

Joint project on renewable energy



Several solutions will be tested on board the *Blue Star Delos*

AQUARIUS MAS | Japan-based Eco Marine Power (EMP) has announced the start of a joint project with Blue Star Ferries of Greece to deploy and evaluate a range of innovative renewable energy-related technologies for shipping including the Aquarius Management and Automation System (MAS), which has an integrated marine solar power system.

It said the project was a major step forward in making shipping more sustainable

through the use of renewable energy and fuel-reduction measures.

The project will test a number of innovative solutions developed by EMP and its strategic partners on board the *Blue Star Delos*, a modern high-speed passenger and car ferry owned and operated by Blue Star Ferries, part of the Attica Group.

EMP said the *Blue Star Delos* and its sister vessel *Patmos* already incorporated cutting-edge sustainable vessel technology, being the first vessels in the Mediterranean region to use the hybrid shaft generator system, a sophisticated active front-end frequency converter system enabling constant connection of the shaft generators to the ships' grid, which improves the power factor and lowers NOx emissions. In addition, HVAC and engine room ventilation use a frequency converted load-dependent management system, which also lowers fuel consumption and reduces NOx emissions further.

During the initial stages of the project – and in a world first aboard a ship, according to EMP – a marine solar power system

using flexible, lightweight marine-grade panels from Italy's Solbian Energie Alternative will be integrated with the Aquarius MAS, and real-time performance monitoring of the solar power array will be conducted, EMP said. The vessel's fuel oil consumption will also be logged and emissions data calculated using the Aquarius MAS.

The Aquarius MAS is an alarm-handling, performance-monitoring and data-logging platform that includes features to monitor fuel oil consumption, calculate emissions and monitor marine renewable energy solutions. It has been specifically developed by EMP and KEI System Ltd of Osaka, Japan, to allow renewable energy systems to be integrated into a common platform that can also be used to monitor other systems on ships such as main engines, generators and pumps.

Blue Star Ferries' own technical team will supervise the project while EMP will provide project management, technical consulting services and – along with various strategic partners – equipment.

First LNG-hybrid power barge classed by Bureau Veritas

COLD IRONING | Bureau Veritas, a global leader in testing, inspection and certification, has carried out risk analysis and HAZID (hazard identification) studies and also provided classification for the LNG-hybrid power barge that begins operation in the port of Hamburg in October. During the cruise season, the barge will deliver power to the AIDA fleet. In wintertime, shore-based clients will receive electric power and thermal energy. Developed by Becker Marine Systems and AIDA Cruises together with further partners, the vessel will supply environmentally friendly electricity to cruise ships during their layovers at port.

The 74m-long and 11.4m-wide barge has a draught of approximately 1.7m.

The power barge is classed by Bureau Veritas, and the risk study was carried out by Tecnicas, a subsidiary of Bureau Veritas. A risk analysis is mandatory for the classification of gas-fuelled vessels. "Cold ironing", or connecting visiting cruise ships to the shore electricity supply, helps to reduce air pollu-

tion from berthed vessels. However, cruise vessels enter the port during the daytime period of peak demand and leave at night. The electrical load for hotel operation of a large cruise vessel can be in the region of 10 MW. What is more, the domestic electrical frequency in Europe is 50 Hz while on board it is usually 60 Hz. So AIDA looked for its own dedicated LNG-powered supply for use in Hamburg. The power barge is non-propelled and has a length of 79m. Maximum power generation is about 11 MW (7 x 1,550 kW). As a first step, five gensets have been installed. They are equipped with a gearbox in order to deliver 60 Hz for the cruise vessels and 50 Hz to shore. Storage of LNG is done by means of two 40-foot LNG tank containers on the open deck, which can be exchanged by a shore crane.

The scope of the HAZID risk analysis covered the entire fuel gas installation such as storage area, gas process unit, engine room and ventilation as well as all barge operations, handling of gas containers and elec-

tricity supply. The HAZID study was carried out to ensure that the operational risks are eliminated or reduced to an acceptable level, taking into consideration the impact of the surroundings on the barge and the barge on the surroundings, for example the passengers on board the cruise vessel.

The owner, designer, all major suppliers and Bureau Veritas participated in the HAZID workshop. The risk assessment was carried out in accordance with the IMO's Formal Safety Assessment guidelines. Based on the plans of the designer and the specification, about 80 proposals and recommendations have been developed to enhance safety. Using LNG in ports or in areas of high population is a sensitive matter since governmental bodies and other parties involved consider gas or LNG to be dangerous. According to Bureau Veritas, the results and scope of the HAZID study by Tecnicas were very helpful to the owner and operator of the LNG-hybrid barge in getting permission to operate in the port of Hamburg.