



Haffner Energy announces its planned IPO on Euronext Growth® in Paris

- **A disruptive technology to produce competitive green hydrogen with a negative carbon footprint**, through the sequestering of 12 kg net of CO₂ per kg of hydrogen produced, relying on the thermolysis¹ and steam reforming² of **untapped sustainable biomass**
- **Family controlled business with a management team having a combined experience of more than 55 years in the field of biomass with a long-term vision of the energy transition**, based on leading scientific expertise, especially in the conversion of biomass into energy, with nearly 40 of cogeneration plants completed (representing 573 MW installed) before the recent repositioning of the Company's activity towards the production and sale of "Hynoca®" green hydrogen production modules
- **A HYdrogen NO CARbon ("Hynoca®") commercially ready and operational process with high energy performance**, allowing customers, mobility and industrials players, to produce green hydrogen in an **autonomous and decentralised way**
- **A co-product of biomass thermolysis, biochar, with strong environmental and economic benefits** as a powerful carbon sink and valuable input for agriculture
- **Very competitive hydrogen production costs**, between €1.5/kg and €3/kg, and on-site production eliminating transportation costs
- **Ambitious commercial and financial targets reflecting a high-potential growth model**, based on the production and sale of Hynoca® modules, addressing a market driven by the megatrend of decarbonization:
 - **Sales targets of more than €30m by 31 March 2023 and €250m by 31 March 2026**, based on a solid backlog and pipeline of **€33m and €105m** respectively (Sales of €4.2m and EBITDA of €-1.8m at 31/03/2021 and sales of €0.3m at 30/09/21); and
 - **EBITDA margin target of over 25% in the long term**
- **ESG commitments supported by an Ethifinance rating of 67/100, above the average for its peers in the industry (34/100), reflecting the company's positioning as a key player in the circular economy**

¹ Thermolysis is a process in which biomass is broken down by an external injection of heat without oxygen.

² Steam reforming is a process that consists of exposing a gas to very hot steam, thus releasing the dihydrogen it contains.

Vitry-le-François, France, January 14th, 2022 – Haffner Energy (hereinafter “the Company”), key player in green hydrogen, announces the approval of its registration document by the Autorité des marchés financiers (AMF) under no. I.22-002 dated January 13, 2022.

As an energy transition player, with more than 28 years of experience, Haffner Energy designs and provides technologies and services enabling its customers to produce decarbonised hydrogen from the thermolysis and steam reforming of sustainable biomass thanks to its HYdrogen NO CARbon (“Hynoca[®]”) process.

This registration document represents the first step for the planned IPO of Haffner Energy on Euronext Growth[®]’s multilateral trading system in Paris, subject to market conditions and the AMF’s approval of the IPO prospectus consisting of the registration document, a securities note and a summary of the prospectus (included in the securities note).

Philippe HAFFNER, co-Founder and Chief Executive Officer of Haffner Energy, stated: *“It is with pride and enthusiasm that today we are announcing our plan to be listed on Euronext Growth[®]. Haffner Energy’s ambition, thanks to its unique Hynoca[®] green hydrogen production process, is to become a key player in the energy transition in France and abroad. Hynoca[®] enables industrial and mobility players to produce green hydrogen with a negative carbon footprint, which is highly disruptive at the global level, while being very competitive. Hynoca[®] is part of a local and circular approach, with a relocalisation of energy production as close as possible to the points of consumption, strongly valuing the regions. This IPO will support the achievement of our strong growth objectives, with target revenues of more than €30 million for the 2022/2023 financial year and €250 million in 2025/2026. In this respect, we plan to rapidly set up a large scale assembly facility for our standardised Hynoca[®] module, which can be easily deployed anywhere in the world thanks to its 40-foot container size. We intend to combine this strategy with an international commercial deployment to be as close as possible to our customers on each continent.”*

Marc HAFFNER, co-Founder and Deputy Chief Executive Officer of Haffner Energy, explained: *“The patented Hynoca[®] technology is the result of more than 10 years of R&D led by Haffner Energy’s teams. It enables the process normally carried out by nature over several million years to be reproduced in a few minutes, resulting in the creation of energy, using a 100% renewable resource. Our technology is based on the use of sustainable biomass from unused agricultural or forestry waste that is not in competition with other applications; in other words, a natural resource that is abundant, present everywhere and generally available within a close distance from our facilities. Moreover, its cost is stable compared to other energy sources. Another major and very differentiating aspect of our technology is its negative carbon footprint, as opposed to other hydrogen production methods which are at best neutral, thanks to the production of biochar. This solid carbonaceous extract has the unique advantage of being an excellent fertiliser for agronomy by giving back to the soil the metals and minerals that the biomass has removed during its growth, thus promoting a circular approach, from the valorisation of local biomass to the amendment of neighbouring land. All these elements give Hynoca[®] its disruptive potential by producing 100% green, carbon-negative hydrogen that is perfectly suited to the energy transition.”*

A unique technology dedicated to the production of green hydrogen allowing sequestration of 12 kg net of CO₂ per kg of hydrogen produced

Haffner Energy has developed a revolutionary green hydrogen production process using a technology based on the thermolysis of biomass. This technology, called "Hynoca[®]", protected by 15 patent families, is based on a very energy efficient process that converts sustainable biomass into green hydrogen while sequestering CO₂.

