SOUTHCOAST WIND

Federal Consistency Discussions

November 9, 2023

Follow up from 11/2/23 meeting

- Question around peer reviewed studies on impacts of offshore wind
- Extensive studies have been conducted on the impacts of OSW on fish, fisheries, and fishery resources
  - Literature Reviews are good basis for "state of knowledge" re: OSW impacts (left column)
  - Recent studies on Block Island Wind Farm provide insight to impacts within the region (right column
- ***This list is not exhaustive***.

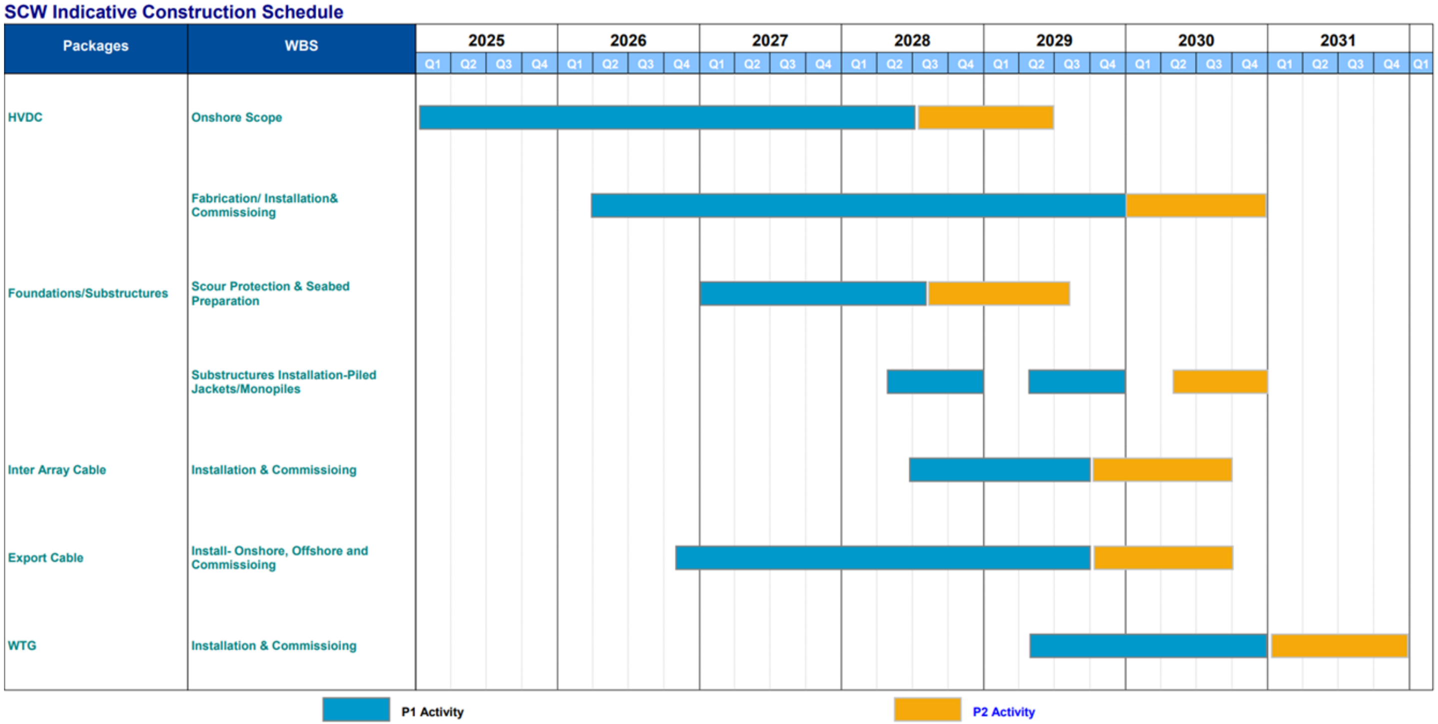
Literature Reviews	Studies on BIWF
Hogan, F., Hooker, B., Jensen, B., Johnston, L., Lipsky, A., Methratta, E., Silva, A. and Hawkins, A., 2023. Fisheries and Offshore Wind Interactions: Synthesis of Science	Wilber, D. H., Brown, L., Griffin, M., DeCelles, G. R., & Carey, D. A. (2022). Demersal fish and invertebrate catches relative to construction and operation of North America's first offshore wind farm. *ICES Journal of Marine Science*, *79*(4), 1274-1288
Svendsen, J. C., Ibanez-Erquiaga, B., Savina, E., & Wilms, T. (2022). Effects of operational off-shore wind farms on fishes and fisheries. Review report.	Wilber, D. H., Brown, L., Griffin, M., DeCelles, G. R., & Carey, D. A. (2022). Offshore wind farm effects on flounder and gadid dietary habits and condition on the northeastern US coast. *Marine Ecology Progress Series*, *683*, 123-138
Methratta, E. T., Hawkins, A., Hooker, B. R., Lipsky, A., & Hare, J. A. (2020). Offshore wind development in the northeast US shelf large marine ecosystem. *Oceanography*, *33*(4), 16-27.	Wilber, D. H., Carey, D. A., & Griffin, M. (2018). Flatfish habitat use near North America's first offshore wind farm. *Journal of Sea Research*, *139*, 24-32

