



Carnival Corporation's AIDA Cruises and Corvus Energy Sign Agreement for World's Largest Battery Storage System for Passenger Shipping

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When installed on AIDAprera, battery storage system can electrify ship's propulsion and operations - another major advancement in corporation's innovative "green cruising" strategy

MIAMI, Sept. 10, 2019 /PRNewswire/ -- [Carnival Corporation & plc](#) (NYSE/LSE: CCL; NYSE: CUK), the world's largest leisure travel company, today announced its Germany-based brand, AIDA Cruises, has signed an agreement for further cooperation with Corvus Energy, the world's leading marine battery supplier, to begin production and the installation of a first-of-its-kind lithium-ion battery storage system on the brand's AIDAprera cruise ship. Scheduled to be installed in 2020, the technology is currently set to become the world's largest battery storage system ever installed on a passenger ship – capable of generating a total output of 10 megawatt-hours (MWh), an environmentally friendly innovation that can electrify the cruise ship's propulsion and operation for limited periods of time.

Felix Eichhorn, president of AIDA Cruises, signed the agreement on September 5 in Bergen, Norway, at the grand opening of Corvus Energy's first-ever production plant in the traditional seafaring country.

Upon installation in 2020, AIDAprera will be able to charge the battery system during standard sea operation, run on pure battery power and may also contribute for an extended period of time in port or at sea. Benefits include reduction in the consumption of fossil fuel and increased efficiency in ship operations.

"The integration of innovative battery technology into our green cruising strategy is another important practical step we are taking on our path toward emission-neutral ship operation," said Eichhorn. "Corvus Energy is an important partner for us in the electrification of our ships."

The electrification of AIDAprera in 2020 will serve as a pilot program, part of a long-term goal of installing battery storage systems on ships from AIDA and Carnival Corporation's Italian brand, Costa Cruises.

Carnival Corporation's AIDA Cruises, Costa Cruises and its other seven cruise line brands have been at the forefront of introducing new technologies, approaches and investments in sustainable cruising. The partnership between AIDA Cruises and Corvus Energy to pioneer the electrification of cruise ships is another chapter in the company's ongoing industry leadership to proactively develop innovative solutions for environmentally friendly operations, or green cruising.

In December 2018, AIDA Cruises made history with the introduction of the world's first cruise ship capable of being powered in port and at sea by liquefied natural gas (LNG), the world's cleanest burning fossil fuel. The introduction of LNG to power cruise ships is a major achievement in green cruising that supports the company's environmental goals with the virtual total elimination of sulfur dioxide emissions (zero emissions) and particulate matter (95% to 100% reduction). The use of LNG will also substantially reduce emissions of nitrogen oxides and carbon dioxide.

In total, Carnival Corporation has an additional 10 next-generation LNG cruise ships on order, including Costa Smeralda, which will be the second of the corporation's ships to be powered by LNG when it joins the Costa Cruises fleet in October.

The company is also pioneering the use of Advanced Air Quality Systems, often referred to as exhaust gas cleaning systems, or "scrubbers." As of July 2019, Advanced Air Quality Systems have been installed on 77 of the more than 100 ships in the Carnival Corporation fleet. The systems remove almost all of sulfur oxide emissions, 75% of all particulate matter and reduce nitrogen oxide emissions.

AIDA Cruises' newest ship, AIDAnova, was recently named the first-ever cruise ship to be awarded the Blue Angel certification by Germany's Federal Ministry for the Environment for its environmentally friendly ship design. Since 2000, every ship built for AIDA Cruises has "cold ironing" or shore power capabilities, which allow for connecting directly into the land-based electrical grid while in port where the infrastructure is available. With "cold ironing," the air emissions are managed and regulated under the emission control requirements at the power plant supplying the port. By the end of 2020, 12 of AIDA's 14 ships will be able to use shore power where available.

In addition, AIDA is also exploring the use of CO₂-free production of liquefied natural gas (LNG) from renewable sources through its "Power to Gas" project or the use of fuel cells in cruise shipping. By the end of 2023, 94% of all AIDA guests will travel on ships that can be fully powered by low-emission LNG or shore power where possible.

AIDA Cruises was named "Germany's Most Trustworthy Cruise Company" in the 2019 Reader's Digest Trusted Brands Survey and received 2019 MedCruise awards for "greatest sustainability program" and "greatest investment and commitment to the environment and sustainability."

About Carnival Corporation & plc

Carnival Corporation & plc is the world's largest leisure travel company and among the most profitable and financially strong in the cruise and vacation industries, with a portfolio of nine of the world's leading cruise lines. With operations in North America, Australia, Europe and Asia, its portfolio features Carnival Cruise Line, Princess Cruises, Holland America Line, Seabourn, P&O Cruises (Australia), Costa Cruises, AIDA Cruises, P&O Cruises (UK) and Cunard.

Together, the corporation's cruise lines operate 102 ships with 241,000 lower berths visiting over 700 ports around the world, with 19 new ships scheduled to be delivered through 2025. Carnival Corporation & plc also operates Holland America Princess Alaska Tours, the leading tour company

in Alaska and the Canadian Yukon. Traded on both the New York and London Stock Exchanges, Carnival Corporation & plc is the only group in the world to be included in both the S&P 500 and the FTSE 100 indices.

With a long history of innovation and providing guests with extraordinary vacation experiences, Carnival Corporation has received thousands of industry awards – including recognition by the Consumer Technology Association™ as a CES® 2019 Innovation Awards Honoree for the OceanMedallion™. A revolutionary wearable device that contains a proprietary blend of communication technologies, the OceanMedallion enables the world's first interactive guest experience platform transforming vacation travel on a large scale into a highly personalized level of customized service. The prestigious CES Innovation Awards honor outstanding design and engineering in consumer technology products.

Additional information can be found on www.carnival.com, www.princess.com, www.hollandamerica.com, www.seabourn.com, www.pocruises.com.au, www.costacruise.com, www.aida.de, www.pocruises.com and www.cunard.com.

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Roger Frizzell, Carnival Corporation, rfrizzell@carnival.com, (305) 406-7862; Mike Flanagan, LDWW, mike@ldwwgroup.com, (727) 452-4538