



Press Kit

January 2023



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1 - Presentation

The Energy Observer project was born in 2013 from the commitment of Victorien Erussard, merchant navy officer and ocean racer. Aware that it is now vital to commit to the planet, he gathered around him a complementary team of sailors, scientists, engineers and reporters to create the first self-sufficient vessel capable of drawing its energy from nature whilst also preserving it.

The dream became a reality 4 years later, when the Energy Observer vessel was launched for the first time. Developed from a legendary multiple award-winning catamaran, Energy Observer is a laboratory for the ecological transition designed to push back the limits of zero-emission technologies. Hydrogen, solar, wind and water power, all the solutions are experimented with, tested and optimised here with a view to making clean energies a practical reality that is accessible to all.

Criss-crossing the oceans in a bid to get out and meet those who are coming up with sustainable solutions for the planet every day, Energy Observer has become a movement, a round the world Odyssey, where every stopover is an opportunity to learn, to understand and to share the different energies.

Energy Observer has received the High Patronage of Mr. Emmanuel Macron, President of the French Republic. French ambassador for the UN's Sustainable Development Goals, supported by the Ministry for the Ecological Transition, Unesco, the European Union, Irena and Ademe.



The missions of Energy Observer

Innovation to accelerate the energy transition

Energy Observer is a laboratory where engineers and researchers are developing new technologies in order to make renewable energies a reality for all. The latest, cutting-edge technologies in terms of hydrogen, batteries, solar and wind power are tested in the most hostile environment: the ocean. These have been optimized over the course of a 50,000 nautical miles voyage. The variety and diversity of renewable energies are central to resilient zero-carbon energy systems developed by our engineers with the support of our manufacturing partners. The development of reliable, sustainable, noise-free, affordable energy solutions is at the heart of the energy transition.

A journey of exploring into the initiatives changing our world

The Energy Observer adventure is also a historic 7-year around-the-world Odyssey to meet the pioneers reinventing the industry, agriculture and energy sector in an attempt to live in a more sustainable way. The focus is on positive and concrete innovations that are available today and show that a better future is possible.

As the first French ambassador of the 17 Sustainable Development Goals set by the UN in 2015, Energy Observer carries France's message on the urgent need to preserve the planet.

Raising awareness

At each stopover, the team meets women and men who are carrying out local and replicable projects. "Energy Observer Solutions" is the showcase for this ecosystem of committed players around the world, thanks to short films broadcast freely on a dedicated platform. The Ministry of the Ecological Transition, Ademe, the International Association of Universities, Unesco and SDSN support the project in identifying pioneers and solutions around the world.

Furthermore, at each major stopover of this Odyssey, the team is deploying an open-access exhibition village designed to raise awareness among all audiences of the challenges of the energy and ecological transition. Families, students, elected officials, and local industrial decision-makers are all invited to dive into the Energy Observer adventure in an immersive way. This traveling exhibition welcomes nearly 100,000 people annually.



2- 2017 – 2022

The Odyssey's key figures

**5 years
of sailing**

- France, 2017
- Mediterranean, 2018
- Northern Europe, 2019
- Atlantic, 2020
- Pacific, 2021
- Asia, 2022

**+ 40 visited
countries**

**3 ocean
crossings**

- Atlantic Ocean, 2020
- Pacific Ocean, 2021
- Indian Ocean, 2022

+ 50 000

nautical miles sailed

76 stopovers

including 16 with the itinerant village

+350 000

visitors

welcomed in the village

13 films

documentaries produced

70 episodes

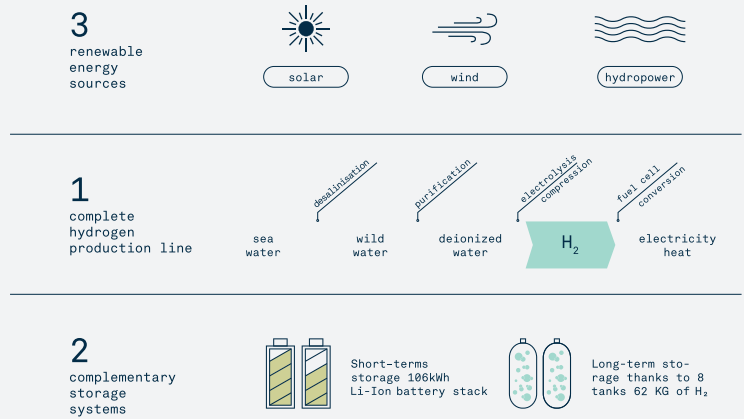
of the Energy Observer web series Solutions produced and broadcasted

**+ more than 400
short reports**

on our YouTube channel

A reliable energy mix

On board technologies, combining multiple sources -solar, wind and hydropower- and forms of storage, batteries and above all hydrogen, are the forerunners of tomorrow's smart energy grids, which can be reproduced on a large scale, everywhere and for everyone.



