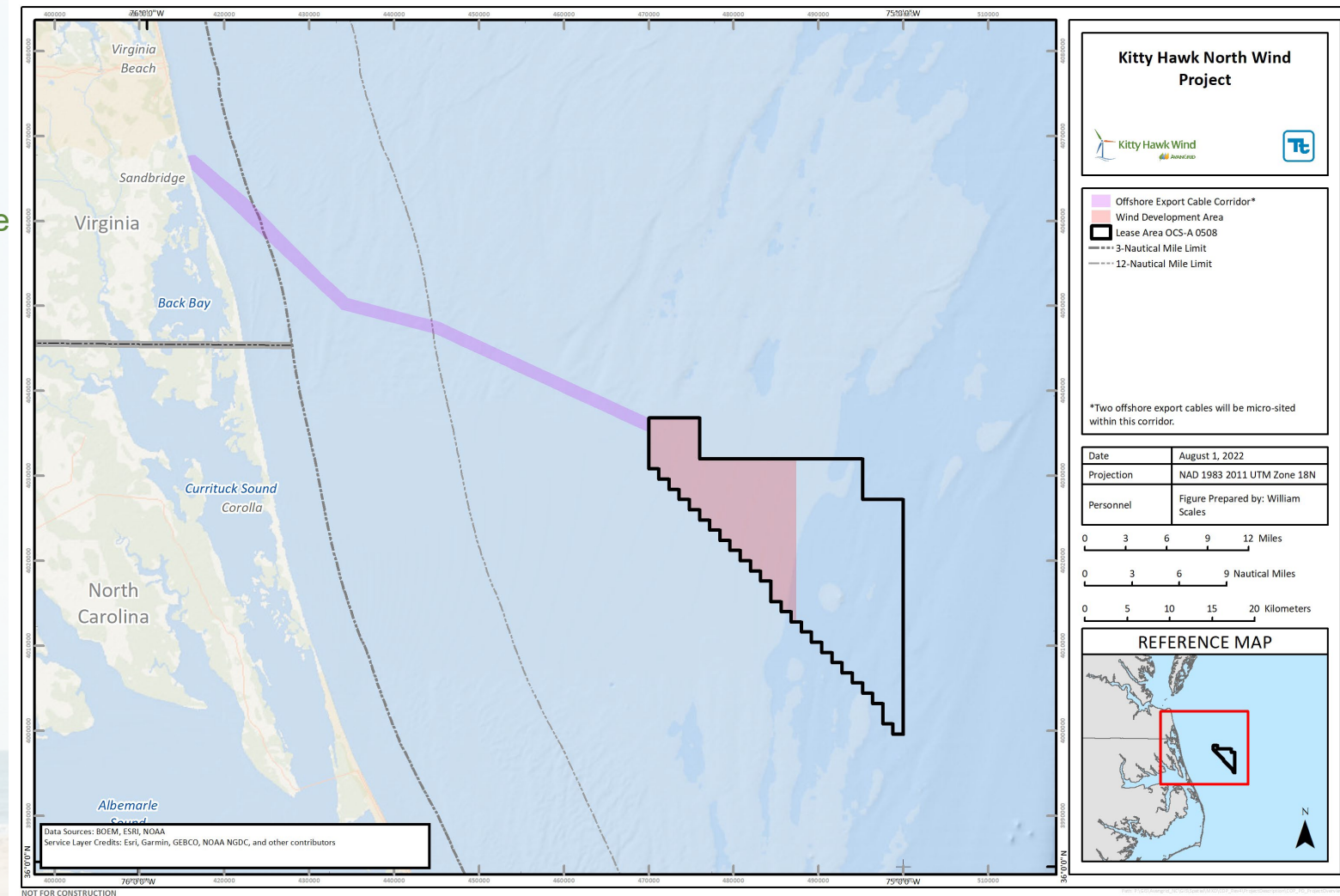
Capacity: ~3500 MW

Wind Energy Area: 100% site control under lease agreement with BOEM (signed in 2017)

