



# Energy Observer

ACCOR

thélem  
assurances

Air Liquide

GROUPE  
BPCE

New official partner

CHART

## Energy Observer 2: Chart Industries joins the project to propel liquid hydrogen

**Paris - May 31st** - Energy Observer, through its subsidiary EOConcept, a global pioneer in low-carbon maritime solutions, announces major advancements in the development of its pioneering and ambitious project, Energy Observer 2, with the arrival of a new industrial partner, Chart Industries, one of the world's leaders in solutions for clean energy and industrial gas markets.



Energy Observer - Kadeg Boucher

Energy Observer 2 is a liquid hydrogen cargo ship with the ambition of becoming the lowest carbon-emitting cargo vessel in the world. This flagship project, developed with the support of its historical and technological partners, including Accor and Air Liquide takes a proactive approach to addressing the climate

challenges faced by the maritime sector. It is aligned with the revised strategy of the International Maritime Organization (IMO) and the European Union's 'Fit for 55' legislative package.

According to the IMO's Revised GHG reduction strategy for global shipping of July 2023, it is now necessary to reduce total annual greenhouse gas (GHG) emissions from international shipping by at least 70% by 2040, compared with 2008 levels. At European level, regulations such as FUEL-EU Maritime and the RED III directive are also pushing for the adoption of near-zero emission fuels and the achievement of carbon neutrality.

Faced with these regulatory requirements, EO2, with its advanced liquid hydrogen propulsion technology, represents a concrete and ambitious response.



Energy Observer - Kadek Boucher

Since her inaugural voyage in 2017, Energy Observer has been at the forefront of demonstrating the viability of hydrogen as an energy solution for the maritime sector. Over the past year, significant progress has been made in feasibility studies for the design of Energy Observer 2 with the support of LMG Marin, a pioneer in decarbonization in the maritime sector. Capable of transporting 1,100 TEU containers over 1,800 nautical miles with an autonomy of 14 days, this 160-meter-long cargo ship uses electric propulsion powered by 4.8 MW fuel cell systems provided by EODev and its industrial partner Toyota.

The adoption of liquid hydrogen requires significant innovations in the supply chain and storage, challenges that Energy Observer 2 aims to address. Energy Observer and Chart Industries, along with the other industrial partners of the project, will work together on cutting-edge technologies and associated equipment for the energy transition of the maritime sector.

*"The extensive cryogenic expertise and experience of Chart, combined with our recognized track record in providing liquefaction technologies, liquid hydrogen tanks, and solutions across various sectors, make us the ideal partner to turn this groundbreaking project into a reality," says **Jill Evanko, President and CEO of Chart Industries**. "We look forward to collaborating with Energy Observer and the rest of their partners to decarbonize maritime transport while demonstrating the viability and potential of hydrogen as a marine fuel."*

*"This collaboration aims to support Energy Observer in launching a new dynamic phase, leveraging the lessons learned and proven technologies from our 7-year Odyssey around the world. The multiple industrial solutions of Chart Industries represent a major asset, reinforcing our motivation to push the boundaries of technological exploration for the decarbonization of the maritime sector. Thanks to their expertise, we envision significant improvements in performance and energy efficiency," says **Victorien Erussard, founder and president of Energy Observer**. "The goal is to build a benchmark hydrogen port ecosystem and reduce the overall cost of liquid hydrogen to promote its adoption in maritime transport, particularly for certain types of flows and distances to be covered."*

With an initial investment estimated at more than 100 million euros, covering the studies and construction of the ship, the project illustrates an important step in the financial and technological commitment needed to contribute to the energy transition of the maritime sector. Collaboration between the public and private sectors, notably through public aid and industrial partnerships, is crucial to ensuring the short-term viability and competitiveness of liquid hydrogen.

Energy Observer 2 is more than just a ship; it is a symbol of the industry's commitment to the energy transition in maritime transport. It reflects the collective will to push technological boundaries and move towards a cleaner and more environmentally friendly maritime future.





Hydrogen Tank - @Chart Industries

### **About Energy Observer**

Energy Observer is originally the name of the first autonomous and zero-emission hydrogen vessel, serving as both an advocate and a laboratory for the ecological transition. The development of reliable, sustainable, emission-free, and economically accessible energy solutions is at the heart of the challenges faced by our odyssey and our industrial subsidiaries, EODev and EOConcept. We have been sailing around the world for 7 years, stopping in iconic cities and meeting men and women who dedicate their energy to creating sustainable and planet-friendly solutions.