Hynoca[®] has a negative carbon footprint because it produces biochar during the thermolysis phase of the biomass, the first stage of the process, which has three main stages:

1. *Biomass thermolysis*: this is the most important and differentiating stage compared to other existing hydrogen production methods. During this step, the solid biomass is heated to a temperature of between 450°C and 550°C, without the injection of oxygen or air into the process, which allows the separation of a gaseous fraction and a carbonaceous solid, the biochar. The biochar is then extracted at the end of the process while the treatment of the gaseous fraction continues towards the second stage, called "steam reforming". **For every 1 kg of hydrogen produced by a Hynoca[®] module dedicated to mobility, 5.5 kg of biochar is recovered, which is equivalent to the sequestration of nearly 16 kg of CO₂. The carbon footprint of the Hynoca[®] process, according to an LCA³ calculation, is -12 kg net CO₂.**
2. *Transformation of thermolysis steams*: in the second stage, the gaseous fraction from the thermolysis process is heated inside an oven to a temperature of over 1,000°C, always in the absence of oxygen, to provide the energy needed to break the chemical bonds and to retain only Hypergas[®], a high energy density synthesis gas rich in hydrogen, at the end of the process. The energy density of Hypergas[®] is three times higher than that of standard syngas produced by gasification⁴.
3. *Purification*: the third and final stage of the process consists of enriching, then separating and purifying the hydrogen before distribution. Thus, Hypergas[®] undergoes several successive washing operations, using conventional off-the-shelf processes. These operations are facilitated by the high H₂ content of Hypergas[®].

An operational Hynoca[®] module already producing Hypergas[®] and capable of producing 264 kg of hydrogen per day is currently in operation in Strasbourg. This installation should reach a production capacity of 720 kg of hydrogen per day by the end of the first half of 2023.

A very agile solution based on the use of unexploited biomass, without competition from other uses

The Hynoca[®] process uses biomass, a cheap and abundant organic material available in large quantities all year round. Energy from biomass can be produced 24 hours a day, 7 days a week, a significant advantage over intermittent renewable energy sources such as solar and wind. The Company has been involved in nearly 40 industrial projects using biomass or recycled organic waste, for a total of 573 megawatts installed, for 22 industrial customers.

³ Life Cycle Analysis carried out by EVEA.

⁴ Source: Company.

A commercially ready, operational and economically competitive industrial process

Hynoca[®] technology has unique characteristics. It is:

- (i) **Flexible and versatile**, capable of using any type of biomass as input (such as agricultural waste, forestry waste, organic waste and livestock manure) and also very versatile as it can produce different types of gas: hydrogen and Hypergas[®];
- (ii) **Standardised and scalable**, through its modular "plug & play" solution offering a tailor-made response to its customers. A Hynoca[®] module can produce up to 720 kg of hydrogen per day (depending on the moisture level of the biomass used) and can be connected in parallel to several additional Hynoca[®] modules according to customer's needs;
- (iii) **Economically competitive and energy efficient**, unlike electrolyzers, as Hynoca[®] modules have low electricity consumption for their operation and do not require high power electricity connections. This means that they have little exposure to fluctuating electricity prices. The Hynoca[®] process requires about seven times less electricity than an electrolyser⁵, using mainly the energy contained in the biomass itself. Hynoca[®] modules have an overall high energy efficiency of over 70% as the technology has been designed to maximise energy recovery. Considering the revenues from biochar and carbon credits, which are unique to the Hynoca[®] process, the cost of producing hydrogen is similar to that of hydrogen produced from SMR (producing "grey" hydrogen from methane) and significantly lower than hydrogen produced from electrolysis. This makes Hynoca[®] the obvious technological alternative to "grey" hydrogen, with an estimated net cost of producing green hydrogen between €1.5/kg and €3/kg depending on the size of the plant. Production can take place at the site of consumption, thus eliminating the transportation cost of hydrogen; and
- (iv) **Safe**, the Company has designed a technology that optimises safety through several levels of physical and operational measures in the Hynoca[®] module to ensure the highest level of safety for employees and customers. In addition, the technology operates at a lower atmospheric pressure than electrolyzers (1 bar vs. 30 bar), virtually eliminating the risk of explosion or implosion.

