



hydrogen  
power  
company

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## HDF Energy announces the **approval of its Registration Document** by the *Autorité des marchés financiers*, the French Financial Markets Authority as part of its planned initial public offering on the regulated market of Euronext Paris.

Bordeaux, 25 May 2021 – Hydrogène De France (“HDF Energy” or the “Company”), global pioneer in continuous or on-demand electricity generation from hydrogen and renewable energies (wind or solar), announces today the approval of its Registration Document by the French Financial Markets Authority (AMF) referenced I. 21-023, dated 21 May 2021.

This Registration Document is the first step of HDF Energy’s planned IPO in the regulated market of Euronext Paris, subject to market conditions and the AMF’s approval of the Prospectus for this operation.

### **HDF Energy, a pioneer in hydrogen power, will enable the generation of non-intermittent renewable electricity**

Created in 2012, HDF Energy is a power plant project developer. The Company designs, conducts the necessary studies, coordinates with the relevant stakeholders, organises and secures the project financing through dedicated companies, or “SPVs” (Special Purpose Vehicles). **HDF Energy is developing, alongside partners, and building projects for high-capacity (multi-megawatt) power plants that produce electricity from green or decarbonised hydrogen. Those projects are first-of-a-kind, allowing the Company to claim the status of “pioneer” in the field of hydrogen power.** These plants are designed to supply electricity grid operators with non-intermittent, competitive, continuous or on-demand renewable electricity.

These power plants, when built, will include multi-megawatts fuel cells (HFCs) supplied by HDF Energy and developed under an exclusive development agreement with Ballard Power System, a world leader in mobility fuel cells, to address the multi-megawatts power stationary market. The Company has been granted a license to use this technology with a worldwide exclusivity period until 2026. In this context, HDF Energy has announced the construction of a multi-megawatts fuel cell manufacturing plant in Nouvelle-Aquitaine French region, more precisely in the vicinity of Bordeaux. **The factory, scheduled to be achieved in 2023, will have an annual production capacity of more than 100 MW, for a total investment of €20 million.**

The projects, which are developed and constructed in several phases over a period of between 3 and 5 years, are carried out by SPVs which are financed mainly and primarily by loans, and for the balance by



equity, with HDF Energy taking a minority stake. The Company invoices development costs and multi-megawatts fuel cells to the SPV, in which the Company is a minority shareholder. HDF Energy considers that it has validated the multi-megawatts fuel cell technology through the Cleargen (completed) and CEOG (ongoing) projects, described below. Multi-megawatts fuel cells are a key element of the Company strategy and are integrated within the other projects in development which are to be built in the upcoming years. In addition to the CEOG project, which is at a more advanced stage, the Company is involved in 11 projects which are in phase 1 of development (see below), knowing that power plant design and construction projects consist of four phases and take an average of 3 to 5 years to complete.

Thus, HDF Energy's business model consists of participating in the formation of SPVs, developing projects through SPVs, selling fuel cells to these SPVs, and financing the same SPVs alongside third-party investors.

## HDF Energy is to provide the missing piece for massive deployment of intermittent renewable energies

The development of renewables in the energy mix, made possible by greater competitiveness of wind and solar, is now being challenged by the electrical grids' management of inherently intermittent power generation. By combining the traditional expertise of an independent producer of green electricity with the mastery of hydrogen technology for the storage of energy and its on demand power ability thanks to its multi-megawatts fuel cells, HDF Energy is positioning itself as a powerful accelerator of the energy transition with a non-intermittent renewable energy offer once its plants are operational.

As such, according to FCH JU (Fuel Cell and Hydrogen Joint Undertaking), hydrogen energy represents, after industry and mobility-related applications, a revolutionary and powerful outlet for hydrogen. In Europe, the share of hydrogen power may reach 15% of global demand by 2030 and 41% by 2050<sup>1</sup>.

