

# EODev Press kit

September 2020

We deliver sustainable energy solutions



# Introduction

EODev's mission is to accelerate the energy transition by offering sustainable, reliable, and accessible industrial solutions. Our products and solutions are based on the smart and optimized use of energy mixes combining different renewable energy sources and hydrogen as a storage means. Our products comply with strict specifications:

**Reliability:** We offer reliable industrial solutions, tested over 30,000 nautical miles on board the Energy Observer laboratory boat in harsh conditions: humidity, salt, shocks, extreme temperatures.

**Modularity:** our solutions can be adapted to different uses, both on land and at sea, and are easy to use thanks to a simplified man/machine interface.

**Durability:** The life span of our products and solutions is much longer than that of fossil fuel-based systems, and the materials chosen meet strict criteria to ensure a minimal carbon footprint.

**Affordability:** Thanks to the mass production of the first fuel cell designed for marine use by a world leader, and the steady drop in renewable energy prices, we can offer affordable products and solutions.



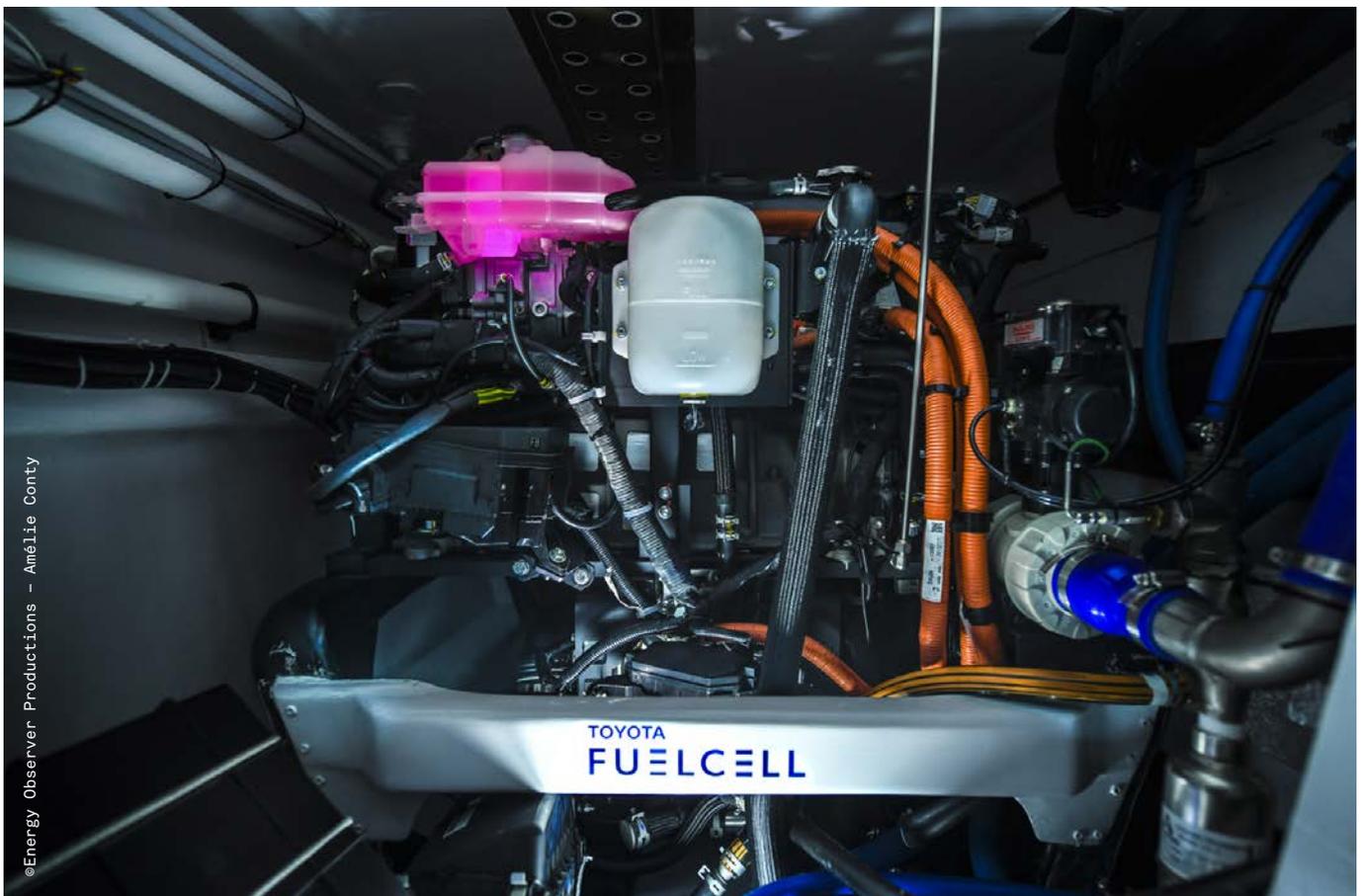
# Context

While the French President has just announced that the Hydrogen Plan had become a national priority, industrial players, local authorities, and public institutions are already multiplying initiatives to develop the renewable hydrogen market in order to work concretely for the energy transition and green growth.

The potential of hydrogen has been known for several decades, but its relative cost has long been an impediment to its deployment. Today, thanks to the large-scale and competitive production of renewable energy, hydrogen is asserting itself as the energy vector of the future. It thus offers interesting prospects as part of our energy transition and should eventually become a real tool in the fight against global warming.

Leading industrial powers are now investing massively in hydrogen-based solutions and Europe is developing its chains so that hydrogen should account for 14% of the EU's energy mix by 2050.

Taking up these challenges and commercializing the solutions are the missions EODev's teams have committed themselves to in order to accelerate the energy transition.



# Our Vision

Accelerator of the energy transition, EODev produces reliable, sustainable, and affordable energy solutions.

## Innovating and sharing

We have always been convinced that true progress is the one respecting the world we live in. EODev's mission is therefore part of a positive and active approach, consisting in developing the use of more eco-friendly technologies by bringing together major players in energy and mobility.

Since an innovation only takes on its full meaning if it is spread, and since the most extraordinary inventions are only of interest if they are shared, EODev relies on its own technological advances and those of its industrial partners to design, develop, and produce accessible, high-performance solutions meeting the major challenges of the 21st century.