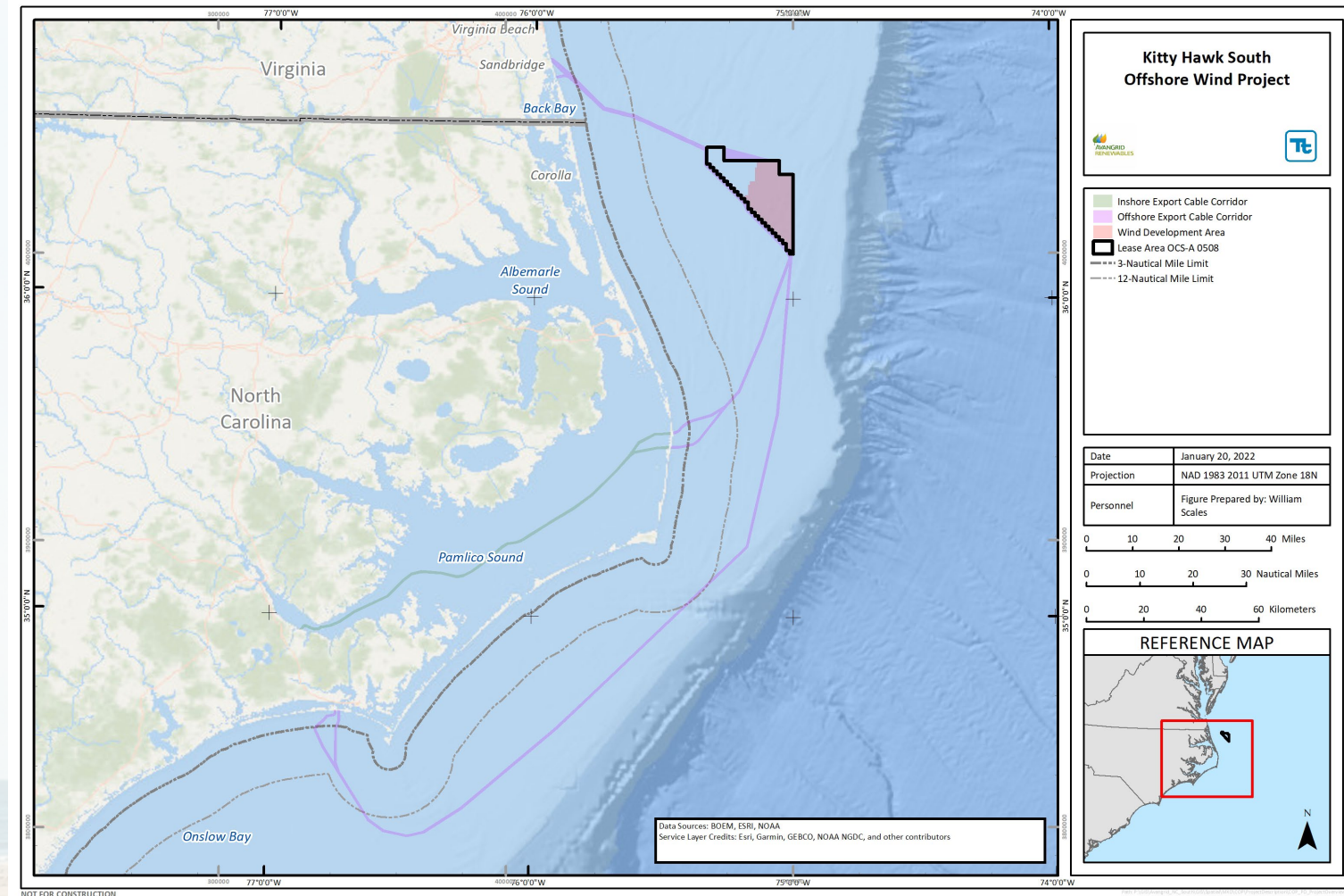
Projects w/in Lease Kitty Hawk North- ~ 40% of the lease
Kitty Hawk South- ~ 60% of the lease