In order to respond to the challenges of the energy market, HDF Energy develops, through their dedicated SPVs, two types of power plants:

- **Renewstable<sup>®</sup> plants (Power-to-Power solutions)** combining renewable energy production, hydrogen production through electrolyzers, and large-scale hydrogen storage solutions with short-term battery storage, resulting in 24-hour non-intermittent electricity generation thanks to multi-megawatts fuel cells;
- **HyPower<sup>®</sup> plants (Hydrogen-to-Power solutions)**, comprising multi-megawatts fuel cells, producing on-demand electricity from a hydrogen pipeline or a hydrogen production site.

With operations in France, Australia, Indonesia, Mexico and South Africa, HDF Energy has plans to develop power plants in more than 20 countries in Europe and around the world.

## CEOG, first Renewstable<sup>®</sup> power plant project, is the world largest project under development for the storage of renewable energy using hydrogen to produce stable and competitive renewable electricity

Thanks to its Renewstable<sup>®</sup> plants, the Company is targeting regions where power is primarily generated through diesel generators, by offering a clean and competitive alternative. This market represents a current opportunity estimated at 277 GW in terms of green energy production to be installed and 18 GW of associated fuel cells.

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<sup>1</sup> Source: FCH JU "Hydrogen roadmap Europe, a Sustainable Pathway for the European Energy Transition"



HDF Energy is currently developing the CEOG (*Centrale Electrique de l'Ouest Guyanais*) project in French Guiana, the world's first multi-megawatt hydrogen power plant, producing renewable, stable and competitive electricity (50 GWh annual output). The CEOG plant, which is in the final stages of development, will provide continuous electricity, day and night, from renewable energy and two fuel cells of 1.5 MW each supplied by HDF Energy. This project demonstrates the technological, operational and economic relevance of Renewstable<sup>®</sup> plants, through advanced expertise, which is a prerequisite for the financing of the €130m investment, 80% of which is financed by non-recourse debt and 20% by equity provided by Meridiam, SARA and HDF Energy. It also attests to HDF Energy's capacity to garner support from leading industrial and financial players as well as public authorities, who play a key role in these large-scale projects.

The Renewstable<sup>®</sup> power plant projects are being developed in 3 phases and then built over an overall period of 3-5 years before entering into a 20 to-25 years operation period.

In addition to the CEOG project currently in phase 3 (the last phase before construction), HDF Energy is pursuing the development of eleven other Renewstable<sup>®</sup> power plant projects, all currently in phase 1 (located in Mexico, Barbados, French Guiana, Cyprus, Australia, New Caledonia and Indonesia) representing **an investment of more than €1.3 billion<sup>2</sup> and over 80MW of fuel cells to be installed by 2025**. The Company has also identified nearly 20 additional opportunities, representing nearly €2.5bn of investment<sup>2</sup>, some of which could enter the development phase as early as 2021.

## Cleargen, first HyPower<sup>®</sup> plant: a world first for the installation of a high-power fuel cell in a complex environment

HDF Energy also intends to make use of new hydrogen distribution infrastructures currently being developed (*European Hydrogen Backbone*) to promote its HyPower<sup>®</sup> plants. The European hydrogen transport infrastructure, supported by European gas transmission system operators, is expected to result in a network of interconnected hydrogen distribution pipelines.

HDF Energy intends to accompany the deployment of hydrogen infrastructure in parallel with the progressive decommissioning of traditional coal and gas power plants in Europe. The Company aims to deploy multi-megawatt electric power plants in six countries throughout Europe (France, Belgium, Germany, Spain, Italy and the Netherlands), and to install 100 to 200 MW of fuel cells by 2025 with a target of 1 to 3 projects per country and to reach an installed capacity of 4 GW by 2030.

Inaugurated in December 2019, Cleargen HyPower<sup>®</sup> plant is the world's first installation of a CE-certified high-capacity fuel cell on an industrial site. In the complex environment of the SARA refinery in Martinique, the installation (representing an investment of €10 million and led by a consortium as part of a research project partially financed by the European Union) produces electricity using hydrogen being a by-product of the refining process. HDF Energy oversaw all the technical and financial aspects of this 1 MW fuel cell power plant.

