Communiqué de presse - Energy Observer 2: a new zero-emission ship to meet the objectives of the International Maritime Organization

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Since its creation, Energy Observer pushes the limits of maritime decarbonation. After having developed an autonomous laboratory vessel with the first complete hydrogen chain, capable of producing its own hydrogen with its surplus of renewable energies, Energy Observer is taking a new step by launching the design of the most representative ship of the maritime transport industry: a multipurpose cargo ship fuelled by liquid hydrogen, a technology that allows zero-emission navigation, while offering very high transport capacities and great autonomy.

Victorien Erussard, President and founder of Energy Observer, will present the ship on February 10th during the One Ocean Summit in Brest.

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Maritime transport accounts for 3% of CO2 emissions annually on a global scale. The ambition of Energy Observer and its partners is to present prototype solutions leaning towards zero-emission for the transport of goods.

The technologies are now mature, with liquid hydrogen storage well mastered, the deployment of liquefiers around the world, and the latest generations of mass-produced fuel cells. Energy Observer is now tackling the latest technological challenges, such as the integration of large tanks or the management of cryogenic temperatures, thanks to the unfailing support of its historical and technological partners.

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At the forefront, Air Liquide, the world leader in hydrogen for over 50 years for industry and space. Air Liquide masters the production, storage, distribution, and safety of liquid hydrogen and thus brings its technological expertise and its capacity for innovation.

Energy Observer and its Strategic Partner, the CMA CGM Group, analyze together the commercial and operational parameters of this new generation of cargo-ship. The CMA CGM Group, a world leader in maritime transport and logistics, and Energy Observer thus confirm their pioneering commitment to the energy transition of maritime transport.

EODev, the industrial subsidiary of Energy Observer that designed the first certified hydrogen boat, and develops accessible and marinized systems, is an expert in fuel cells' integration in demanding environments.

LMG Marin, the naval architecture firm that pioneered decarbonated propulsion and developed the world's first liquid hydrogen ferry, Hydra, is the design office in charge of this innovative project.

Ayro, the company created by Marc Van Peteghem, to propose auxiliary propulsion systems for large ships, and for which Energy Observer was the first operational testbed, will equip the ship with its Oceanwings®.

Another important partner is Bureau Veritas, a key player in the evolution of maritime regulations and innovations, which has accompanied Energy Observer since the launch of its first hydrogen-powered vessel.

Finally, the French Maritime Cluster and the T2EM Institute is working with academic, scientific, and industrial partners to create the Institute for the Eco-Energy Transition of the Maritime Sector (T2EM), whose objective is to steer and implement the national structuring program "Zero Emission Ship & Port" to achieve the goals of decarbonation, emissions reduction and respect for the biodiversity of the sector. Energy Observer 2 is the Institute's "flagship," the first full-scale demonstrator to power the entire industry.

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This new ship concept is being developed by the best specialists and industrialists gathered by Energy Observer. Its specifications have been established according to the urgent need to renew the fleets of multipurpose cargo ships of about 5 000 tons deadweight. Used on intra-continental and coastal routes, those represent an alternative to road transportation and can call at modest ports without

heavy logistics. Constituting nearly 37% of the world fleet, often of old and polluting design, this type of vessel is therefore identified as a priority segment for the ambitions of Energy Observer and its partners in their quest to accelerate the transition.

The main features of Energy Observer 2 are:

Length: 120 meters

Width: 22 meters

Draft: 5,5 meters

The surface of the wings: 1450 m²

Deadweight: 5,000 tons

Containers: 240 TEU (Twenty feet equivalent)

Ro-ro bridge: 480 linear meters (trucks, vehicles, and containers)

Tween deck height: 6.5 meters

Access ramp: 15 meters wide

Commercial speed: 12 knots

Electric propulsion: 4 MW

Fuel cell power (RexH2 EODev): 2.5 MW

Liquid hydrogen tanks (LH2): 70 tons (1000 m3)

Range: up to 4,000 nautical miles

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Quotes :

Victorien Erussard, President and Founder of Energy Observer:
"With this demonstrator ship, we want to go all the way in decarbonizing medium-sized industrial ships, using hydrogen directly as a fuel. We believe in the capacity of the French maritime industry to become an international model, benefiting from an agile and efficient research-industry ecosystem."

Matthieu Giard, Member of the Executive Committee in charge of Hydrogen activities, Air Liquide:
"The adventure of hydrogen is above all a story of pioneers. With Energy Observer, we share this desire to push back the technological frontiers to take concrete action in the face of the climate emergency. Liquid hydrogen will play a major role in the decarbonation of maritime transport. Air Liquide's experience and, that of the various players involved in the Energy Observer 2 project will help prove that liquid hydrogen is low-carbon energy adapted to large cargo ships. That project opens up important prospects by touching on the heavy transport sector, for which hydrogen is particularly relevant."

Christine Cabau, Executive Vice President, Assets and Operations, CMA CGM Group:
"This new stage in the strategic partnership between Energy Observer and CMA CGM Group marks the acceleration of our common commitment to the emergence of prototypes towards low-carbon solutions. Given the importance of the challenges posed by the energy

transition, we believe that several technologies will have to coexist, depending on the types of flows and distances to be covered. That is why, in addition to our commitment to bio and e-methane, we also aim to work with our industrial partners on the potential of hydrogen, and the reasonable uses that can be made of it. We are excited to be able to work with Energy Observer on the opportunities that this technology can bring and in which business developments it can be used."

Frédéric Moncany de St-Aignan, President of the French Maritime Cluster:
"The march towards decarbonation of maritime transport has been a reality for several years, with the construction of LNG-powered ships and many other innovations, including wind propulsion. With this first "zero-emission" multipurpose cargo ship, which will embark and validate innovative technologies at sea, the entire group of shipowners, shipyards, equipment manufacturers, energy providers, ports, service companies, academics, and scientists grouped in the new Institute for the Eco-Energy Transition of the Maritime Sector (I-T2EM) will benefit from the technological and operational feedback of Energy Observer 2. This is a major contribution to French industrial excellence for a transformation, in synergy with the whole ecosystem, of ship fleets".

About Energy Observer - www.energy-observer.org

Energy Observer is the name of the first hydrogen-powered, zero-emission vessel to be self-sufficient in energy, advocating and serving as a laboratory for ecological transition. The development of reliable, sustainable, emission-free, and economically accessible energy solutions is at the heart of our odyssey and our industrial subsidiary EODev. We have been sailing around the world for 7 years, stopping in iconic cities to meet pioneers who devote their energy to the development of sustainable solutions that respect the planet. As the first French ambassador for the 17 Sustainable Development Goals set by the UN, our mission - reinforced by our endowment fund Energy Observer Foundation - is to raise awareness of the ecological transition issues and explore solutions that prove that 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.