

Submarine Cable Burial Depth Assessment

Technical Approach

On behalf of the New York State Energy Research & Development Authority (NYSERDA), Tetra Tech is developing an overview of cabling practices in the US offshore wind industry. The focus of this assessment will be to evaluate the concerns of cable burial depth in relation to commercial/recreational fishing activities, within the context of the constraints, best practices, and potential mitigation for offshore wind projects in the New York Bight. This document will evaluate the variables and complexities involved with determining what is the appropriate cable burial depth(s) for consideration by developers, regulators, and fishermen, including but not limited to:

- State and federal regulatory requirements;
- geologic constraints and concerns;
- environmental, fisheries and fishing impacts and concerns;
- published best practices;
- technologies, and;
- mitigation options.

The document will include an introduction to submarine cables, with a focus on offshore wind export and inter-array cables. A key theme will be a discussion of why submarine cables are critical to the offshore wind industry, and why it is critical to ensure they are installed properly to minimize impacts to other marine stakeholders – without bias towards any particular viewpoint on this topic. The document will also include a detailed explanation (including figures, tables, example photographs, and other visual aids) of how submarine cables are planned and installed for offshore wind projects that takes into consideration the following aspects of that process:

- Route engineering and survey best practices.
- Functional description of typical cable sizes and characteristics for cables used as offshore wind export cables and inter-array cables.
- Description of how export and inter-array cables will likely be installed from lease/offshore substation to beach (including vessels and other likely installation platforms).
- Description of most likely burial tools used in NY Bight and text describing HDDs at landings. Scour protection best practices will also be explained (also, burial as a means of mitigating EMF will be briefly described here and expanded later).
- A legal and regulatory view of crossings focused in NY Bight. Description of common crossing methodologies and what a completed crossing may look like. Rock dumping, mattressing, etc.
- Description of submarine cable O&M and why it is critical;
 - how cables are exposed and how the owner knows (digital temperature sensing, inspection/monitoring methods, frequency of monitoring anticipated etc.);
 - remedial Burial & Cable Repairs including descriptions of repair scenarios; and
 - technology used to rebury a cable that has been exposed by storms, erosion, etc.
- Fish habitat considerations of cable burial.

- Importance of the above topics to the commercial/recreational fishing community.

A high-level summary of risks to cable installation as well as Operations and Maintenance (O&M) will be addressed in the document. Such risks to the cable include natural geologic & sedimentary processes, anchorage areas, fishing gear interactions. Other environmental impacts will also be discussed included the potential for EMF interaction with demersal species, and impacts to fish/benthic habitat.

When complete, NYSERDA anticipates the document will be a useful reference for the F-TWG as well as other stakeholders, with respect to issues surrounding cables and cable burial.

Table of Contents

A proposed Draft high-level outline of the Submarine Cable Burial Depth Assessment document is provided below, with consideration to initial feedback received during the June 12, 2020 F-TWG meeting:

1.0 Introduction – setting-up the neutral context of this document as a factual source of information and to identify the important issues/constraints involved.

2.0 Submarine Cables within Offshore Wind Projects

- 2.1 Cable Planning
- 2.2 Functions
- 2.3 Cable Installation
- 2.4 Cable Burial & Horizontal Directional Drilling (HDD)
- 2.5 Cable Armoring Options
- 2.6 Cable Crossings and Techniques
- 2.7 Operations and Maintenance (O&M)

3.0 Cable Risks

- 3.1 Seabed Conditions - Geologic & Sedimentary
- 3.2 Navigation Channels and Anchorage Areas
- 3.3 Fishing (Commercial and Recreational), with an emphasis on fisheries with direct contact with the seabed (e.g., scallop dredging, clam dredging, bottom trawling, etc.)

4.0 Cable Issues

- 4.1 Environmental Impacts
- 4.2 EMF - High level overview of AC vs DC
- 4.3 Impacts to Habitat/Impacts to Fishing
- 4.4 Lessons-learned from other submarine cable projects (e.g., telecommunications cables, power transmission cables, etc.)

5.0 Conclusion (i.e. future of cables in New York Bight)

6.0 References & Relevant Sources – especially ones that can be revisited for more detail.

Draft Schedule

Action	Date
Share Outline with F-TWG	17-Jun-20
Incorporate Feedback from F-TWG	26-Jun-20
Share updated Document/Outline with F-TWG	17-Jul-20
Incorporate additional feedback and issue DRAFT Document	24-Jul-20
Issue Final Document	28-Aug-20

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