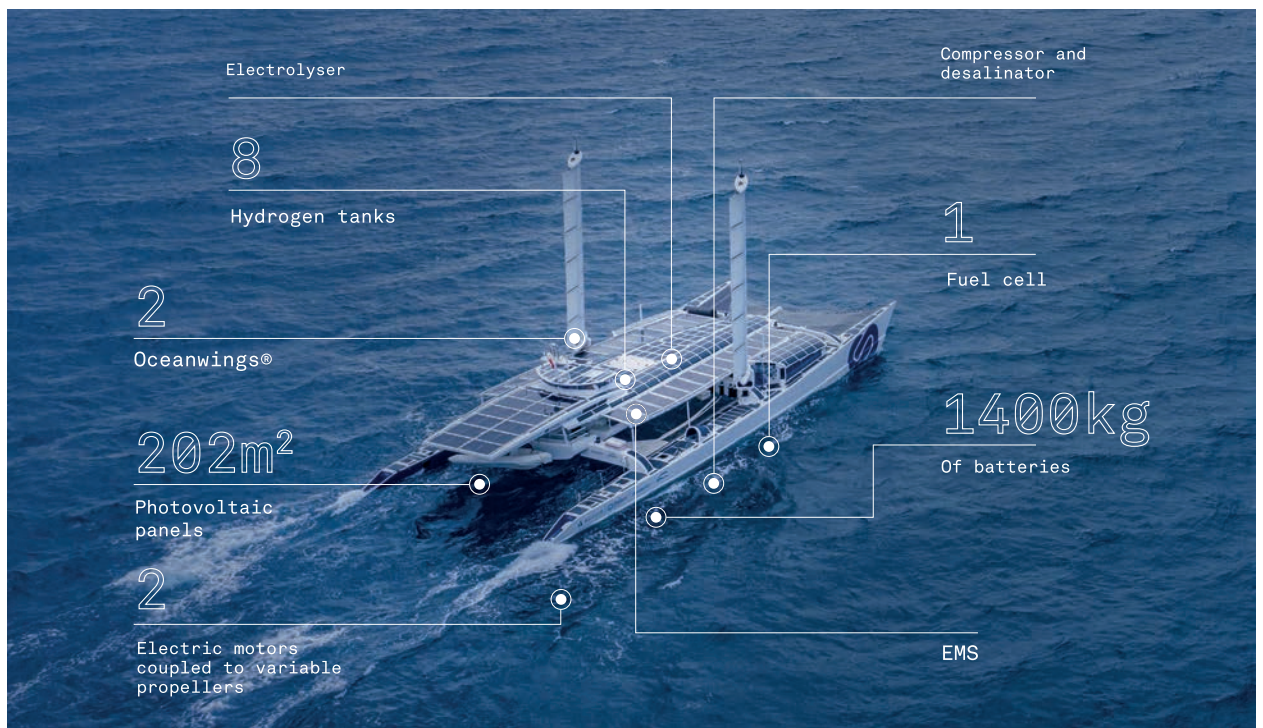
Hydrogen, the keystone of the Energy Observer system

To date, hydrogen is the best ally of the renewable energies. It is the lightest and most abundant chemical element in the universe, and has an energy density three times higher than traditional fuels. As a result, hydrogen allows the storage of excess energy from renewable sources and makes it possible to offset their intermittence. If all the energy was stored in traditional batteries, the ship would be a third heavier!

Today, the 62 kilos of hydrogen stored on board provide 1 MWh of electricity and

1 MWh of heat, which represents the average consumption of a four-person household for a month. While maritime and land mobility meet everincreasing demands for power, speed and reliability, hydrogen is currently the only energy carrier that offers a credible alternative to fossil fuels without impacting the environment.

By testing an energy system based on a mix of renewable energies and hydrogen, Energy Observer is paving the way for multiple land and maritime applications that can be replicated at the level of a user, a neighborhood or even an entire city.



The energy aboard Energy Observer

2022 technologies appraisal

The vessel passed the symbolic mark of 50,000 nautical miles (92,600 kilometres) before making landfall in India last November. 2022 was a trying year for all the systems, which had to cope with very high temperatures, often troubled waters and weather that was less favourable for performance. As a result, the crew constantly devoted their time and energy to maintaining, replacing and optimising all the on-board components and equipment during stopovers!

In Malaysia, an incident involving the ship's handling had a significant impact on the entire vessel. The composite structure (Kevlar, carbon and epoxy) will once again be inspected by experts in the Seychelles, but already the entire hydrogen system will have to undergo a series of tests to detect any damage resulting from this incident.

Hydrogen

Desalination

The desalination system installed aboard the vessel always gives very good results. Consisting of three successive stages of extremely efficient desalinators from the Breton company SLCE based near Lorient, they underwent a substantial overhaul in New Caledonia. The water in the ports of Indonesia, Singapore, Langkawi and Cochin required extensive rinsing of the system, but the whole operation ran very smoothly, supplying the crew with fresh water and high-quality deionised water for the electrolyser. More than 40 m³ of pure water was produced by the system over the course of 2022.

Electrolyser

Still based on a Proton Onsite system specially converted by Energy Observer's engineers, the on-board electrolyser is also proving to be highly satisfactory. It can produce up to 8 kg of green hydrogen per day (4 Nm³/hr being its nominal production), when it's running. Its electricity consumption (7 kWh/Nm³) prompts the crew to electrolyse dockside or at anchor, whenever there isn't too much other simultaneous heavy consumption, though theoretically it is possible to electrolyse whilst under way once the OceanWings provide enough thrust to keep the vessel moving. 330 kg of green hydrogen was produced aboard in 2022.



