# **Project Construction**

#### **Installation of Foundations**

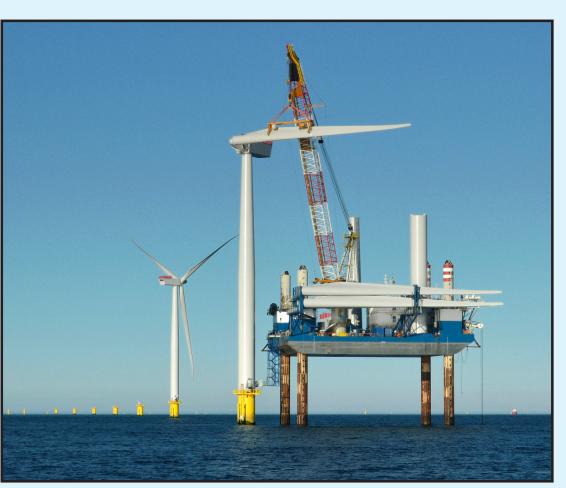
- Delivery of monopile foundations to the site by vessel.
- Foundation piles installed using a pile driving hammer, vibropiling, and/or drilling techniques.
- Transition piece grouted and/or bolted onto monopiles; jackets grouted and/or welded onto pin piles.
- Rock scour protection installed at foundation base by side dumping, fallpipes, and/or crane.

### Installation of Wind Turbine Generators

- Turbine pre-assembly and transport of turbine components to the site by vessel.
- Turbines installed by one or two jack-up, anchored, and/or DP vessels.
- Installation of the turbine using a crane to lift the tower, nacelle, and turbine blades. Components are fastened together as they are lifted into place.

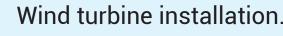
### **Electrical Service Platforms and Booster Station**

- Topside structure is transported to the site by vessel.
- Topside structures installed onto pre-installed foundations by vessel using cranes or floated and ballasted down.
- Topside structures bolted or welded to foundations.





Installation of offshore substation





For more information on the proposed project construction, see the construction and operations plan available at: https://www.boem.gov/renewable-energy/state-activities/vineyard-northeast

# **Cable Laying Process**





Cable lay vessel.

- The project design envelope includes inter-array cables and two offshore transmission options:
  - All high-voltage direct current (HVDC): up to 4 HVDC export cable bundles.
  - HVDC and high-voltage alternating current (HVAC): up to 5 HVDC+HVAC export cable bundles and a booster station.
- Activities that would be conducted prior to cable installation include boulder clearance, sand bedform dredging, pre-lay grapel runs, and pre-lay surveys.
- Cables will be buried at a target depth of 5 to 8 feet using three common methods:
  - Simultaneous lay and bury: Creates a trench, lays and buries cable. Provides immediate protection but is slower. Expected to be used for offshore export cables.
  - Post-lay burial: Cable laid on seabed surface and subsequently buried by separate tool. Expected to be used on short sections of cables.
  - Pre-lay trenching: Trench excavated prior to cable laying. Used in areas of stiff clay or high concentrations of boulders.
- Two primary cable installation tools would create trenches up to 3.3 feet wide:
  - Jetting techniques: Water jetting systems used for simultaneous lay and bury or post-lay burial in sands or soft clays.
  - Mechanical plowing: Mechanical plow cuts narrow trench and is used for simultaneous lay and bury in stiffer soil conditions.
- The maximum area of temporary seafloor disturbance due to cable installation is 1.84 square miles in the Massachusetts OECC and 1.85 square miles in the Connecticut OECC.

Jet plow being lowered.