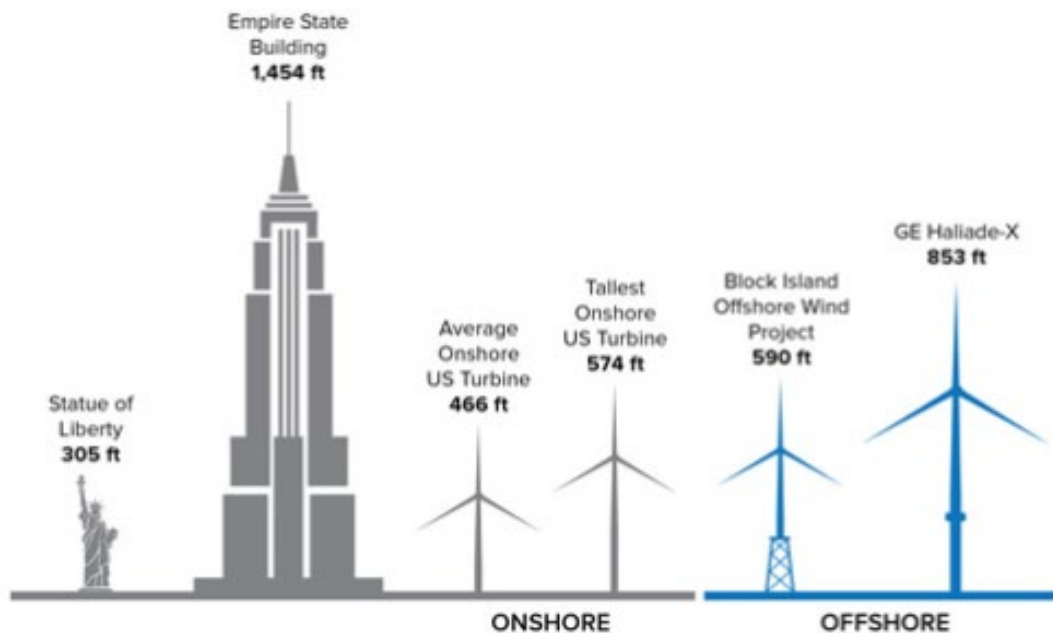


- Kitty Hawk North covers ~40% of the Kitty Hawk Lease Area
- Up to 69 wind turbine positions and one Electrical Service Platform
- Onshore substation proposed at Corporate Landing in Virginia Beach
- High Voltage Alternating Current (HVAC) Technology
- COP submitted to BOEM in December 2020
- Construction to begin no earlier than 2026



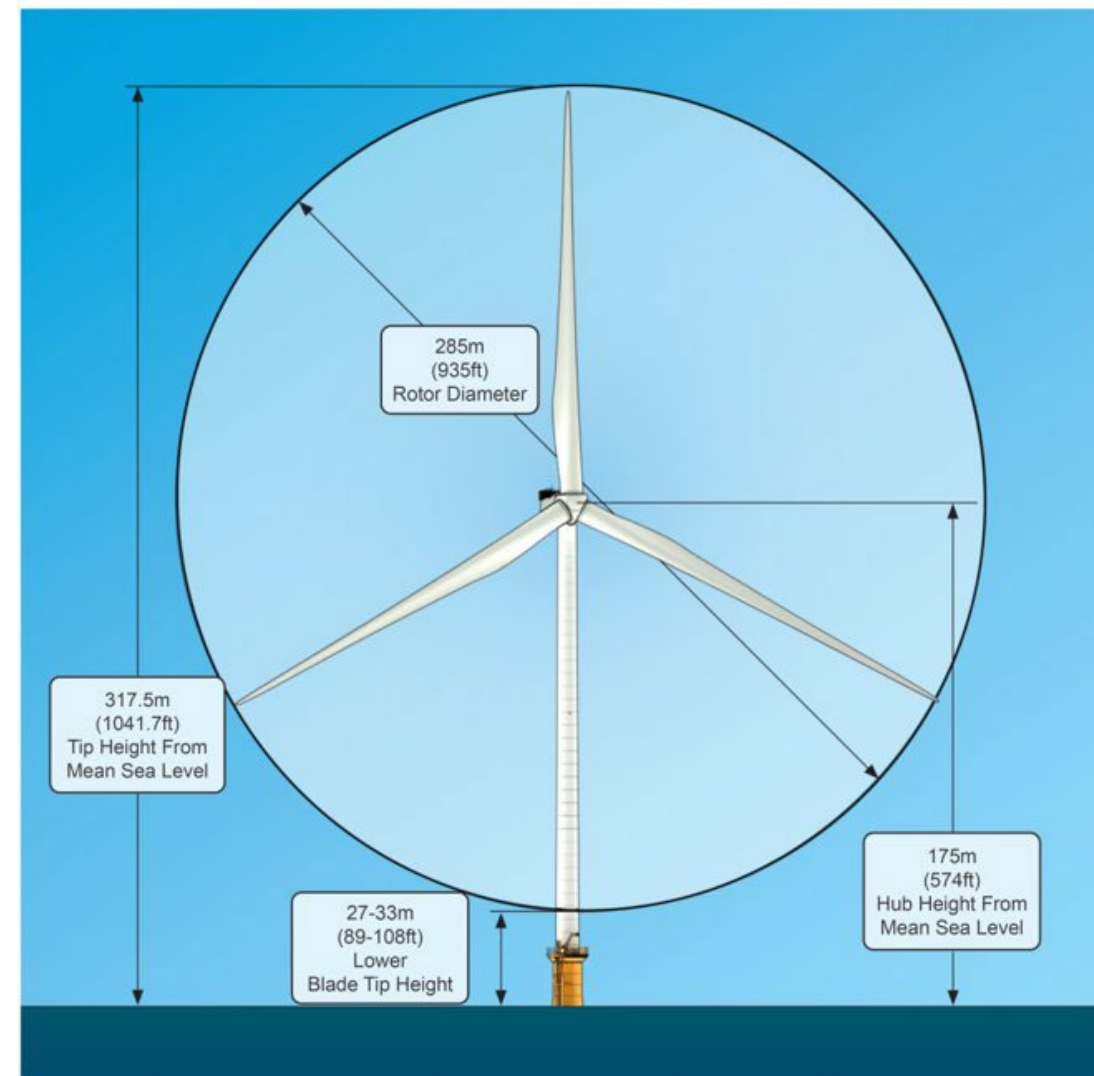
- ~ 60% of the Kitty Hawk Lease Area
- Up to 121 wind turbine positions and 2 Electrical Service Platforms
- Route planning and constraints analysis ongoing for offshore and onshore transmission routes to North Carolina
- High Voltage Direct Current (HVDC) Technology
- Major federal permit application submitted to BOEM April 14, 2022
- State permitting process not yet initiated
- Construction to begin no earlier than 2028





