HPO Green Maritime France Global Growth Program Participants

Aeron

Aeron have supplied complete Aeron Energy Recovery Systems – AERS to a number of battery and hybrid powered ferries and speedboats. They utilize all available heat from equipment, and use all available cooling from the sea, and this is controlled from their heat pump system where they utilize both cold water and hot water in an extremely energy efficient way.

Amogy

Amogy offers ammonia-based, emission-free, high energy-density power solutions to decarbonize transportation for a sustainable future. The company's investors include Amazon's Climate Pledge Fund, AP Ventures, SK, Saudi Aramco and DCVC.

Amogy has developed a proprietary ammonia-to-power technology that converts ammonia to electric power effectively and efficiently. They have signed their first pre-order for the Zero Emission Powerpack with a Norwegian Shipowner. The newbuild vessel will be outfitted with a total of 800 kW of Amogy powerpacks, which will provide the primary power for the vessel with zero-emissions operations. The technology feeds liquid ammonia through its cracking modules integrated into a hybrid fuel cell system, which powers the electric motors.

Bertel O. Steen Power Solutions

Bertel O. Steen Power Solutions (BOS Power) is the Nordic importer and distributor of MTU products from Rolls-Royce Power Systems. BOS Power supplies propulsion systems and marine power systems, integrated power generation systems and industrial engines for the C&I market with focus on quality and reliability.

The company's main business consists of deliveries of diesel engines, propulsion systems and generator sets for diesel-electric maritime systems, based on the well-known MTU brand. They design, engineer and manufacture marine generator sets for most types of maritime applications. BOS Power also supplies highly reliable integrated power generation systems with solutions from MTU Onsite Energy for industry and land-based operation. They provide service for all applications, concentrating mostly on the express boat and ferry sector, and offshore and onshore industry.

Brødrene Aa

Brødrene Aa is a world leading shipyard in the construction of fast ferries made of carbon fibre composites. The company is known for pioneering the use of composite materials for fast ferry applications, first with fibreglass composites in the 1970s and today with carbon fibre composites.

Their most recent concept, Aero™, is designed for a variety of energy and propulsion solutions; traditional MGO, hybrid or zero-emission. The long slender hull is optimized to handle increased system weights, typically batteries, in an efficient manner. The flat surfaced roof area is perfect for installation of solar panels. It is modular, with different passenger capacities, all available with battery electric propulsion designed for maximum efficiency and range.

Corvus Energy

The world's leading supplier of safe, innovative and reliable energy storage solutions for all segments in the maritime industry.

In addition to advantages like peak-shaving, spinning reserve and supply backup power, their large capacity energy storage systems will enable vessels to operate at a zero-emission point for longer periods of time. This may be interesting for port entry/stay/exit and environmental operation such as in certain fjords and other emission-controlled areas.

Dolphin Energy is ideal for ships with long, slow charges and discharges where lightweight is essential, for example in tourist vessels, canal boats, cruise ships, sightseeing vessels, and ferries.

Fjellstrand

Fjellstrand is a modern, sustainable, and environmental focused shipyard based on innovation, technology, tradition, availability and excellent workmanship since 1928. Fjellstrand has designed extruded aluminium profiles and friction welded aluminium panels for use in vessels.

They offer new vessels, conversion of vessels, battery installations for hybrid vessels, general vessel maintenance and shipyard services, aluminium and steel constructions. The world's first Battery Powered Car & Passenger Ferry ("Ampere") was delivered by Fjellstrand in 2014. The world's first Battery Powered Fast Ferry classed to fulfil the International Code of Safety for High-Speed Crafts (HSC Code) was delivered from Fjellstrand in Q3 2022.

Hexagon Purus Maritime

Hexagon Purus Maritime, a wholly owned subsidiary of Hexagon Purus, provides compressed hydrogen fuel storage systems for maritime applications, helping to decarbonize the maritime industry. Hexagon Purus combines maritime experience with extensive hydrogen storage expertise to provide a holistic approach to zero emission maritime solutions. Hexagon Purus is at the forefront of developing innovative hydrogen storage solutions with lightweight composite cylinders that are ideal for maritime applications.

