Energy Observer

Energy Observer unveils EO3, its new flagship laboratory vessel for the "A journey to Carbon Neutrality" expedition, during the United Nations Ocean Conference (UNOC3).

Nice, June 11, 2025 – On Friday, June 6, at the opening of the United Nations Ocean Conference (UNOC3), Energy Observer unveiled **EO3**, its new expedition laboratory vessel, designed to explore future solutions for maritime and energy decarbonization. This pioneering ocean-going catamaran, authentic **floating innovation hub**, marks the beginning of a new global adventure titled "**A journey to Carbon Neutrality**" (2025–2033).

Led by **Victorien Erussard**, founder and president of **Energy Observer**, EO3 was presented in the presence of Ms. Agnès Pannier-Runacher, French Minister for Ecological Transition, Biodiversity, Forests, the Sea, and Fisheries, who reaffirmed France's commitment to ocean protection and supported the official launch of this new expedition, alongside many institutional actors, partners, and representatives of the blue economy.

EO3: A vessel designed to shed light on tomorrow's energy choices

A proud successor to **EO1**, **EO3** is a next-generation expedition catamaran embodying the future of low-carbon vessels. Designed from the start as a **professional vessel**, **EO3** falls under the category of commercial ships that meet international standards—marking a major step forward compared to **EO1**, a pioneering pleasure craft that paved the way for industrial and regulatory ambitions.

Designed by naval architecture firm **VPLP Design** in co-design with **Félix Godard**, **EO3** combines maritime performance, energy efficiency, and modularity to host next-generation onboard technologies.

In line with the **International Maritime Organization**'s target of a 70% reduction in greenhouse gas emissions by 2040, **EO3** positions itself as a pioneer in testing and validating new decarbonized maritime solutions.

Its innovative energy system integrates multiple complementary sources and technologies:
- A 180 m² solar array and **4 wing sails** contributing to propulsion and energy autonomy;
- A **low-carbon fuel**: **ammonia**, a hydrogen carrier;
- An integrated system with a **cracker** and **purifier** to convert ammonia into pure hydrogen;
- **Electric propulsion** powered by **batteries** and **low- and high-temperature fuel cells** (PEM & SOFC);
- A **direct combustion engine** running on ammonia.

These systems will be tested in real navigation conditions in a unique comparative study to evaluate their energy performance, operational robustness, and **environmental impact**.

While **ammonia** produces no direct CO_2 emissions and is promising for decarbonization, it can generate toxic emissions such as **nitrogen oxides** (NO_x) and particles when used in combustion engines, as well as **onboard safety concerns**. EO3 therefore incorporates mitigation systems, including selective catalytic reduction (**SCR**) post-combustion and **onboard catalysts** to limit these emissions.

The expedition includes a technical research **program** focused on the maritime **safety** of ammonia use—covering toxicity, storage, and ammonia "slip management"—developed in collaboration with classification societies and regulatory authorities to help inform future international standards.

EO3 is more than a ship: it is a **mobile innovation hub**, designed to welcome experts, engineering projects, audiovisual productions, and international events.

"EO3 is first and foremost a technological demonstrator. Its purpose is not to validate a single solution, but to assess, over time and at sea, multiple complementary energy architectures. Our goal is to provide concrete, measurable data on the performance, reliability, and integration of these technologies. This experimental and rigorous approach is key to informing future industrial and regulatory decisions" explains **Didier Bouix**, CEO of **EO Concept**.

An expedition supported by committed partners

To carry out this ambitious global expedition and raise awareness about the transition among the public, **Energy Observer** can already count on the support of key **official partners** who share its vision, values, and goals: **Accor**, **Groupe Delanchy**, **Qair**, **Natixis**, **Groupe Roullier**, **Toyota**, **Chart Industries**.

These strategic partnerships provide crucial **financial, technical, and scientific** support to help meet the challenge of carbon neutrality and advance the innovations that will shape tomorrow's maritime mobility. They form part of a broader ecosystem of public and private partners, including **Crédit Maritime**, a long-standing supporter contributing both its expertise and its **involvement in financing the vessel.**

From the initial Odyssey to a global expedition: "A journey to Carbon Neutrality"

Since its launch in 2017, the laboratory vessel **EO1** has demonstrated the viability of a renewable energy mix (hydrogen, solar, wind, hydropower), covering over **68,000 nautical miles** and making **101 stopovers** in more than **50 countries**. This initial odyssey allowed breakthrough technologies to be tested in real-world conditions while engaging the public on energy and climate issues.

Building on that legacy, the **Expedition 2025–2033** opens a new chapter: a global program consisting of **seven thematic missions** aimed at assessing practical pathways to carbon neutrality and informing collective choices for the transition.

The expedition will launch with **EO1**, which will return to sea for the first mission: **Carbon Capture** (2025–2026). In 2027, **EO3** will take over, carrying out the remaining missions alongside scientific, institutional, and industrial experts.

The seven missions of the expedition:

- **2025–2026 – Mission 1: Carbon Capture –** Industrial technologies and natural sinks
- **2027 – Mission 2: Sustainable Mobility –** Decarbonizing land, sea, and air transport
- **2028 – Mission 3: AI & Energy Transition –** Optimizing systems and addressing digital footprints
- **2029 – Mission 4: Strategic Materials & Circular Economy –** Critical metals and sovereignty
- **2030–2031 – Mission 5: Energy Models –** Fossil fuels, renewables, and nuclear
- **2032 – Mission 6: Water Access –** Sustainable management of a vital resource
- **2033 – Mission 7: Arctic World Tour –** Climate Change Adaptation & Resilience

Nine years to understand, connect, and inspire.

Energy Observer began as a bold challenge: to transform a vessel into a mobile demonstrator for the energy transition. Launched in 2017, this pioneering catamaran became the first in the world to integrate a complete hydrogen system powered by renewables, enhanced by an automated wind-assisted propulsion system. As a true floating laboratory, it traveled over 68,000 nautical miles, testing and validating innovative low-carbon solutions in real conditions.

Over time, **Energy Observer has grown into a global program** at the crossroads of technological research, scientific exploration, and public engagement. It now brings together a multidisciplinary team of sailors, engineers, researchers, journalists, and creators committed to accelerating ecological and energy transition.

Surrounding its expeditions, **Energy Observer has built a comprehensive ecosystem to amplify its impact.**
Its endowment fund, **EO Foundation**, supports public-interest actions related to energy, the ocean, and biodiversity. Its audiovisual platform produces and distributes a wide range of content—films, documentaries, educational series, and onboard reports—to make the challenges and solutions of the transition accessible to all.

Two industrial spin-offs continue this innovation dynamic:
– EODev, a fast-growing French industrial startup and a key player in the deployment of zero-emission hydrogen solutions for stationary energy and maritime mobility
– EO Concept, an integrated naval design office currently developing EO2, a 160-meter cargo ship decarbonized by 98% and powered by liquid hydrogen for intra-European transport. This project has

been awarded funding by the European Union Innovation Fund as a flagship demonstrator of maritime energy transition.

Energy Observer focuses its efforts around three core missions:
Experiment disruptive technologies to decarbonize maritime transport,
Decode global energy challenges,
Raise awareness among citizens and decision-makers around a common goal: carbon neutrality.

For more information: https://www.energy-observer.org