Height comparisons:

- **Statue of Liberty:** 305 ft.
- **Empire State Building:** 1,454 ft.
- **Average Onshore U.S. Turbine:** 466 ft.
- **Tallest Onshore U.S. Turbine:** 574 ft.
- **Block Island Offshore Wind Project:** 590 ft.
- **GE Haliade-X Offshore Turbine:** 853 ft.



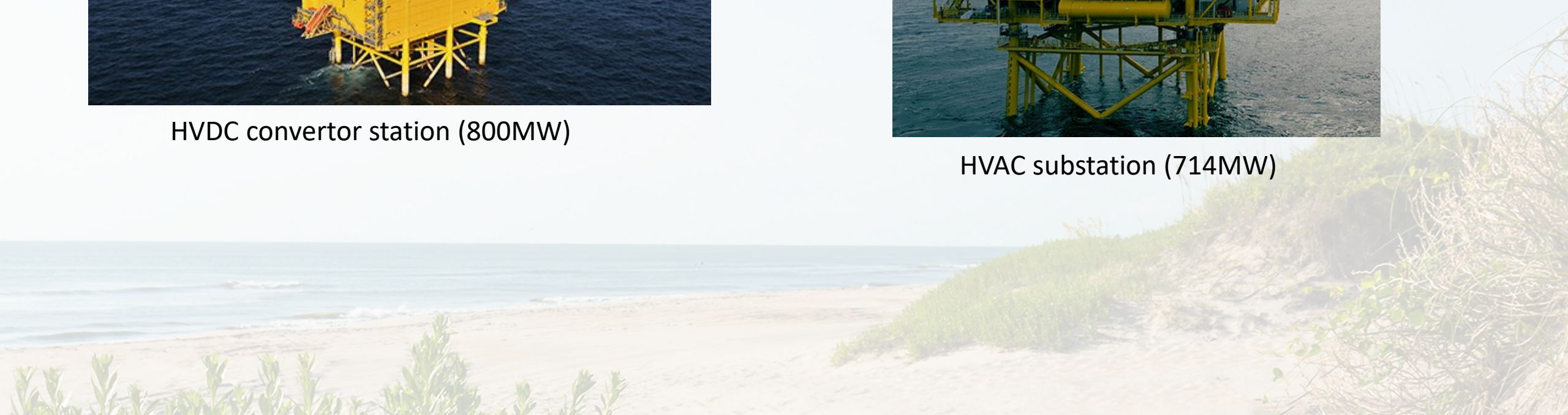
Proposed Kitty Hawk Wind – Offshore Substations



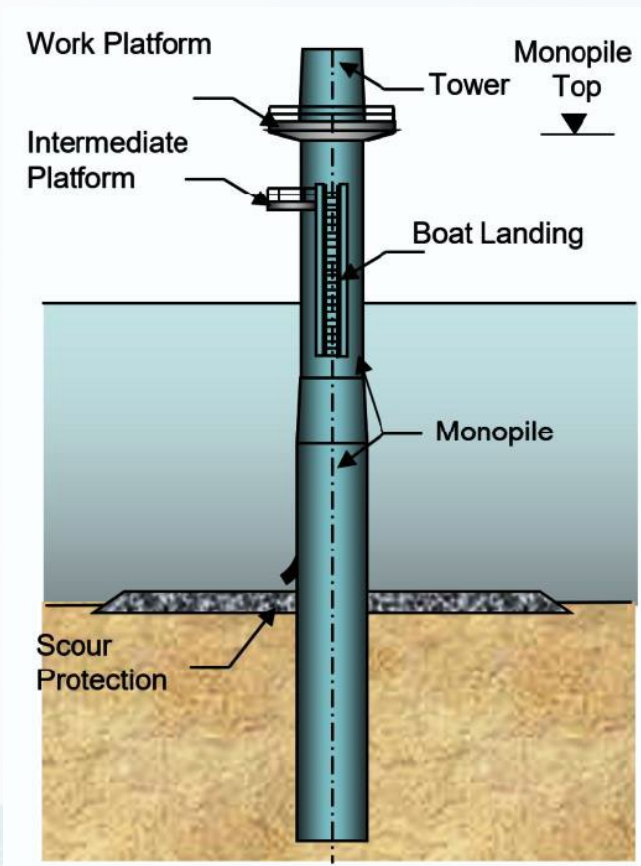
HVDC convertor station (800MW)