# The Company

Energy Observer Developments is a subsidiary of Energy Observer, created by Victorien Erussard in association with its long-time partners Accor, Thélem assurances, Amfil, joined by the Monnoyeur Group.

Thanks to a seed round mid-2019, EODev was able to set up its operational structure, to sign its first strategic agreements and contracts, and to finance and design prototypes. Today, EODev announces the closing of its first round of funding, for a total amount of €20 million, thus positioning itself as one of the innovative players in the French hydrogen industry, whose growth is now a government priority.

EODev could count on the complete confidence and support of its shareholders and long-time partners in the Energy Observer Odyssey (the Accor Group and Thélem Assurances), and on the contribution of new industrial players involved in the project (the Monnoyeur Group). This commitment demonstrates the technical excellence of the products offered and the relevance of a strategy resolutely oriented towards the energy transition. This funding will accelerate the industrialization and commercialization of sustainable, reliable, innovative, and accessible energy solutions. EODev's products address the entire energy chain: medium-power hydrogen power generators (GEH2®); on-board hydrogen energy systems (REXH2®) for maritime and river use (propulsion and hotel load), and mobile floating hydrogen refueling stations (STSH2) for the production and distribution of green hydrogen.

Created in March 2019 in Saint-Malo, Energy Observer's home port, EODev is the result of the research and development carried out on board Energy Observer. The company thus benefits from the expertise acquired by its engineers and validated over the 30,000 nautical miles its laboratory boat has already covered since 2017, using hydrogen/fuel cell technologies.

Still building on the corsair spirit from Saint-Malo that has forged the greatest sailors, and getting inspired by ocean racing, where victory is only possible when all partners work together, EODev focuses its development strategy on two pillars: technological collaboration for innovation and R&D, and strong partnerships for operational development - whether through industrial agreements, pooling of resources, or acquisitions. EODev has thus strengthened its ties with TOYOTA, the world's leading car manufacturer that has been a pioneer in hydrogen technologies for more than 20 years. It is also why EODev has decided to develop its projects with leading industrialists in different sectors: in energy with ENGIE and Air Liquide, in technical expertise with Alternative Energies, in the supply of components needed for the ecosystems with EVE System, and in the concrete implementation of its solutions with CMA CGM. This collaborative structure, which should result by the end of 2020 in bringing together, through its projects, a team of about a hundred specialized technicians and engineers, ensures the adaptability and flexibility that are both essential for the company's rapid deployment.