Compression

With on-board storage being designed around tanks compressed to 350 bars, two stages of compression are essential for storing enough hydrogen (up to 62 kg split across eight tanks). The compressors available on the market are for fixed stations, which means they're much too heavy and cumbersome to carry aboard. As such, two specific stages of compression have been developed with the company Nova Swiss: the first from 30 bars (electrolyser outlet pressure) to 180 bars, then a second from 180 to 350 bars. Since 2017, these compressors have required a great deal of fine-tuning and consumed numerous membranes of all types of materials. Nova Swiss has supported these developments by providing a regular supply of components and dispatching their technicians to the vessel's main optimisation refits.

A further substantial maintenance operation regarding the compressors is scheduled during the Seychelles stopover to ensure the system operates correctly in 2023: new membranes, dismantling of the compressors and pressure testing across the whole of the on-board hydrogen network.

Tanks

The Luxfer tanks installed on the boat since 2017 will also undergo a battery of tests, especially around the top fitting on the tanks where the valves are mounted. Following the impact suffered during the refit in Malaysia, at least one of the top fittings on the tanks has been showing signs of weakness so the whole lot must be tested, revised and corrected. The structure itself, the aluminium liner and carbon filament winding is not faulty. The entire circuit will be pressure tested with nitrogen before being pressurised with hydrogen.



© Jérémy Bidon

Fuel cell

The vessel's 'historic' fuel cell (producing 26 kW) was unloaded in Singapore for analysis on land, and solely EODev's REXH2 module, based on a Toyota fuel cell, converts the hydrogen produced aboard into electricity. Operating at 70 kW, this module is the best compromise in terms of performance. Maintenance work was carried out in Malaysia with the focus on enhancing the cooling system. Specifically designed to work on a boat and hence with a heat exchanger (and not a radiator system as there is on hydrogen cars), the cooling system is a special development for the vessel, as is the air intake, which must cope with the moisture and salinity. It's worth noting that a clone of the system is also in operation at Toyota Europe's R&D centre, and other similar systems are distributed worldwide by Energy Observer Developments. Therefore, Energy Observer continues to be an essential floating laboratory for optimising the longevity and reliability of the complete system, thus enabling predictive maintenance of all the other REXH2s in operation.

Solar

The bifacial photovoltaic panels developed by the INES (Institut National de l'Energie Solaire) on the vessel's side wings and aft section were installed in 2016-2017. Particularly exposed in the waves, especially those forward of the side wings, a lot of them have suffered material damage after being slammed into by powerful waves, especially during the passage across the Pacific. As a result, a dip in overall efficiency was observed with these bifacial panels and some have had to be replaced. Some panels have also suffered water ingress in their encapsulation, again due to the waves washing over the decks during sea passages in some very rough weather and heavy waves.

The flexible solar panels all over the vessel form part of a very active partnership with Solbian, their Italian manufacturer. Innovations in terms of polymers, adhesives and contactors are all tested aboard the vessel, which means that their performance is closely followed using monitoring software developed aboard the boat (Energy Management System). Some innovative materials were not able to withstand the heat of south-east Asia and other components also suffered from premature aging. Each time, Solbian recovers the damaged parts (or recycles them in the countries where Energy Observer is making a stopover) and replaces them with corrected evolutions. In this way, Energy Observer is a genuine test laboratory for maritime solar innovations in extreme situations, which undergo constant optimisation aboard. Some of the used panels have also been donated for educational purposes such as a French school in Singapore.





© Jérémy Bidon

Wind turbines

Aboard Energy Observer since 2019 are two automatic OceanWings measuring 32 m², designed by VPLP and now monitored by Ayro. The laboratory vessel is developing the only examples of these innovative systems operating in real conditions on a daily basis. This development includes an optimised fit-out and assembly, the regular replacement of components and the provision of data for operating these wings. In Malaysia, major electro-mechanical maintenance and optimisation work were carried out with Ayro.

Since their installation in 2019, they've covered over 40,000 nautical miles and the crew reckons that their contribution to the vessel's propulsion equates to around 30%. This contribution speaks for itself in the trade wind and in steady downwind conditions, making it possible to post speeds in excess of 12 knots without impacting the boat's average electricity consumption. For Energy Observer, once its development is successfully completed, the system is today's most promising and most accessible automatic wind turbine system.

Hydrogeneration

The lack of breeze and hence a deficient contribution by the wings since early 2022 in the south-east Asia region has meant that not much work has been possible in terms of hydrogeneration. The automatic variable-pitch propellers maintain a solid performance in all conditions and the 2023 sailing programme is traversing much windier zones, thus offering a more comprehensive energy mix. Hydrogeneration should make a more significant contribution in this instance.

On the whole, the systems developed on Energy Observer prove that the energy mix is key to limitless range. The aim now is to continue the innovations whilst placing the emphasis on the reliability and durability of all the technologies developed.

4 - The Odyssey from Asia, to Paris 2024



© Thibaut Voisin

On May 25, 2021, for the very first time in its history, the Eiffel Tower was illuminated with green hydrogen, thanks to a GEH2® electro-hydrogen unit developed by EODev, Energy Observer's industrial subsidiary. This premiere takes place within the framework of the event "Le Paris de l'hydrogène" organized by Energy Observer with the support of the City of Paris. A symbolic demonstration to send a strong message: hydrogen technologies to support the electrical grid exist, are reliable and accessible.