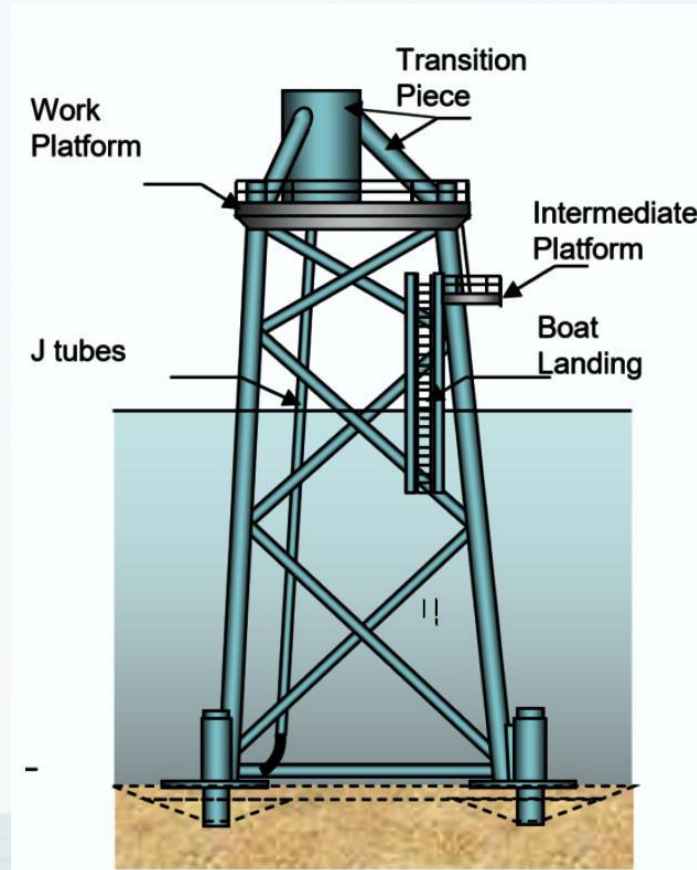
HVAC substation (714MW)



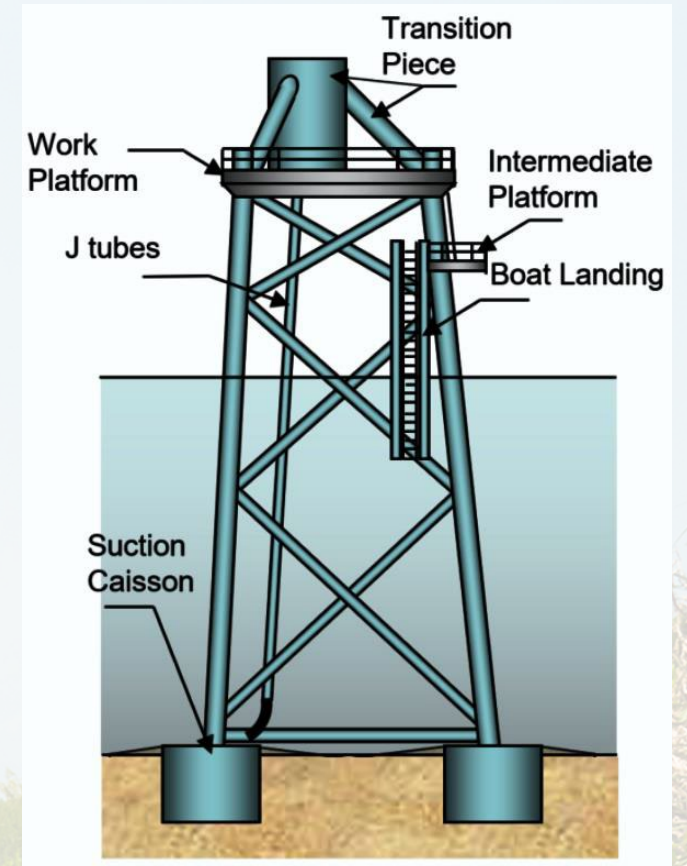
Proposed Kitty Hawk Wind – Foundations



Monopile



Jacket



Suction

Soliciting input from the community to determine preferred routes to include in federal, state and local permit applications.

