



**GOLDEN
ENERGY**
OFFSHORE



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GOLDEN ENERGY CHOOSES ROLLS-ROYCE BATTERY SYSTEM FOR TWO OFFSHORE VESSELS

Rolls-Royce Commercial Marine has received an order to deliver a battery-powered energy system for two offshore vessels (PSVs) operated by Norway-based Golden Energy Offshore.

The delivery includes the SAve Energy system, which was launched by Rolls-Royce earlier this month. In addition, the two vessels will receive an upgrade of the existing Rolls-Royce ship design engineering package to match the new features. This includes an upgrade of the Dynamic Positioning (DP) system, Main Switchboard and the ACON control system coupled with a Rolls-Royce Energy Monitoring system, providing a complete overview of energy usage onboard.

In total, the two Platform Supply Vessels *Orla* and *Frayja* will receive an upgrade that benefits both the environment and the economic efficiency of the ships. Golden Energy Offshore's goal is to achieve environmental friendly and cost effective operations for all of their vessels, emphasising energy efficiency, sustainability and a low emissions profile in accordance with IMO's standard for a Ship Energy Efficiency Management Plan (SEEMP). The company is among the few offshore ship operators globally that are fully ISO 50001 (Energy Management Standard) certified, which involves having a framework for measurement, registration, reporting and auditing of energy efficiency.

Per Ivar Fagervoll, Golden Energy Offshore CEO, said: "We started off by integrating sustainability into business processes and systems years ago, and it has developed into a continuous journey of success with regards to energy efficiency, operational excellence and sustainability."

Golden Energy has been part of numerous pilot projects ranging from physical installations and upgrades of vessels to digital "Big Data" projects. All with clear targets to achieve environmental benefits.

Fagervoll added: "Our environmental journey has been a success, and a retrofit to hybrid battery power is the logical next step for us."

SAve Energy from Rolls-Royce is a cost competitive Energy Storage Unit that includes a highly efficient and liquid cooled battery system in a modular design. The product is scalable according to energy and

power requirements, and complies with international legislations for low and zero emission propulsion systems.

Ronny Pål Kvalsvik, Rolls-Royce, VP Sales and Customer Management – Commercial Marine, said: “SAVe Energy is well suited for upgrade projects such as the one for Golden Energy where the system is delivered in a containerized solution that can be mounted on the deck of an existing ship. It can be used for peak shaving, spinning reserve and, of course, also for fully battery powered vessels of several types in addition to offshore vessels, such as cruise ships, ferries, tugs and workboats.”

NS Orla and *NS Frayja* operate out of Stavanger, Norway, and are well known to Rolls-Royce. Both vessels are of Rolls-Royce UT 776 CD design with oil spill clean-up capability, and they have an extensive range of Rolls-Royce equipment on board, including the Rolls-Royce Energy Monitoring (EM) system. The EM system was added to the control and automation system of these vessels and started collecting vessel data back in 2015, and has been coupled with other technology pilot projects hosted by Golden Energy Offshore.

“We believe focusing on reduced fuel consumption and emissions gives Golden Energy Offshore a competitive advantage towards charterers. Of course we also have an environmental responsibility, and as a company focus on emissions and sustainability,” adds Per Ivar Fagervoll.

About Golden Energy Offshore Management AS

Golden Energy Offshore is a fully integrated shipowner and operator of modern specialised offshore vessels for the global oil and gas industry. One of Norway’s oldest shipping companies.

1. Founded in 1929 as a shipping company and entered offshore in 1974
2. Main office in Ålesund, Norway (Norwegian shipping/offshore hub)
3. Experienced, skilled and committed ship management within Offshore service vessel segments
 - i. Offers turnkey management solutions for newbuilding, conversion and operation of offshore support vessels
4. Strong track record and focus on QHSE engrained throughout the organization
 - i. Certifications include ISO 9001, ISO 14001, OHSAS 18001 and ISO 50001
5. Total fleet of 7 high-end offshore vessels, operating worldwide
6. High utilization of the fleet (last 8 years ~96% average)
7. Solid experience with the demanding operations of North-sea and West-Africa
8. Golden Energy Offshore employs about 250 people – and growing
9. Clear entrepreneurial spirit engrained within Golden Energy culture

About Rolls-Royce Holdings plc

1. Rolls-Royce pioneers cutting-edge technologies that deliver the cleanest, safest and most competitive solutions to meet our planet’s vital power needs.
2. Rolls-Royce has customers in more than 150 countries, comprising more than 400 airlines and leasing customers, 160 armed forces, 4,000 marine customers including 70 navies, and more than 5,000 power and nuclear customers.
3. Annual underlying revenue was £15 billion in 2017, around half of which came from the provision of aftermarket services. The firm and announced order book stood at £78.5 billion at the end of December 2017.

4. In 2017, Rolls-Royce invested £1.4 billion on research and development. We also support a global network of 31 University Technology Centres, which position Rolls-Royce engineers at the forefront of scientific research.
5. Rolls-Royce employs 55,000 people in 50 countries. More than 19,400 of these are engineers..
6. The Group has a strong commitment to apprentice and graduate recruitment and to further developing employee skills. In 2017 we recruited 313 graduates and 339 apprentices through our worldwide training programmes.

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