



Toyota Hydrogen Technology Takes to the High Seas to Help Power Round-the-World Voyage

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- Toyota creates fuel cell system for Energy Observer, the first energy-autonomous hydrogen-fuelled vessel to sail around the world
- Maritime application of hydrogen power adds to the successful partnership between Toyota and Energy Observer, established since 2017
- Toyota Fuel Cell System has a modular design which allows it to be considered for use in cars, trucks, buses, marine vessels and stationary power units

From the open road to the high seas, Toyota has successfully adapted its revolutionary hydrogen fuel cell technology to deliver zero-emission mobility. The system it first created for the Mirai saloon car has now been developed for marine use, to provide power for a round-the-world voyage by the Energy Observer.

Toyota's European technical centre has taken key components from Mirai's system and used them in a new, compact module suitable for use at sea. It will offer higher power and efficiency and operate with the reliability needed for Energy Observer's crossing of the Atlantic and Pacific later this year. It will be the first energy-autonomous hydrogen vessel to accomplish the feat.

Toyota has been at the heart of the six-year Energy Observer project since its launch in 2017. The futuristic boat is propelled by electricity using a mixture of different renewable energy sources and a system that can produce carbon-free hydrogen from seawater.

Toyota's European R&D team completed the design and component production within just seven months. This was followed by construction and installation of the compact fuel cell module, demonstrating how Toyota's technology can be adapted for a wide range of different applications. The module was initially tested in late 2019 while the boat was in the shipyard; now it is undergoing full-power testing at sea before Energy Observer sets sail on its 2020 tour in mid-February.

In line with Toyota's [Environmental Challenge 2050](#), Energy Observer demonstrates and shares solutions that champion an ecological and energy transition, showing how future energy networks can be efficient and operable on a large scale. As the first French ambassador for the international [Sustainable Development Goals](#) (SDG), Energy Observer is detecting and promoting positive initiatives and sustainable solutions to prove that a cleaner world is possible.

Victorien Erussard, Energy Observer's founder and captain, said: "We are very proud to be using the Toyota Fuel Cell System for our ocean voyages, and testing it in the roughest conditions. After three years and almost 20,000 nautical miles of development, our energy supply system is now very reliable and we are looking forward to the next step in the project - making a reliable and affordable system available to our maritime community.

"We believe the Toyota Fuel Cell System is the perfect component for this, being industrially produced, efficient and safe. As an SDG ambassador, our mission is to promote clean energy solutions, and we share Toyota's vision for a hydrogen society.

The Toyota fuel cell system has proven its benefits for several years in Mirai, but more recently in other applications too, such as [buses](#) and [trucks](#). Toyota believes that hydrogen can be the catalyst for decarbonising energy, and that its modular fuel cell system, suitable for many different applications, can accelerate acceptance of the technology.

Dr Johan van Zyl, President and CEO of Toyota Motor Europe, said: "We are pleased to be able to further demonstrate the versatility of the Toyota Fuel Cell System. Our European R&D team has worked hard with the Energy Observer team to create and install this module in the boat. The project shows how the Toyota fuel cell technology can be used in any environment and for many business opportunities. It is always inspiring to work with people who aim for the same goals, and this project adds further support to our vision for a hydrogen society."

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