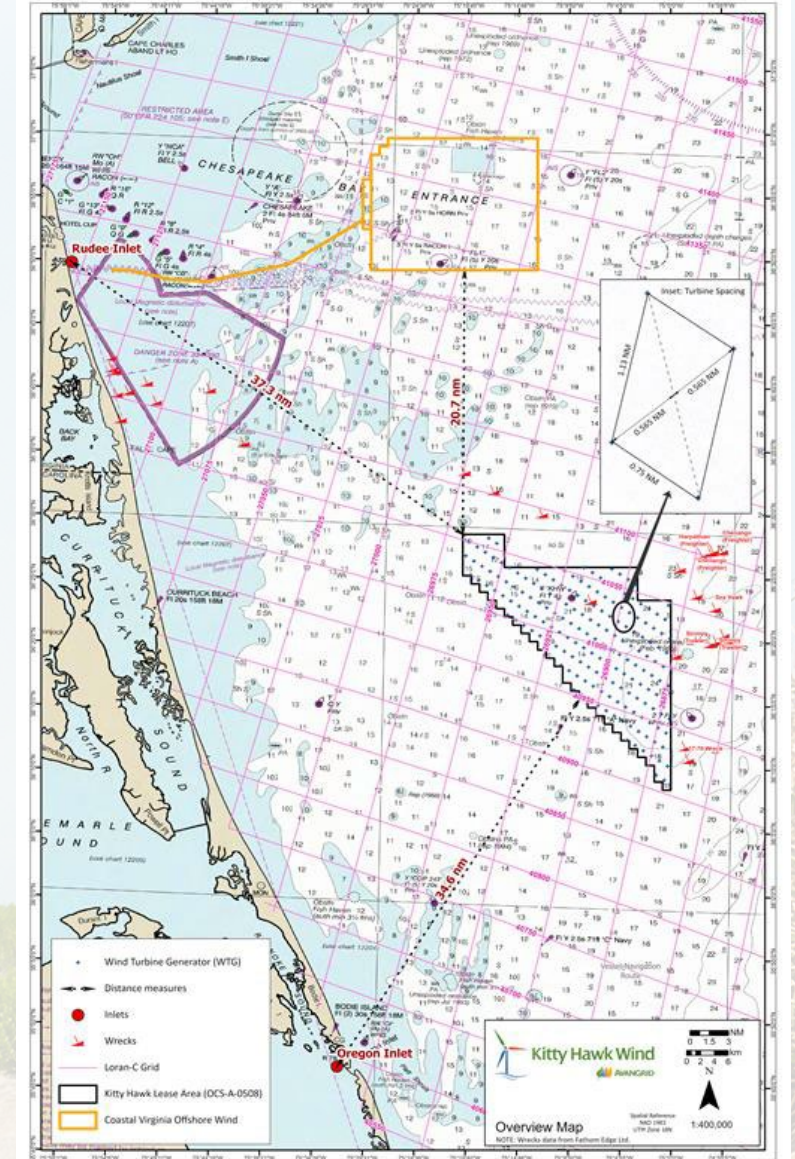
- Public open houses being planned for February/ March 2023
- Continued outreach to state and local officials
- Continued outreach to federal, state, local permitting agencies and non-governmental organizations
- Public Engagement directly with BOEM through the NEPA Process.

