



# Pioneering decarbonisation solutions

**2021–2022 Annual Results**

June 2022



# A family business listed on Euronext Growth Paris since 14 February 2022, agile and innovative

## The founding brothers



**Philippe Haffner**  
Co-Founder,  
CEO & President



**Marc Haffner**  
Co-Founder,  
Deputy CEO & CTO

## Capitalistic partnerships with leading industrial players



Hydrogen mobility  
Refueling stations



Decarbonisation solutions for  
the cement industry



Third party investment  
Hydrogen production

A unique  
technology,  
**Hynoca®**

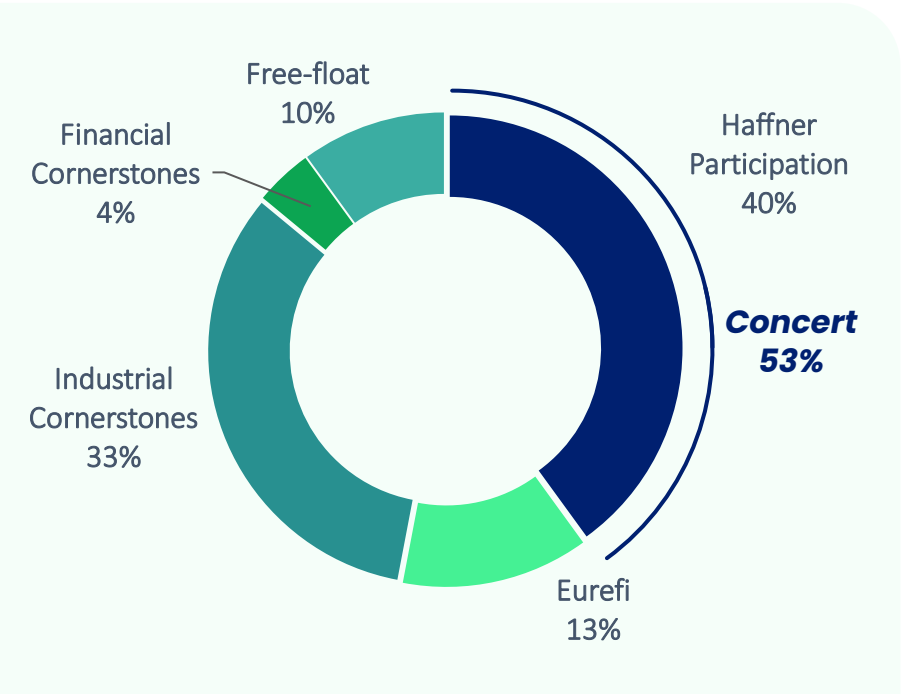
**15** patent  
families

A fast-growing  
team of **40**  
people

**3** locations in  
France

- Vitry-le-François (Marne)
- Saint-Herblain (Loire-Atlantique)
- Paris

## Solid and family controlled shareholding structure



IPO Feb. 2022: €74m, of which €67m primary  
Market capitalization: €355m

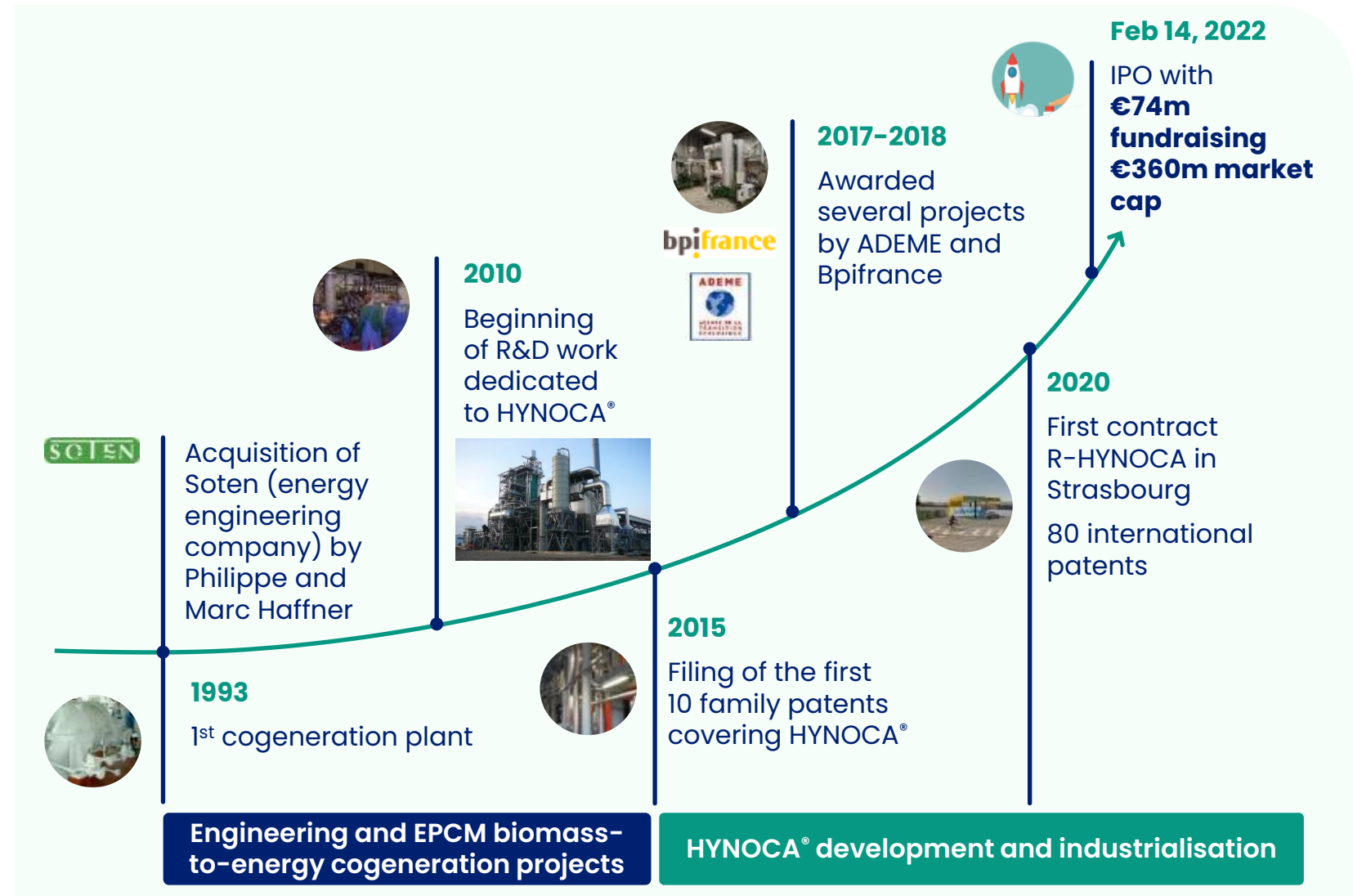
# 30 years of experience in biomass energy recovery