Decommissioning Commitments

- The SouthCoast Wind COP, Section 1.8, Financial Assurance: "In compliance with BOEM regulations (30 CFR § 585.516), ***SouthCoast Wind will provide financial assurance issued by a primary financial institution, or other approved security, in order to guarantee the decommissioning obligation prior to Project installation***."
- Decommissioning bond is a requirement of BOEM prior to construction based on estimates of decommissioning costs, this can be adjusted if costs increase or decrease in future
- Decommissioning plan includes (but is not limited to):
  - Dismantling and removal of wind turbine generators (WTGs);
  - Cutting and removal of foundations. SouthCoast Wind will assess the removal of scour protection depending on which strategy minimizes environmental impacts;
  - Removal of offshore substation platform (OSP);
  - Retirement in place or removal of offshore cable system including offshore export and inter-array cables;
  - Retirement in place or removal of onshore export cables, in coordination with the MA EFSB and RI EFSB; and
  - Retirement in place or removal of the onshore converter station will be conducted in coordination with the host town of Somerset, MA.
- See Sections 3.3.1 – 3.3.11 of COP for specific details

Project Schedule

Indicative Project Schedule



Offshore Cable Equipment

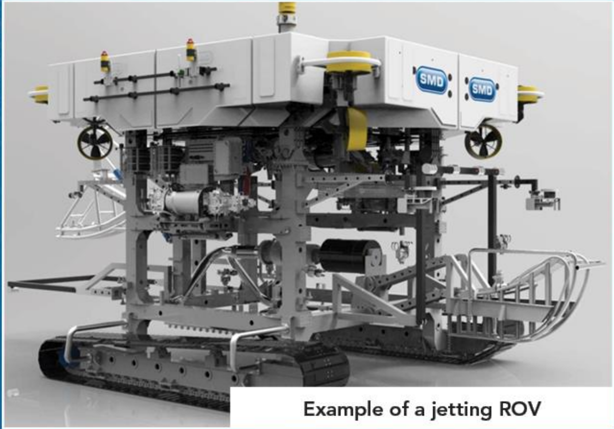
Seabed Preparation Equipment

EQUIPMENT	USE
Grapnel plow	Pre-lay grapnel run
Orange peel grabber	Localized boulder removal
Boulder clearing plow	Boulder field clearance
Trailing suction hopper dredger	Removal of sand wave tops
Water injection dredge dredger	Removal of sand wave tops in shallow areas
Constant flow excavator	Seabed leveling and preparation

Example of a boulder clearing plow

Offshore Export Cable Installation and Burial Equipment

EQUIPMENT	USE
Vertical injector	Vessel mounted burial solution for shallow water use that does not require seabed/sandwave sea leveling
Jetting sled	Shallow water uses for deeper tranch depths (surface fed water supply) in areas of prepared/benign seabed surfaces
Jetting ROV	Typically used in deeper water and can be used for unconsolidated soft beds
Pre-cut plow	Any depth and can be used for hard bottoms (plows can be used for a wide range of soils from unconsolidated sands to stiff clays)
Mechanical cutting ROV system	Any depth, used for hard, consolidated substrate