The 2023 sailing programme

After 2022 was spent criss-crossing south-east Asia, from Indonesia to India via Singapore, 2023 will see Energy Observer traversing the Indian Ocean, then the Atlantic Ocean as far as South America. Scattered with remote island states, the Indian Ocean is particularly exposed to global warming and hence very sensitive to the global energy issues. At the end of this crossing, the vessel will make a stopover in South Africa, one of the continent's economic powerhouses with its historical dependence on coal, and then Brazil, where a number of alternative energy projects are currently in development. As a result, 2023 will be more focused than ever on the observation and deciphering of our current energy challenges in a rapidly changing southern hemisphere.

From the Seychelles to South Africa

With fishing and tourism as its main resources, the islands of the Indian Ocean must contend with a number of challenges. In addition to the rise in sea levels and the acidification of the oceans, threats which are looming large in the Maldives for example, all these small states are also having to adapt to the new energy deals.

Comprising 116 islands, the largest made up of granite or coral, the Seychelles has a population of around 100,000 inhabitants. Demographic growth, driven by birth rate and regular immigration since the 16th century, is increasing the demand for energy. The primary energy consumption per capita there is higher than that in France. Lacking fossil fuel resources, the country is highly exposed to fluctuations in oil prices, it imports 95% of its energy and generators form its main electricity supply.



Developing the potential for renewables

By 2030, the goal is to achieve 15% renewable energies by benefiting from the country's significant exposure to the sun (average irradiance of 5.8 kWh/m²/day) and wind turbine resources (between 6.9 and 7.5 m/s of wind at 80 m). A wealth of projects have been and will continue to be launched over the coming year. They include in order of importance:

- Wind turbines: the wind farm in Victoria (on the island of Mahé), funded by Abu Dhabi, has a 7 GWh capacity.
- Solar power: On the lagoon on the island of Providence, a floating 5.8 MW solar power plant is due to be in commission by late 2023 through Qair, partner to Energy Observer. It will be the largest floating solar farm in Africa.

Other solar farms have been installed or planned in Desroches (2.5 MW), Romainville (artificial island with 5 MW), Alphonse, Astove as well as Farquhar, each of them with around 1 MW of power.

The facility on the island of Desroches is a concrete example of the solar potential in this region where tourism is vital. The island's fuel consumption has dropped by 90% since the launch of the solar farm in 2021. In this way, the island's hotel, which once represented half of this consumption, is saving 55,000 litres of diesel a month, and the kW price has dropped from \$0.42 to \$0.19, making the energy accessible to all the inhabitants, whilst protecting them from international crises.

Energy sovereignty on the islands within the Indian Ocean is a major challenge in terms of their future safety, whilst also benefiting their biodiversity.

→ Biomass: The Seychelles has significant potential in this field. The island of Mahé, for example, receives over 35,000 tonnes of waste a year for landfill, which corresponds with around 8,000 tonnes of oil once it's converted into energy. Plastic pollution has also been a source of concern for the past ten years or so. For instance, it is estimated that 500 tonnes of plastic waste are amassed on the island of Aldabra, one of the most extraordinary marine sanctuaries

in the world, with Unesco classification, yet it is situated over 1,000 kilometres from Mahé. Biomass is seldom or never used in the Seychelles however.

A necessary technical stopover

The Energy Observer vessel will be based in the archipelago to carry out the bulk of the work on the on-board hydrogen system and proceed with the replacement of the last photovoltaic panels. For reasons related to the climate, the team will have to await the end of the hurricane season before dropping down towards Madagascar and South Africa after a stopover in Tanzania.





© Kevin Kyburz

A vulnerable ecosystem

The main threats associated with climate change for the Seychelles are similar to those faced by the other small emerging island states. Firstly, changes in rainfall patterns have led to flooding and landslides, as well as extended periods of drought (There are few freshwater reserves on the islands).

In the ocean, the increase in the temperature of the sea and acidification of the water will cause increasingly serious damage to the marine ecosystems. The increase in the temperature of the ocean surface is also already resulting in more powerful storms and hurricanes. Finally, the rising sea levels over the longer term will mainly impact the coral islands of the Seychelles. A recent report by the UNISDR revealed that the majority of the catastrophes suffered by the Seychelles were linked to storms, flooding, rains and landslides, and recommended that any future planning focuses on those floods and landslides, which are responsible for the greatest economic losses.