Routing Transmission Lines Onshore is a Balancing Act

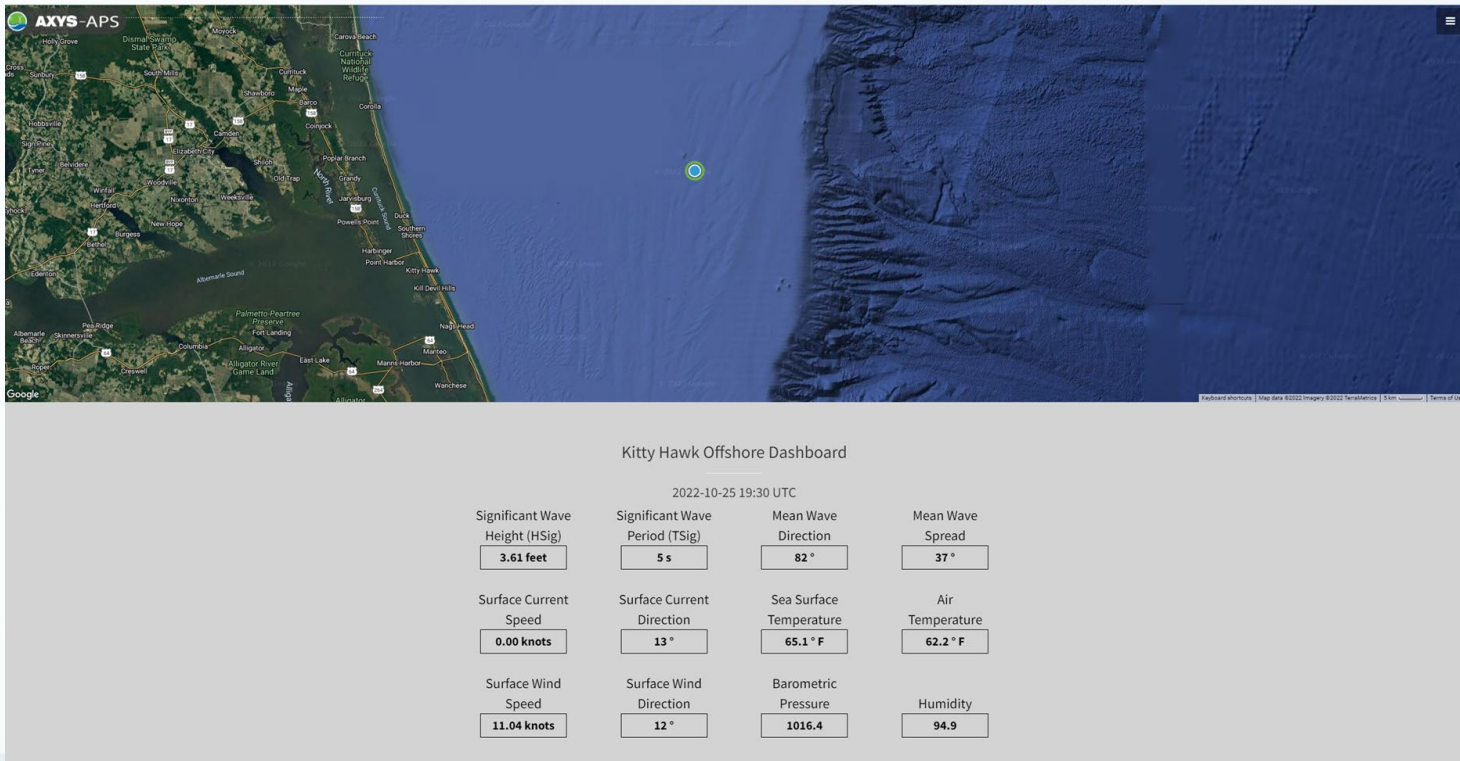


Connecting with the Fisheries Community

- Fisheries Communications Plan: Outreach events
 - Sponsored 7 Fishing tournaments in 2022
 - 9+ planned for 2023
- Fisheries representatives
 - NC: 1 commercial, 1 recreational charter
 - VA: 1 recreational charter
- Partnerships with academic institutions
 - Fisheries Monitoring Plan
 - Survey vessels, scout vessels, onboard fishery liaisons



Meteorological F310 Buoy



- In 2020, AVANGRID launched a buoy to collect real time meteorological and ocean data in a manner that maximizes compatibility with the ocean environment, such as birds and marine mammals.
- The buoy is equipped with a range of sensors to measure surface wind speed and direction, relative humidity, directional waves, ocean currents, tide, salinity, water/air temperature, and atmospheric pressure.
- Data collected is being made public in real time at kittyhawkoffshore.com/fishing so fishers and other ocean users can benefit from this information.



Offshore Wind Simulator at the Mid-Atlantic Maritime Academy (MAMA)

- In partnership with MAMA, Avangrid developed an offshore vessel simulation as a tool for navigating around wind farms
- Fishers and other maritime personnel visited and will visit Norfolk, VA to gain real-time visual experience of operating near offshore turbines





