

CLEANER POWER COMING:

Adopting Fuel Cells for Onboard Energy

In a demonstration of a likely evolution in cruise ship engineering, a portion of the power required for Sea Beyond, where Royal Caribbean Cruises Ltd. is previewing the future of cruise vacations, will be supplied by a fuel cell. Royal Caribbean intends to experiment with fuel cells for power generation on some existing ships before deploying them more widely on its upcoming Icon class ships, debuting in 2022 and beyond.



As a power source for cruise ships, fuel cells offer design, efficiency and environmental advantages.

From a design perspective, fuel cell use enables more flexible solutions. This means we can produce the power where it is needed for heating, ventilating, air conditioning, lighting, cooking, refrigeration and more. Fuel cells can also be compact and lightweight and, because they have few moving parts, highly reliable.

Wider adoption of fuel cells will also mean less fossil fuel consumed, an energy efficiency and environmental win. Industrial fuel cells typically generate power by converting hydrogen into electricity in an electrochemical reaction with oxygen. There is no combustion involved. The only fuel cell emissions are heat, which could be captured for other uses, and water.

Next-generation cruise ships that combine liquefied natural gas (LNG) for propulsion and fuel cells for a range of other power requirements will have a much lighter environmental footprint compared to today's ships.



FUEL CELL

ENABLES POWER SOURCES TO BE DISTRIBUTED THROUGHOUT A SHIP



LESS

FOSSIL FUEL CONSUMPTION



MORE

ENERGY EFFICIENT



PLUS

ENVIRONMENTALLY FRIENDLY