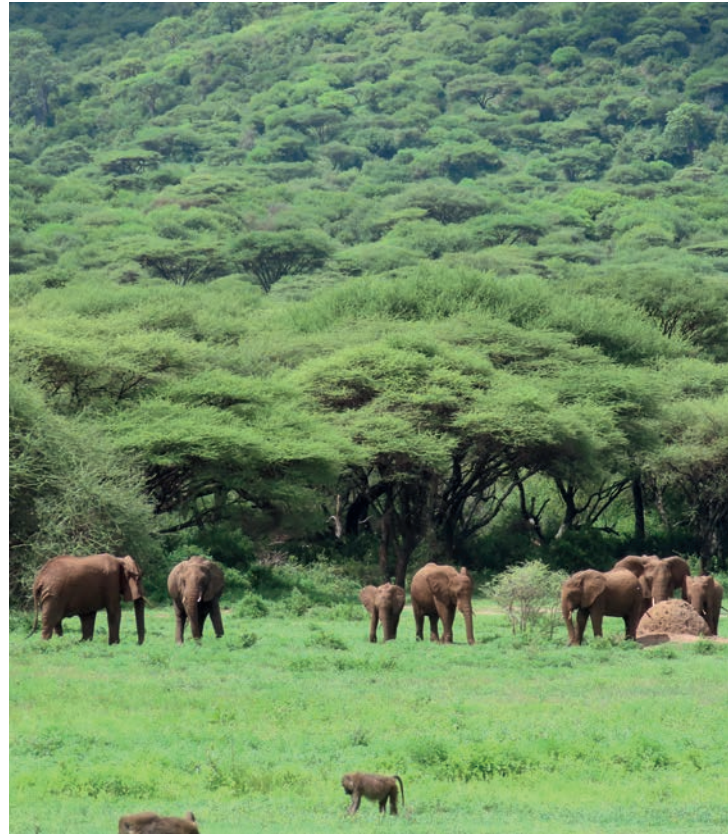
Biodiversity

Prior to the arrival of the pirates, fishermen and settlers in the 1500s onwards, the Seychelles was not colonised by homo sapiens. Like the Galapagos, each island boasted its own unique biodiversity, with very similar but genetically separate species or sub-species. Each island had its own version of the giant tortoise for example, but able to survive for long periods without water or food, these animals were highly prized by sailors, pirates and fishermen, who stored them on their backs on the decks of their boats to ensure they had a supply of fresh meat during their sea passages. As a result, the majority of the tortoises endemic to the islands were hunted to extinction. The specimens we find on the islands today have been reintroduced from a small population of giant tortoises on Aldabra.

A great many seabirds nest on the bare ground of these islands due to the lack of natural predators. Following the arrivals of humans, who collected their eggs, together with the introduction of invasive species like the rat, the majority of endemic species have seen their populations collapse. Extensive work is being done today by the ICS (Island Conservation Society) and the IDC (Islands Development Company) to conserve the endemic populations of these islands.

Tanzania

The country's goal is to reduce its GHGs by up to 35%, whilst more than 70% of its electric energy is from fossil fuel and most of its primary energy still comes from charcoal. As a result, the 35-million hectares of Tanzanian forestry are under constant pressure to respond to the island's growing need for fuel for heating, cooking and transport. Hydroelectricity represents 27% of the Tanzanian energy mix, or 705 MW, but its estimated potential amounts to 4.7 GW. Similarly, there is considerable potential for wind turbines alongside the Indian Ocean and in the Rift Valley, and various plans are under way for farms. Geothermal energy also looks very promising with an estimated potential of 450 MWe. Finally, solar power benefits from an average density of 4.5 kW/m²/day, but it is yet to be seriously developed. Therefore, Tanzania is a prime example of the potential for diverse renewable energies, which can often be found in Africa. The vessel plans to stop off here for a few days on its journey down to Madagascar to illustrate this potential and highlight the range of projects in the region.



© Michael Wilcox

Madagascar

Nicknamed 'The Great Island', Madagascar is a genuine challenge in terms of energy and environment. The overexploitation of biomass, primarily to produce charcoal, has led to the desertification of entire regions, the erosion due to the rains no longer being modulated by the forests. As a result, the diversification of renewable energies is crucial and various projects are under study as a result.

For example, biofuels made from agricultural waste from the sugar industry offer an alternative to the importation of petroleum products, with traditional biofuels already making up nearly half the energy from renewable sources. There is another source of clean energy ripe for development too. Indeed, just 2% of Madagascar's hydroelectric potential is being exploited and geothermal energy is doubtless another important source thanks to the local volcanic activity (nearly 350 MW of potential). There is increased use of solar energy, though paraffin is still widely used for lighting. The electrification rate is still low (15.4% nationally in 2015).

Madagascar is aiming to reduce its GHG emissions by around 30 MtCO₂.

Our laboratory vessel will likely stop off there for a few days in the south-west of the region before setting a course for the rainbow nation, which will be synonymous with a major event stopover.



© Graphic Node

South Africa

South Africa's development strategy is targeting net zero emissions by 2050. In 2015, 90% of its electricity came from fossil fuels, 4.8% from nuclear energy and 4.3% from hydroelectricity. As such, the journey ahead is an ambitious one.

Biomass is a significant potential energy source, estimated to fulfil up to 16% of the country's energy needs through forestry residues and agricultural waste. Hydroelectricity might also meet a number of needs. There are already pumped storage stations, especially to the east of the country, but climate change could well call this potential into question in the face of drought. The country produces oil and gas and boasts sizeable peat bogs, plus its huge coal reserves equate to 30 billion tonnes or 95% of the continent's reserves.

With 92.7% of the country's electricity coming from coal, South Africa is by far the highest emitter of carbon dioxide in Africa, with a world ranking in the top 15. Characteristic of the omnipresence of this fossil fuel: nearly a third of fuels used in the country are produced from coal.