 Unique expertise in biomass energy project management

 > 600 MW of installed capacity

 10 years of R&D invested in the HYNOCA® process



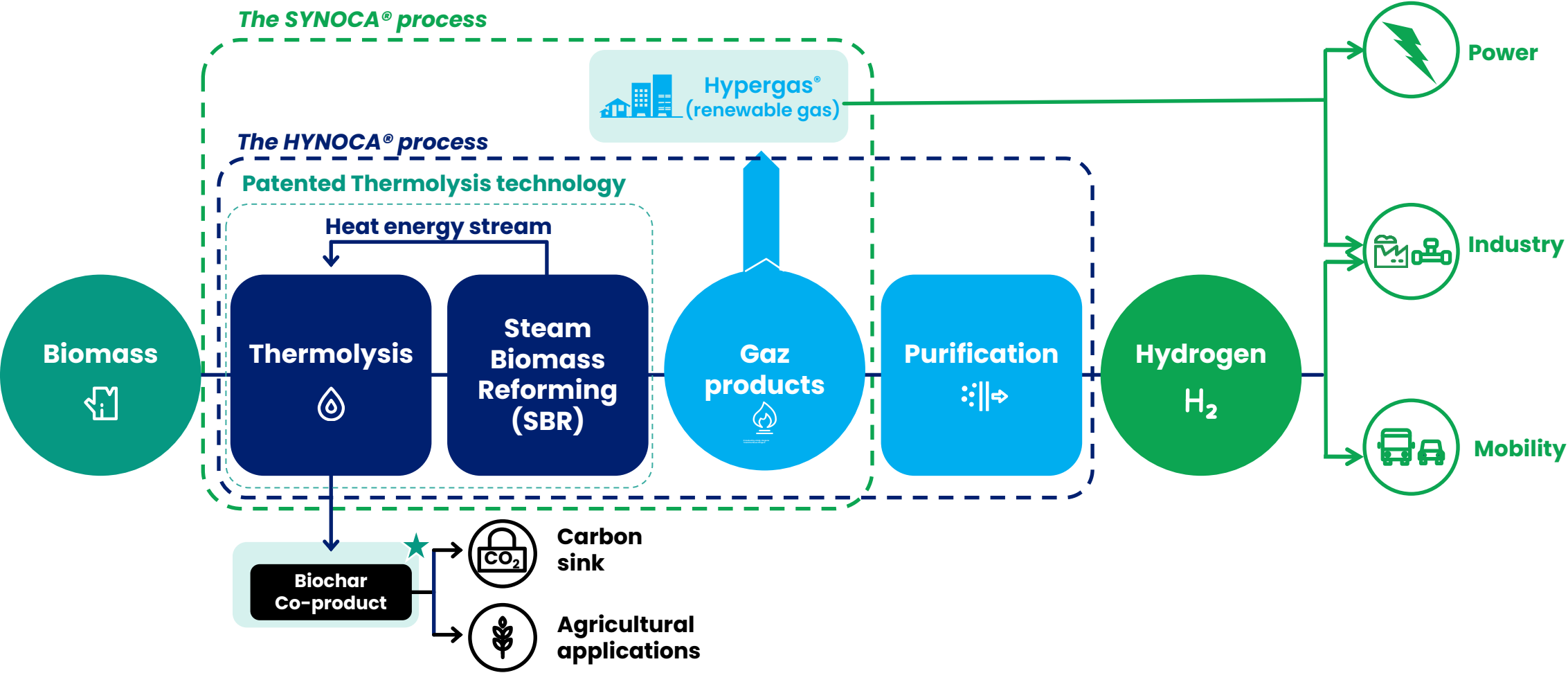




## 02. HYNOCA<sup>®</sup> Solution

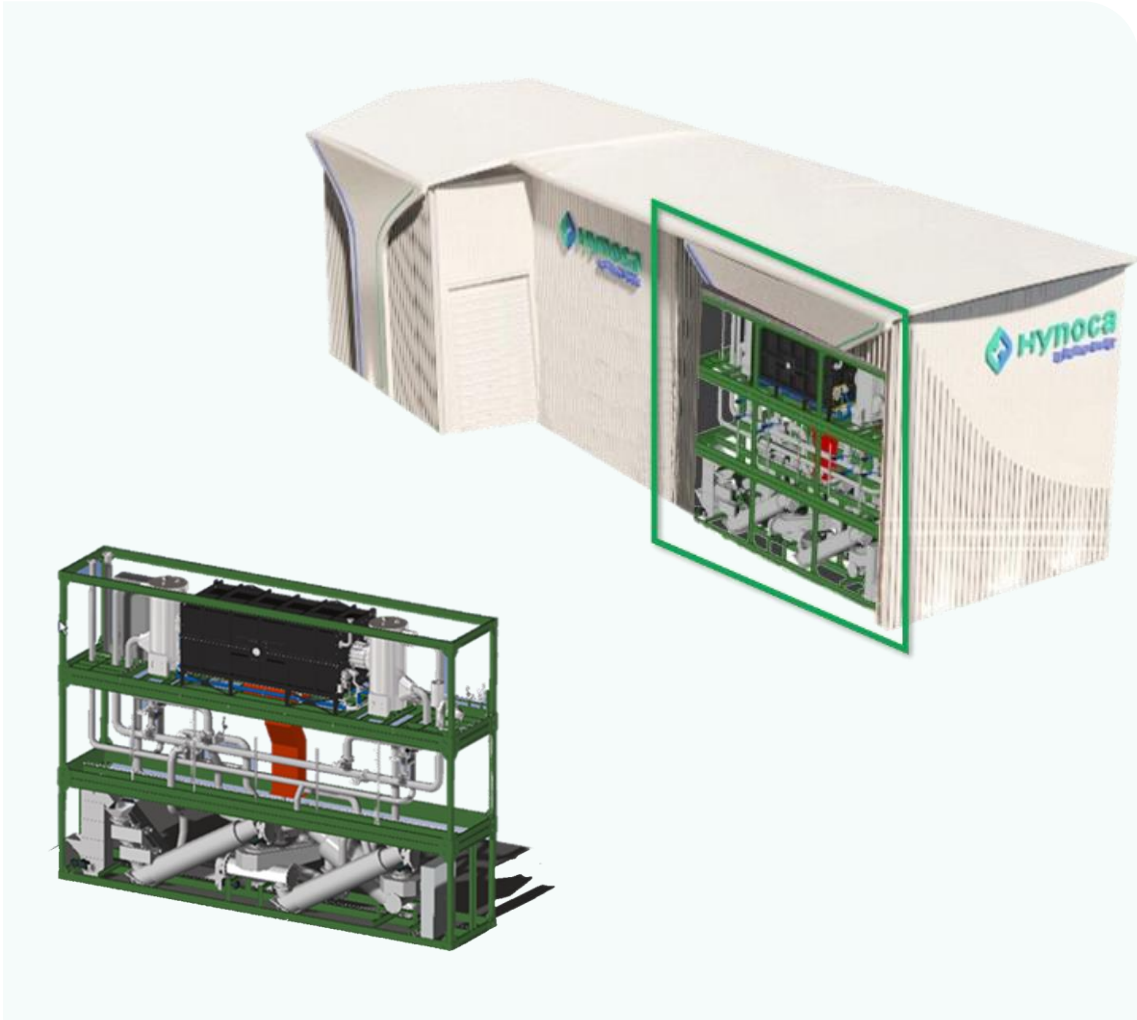


# A unique value proposition thanks to a revolutionary green hydrogen technology





# Our core proposition: the HYNOCA<sup>®</sup> module



Each module is made up of **three skids and a purification unit**



Each skid is the size of a **40 feet ISO container** for ease of global shipping



Fit for both **mobility and industry / gas injection** usage, by combining modules