Ambitious commercial and financial objectives, reflecting a high-potential growth model to address a large-scale market driven by the megatrend of decarbonisation

Ambitious commercial and financial objectives

The Company aims at generating revenues of more than €30m for the year ending 31 March 2023. For the year ending 31 March 2026, Haffner Energy is targeting an increase in its revenues of more than eight times to reach €250m. The Company has set these targets based on a current backlog of €33 million and a pipeline of €105 million.

As at 31 March 2021 (12-month period), the Company's revenue was €4.2m and its EBITDA was €-1.8m. The financial year 2021/2022 is a transitional year with revenues of €0.3m and EBITDA of €-1.5m for the six months ended 30 September 2021.

⁵ Source: Company.

In terms of business development, the Company plans to focus its sales and marketing efforts primarily in Europe, North America, and Southeast Asia to expand its activities beyond France and to take full advantage of its pioneering position. The Company plans to conduct a significant part of its business outside France within five years.

To accelerate its internationalisation, Haffner Energy will be open to partnership or licensing agreements such as the one concluded with Kouros SA, a shareholder of the Company, by which the latter has granted an exclusive licence in some regions considered as non-core for the Company and non-exclusive in the rest of the world on its patents, brands, and know-how.

The Company's long-term EBITDA margin target is over 25% by leveraging (i) economies of scale, (ii) improved design and optimisation of raw materials and components, and (iii) specific initiatives to increase productivity improvements and overhead optimisation.

A business model based on the industrial production and sale of Hynoca® modules, together with the implementation of a cost rationalization strategy

The revenue has historically been driven by the construction of cogeneration plants for hot water, electricity and thermal power generation. With its recent strategic repositioning Haffner Energy's activity is now focused on the sale of Hynoca® modules, the first of which is installed on a site located in Strasbourg, within the R-GDS facilities, and associated services such as maintenance, control, and operation supervision contracts and, in the future, biomass supply and biochar collection and sale. The Company may also continue to offer additional EPC (Engineering, Procurement and Construction) services around its own equipment for some customers. It will then provide its customers with a full service offering for the implementation of their project, from design to installation, including administrative assistance for obtaining the necessary authorizations for operation and, when requested by the customer, intermediation for the supply of biomass and the recovery of the biochar produced.

Haffner Energy's industrial strategy is based on two pillars:

The installation of an assembly site for Hynoca® modules: by 2024, the Company plans to transfer the assembly operations to a company-owned site and is currently evaluating the possibilities of building this assembly plant on a greenfield site or installing an assembly line in a pre-existing industrial site. This plant will have a surface area of approximately 10,000m² and an initial assembly capacity of 200 Hynoca® modules per annum. The future factory will enable the Company to reduce the cost of assembling Hynoca® modules through economies of scale, help facilitate the Company's subcontracting strategy, promote design improvements due to increased production and optimize and simplify logistics and exports.

The use of subcontractors and third-party suppliers: the Company intends to pursue a strategy of using subcontractors and third-party suppliers for the manufacture of standardized components and sub-assemblies used in Hynoca® modules. This strategy will focus on the selection of the most qualified suppliers and subcontractors and will exclude the final assembly, testing and delivery of the modules, which the Company will carry out in-house once its assembly plant is operational.

The Company also aims to offer the following products and services:

- *After-sales services*: the Company intends to offer after-sales services to its customers, through tailor-made multi-year service contracts. These services will include training and technical support during the start-up phase of a Hynoca® project, supervision of operations, maintenance operations and remote monitoring of Hynoca® modules via an in-house developed software; and
- *Syngas offering*: the Company intends to market its Hypergas® through its Synoca offering. Hypergas® is a high energy density syngas, which replaces natural gas and is entirely green and sustainable. Synoca uses the same technology as for Hynoca® for the thermolysis and reforming phases. The syngas purification step to produce hydrogen is omitted or bypassed to produce Hypergas® depending on the customer's needs if they want the flexibility to produce both green hydrogen and green syngas. Several industrial customers have expressed interest in both Hynoca® and Synoca, the latter being used for thermal power generation needs.

A fast-growing addressable market: hydrogen at the heart of the energy transition

Hydrogen is a key energy carrier for the decarbonisation of economies and the achievement of the global Net Zero target by 2050. The hydrogen sector, in each of its industrial, injection and mobility sub-segments, is thus experiencing strong growth, and should see the production of "grey" hydrogen, which is highly CO₂ emitting, being replaced by "green" hydrogen. The market growth is supported by a favourable regulatory environment in France, the European Union and other countries and regions such as the United States and Asia.

