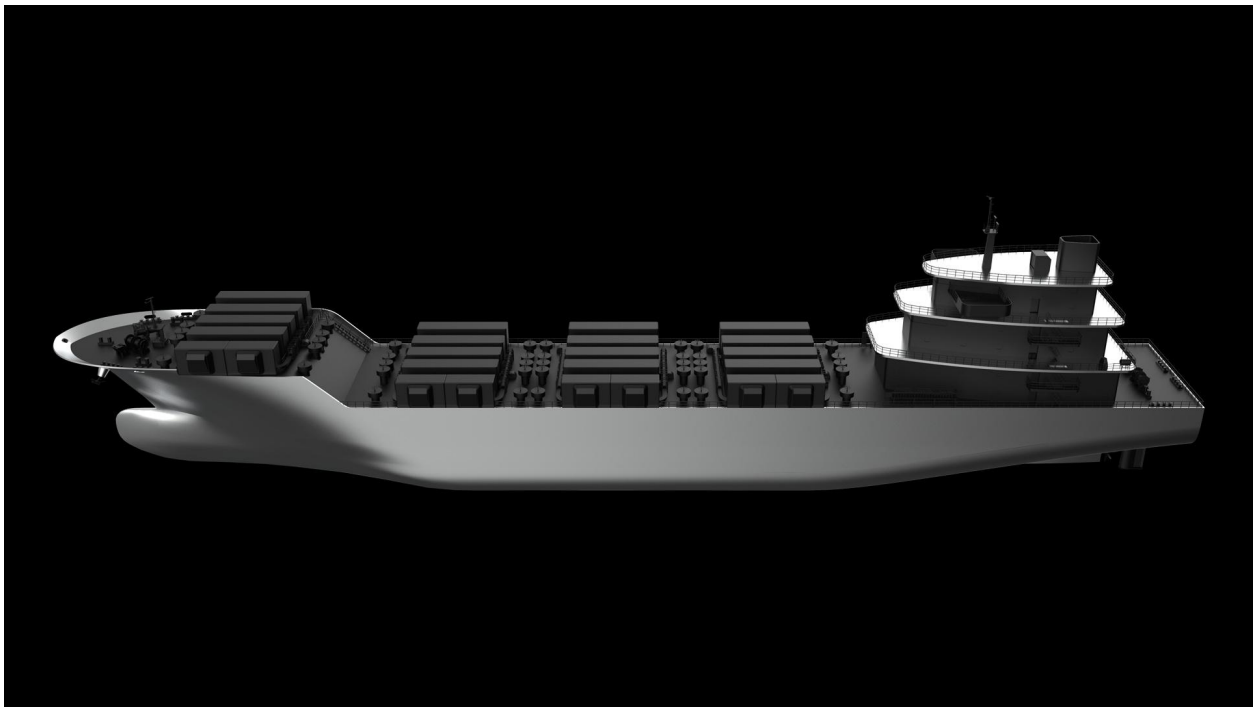
Power X

May 25, 2023

Introducing the World's First Battery Tanker 'X': The Inaugural Ship of Power Ark 100.

On Track for Completion by 2025, with Field Testing Set to Commence in 2026



Highlights

- "X" is a 140-meter electric propulsion ship equipped with a 241MWh containerized battery system.
- A new company named "Ocean Power Grid, Inc." is scheduled to be established in the third quarter of 2023. This company will be responsible for the ownership and sale of Battery Tankers, as well as power transmission operations across oceans.
- Kyushu Electric Power Co., Ltd. and the City of Yokohama will participate as partners in the field testing for the first ship.

IMABARI, JAPAN (May 25, 2023) - PowerX, Inc. (Head Office: Minato City, Tokyo, Japan; Director, President & CEO: Masahiro Ito, hereafter PowerX) has unveiled the detailed design of the first-ever 'Battery Tanker' at the 'Baribship' International Maritime Exhibition held in Imabari City, Ehime Prefecture, Japan. The inaugural ship "X" aims for completion by 2025, with domestic and international field testing planned to commence in 2026.

