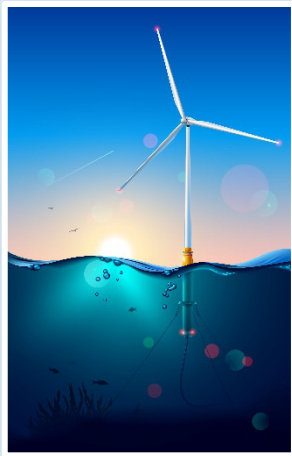


## ELECTRIC AND MAGNETIC FIELD (EMF) ASSESSMENT OF SUBMARINE CABLES



*Illustrative subsea view of offshore wind turbine*

### PROJECT HIGHLIGHTS

- Marine renewable energy development and electricity transmission are accelerating the application of high voltage submarine power cables.
- Rapid development of offshore power technology have led to an upsurge in concern by regulators and other stakeholders.
- Assessment of EMF impacts is necessary as part of a utility's permitting process.
- EPRI's EMF assessment framework provides a structured, transparent approach for evaluating EMF impacts to marine animals.
- Results of EPRI's EMF assessment informs Utility's EIA process to make better informed decisions.

### Background, Objectives, and New Learnings

Offshore and marine renewable energy development and electricity transmission are accelerating across the world, with more subsea high voltage direct current (HVDC) and high voltage alternating current (HVAC) cables capable of higher power being deployed. These cables can generate magnetic fields within the marine environment and may induce electric fields.

The rapid development of offshore wind power and emerging offshore wave, tidal and transmission projects have led to an upsurge in concern among regulators, key consultees and statutory advisors and stakeholders. There is increased relevance to permitting and environmental impact assessments across the world, where questions are increasingly being raised about the potential effect of EMFs within the marine environment.

EPRI has developed an EMF assessment framework that provides a structured, transparent approach for evaluating EMF impacts to marine animals. The assessment framework includes an EMF modeling methodology that assesses the cables in the most relevant way, based on their interaction with the marine environment that they are set within. For example, when modeling EMF from HVDC cables; water movement and interaction with the Earth's geomagnetic field must be considered.

The objective of this project is to apply the EPRI EMF assessment framework to a utility's specific application.

The two-way interaction with funders of this project will provide an opportunity for EPRI to better evaluate and address specific regional EMF issues facing an electric company, including regulatory and site-specific concerns. These learnings are expected to inform future P60 research to enhance protection of the marine environment and new learnings can be shared in collaboration with other EPRI members around the world.

## Benefits

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This project may provide the utility and public with the following benefits:

- Informs the EIA processes to make better decisions, protect the environment, and promote sustainable development.
- Comprehensive, structured EMF assessment of marine impacts based on the current state of knowledge and recognition of gaps
- Increased understanding of design options and their EMF impact on the environment to inform cost effective environmental management strategies
- More accurate modeling of the EMF environment, incorporating environmental factors that may influence fields

## Project Approach and Summary

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The project intends to:

1. Model the EMF environment based on the Utility's design criteria.
2. Apply the EPRI EMF assessment framework to assess the likelihood of encounter with marine animals and determine impacts.
3. Develop technical report to inform the Utility's environmental impact assessment.

## Deliverables

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- Technical report
- Webinar to communicate the results

## Price of Project

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Project cost will be determined during the scoping session with EPRI project managers. Please contact EPRI for more details.

## Project Status and Schedule

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The project schedule will be determined during the scoping session with EPRI project managers.

## Who Should Join

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Any utilities or facility owners that have or will be deploying submarine power cables.

## Contact Information

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For more information, contact the EPRI Customer Assistance Center at 800.313.3774 ([askepri@epri.com](mailto:askepri@epri.com)).

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