Their hydrogen fuel storage system can be mounted on deck and/or below deck, in individual tanks or bundled in collective sections. They also develop a swappable container solution as an attractive configuration for swift port handling and easy bunkering.

Hyke

Building on 35 years of product innovation and performance boat manufacturing at Eker Group, Hyke is setting the new standard for urban waterborne mobility. Hyke offers a complete solution, including electric water shuttles, automatic docking and charging jetties, autonomous navigation technology, and vessel operator applications.

Hyke's solution was recognized in Time Magazine's "Best Inventions of 2022," and has been selected by the French Government to operate four of its vessels on a new route on the Seine during the 2024 Paris Olympics.

The Hyke ferry system is filled with intelligent features to simplify fleet management. Every Hyke ferry features proprietary autonomous vessel control technology. This enables operators to improve safety through the auto-docking function supported by sensor packs, reduce costs of operation, and optimize vessel deployment to increase efficiency.

Kongsberg Maritime

Kongsberg Maritime is a world-leader in marine technology. Their products and services offered include design, engineering and equipment of tanker ships integrating environmental sustainability, efficiency and flexibility. Their approach to product design incorporates the full picture to maximise performance of vessels and ships. Over 33 000 vessels worldwide sail with equipment supplied by Kongsberg Maritime.

Norled

Norled is a ship operator of several low-/zero emission vessels and has developed an autonomous battery swap system (Shiftr) together with Seam. They are currently running the world's first ferry on LH2, and was the first company in the world to launch a battery-operated propeller-driven ferry.

Plug

Plug offers shore power in partnership with ports. They are a driving force for a more environmentally friendly shipping in both Norway and internationally. They build cost-effective solutions that provide a great offer, both for cruises, Supplyships, and other ship types.

Plug was established in 2018 by Norway's largest cruise port Bergen Havn, and Western Norway's largest power company Eviny. Today Eviny and Plug AS invest in the development of shore power with several local ports. The company Plug Bergen AS currently owns and operates all the onshore power plants in Bergen Havn and the company Plug Ålesund AS will build onshore power facilities for cruises in Ålesund.

SEAM AS

SEAM AS is a leading supplier of hybrid and fully electric solutions to ships and the maritime business. Through continuous development and improvement of our systems and solutions, they aim at setting the standard for the future.

Their technology is designed for new ships or to be retrofitted in existing, drastically reducing climate impact and lowering costs.

Their portfolio consists of complete systems and products ranging from integrated control- and automation systems, EMS/PMS, propulsion control, drives, switchboards, electric motors, transformers to bridge solutions. Their wide range of products are named e-SEAMatic® and e-SEA®.

Servogear AS

Servogear AS is a leading manufacturer of Controllable Pitch Propellers (CPP) and gears for offshore wind farms workboats (CTV), high speed passenger ferries, rescue and patrol vessels and yachts. In 2021, the company had a turnover of MNOK 126, of which 60% was export.

The Servogear Ecoflow PropulsorTM is a unique CPP system for high-speed vessels and offers an optimal combination of speed, bollard pull, maneuverability and fuel efficiency. High efficiency is of particular importance when the vessels are to be powered by battery packs, which are both heavy and expensive. With more efficient propulsion systems and hull designs, you can achieve higher speed, saving on both weight and investment cost. Servogear has won 14 of the last 16 contracts awarded in Norway for hybrid and zero-emission fast passenger vessels.

SHIFTR

SHIFTR is an autonomous battery swap robot, and a game-changing invention that will reduce time at the quay and keep express boats running at top speed all day. With a cutting-edge system that allows for electrification of both new and existing vessels and long and short routes, this technology is a win-win for ship owners, passengers and the environment.

- Zero-emission, continuous operation.
- High speed.
- No charging time during rush hours.
- Unique solution for wave tide compensation.
- Available solution for newbuilds and for retrofit.