Furthermore, a new company called 'Ocean Power Grid Inc.' will be established in the third quarter of 2023 to advance the maritime power transmission business utilizing Battery Tankers.

This company will be responsible for owning, selling, and operating the battery tankers both in Japan and abroad. PowerX is actively seeking business partners from around the world for this new technology and business endeavor.

Moreover, PowerX has signed a memorandum of understanding (MOU) and a Partnership agreement with Kyushu Electric Power Co., Ltd. and the City of Yokohama to pursue the novel concept of maritime power transmission and achieving carbon-neutral ports.

Modular battery Designs and Safety Features:

The first Battery Tanker “X” is scheduled for domestic and international field testing starting in 2026. This electric propulsion vessel boasts a length of 140 meters and will be equipped with 96 containerized marine batteries, providing a total capacity of 241MWh.

The onboard battery system is based on our proprietary module design, featuring safe and reliable lithium iron phosphate (LFP) battery cells that ensure a lifespan over 6,000 cycles. Additionally, the battery system is highly scalable, allowing for the installation of additional batteries to create larger electric transport vessels such as Power Ark 1000 or even larger sizes to meet specific mission requirements. The system includes dedicated gas emission control and fire suppression mechanisms to ensure safety. Real-time monitoring of the battery system, charging controllers, and power conversion systems further enhances safety measures. All batteries will be manufactured in-house in Okayama Prefecture and are scheduled to obtain international ship classification certifications and applicable standards such as DNV and Class NK, undergoing rigorous testing to meet the strictest conditions. Delivery of the batteries is scheduled to commence by mid-2024.

The Role of Battery Tankers:

With its onboard battery systems, Battery Tankers can be leveraged to store and transport surplus electricity generated from renewable sources. Decommissioned or idle thermal power plants located near ports can be retrofitted into charge/discharge points for the Battery Tankers, where the power is transmitted to users via grid connections on the land, enabling further effective use of renewable energy.

Moreover, areas with high potential for renewable energy generation are often distant from urban areas and other regions with high power demand. Strengthening transmission infrastructure becomes essential in such cases. Given the current energy density of lithium-ion battery cells, the Battery Tanker is an optimal solution for short-distance maritime power transmission from land to land, complementing existing inter-regional grid transmission lines. For instance, in Japan, a Battery Tanker can carry power from regions with high renewable energy supply potential, such as Kyushu and Hokkaido, to high-demand areas of Honshu or for inter-island power transmission.

Future Outlook of Power Grid across the Oceans:

Battery Tankers will establish the new power transmission networks across the sea, promoting the storage, supply, and utilization of renewable energy. As the energy density of batteries improves and their cost decreases, it is expected that longer-distance maritime transmission from offshore wind power plants to the land will become feasible. Battery Tankers offer an effective solution, especially in Japan, which is prone to earthquakes and has deep-sea surroundings. The ship-based solution resolves issues such as long downtime from undersea cable malfunctions and repairs, as well as the high costs associated with ultra-high voltage connections and substations. As a result, the Battery Tankers will enable installation of offshore wind farms in areas where undersea cable deployment was once challenging. The utilization of maritime power transmission via Battery Tankers can address various challenges associated with offshore wind power, not only in Japan but also contribute to the widespread adoption of renewable energy worldwide.

Related Press Release

- PowerX Signs MOU with Kyushu Electric Power for Ocean Power Grid Business Utilizing the World's First Battery Tanker
  URL：https://power-x.jp/en/news/press/5376/
- PowerX Signs a Partnership Agreement with the City of Yokohama to Explore Utilization of the Battery Tanker
  URL：https://power-x.jp/en/news/press/5380/

About PowerX, Inc.

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Main Business	R&D and Production of Energy Storage System Solutions and Power Transfer Vessels, EV Charging Station Service
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