Example of a jetting ROV

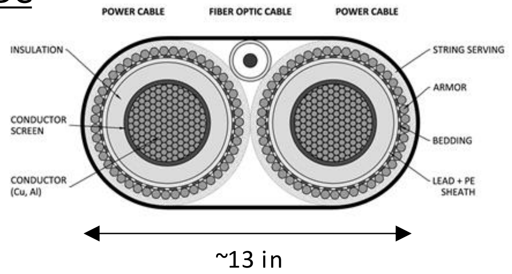
SOUTHCOAST WIND

Photo source: SMD, 2016

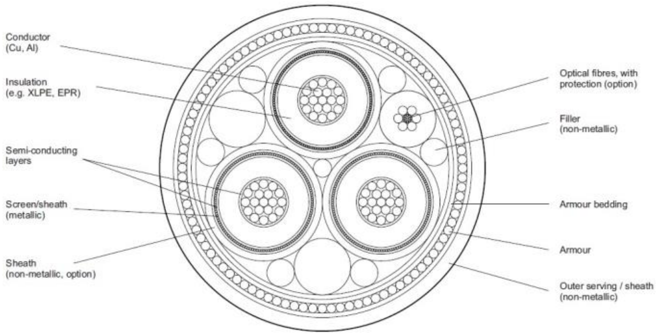
Offshore Transmission Technology

Considerations	Comment
Electrical losses	HVAC is more efficient for short distance power delivery and HVDC more efficient for longer distances
Availability	HVAC has more redundancy than HVDC in terms of cable failures
Number of cables	HVAC requires more separately installed cables for power capacity beyond 300-400 MW
Capital cost	HVAC costs less than HVDC for shorter distances as HVDC has higher substation costs but lower cable costs

HVDC



HVAC



Offshore Cables

- Proposed target burial depth below level seabed: **6 ft**
  - Acceptable range of burial depths: **3 to 13 ft**
- Installed in bundle configuration where practicable to minimize footprint and installation impacts – which is an advantage of HVDC technology

Export Cable Parameter	Brayton Point Export Cable Corridor
Number of Cables	1-6
Nominal Cable Voltage	±320 kV
Cable Length	97 – 124 mi (156 – 200 km)
Anticipated Burial Depth	3.2 - 13.1 ft (1 – 4 m)
Export Cable Corridor Width	2,625 – 3,280 ft (800 – 1000 m)
Target Separation Between Cables	3.2 - 13.1 ft (1 – 4 m)

Example of cable laying vessel

Cable Protection

Secondary cable protection needed for:

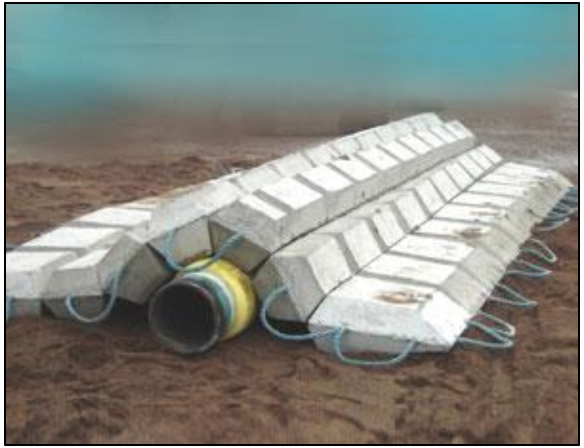
- Cable crossings
- Areas where adequate burial isn't achieved (not planned, but possible)

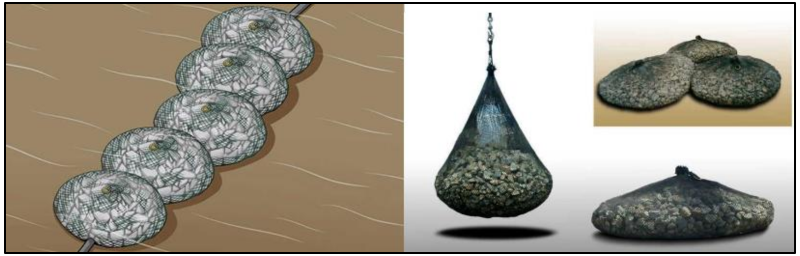
Protection types may include:

- Mattresses (traditional or fronded)
- Rock / Rock Bags
- Half-Shells (or similar)