Wind power is developing rapidly, with significant potential in the country's mountainous and coastal regions (8 m/s in the mountains). The aim is to install 8.4 GW of wind farms by 2030. Nuclear energy has been a reality since 1984 and represents 22% of the new energy production capabilities, compared with 14% for coal.

The availability of cheap coal means that there is a limited number of geothermal and solar energy projects, despite direct irradiance of over 7 kW/m²/day in a number of the country's regions.

The government is aiming to obtain 97% access to electricity by 2025 by using local energy mixes and developing the domestic solar systems.

Energy Observer will organise a sizeable stopover in Cape Town in June 2023, with all of its active partners across the continent. The challenges of energy transition are all the greater in South Africa, a country which remains the continent's economic powerhouse, whilst culturally and historically labelled as a country of coal!

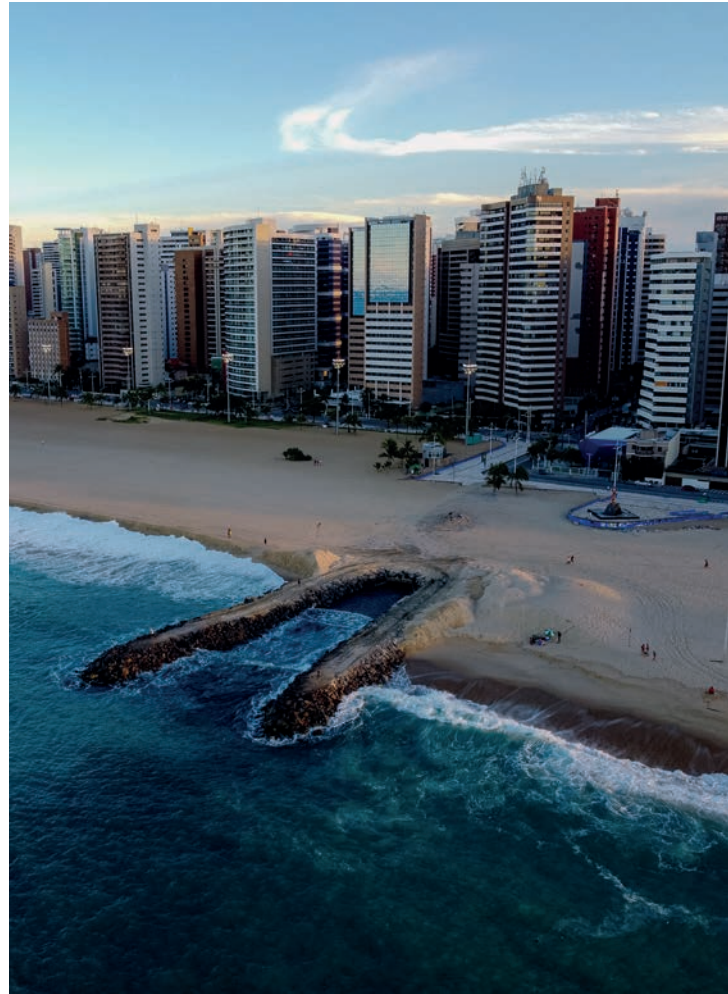


Brazil

The vessel will make a stopover in Fortaleza in the autumn of 2023, the north-east region being at the heart of some very substantial wind turbine and photovoltaic projects, with the storage of renewable energies in the form of hydrogen.

Brazil's primary energy consumption has risen by nearly 28% in a decade, making the country the world's 8th largest consumer of energy. Oil represents more than 35% of this consumption, but hydroelectricity still plays a central role at over 25%. If we look at pure energy production (19% of final consumption), over 55% of this is provided by hydroelectricity, and the country notably features one of the world's largest dams, Itaipu (installed generation capacity of 14 GW).

However, periods of drought are prompting the country to balance out its sources of electricity, notably through other renewable energy projects. Today, 20% of its electricity production is provided by fossil fuels, 3.7% by coal, 3.3% by oil, 2.2% by nuclear energy (whilst the country has the 9th largest uranium reserve in the world) and 77.4% of renewables (the world's 3rd largest producer of renewable electricity)! In 2021, wind turbines made up 11% of this electricity production and 2.6% of solar energy, but there are a variety of projects under development.



© Eduardo Borges

Another important feature of Brazil is its use of biomass (third largest in the world), and agrofuels in particular (second largest producer in the world).

Its oil production was the 9th largest in the world in 2021. The country consumes around 75% of it, but it has just 10 years' worth of proven reserves with deep and very costly deposits.

Logically, with such potential, the CO₂ emissions per capita due to energy are 56% less than the global average. However, efforts are still being made to adopt green energies, with an installed generation capacity for its wind turbines of over 19 GW for example, and a potential 500 GW. To store these energies, hydrogen is the obvious solution and it's something Energy Observer intends to study during its Brazilian stopover.

© Victor Rutka

«Over the next three years, we will witness the growth of many green hydrogen projects and green energy solutions. We thus believe that once the vessel comes back to France, green hydrogen will be available at an affordable cost, which will allow the biggest events to take advantage of it, such as the Olympic Games.»

