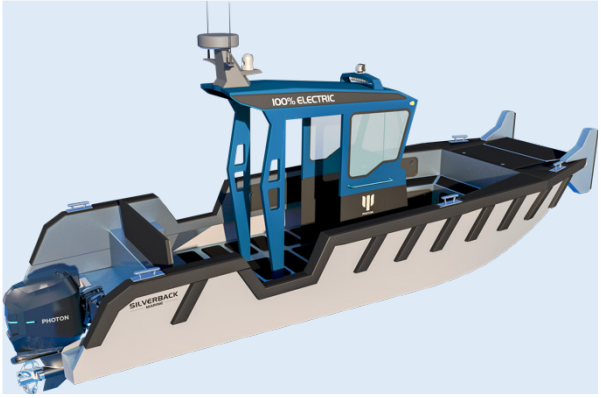
Supplemental Project Notice

MARITIME ELECTRIFICATION COLLABORATIVE

Electric Workboat Technology Demonstration



A 3D Rendering of an Electric Workboat (Photo Courtesy: Photon Marine)

PROJECT HIGHLIGHTS

- Identify and demonstrate electric workboats for various use cases
- Quantify the environmental benefits of electric propulsion systems
- Illustrate benefits of electric boats such as operational and maintenance savings, ease of use, noise reduction, and efficiency improvements
- Outline safety features unique to electric propulsion systems

Background, Objectives, and New Learnings

Electrifying the maritime industry holds significant promise for addressing the pressing environmental and climate change challenges. By transitioning from traditional fossil fuel-powered vessels (diesel and gasoline primarily) to electric or hybrid-electric alternatives, it is possible to reduce greenhouse gas emissions, harmful air pollutants, and marine noise pollution, all of which are valuable in sensitive ecological zones in particular. Additionally, advancements in electric propulsion technologies present opportunities for increased efficiency, operational cost savings, and enhanced energy resilience.

This project seeks to demonstrate electric workboat technology in diverse operational scenarios, understand various use cases, assess the technology's practicality and benefits, and examine requirements for larger-scale adoption across the sector. New learning will result from specific project objectives, which are to:

- Evaluate workboat performance such as electric range and efficiency, as well as assess charging infrastructure requirements and operation and maintenance needs
- Assess environmental impacts, including emissions and noise reduction
- Share findings through technology transfer

Benefits

The electric workboat demonstration will provide valuable information towards understanding how to scale marine electrification technology with the potential to bring about significant public benefits, such as reduced greenhouse gas emissions, air pollutants, and noise pollution. Electric workboats also hold the potential for cost savings over the long term given their typically lower operating and maintenance expenses compared to conventional vessels.

For utilities, electric workboats represent new electrification opportunities that may increase electricity demand, particularly during off-peak hours, helping to optimize grid utilization and balance electricity supply and demand. They also represent new avenues for decarbonization by promoting renewable energy integration, as electric propulsion systems can be powered by clean

energy sources such as wind, solar, or hydroelectric power. Furthermore, electric workboats can serve as distributed energy resources, offering flexibility for grid operators to manage energy storage and distribution, enhance grid stability, and support the integration of intermittent renewable energy resources.

Project Approach and Summary

1. Needs Assessment and Stakeholder Engagement: Work with the project participant to identify suitable customers for the demonstration site. A questionnaire will be developed and used to find the host site.
2. Technology Selection and Procurement: Select the appropriate electric propulsion technologies, energy storage solutions, and charging infrastructure based on the findings of the needs assessment. Procure or develop partnerships with manufacturers, suppliers, and service providers to acquire the necessary equipment and resources for the demonstration project.
3. Demonstration Planning and Execution: Develop a comprehensive demonstration plan outlining the scope, objectives, timeline, and milestones of the project. Conduct a demonstration trial in real-world operating conditions, capturing performance data, use-cases, gathering feedback from end-users, and showcasing the benefits of electric workboats.
4. Performance Evaluation and Monitoring: Evaluate the performance of electric workboats in terms of speed, power, maneuverability, endurance, and environmental impact. Monitor key performance indicators, such as energy consumption, emissions reduction, and cost savings, to assess the effectiveness of electric propulsion systems and inform decision-making processes.
5. Report Out and Technology Transfer: Share the findings, lessons learned, and best practices from the demonstration project through technical a report.

Deliverables

The project deliverables are listed below:

- A comprehensive EPRI technical report providing detailed performance and use case of the chosen host site.
- An executive summary presentation to the participating members.

Price of Project

- Host utilities: $96,000, including boat leasing fees
- Participating utilities: $36,000

Funding can be split over two calendar years. The project is eligible for self-directed funding.

Both the host utilities and participating utilities will receive the same deliverables; however, host utilities can choose the demonstration sites, participate in customer engagement, and help define the use cases.

Project Status and Schedule

The project will begin once one host utility joins, as early as May 2024. It is anticipated that the project will run for 12 to 18 months depending on the number of demonstration sites. The testing period for the electric workboat will be approximately four weeks.

Who Should Join

Members with inland ports, seaports, other waterways, and canals in their service territories should consider joining this project.

Contact Information

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

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