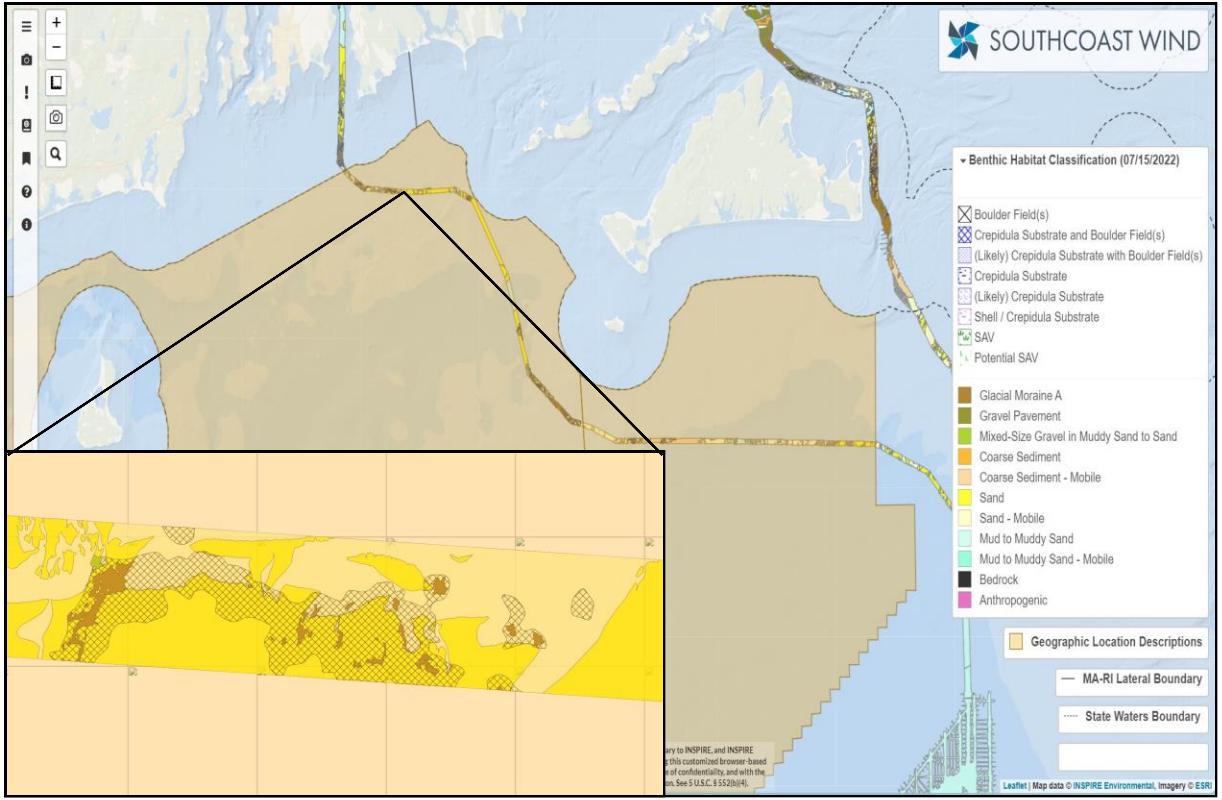
Considerations

- Seabed survey data
- Nature-based design options
- Habitat growth
- Over-trawlability





Benthic Habitat Mapping

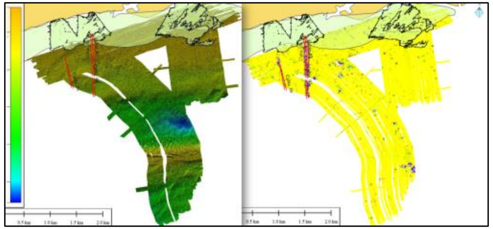


Mapping used to Guide Cable Routing

- Substrate (hard, soft, etc)
- Sensitive Habitat
- Cultural Resources
- Geohazards (slopes, boulders)
- Existing Infrastructure (cable and pipelines)

Offshore Cable Route Surveys

- **Objectives:**
  - "Ground truth" the seabed route characteristics assumed in desktop studies, for further cable design and installation engineering
    - Water depth
    - Seabed slopes
    - Soil types / characteristics
  - Determine potential areas of archaeological sensitivity (for avoidance)
  - Identify and characterize potential hazards along the route (boulders, sand waves, etc.)
- A "**cable corridor**" (800m – 1000m wide) is surveyed to allow for "micro-routing" for avoidance of hazards and sensitivity
- To date SouthCoast has multiple campaigns of geophysical, geotechnical, and benthic survey data
- Analysis planned for early 2024 to examine boulder densities and micrositing plans



Geophysical survey data

Typical geotechnical core

Benthic survey data

Thank You