**Autonomous** operations with remote monitoring



Perfectly adapted to **decentralized** production given limited power needs



Each module produces **15–30kg/h** of hydrogen<sup>(1)</sup>



**>8,000 hours** of operation per annum


















**Capable of producing Hypergas<sup>®(2)</sup> (SYNOCA)** by bypassing or removing the purification unit for industrial applications

1. Equivalent to a 1.2–2.4 MW electrolyzer with a 5,000 h/year load factor, depending on the moisture of the biomass. 2. Hydrogen rich, high-energy dense syngas.



# Competitive positioning: a unique player for biomass thermolysis

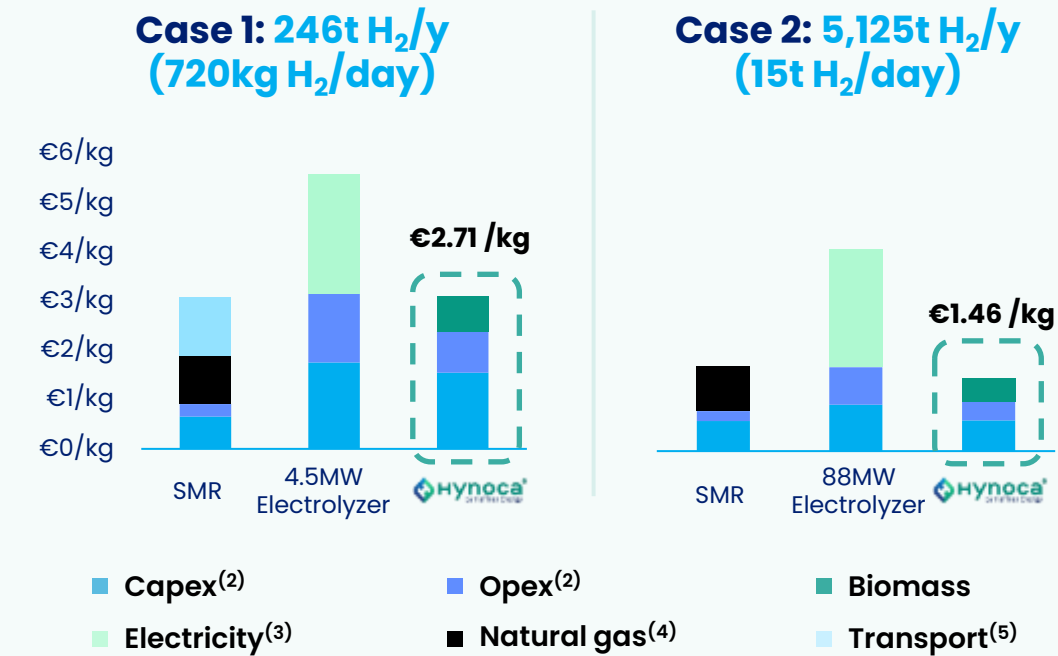
Technology	Biomass		Water electrolysis	SMR
	Thermolysis	(pyro)Gasification		
CO <sub>2</sub> footprint & cost	Biomass thermolysis at 500°C resulting in biochar by-product and syngas / hydrogen production	Biomass heated to >850°C in a zero to low-oxygen environment resulting in syngas and hydrogen production	Breakdown of H <sub>2</sub> O molecules into oxygen and hydrogen	Methane heated between 700 and 1,100°C combined with steam, resulting in syngas and hydrogen production
	↓	↓	↓	↓
Players	11 kg of CO <sub>2</sub> e sequestered ~€1.5 to 3 / kg of H <sub>2</sub> produced	Variable	1.9 kg of CO <sub>2</sub> emission ~€2 to 5.5 / kg of H <sub>2</sub> produced	12 kg of CO <sub>2</sub> emission ~€1 to 2.5 / kg of H <sub>2</sub> produced
	↓	↓	↓	↓
	 <b>Haffner Energy</b> Making Hydrogen Super Green	  	        	 