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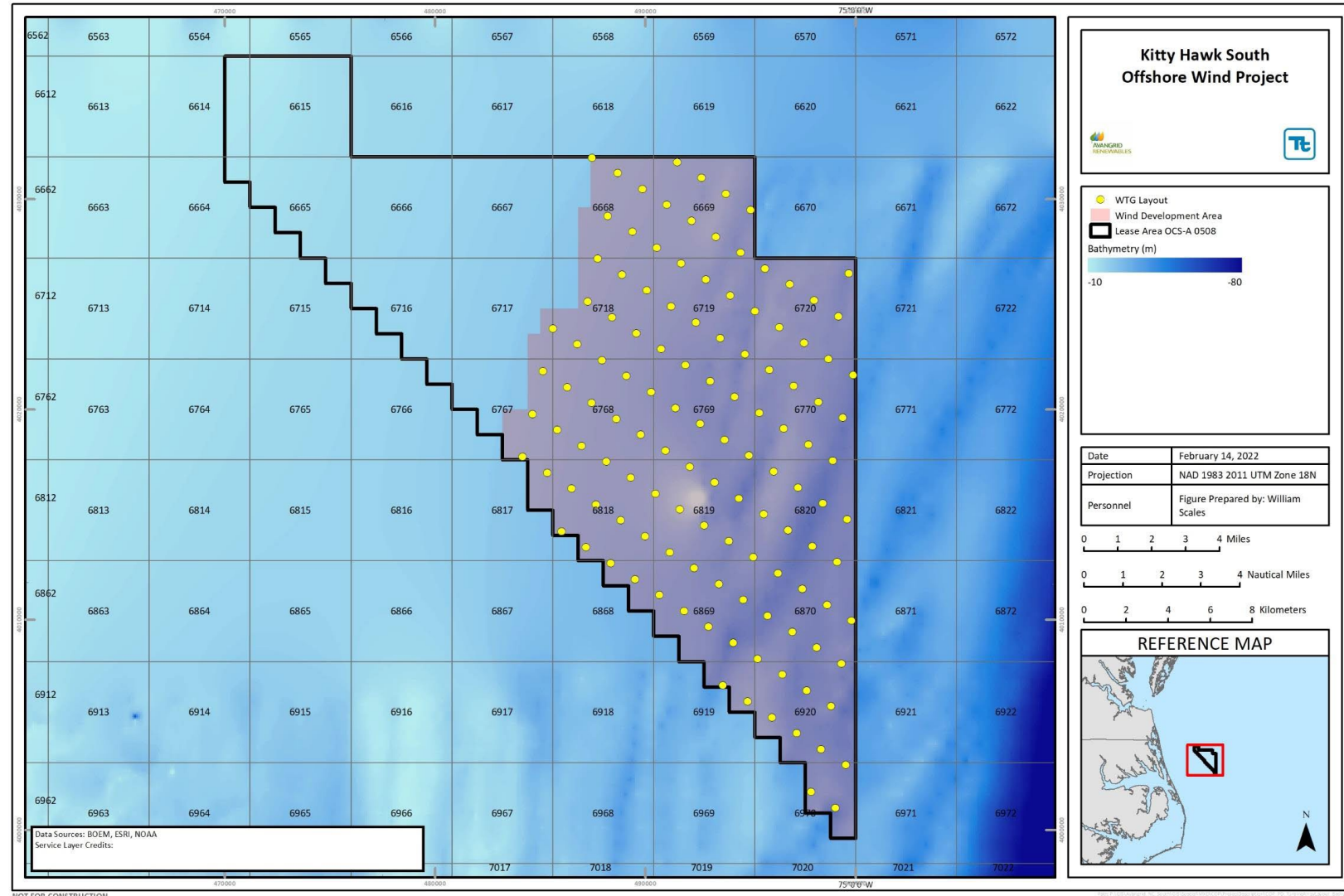
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Learn More about Kitty Hawk here:
www.kittyhawkoffshore.com/

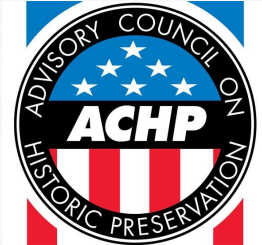
Learn More about BOEM and Offshore Wind here:
www.boem.gov/Renewable-Energy
www.boem.gov/renewable-energy/state-activities/kitty-hawk-offshore-wind





Wind Development Area (Lease OCS-A 0508)	Key Project Components (to Virginia)	Key Project Components (to North Carolina)
Water depths (Lease Area)	23 m (75 ft) MLLW to 55 m (180 ft) MLLW	
Lease Area Size	49,536 ha (122,406 ac)	
Wind Development Area	33,768 ha (83,443 ac)	
Number of Turbines	Up to 121; spacing and layout under development, based on met data, engineering, and stakeholder input on site-specific conditions	
Minimum Clearance Distance (highest astronomical tide to Lower Blade Tip)	27 to 33 m (89 to 108 ft)	
Foundation type	Monopiles; 3- or 4-Legged Jacket Pile; 4-Legged Jacket on Suction Caisson (up to 3)	
Number of offshore substations	2	
Export cable technology	HVAC	HVDC
Length of offshore export cable	Up to 92 km (50 nm) – two collocated cables within corridor	Up to 322 km (174 nm) – two collocated cables within corridor
Inter-array cable voltage	66 kV	
Export cable voltage	275 kV	±320 [to ±525] kV
Length of onshore export cable	Up to 22 km (13.7 mi)	35.9 km (22.3 mi)
Onshore substation site / Onshore converter station site	Corporate Landing in Virginia Beach, Virginia; or Landstown Ballpark in Virginia Beach, Virginia	Havelock in Craven County, North Carolina

Federal Agency Involvement



**US Army Corps
of Engineers®**