Victorien Erussard



Our around-the-world program (2017-2024)

2019 Northern Europe
2020 Atlantic
2021 California, Asia

2022 Singapore, Indian Ocean
2023 South Africa and Brazil
2024 USA and France

A resourceful and complementary team

Aboard the boat, the founder, the captains and professional sailors pilot this extraordinary vessel. Mechanics, engineers and technicians ensure the smooth operation of the on-board systems, whilst the reporters and cameramen document the stopovers and share Energy Observer's journey around the world.



© Energy Observer Productions - Mélanie de Groot Van Embden

5 - An SDGs ambassador role strengthened by the development of the Endowment Fund

17 goals, a real roadmap for sustainable development

Appointed first French Ambassador for the Sustainable Development Goals by the Ministry of the Ecological transition, Energy Observer's mission is to accelerate the energy and ecological transition through the promotion of local initiatives and sustainable solutions for the planet.

All over the world, women and men are devoting their energy to the creation of sustainable solutions for a more harmonious world. Energy Observer is meeting these change-makers, to promote their local initiatives and actions. These actions relate to a variety of subjects such as circular economy, responsible consumption, gender equality, responsible agriculture,

protection of life on land and at sea, etc. This role of ambassador is emphasized during the stopovers, but also through documentary films and the "Energy Observer Solutions" digital platform. This platform promotes the solutions encountered around the world and educates about the 17 Sustainable Development Goals and their interrelationship. Doing so, Energy Observer builds a database of "Solutions", a silver lining of positive and inspiring actions around the world, despite the multiple challenges faced by humanity. Thousands of protagonists globally are working to make this world a better place, and they deserve to be known.

© Energy Observer Productions - Amélie Conty



Energy Observer Solutions

Energy Observer Solutions is a digital platform launched in 2019, though production began from the very start of the project. It highlights solutions regarding ecological and inclusive transition identified by Energy Observer's editorial and scientific community all over the world and directed by the pioneers who are reinventing tomorrow's world. All these Solutions are being grouped together on the Energy Observer Solutions platform and illustrated through short episodes through the prism of Sustainable Development Goals, in connection with the Ministry of the Ecological Transition, the United Nations Sustainable Development Solutions Network (SDSN) created in 2012 under the auspices of the UN Secretary-General, the International Association of Universities (IAU), Ademe and Unesco. These inspirational and positive 2 to 3-minute videos, whose tone and format are geared around the social networks, are designed to raise awareness beyond the borders about these forces for change by giving visibility to their solutions and their local projects.

Educational editorial and audiovisual programs

Energy Observer has produced nearly 13 documentaries since its launch:

→ A series of 12 documentaries broadcast on the Canal + Group channels, "Energy Observer, the Odyssey for the Future ®". From Saint Malo to Saint Petersburg, this collection of films traces the lives of the crew aboard Energy Observer and their encounters around the world.

→ A 90-minute video was also broadcast in prime time during the COP 25.

This CANAL+ documentary creation was produced by Energy Observer Productions and Upside Télévision and directed by Jérôme Delafosse. Entitled "Energy Observer, les messagers de la Terre" (Energy Observer, the Earth's messengers), it traces both the human adventure and the technological challenges taken on by Energy Observer during her passage from Saint Petersburg to Spitsbergen whilst self-sufficient in energy, and during encounters with committed communities in Europe, Asia, South America and Africa to protect our children's future.

Other science-focused documentaries are expected to emerge and address major societal issues related to energy and biodiversity.

Live content from the ship

Energy Observer also shares live content: log books about the highlights of the Odyssey (life aboard, deciphering of the ecosystems by a scientist or biologist, the making of the film, the boat's technical operation, perspectives on the major world days...), a way of immersing oneself in the daily life of the crew.

This educational content, accessible to all, enables a greater understanding of the key challenges of renewable energies and ecological transition.



Energy Observer Foundation

Combining expertise to accelerate energy transition, raise awareness about the potential of hydrogen and promote the Sustainable Development Goals

In addition to the numerous 'Rencontres' or encounters throughout the Odyssey, Energy Observer has been stepping up the development of its 'non-profit' activities since 2020, at the forefront of which the focus is on raising awareness about the 17 Sustainable Development Goals, via an Energy Observer Foundation endowment fund. To increase its impact, three new priority areas now lie at the heart of its general interest mission.

Combining expertise for a practical way to accelerate energy transition and combat marine pollution.

Deciphering, explaining the complex and changing challenges of this transition within the scope of a major energy crisis. Optimising the daily use of energy, reducing fossil fuels in favour of renewable energies, switching lifestyles to better respect our environment, demonstrating energy sobriety: such are the challenges that must be taken up today. They'll require a profound and lasting transformation of every sector relating to energy, production and consumption.

The same is true for the maritime sector, which is responsible for nearly 3% of the world's greenhouse gas emissions. This will notably require research and innovation to come up with low-carbon solutions and remove existing obstacles in a bid to design a freighter for professional use, this time running on liquid hydrogen. Our ability to play host to over 1,000 children, 48 classes and 50,000 people at our exhibition during the Route du Rhum 2022 is a great source of pride for those involved in the endowment fund.



Increasing awareness, passing on our feedback and know-how in the domain of hydrogen and sustainable energies. Hydrogen is one of the key elements in energy transition. It plays a fundamental role in the decarbonisation of its various uses, be they mobile, terrestrial or industrial applications.