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<sup>2</sup> Cumulative amount of investments associated with the projects in question, financed mainly by loans but also in equity by all the project partners and in particular by HDF Energy through a minority stake in the SPVs



## A real industrial know-how in the development of high-capacity fuel cells for its projects

Having observed that there were no industrialised fuel cells adapted to the need of hydrogen-electricity, HDF Energy has chosen to harness the strategic technology of high-capacity fuel cells (greater than 1 MW), which forms the heart of its hydrogen power plants, and has chosen PEM (Proton Exchange Membrane) technology.

In addition to the requirements of projects being developed by the Company, HDF Energy also plans to **produce high-powered fuel cells for other markets, including maritime industry and data centres, through strategic alliances with global leaders.** The Company signed a memorandum of understanding with ABB Marine & Ports, the world leader in electric ship propulsion, to industrialise a multi-megawatts fuel cell for maritime use. In a similar vein, last March HDF Energy signed a memorandum of understanding with Atos Group, global leader in digital transformation and the European leader in cybersecurity, cloud computing and high-performance computing. The two companies are working to set up the first “green” data centre, which is expected to be commissioned by 2023.

## An ambition to reach €100 million in revenues with an EBITDA margin of around 35% by 2025

Over the last few years, HDF Energy has taken a considerable lead in the development of hydrogen-electricity projects and intends to capitalise on its pioneering position to become a global reference in its markets. With its know-how and a rapidly growing global hydrogen electricity market, HDF Energy's ambition is to become the leader in the development of continuous or on-demand power plants based on hydrogen and renewable energies (wind or solar).

Thanks to these strategic objectives, the Company has set itself the goal of reaching **€100 million in revenues with an EBITDA margin of around 35% by 2025.**

This €100m target will be achieved by 2025 mainly through revenues generated by Renewstable® projects through the development cost and supply of fuel cells, billed to the SPVs and representing between 12% and 17% of the total investments made in the various projects.

## Initial Public Offering to help drive growth

Achieving this goal will involve strategic investments financed through the planned initial public offering, as well as three key priorities:

- **Accelerating development capacities for hydrogen power projects** by recruiting highly qualified staff to further its international expansion;
- **Increasing equity investments in the companies carrying its projects** to ramp up HDF Energy's stake in value-generating projects, thereby maximizing value for its shareholders; and
- **Expanding manufacturing capabilities and strengthening its technological expertise in high-power fuel cells**, with the construction of a factory in Blanquefort, in the vicinity of Bordeaux, and R&D investments aiming to extend the useful life and enhance the quality of its fuel cells.



## Publication of the Registration Document

The HDF Energy Registration Document, approved by the AMF on May [20], 2021 under number I.21-023 is available on the Company's website ([www.hdf-bourse.com](http://www.hdf-bourse.com)) and the AMF website ([www.amf-france.org](http://www.amf-france.org)), as well as free of charge and on request at the Company's registered office, at 20 rue Jean Jaurès – 33310 Lormont. The Registration Document contains a detailed description of the Company, in particular its business, strategy, financial position and earnings, as well as the corresponding risk factors.

## Risk factors

The Company would like to draw readers' attention to Chapter 3 "Risk factors", as presented in the Registration Document approved by the AMF.

Read more about **HDF Energy's** planned IPO on  
[www.hdf-bourse.com](http://www.hdf-bourse.com)

### ABOUT HDF ENERGY

HDF Energy is a global pioneer in hydrogen energy. HDF Energy develops high-capacity Hydrogen-Power plants and is active, through dedicated project companies, in their operation. These plants will provide continuous or on-demand electricity from renewable energy sources (wind or solar), combined with high power fuel cells.

HDF Energy develops two types of Hydrogen-Power plants:

- **Renewable® (POWER TO POWER):** Multi-megawatt power plants, producing stable electricity, composed of an intermittent renewable source and on-site hydrogen energy storage.
- **HyPower® (GAS TO POWER):** "Gas to Power" power plants producing electricity on demand from green hydrogen from transportation networks.

HDF Energy has integrated key fuel-cell know-how and has developed the world's first mass production plant for high-power fuel cells for energy, which will be commissioned in France (Bordeaux Metropole) in 2023. Through this activity, HDF Energy will also serve the maritime and data centre markets.

HDF Energy has positioned itself as a powerful accelerator of the energy transition by offering non-intermittent, grid-friendly and on-demand renewable power.

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