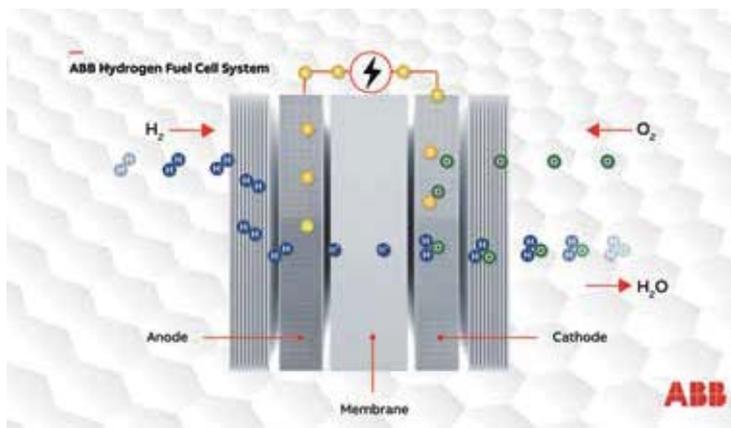




ABB to deliver first fuel cell system for Royal Caribbean



ABB's fuel cell system is aimed to be piloted on board a Royal Caribbean International vessel and will be the first fuel cell system to provide an energy source for a luxury cruise ship.

Last year was the first time that mobile power from fuel cells exceeded stationary installations, according to The Fuel Cell Industry Review 2016, and the maritime industry is quickly recognizing the potential of a technology that delivers emissions-free simplicity, maintainability and efficiency.

"Our goal is to take the smoke out of the smokestacks, said Harri Kulovaara, Executive Vice President of Maritime and Newbuilding, Royal Caribbean Cruises Ltd. "We are dedicated to innovation, continuous improvement, and environmental responsibility, and using fuel cell technology gives us the opportunity to deliver against all three of

these pillars."

"This pilot installation demonstrates that fuel cell technology is now firmly in sight of the cruise industry," said Juha Koskela, Managing Director, ABB Marine & Ports. "Fuel cells have been the next big thing for 25 years, but now they are reality."

Fuel cells generate energy by exploiting an electro-chemical reaction at the interface between the anode or cathode and the electrolyte membrane. They involve no combustion, converting fuel directly to electricity and heat.

"At ABB, we believe that the next generations of vessels will be electric, digital and connected. Fuel cell technology matches exactly that. Fuel cells have significantly higher efficiency than combustion engines and allow energy to be concentrated more densely than in petroleum fuels. If you use renewables to produce the hydrogen the entire energy chain is clean and truly emission free," Koskela continued.

The pilot installation, including control, converter and transformer technology from ABB, will generate 100 kW of energy, and has been fully developed, maritized, assembled and tested by ABB Marine & Ports. ABB selected an FCvelocity® proton exchange membrane (PEM) pure hydrogen fuel cell engine from Ballard Power Systems for its pilot system.

Cobham SATCOM Ku-band VSAT specified for FPSO newbuilds

Cobham SATCOM is to deliver VSAT communication systems for two FPSOs currently under construction in China, with an option for a further four next year. The order for the Ku-band SAILOR VSAT equipment was concluded by Au Shing International (HK) Ltd, a systems integrator that joined Cobham's Asia-Pacific distribution network in

March 2016.

The undisclosed European shipowner is an existing Cobham customer and has previously installed Sea Tel and SAILOR VSAT equipment on its vessels. The reliability, performance and quality of



existing installations were cited as key factors in selecting Cobham SATCOM for the latest order. The FPSOs are being built at a shipyard of China Merchants Heavy Industry Co., Ltd. in Nantong, in Jiangsu Province.

“We are delighted to be working with Au Shing and to be celebrating such a prestigious contract so early in our relationship with them,” said Stephan Jorgensen, Regional Director, APAC, Cobham SATCOM. “We have already been talking with Au Shing on how we can develop our cooperation further by expanding our relationship to encompass land solutions.”

Preparations for deploying the Sea Tel 9711 IMA systems are already underway, with installation on the first of the newbuilds due to take place in December. The second will take place in spring 2018.

Due to the layout of the FPSOs, the VSAT antenna will be fitted some 150m away from the vessel's superstructure, which is considerably farther than a typical installation. To prevent any attenuation in the signal as it traverses this distance, fiber optic cable will be used instead of conventional coaxial cable to link the antenna to the above deck unit (ADU) situated in the superstructure. The ADU connects to the

modem, which is the interface to the vessel's IT network.

Au Shing vice president Mrs Sun Rong explained “The decision to use a fiber optic was taken to avoid the risk of signal loss in abnormal situations and ensure no degradation in connection quality. This attention to optimizing system performance will ultimately pay-off as improved end-user experience.”

High specification Sea Tel VSAT systems have become the default communications technology for floating offshore platforms, including FPSOs, jack-up rigs, floating storage regasification units (FSRUs). With long deployments and relatively high numbers of personnel on board, operators have long recognized the importance of providing high-level crew welfare. Today, this invariably includes reliable access to the Internet. VSAT is realistically the only satellite technology that can provide sufficient bandwidth to satisfy this requirement. Because crew welfare is the primary driver, the customer is also considering TVRO from Cobham SATCOM to further expand entertainment options on board.

The Sea Tel 9711 is a 3-axis stabilized integrated maritime antenna system that features a 2.4m diameter radical offset diameter antenna for operation in both C- and Ku-bands. It has a switchable feed and sub-reflector, which in combination with specially designed software, allows the system to switch between the two frequencies without manual intervention, thus eliminating any downtime on the vessel's IT network.

TOTE to Convert MAN 58/64 Engines to LNG

TOTE Maritime Alaska, a daughter company of TOTE Inc., the leading American marine-transportation group, recently contracted MAN PrimeServ – MAN Diesel & Turbo's after-sales division – to convert the ‘North Star’ and ‘Midnight Sun’ to dual-fuel operation on liquefied natural gas (LNG).

The roll on/off ships are currently both powered by 4 × MAN 58/64 engines and will be retrofitted to MAN 58/64 retrofit units. The contract – signed in April 2017 and announced during the High Horsepower (HHP) Summit, a conference and