The Energy Observer Foundation is taking action to help develop the hydrogen society, remove the obstacles which stunt its growth, and guide youngsters towards the new professions of the future it offers. The co-construction of a series of two conferences about the cycle of hydrogen values and decarbonisation and territories with the Hotel de L'Industrie is one of the Endowment Fund's greatest accomplishments within this context.

Broadcast, promote the 17 Sustainable Development Goals, awaken consciences, help to change behaviours. The SDGs adopted in September 2015 by the UN within the scope of the 2030 agenda are fundamental. They provide a course backed up by numbers, a common language and a universal road map. Within the scope of the diplomatic mission entrusted to Victorien Erussard, Energy Observer Foundation is spreading France's message about the need to take action with regard to all aspects of ecological transition, with the hope of inspiring the greatest number of people. The aim also includes nurturing consideration in France and internationally of these 17 SDGs, where the interconnection of the economic, social and environmental issues is well-established, and expand their notoriety in the tradition of the awareness-raising activities carried out since the start of the Odyssey (through the Solutions platform, exhibitions and educational tools...). To make use of these goals, the best tool remains Energy Observer Solutions and our partnership with Open Diplomacy at the annual Rencontres du développement durable (Sustainable Development Encounters).





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7 - A immersive exhibition



© Thibault Voisin

Throughout the Odyssey, a travelling village is deployed during the main stopovers around the world. Open to the public and free access, it is the flagship tool of Energy Observer Foundation. Through an interactive and educational exhibition, as well as projections, it is a real window on the world of today and tomorrow. It is a place of meetings, exchanges and discoveries on the theme of the energy and ecological transition and has welcomed more than 350 000 visitors over the last 5 years.

The visitors' journey is punctuated by different themes around the laboratory vessel such as the onboard technologies, the flagship ports of call, the role of ambassador as well as the concrete applications that can be developed at sea and on land, the stakes of the energy transition in the ecological transition, the place of hydrogen in the energy transition, the missions of Energy Observer Foundation, its main actions including Energy Observer Solutions. The exhibition also includes a historical timeline designed in partnership with Ademe which mixes the main dates of the energy transition, the ecological awareness, with those of the Energy Observer laboratory.

The objective of this exhibition is clear: to show that the development of renewable energies, green hydrogen and the intelligent energy mix is an answer to climate emergency.

8 - An international multi-partner project

In light of the urgent struggle to combat climate change, it is essential to rethink our model of society: to push the envelope in terms of inter-sectoral cooperation, switch the traditional models of competitiveness, halt the quest for unlimited growth in a world with limited resources...

To take up these challenges, many companies are searching for new models for working together. Energy Observer intends to become a catalyst to enable these committed protagonists to realise their projects and really step things up a gear in terms of ecological transition. In total, there are already 60 companies and institutions from the public and private sector, who are responsible for making this expedition possible.

This adventure exists thanks to the financial, technological and human commitment of a solid cluster of partners, the key ones being: Accor et AccorInvest, Thélem assurances, Air Liquide and BPCE. Official partners and sponsors like Delanchy, Toyota, Triangle Interim, Qair and GUYOT environnement. Strategic partner such as CMA CGM, as well as several official supporters like Petit Forestier, Groupe BenTouch, Lamotte Immobilier and Visiativ, are all making a specific contribution and often become a key player in the programme.



9 - Energy Observer 2, decarbonising sea transport

Energy Observer is passing a new milestone by launching the design of Energy Observer 2, a multipurpose cargo ship that runs on liquid hydrogen, a technology making it possible to navigate the oceans using zero emissions, whilst offering very large transport capacities and great range.

150 metres long, a total deadweight of 12,000 tonnes, 50 tonnes of liquid hydrogen and an intended range of 2,000 nautical miles: this cargo ship aims to be the best low carbon vessel in a segment that equates to a third of today's global fleet.

EODev will be in charge of the integration of high-power modules designed around industrial batteries and adapted to the use of liquid hydrogen.

Air Liquide has joined this consortium to share its know-how across the entire liquid hydrogen value chain (production, storage, distribution and safety of liquid hydrogen), providing technological and industrial expertise together with a high capacity for innovation.

CMA CGM will assess the commercial and operational parameters of the vessel, whose architecture has been designed by the LMG Marin firm, renowned for developing Hydra, the first hydrogen-powered ferry, in July 2021, for Norway.

Presented on 10 February at the One Ocean Summit in Brest, the project is due to make its first launch in 2026, followed by a lengthy trial campaign along the European coast, before its future use within a commercial operation in 2027.



→ Project instigator



© Energy Observer Productions - Francine Kreiss

Victorien Erussard
Chairman, founder and captain

As a versatile officer in the merchant navy, he has been sailing on several vessels as far as Antarctica. However, this professional sailor has also graced a series of race podiums over the past 10 years, from the Route du Rhum, to the Transat Jacques Vabre to the Quebec-St Malo. During one of these transatlantic passages, a broken diesel generator in the middle of the Atlantic made it impossible for him to helm his machine albeit surrounded by solar, wind power and hydropower and Victorien realized that the finest victories are those that have some meaning. At that point, he decided to invest his time in the race for smart energy rather than the race for trophies.

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