Global hydrogen demand in 2019 was 70 million tons and is expected to reach around 287 million tons by 2050⁶, split between the three sub-segments of the hydrogen market: industry, mobility, and injection into gas networks.

ESG commitments supported by an Ethifinance rating of 67/100, above the average for the sector, reflecting the company's positioning as a key player in the circular economy

An ESG rating superior to its peers

In its ESG assessment by the extra-financial rating agency Ethifinance, Haffner Energy was awarded a rating of 67/100, which is higher than the benchmark for the sector (34/100) and indicates an "advanced" level.

Biomass, a raw material supporting environmental protection

The hydrogen production process developed by the Company is an innovative and environmentally friendly process. Indeed, sustainable biomass, respecting the criteria set by the RED II Directive, is a 100% renewable energy source, mainly from plant sources and the production of hydrogen from it does not generate any CO₂ emissions. Specifically, the RED II Directive has defined criteria for sustainable biomass to be considered a renewable energy source and therefore be considered as contributing to the share of renewable energy in the European Union, regardless of its geographical location.

The use of biomass allows the Hynoca® process to be more energy and climate efficient than other energy sources such as diesel or batteries.

⁶ IEA, EY & Associés/ Element Energy, Market Research, April 2021.

Finally, biochar, a co-product of the thermolysis of biomass, has a high environmental value. It is a powerful permanent carbon sink and can also benefit from carbon credits. In addition, its soil amendment properties can enable crops to benefit from improved water and mineral retention.

A clear strategy: becoming a key player in the energy transition and the circular economy

The Company intends to be a key player in the local circular economy by implementing an eco-design approach for products and action plans to save energy and reduce greenhouse gas emissions. The Hynoca® process is based on a short circuit supply of local raw materials. In addition, the process allows for decentralised energy production.

Finally, the circular economy approach taken by the Company and its customers enables the employment of local workforce for the harvesting and transportation of the biomass. The ease of use of the equipment makes it possible to develop installations in any territory, including abroad, in areas with limited qualified manpower. By 2050, according to a report by the European Parliament's Committee on Industry, Research and Energy on a European strategy for hydrogen, the hydrogen industry could create around 5.4 million jobs in Europe.

A family-owned company created 28 years ago with a long-term vision of the energy transition, built on first-rate scientific expertise, and benefiting from manager-founders who are still significant shareholders

Founded in 1993 by the Haffner brothers, Marc and Philippe, Haffner Energy is a family-owned company whose mission has always been to provide engineering solutions for energy production based on a core R&D component and leading scientific expertise.

The Company's management has accumulated over 55 years of experience in biomass-to-energy processes (EPCM and EPC) with nearly 40 biomass power and thermal plants built and commissioned over the past 28 years and 573 MW of cumulative biomass power plants installed with 22 clients. The company has nearly 20 engineers on staff, including consultants, PhD students and specialists.

The combined experience of the Haffner Energy teams offers a unique expertise in the production of hydrogen from biomass and the construction of production modules. In line with its long-term growth plan, based on the industrial production of Hynoca® modules, the Company's objective is to significantly increase its workforce with approximately 100 new hires during the 2022-2023 timeframe to reach nearly 560 employees by 2025-2026, in accordance with its future needs, particularly in relation to the operation of a new assembly plant, production at the partners' site, the design office and project management.

Availability of the Registration Document

Haffner Energy's registration document, approved by the AMF on January 13, 2022 under no. I.22-002 is available from Haffner Energy (www.haffnerenergy-finance.com) and AMF (www.amf-france.org) websites. Copies may also be obtained free of charge upon request from the headquarters of Haffner Energy at 2 Pl. de la Gare, 51300 Vitry-le-François, France.

Risk Factors

Haffner Energy draws the attention of potential investors to Chapter 3 "Risk Factors" of the registration document approved by the AMF.

Indicative financial calendar

- **June 30, 2022:** publication of 2021/2022 annual revenues and results (closing date March 31)

About Haffner Energy

As a player in the energy transition and with more than 28 years of experience, Haffner Energy designs and provides technologies and services enabling its customers to produce carbon-free hydrogen from biomass thermolysis and steam reforming processes.

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Certain information contained in this press release is forward looking statements and not historical data. These forward-looking statements are based on opinions, projections and current assumptions including, but not limited to, assumptions concerning the Haffner Energy's current and future strategy and the environment in which the Haffner Energy is developing. They imply known or unknown risks, uncertainties, and other factors, which could result in actual results, performances or achievements, or the results of the sector or other events, differing significantly from those described or suggested by these forward-looking statements. These risks and uncertainties include those that are indicated and detailed in Chapter 3 "Risk factors" of the registration document.

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