## The Team

Engineers as well as competitors, coming from racing and industry, Energy Observer's team offers the clever mix of curiosity and experimentation, of willingness to perform, and good seamanship needed when you do not cheat with the environment.

Victorien Erussard, founder of the company and captain of the ship, was born in Saint-Malo the year after the first Route du Rhum. 26 years later, he was on the starting line of this mythical race. In addition to his numerous victories, positioning him among the elite of ocean racing, Victorien carried out his activities as a multi-skilled merchant navy officer on many types of ships. But the desire to serve a cause eventually took precedence over the thrill of the competition. This is why, in 2013, he started building a zero-emission catamaran, that would later become Energy Observer.



"The 9,000 km that Energy Observer has just covered during her transatlantic journey in complete autonomy, without any possibility of technical stopovers due to the lockdown, is a strong message sent to decision-makers, demonstrating the reliability of our carbon-free systems and their great resilience."

Victorien Erussard  
Captain and Founder of Energy Observer

To support him in his mission, Victorien Erussard gathered a team led by Jérémie Lagarrigue, EODev's CEO. F18 catamaran world champion, he is representative of this generation of engineers for whom the energy transition only makes sense if it is transformed into technological reality. Jérémie was also the director of Hydros, an engineering company that optimized the hulls of many racing boats and that developed the Foiler, the first motorboat equipped with foils.

François Tapin, a specialist of innovative information systems in many fields, is a computer engineer who graduated from the National Institute of Applied Sciences in Rennes. He is also a recognized competitor in motor sport and multihull racing. Bringing onboard his experience in business organization and project management, he manages a versatile and experienced team.

This team is, among others, supported by Romain Jallon. With his inexhaustible knowledge of ecological engineering, Romain is in charge of the operational management of several teams of experts in fluid mechanics, precision mechanics, innovative batteries, energy architecture, and the integration of high-performance engines. Graduated from the Ecole Nationale Supérieure des Arts & Métiers de Paris, Romain lived in Canada for a long time before joining the Mecachrome Group, and now EODev.



Victorien  
Erussard



Jérémie  
Lagarrigue



François  
Tapin



Romain  
Jallon

# EODev's solutions are already available

While Energy Observer will continue its role as the first French ambassador of the Sustainable Development Goals set by the UN and will carry on, more than ever, with its on-board experiments around the world, some of its engineers, joined by the best specialists and a solid network of industrial and financial partners, will now work on the industrialization of new solutions, among which three hydrogen-based products are already available.



©Energy Observer Productions - Fitzgerald Jégo



© Romain Jallon / Eneria

The first GEH2 ready to run.



"We are happy to be able to market products that are real lasting solutions for the preservation of the environment, at last at affordable prices and without sacrificing efficiency and development. This is just the beginning, but I do want to thank and congratulate both our engineers and the teams behind us; whether it is our staff, our financial supporters and shareholders, who are very committed to the energy transition, or whether it is through strong technological partnerships with key industrialists."

Jérémie Lagarrigue  
CEO, Energy Observer Developments

# 1/GEH2<sup>®</sup> (Hydrogen Power Generator)

The Hydrogen Power Generator of tomorrow.

Affordable, clean, and noiseless hydrogen power generators, producing up to 100kVA, that can be stacked next to each other. With the GEH2 and its record energy density, instantly get power from 100kVA to 2MVA, with no emissions.



## SPECIFICATIONS :

- Zero emissions
- Compact design
- Same use as diesel generators
- Low noise pollution
- Eco-design
- Optimized logistics
- « Plug & Play » Solution

## MAIN APPLICATIONS :

- Isolated sites (Scientific bases, living quarters, refuges, islands, relay antennas)
- Sensitive or confined environments (Tunnels, mines, confined spaces)
- Protected and regulated Areas (Zero-emission zones)
- Construction sites (Off-grid or in city centers)
- Events (Concerts and temporary or sporting events)
- Emergency applications / Backup generators (Data centers, hospitals, airports, ports, banks)

## 2/REXH2<sup>®</sup> (Range EXtender H<sub>2</sub>)

### The benefits of emission-free cruising

On-board generators/ranger extenders, for propulsion and/or hotel load on clean and quiet boats, adapted to each user profile and to the configuration of the vessels.