As the first French ambassador for the 17 Sustainable Development Goals set by the UN, our mission, reinforced by our Energy Observer endowment fund, is to raise awareness among as many stakeholders as possible about the challenges of the ecological transition and to explore solutions that prove another energy future is possible. Energy Observer has received the High Patronage of Mr. Emmanuel Macron, President of the French Republic. It has the official support of the Ministry of Ecological Transition, UNESCO, the European Union, IRENA, and ADEME.

→ [www.energy-observer.org](http://www.energy-observer.org)

### **Press Contact – Energy Observer**

Fanny Régnier

+33 6 76 20 61 14

[media@energy-observer.org](mailto:media@energy-observer.org)

### **About Chart Industries, Inc.**

Chart Industries, Inc. is a global and independent leader in the design, engineering, and manufacturing of gas and liquid molecule processing technologies and equipment for the 'Nexus of Clean™'—clean energy, pure water, healthy food, and clean industrial products, regardless of the molecule. The company's unique catalog of products and solutions, including both fixed and rotating equipment, is used at every phase of the liquid gas supply chain, including engineering, service, and repair, from installation to preventive maintenance and digital monitoring. Chart is a provider of advanced technologies, equipment, and services in the fields of liquefied natural gas, hydrogen, biogas, and CO2 capture, among other applications. Chart is committed to achieving excellence in environmental, social, and corporate governance, both for its business and its customers. With 64 manufacturing sites worldwide and over 50 service centers spread across the United States, Asia, Australia, India, Europe, and South America, the company demonstrates responsibility and transparency towards its employees, suppliers, customers, and communities.

→ [www.chartindustries.com](http://www.chartindustries.com)

### **Press Contact - Chart Industries:**

John Walsh  
VP, Investor Relations  
770-721-8899  
[john.walsh@chartindustries.com](mailto:john.walsh@chartindustries.com)

### **About Energy Observer 2 Partners**

**Accor**, through its Orient Express brand, has commissioned the construction of the world's largest sailboat, 'Silenseas', powered by LNG and assisted by a sailing rig. With this new technology, the Group is committed to innovation for more sustainable maritime transportation. As part of its ambition to contribute to global carbon neutrality, Energy Observer 2 serves as the pilot vessel for Accor's green liquid hydrogen, thanks to its investment in EOConcept. This commitment, along with the investment in EODev, underscores the Group's determination to support low-carbon energy solutions and play a key role in the energy transition towards responsible tourism.

**Air Liquide**, a hydrogen expert for over 60 years and a pioneer in the hydrogen society movement. Air Liquide has expertise in the production, storage, distribution, and safety of liquid hydrogen, bringing its technological and industrial expertise to the project. In the transportation sector, which accounts for a quarter of CO<sub>2</sub> emissions worldwide, Air Liquide has increased hydrogen volumes supplied to mobility tenfold globally in two years.

**Bureau Veritas**, which has been supporting Energy Observer since the launch of the first hydrogen vessel, is a key player in the evolution of maritime regulations and innovations. As a classification society, Bureau Veritas Marine & Offshore works with maritime industry stakeholders to advance innovation, safety, and performance and make future solutions possible.

**EODev**, the industrial spin-off of Energy Observer, has become a leader in the design and industrialization of electricity production systems from hydrogen in just a few years. Its products are distributed in more than 25 countries, from the United States to Australia, and contribute to the decarbonization of many industries on land and at sea. EODev relies on strong references and its expertise in integrating fuel cells in demanding environments to develop high-power systems adapted to the project's constraints.

**Toyota** is EODev's industrial partner and official partner of the Energy Observer laboratory vessel since 2017. Integrating a Toyota fuel cell marinized by EODev since 2019, this partnership has benefited from valuable on-the-ground experience. Toyota supports this flagship project for maritime energy transition by providing its most mature and efficient fuel cell technologies for tomorrow.

Official  
partners

by **DELANCHY** III

**TOYOTA**

 **Triangleintérim**  
Solutions RH

**Qair**

**GUYOT**  
environnement

 **CHART**®

With the official  
support of



Institutional  
partners



  
**MINISTÈRE  
DE LA TRANSITION  
ÉCOLOGIQUE**  
*Liberté  
Égalité  
Fraternité*

 **IRENA**  
International Renewable Energy Agency