Supplemental Project Notice

OFFSHORE WIND SUPPLEMENTAL PROGRAM

Cross-Cutting Solutions to Improve Accessibility and Value of Offshore Wind Power

DolWin 1 and 3 Offshore Wind Substations

PROJECT HIGHLIGHTS

- Drive offshore wind industry technical collaboration to expose and address critical research and development gaps covering project life cycle
- Provide forward-looking, strategic, and timely insights on industry trends and technology development
- Create a cooperative forum for actionable, and objective information about large-scale offshore wind generation facilities
- Arrange opportunities to exchange lessons learned with a continually expanding network of industry peers and experts

Background, Objectives, and New Learnings

Offshore wind power is rapidly expanding globally, with increases in deployment goals, size of projects, and scale of technology. There are numerous efforts to develop new (mostly larger) technologies and methods to reduce capital expenditures and expand suitable locations for offshore wind power plants. There are fewer efforts, however, focused on the details impacting the comprehensive levelized cost of electricity (LCOE), including resilience, reliability, and operations and maintenance throughout the lifetime of the assets.

EPRI's Offshore Wind Supplemental Program (P249) aims to fill a critical gap by creating a collaborative, cross-cutting platform to address offshore wind-specific research and development needs. Researchers will examine and expose technical gaps across the life cycle of offshore wind farms, from early site development, through construction and operations, and into life-extension and decommissioning. Projects will leverage EPRI expertise and research from multiple programs and sectors to address the most pressing offshore wind challenges. EPRI expertise will be applied across transmission, site, and balance of plant for offshore wind developments, including onshore and offshore substations and converter stations, export and array cables, offshore-specific wind turbine equipment, sub-sea substructures, foundations, seabed interactions, and environmental aspects. Research will draw from the following core areas of EPRI expertise:

Offshore Wind Plant Design and Operations – Design specifications, asset management and analytics, cyber and physical security, environmental aspects, and root cause analysis

Grid Integration and Energy Systems – Transmission planning, resource adequacy, production cost modelling, inverter-based resources controls, power-to-X, and hybrid storage systems

Transmission and Collection System Infrastructure – Design, operation, monitoring, and maintenance for high- and medium-voltage cables, substations, switchgear, and HVDC converters

Wind Generation Research and Development – Bridge to existing wind power research, especially where offshore differs in cost, performance, efficiency, component reliability, and asset health

Benefits

EPRI's Offshore Wind Supplemental Program research is conducted to benefit participants and the public through collaboration and innovation for the advancement of safe, economic, reliable, resilient, and flexible offshore wind energy. Amid increasing global offshore wind deployment, the program provides current information on key offshore wind technologies, including wind turbine generators, transmission components, substructures, and subsea cabling. The work undertaken in this program helps enable affordable, reliable integration of offshore wind into the power generation mix, while tackling the unique challenges associated with design, operations, and maintenance of offshore assets.

Project Approach and Summary

Program meetings occurring at least semiannually will provide for timely and relevant exchange of information and insights with members. Additionally, program participants will have access to government- and Technology Innovation-funded research results and technology transfer support, advise on research pathways for government projects, and engage with proposal development on various research, development, and demonstration topics. Research will draw from the following core areas of EPRI expertise: offshore wind plant design and operations, grid integration and energy systems, transmission and collection system infrastructure, and wind generation research and development.

Deliverables

Specific program activities will be developed in collaboration with program members annually. Deliverables may include technical reports, whitepapers, peer literature, or presentation-style reports. Annual deliverables include:

- Technical research reports and status update reports for multi-year research projects
- Quarterly meetings (combination of face-to-face and virtual format)
- Technology transfer webcasts and consultation for application of research deliverables
- Members-only website with collaborative forums to facilitate information sharing
- Actionable research roadmaps to steer future R&D into industry, member, and public value

Price of Project

The annual price to participate is $45,000 per funder. This program includes access to the Offshore Wind Interest Group (OWIG). This program is eligible for use of Self-Directed Funds (SDF), Tailored Collaboration (TC), or co-funding.

Project Status and Schedule

Membership is based on a calendar year and may be renewed each year. Durations of individual activities within the supplemental program may span multiple years with annual progress reports.

Who Should Join

This program would be of interest to technical staff and technical management and R&D staff from all offshore wind developers, independent power producers (IPPs), and utilities that construct, own and/or operate offshore wind facilities, as well as those with power purchase agreements (PPAs) for electricity generated by such facilities. Any entity with interest in understanding the various industry challenges and opportunities associated with offshore wind will benefit from participation.

Contact Information

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

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Product ID: 3002028173 **Project ID:** 01-118109 **April 2025**

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