#### SPECIFICATIONS :

- Compact design and light weight
- Complete modularity
- Zero emissions
- Quick refueling
- No noise pollution
- No minimum power required
- Data monitoring
- Instant start
- Predictive and simplified maintenance
- Optimized consumption and efficiency
- « Plug & Play » Solution

#### PROFILS D'UTILISATIONS :

##### PLEASURE BOATING

- Propulsion, systems, and hotel load
- All navigation zones
- Medium to fast speeds
- Short distances
- H<sub>2</sub> alone or coupled with photovoltaic panels

##### YACHTING

- Systems, hotel load, port manoeuvres
- Propulsion in protected areas
- Slow to medium speed
- Medium range
- Customized configuration

##### PROFESSIONAL (SHUTTLES, BARGES, CARGOS...)

- Propulsion, systems, hotel load
- All navigation zones
- Slow speed
- Regular / recurrent routes
- H<sub>2</sub> alone or coupled with PV/Wind

## 3/STSH<sub>2</sub> (STation Ship H<sub>2</sub>)

The simple solution to produce and distribute green hydrogen

Local refueling station producing and supplying affordable green Hydrogen easily.



### SPECIFICATIONS

- No regulatory constraints
- Mobile, for maritime and land use
- Zero emissions
- No footprint
- « Plug & Play » solution
- Optimized logistics
- Low H<sub>2</sub> production cost
- Revenues for the city or port

### POSSIBLES LOCATIONS

- Commercial ports
- Marinas
- Mooring areas
- Rivers

### USERS

- Heavy vehicles
- Utility vehicles
- Passenger cars
- Marine & River Transport (Recreational boating, Yachting, Professional boats)

## 4/ Energy Designer

### EO DEV's in-house energy consulting departement

In addition to its "turnkey" solutions, E0Dev has gathered a team of experts specialized in the design of innovative solutions using renewable energies. Known as Energy Designer, the mission of this consulting department is to manage the programs put in place with its clients as part of opportunity and feasibility studies.

Intended for both private and public institutions, industrial plants, and shopping malls, Energy Designer's engineers have developed an exclusive energy and financial optimization tool. This software, which is undoubtedly the most complete and exhaustive currently on the market, allows to model multiple options and strategic choices, in terms of infrastructure investments, anywhere depending on the renewable energies available on site.

The tools developed by Energy Designer also integrate a unique and user-friendly interactive interface, synthesizing local key parameters and data, allowing to visualize online scenario comparisons according to different time scales and priorities.



# A permanent commitment

Despite its pretty recent creation, EODev is nevertheless active on all fronts of the energy transition: in product development, of course, but also in the need to accompany the development of these solutions with an educational dimension.

As such, EODev is a partner of the Monaco Solar & Energy Boat Challenge, a competition initiated by the Yacht Club of Monaco, promoting innovative engineering in collaboration with major universities around the world and yachting professionals. Jérémie Lagarrigue is President of the Jury which, each year, awards prizes to the engineering schools and the most successful teams, and also allows many engineers, young and less young, to share their innovations with the ultimate goal of preserving our oceans.

In the same way, EODev participates in numerous round tables and conferences at the international level, particularly in the field of energy autonomy and eco-responsible mobility, in France and Monaco, of course, but also in the Netherlands, Germany, the United States, or Japan, to present and promote practical solutions in the implementation of hydrogen as an alternative energy source to fossil fuels.

EODev's field experience is also the reason why the company is involved in discussions with national and European institutions on the challenges of the hydrogen sector, and with certification experts, in order to change both mentalities and regulations so that they are better adapted to today's technological realities. EODev is thus a member of many para-institutional organizations and associations such as the Competitive Clusters of the Mediterranean Sea or AFHYPAC, and participates actively in development projects such as Hynomer.



# EODev

Time to shift

We deliver sustainable energy solutions

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