Source: Company Economic Model, EY & Associés/ Element Energy, data from France Hydrogen, Direct Science and the ACV EVEA Study.  
Note: CO<sub>2</sub>e = CO<sub>2</sub> equivalent. CO<sub>2</sub> footprint based on total life cycle.



# Compelling economic and environmental benefits

## Hydrogen production cost<sup>(1)</sup>

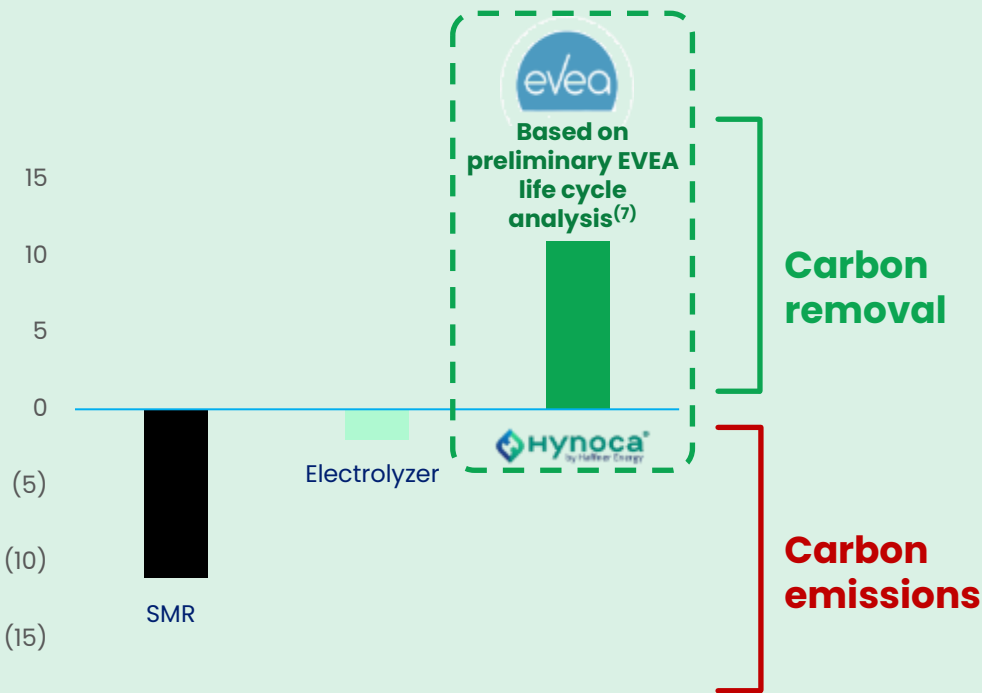


Economic items <sup>(6)</sup>	Biomass purchase cost	Carbon credit	Biochar sales
	€20/MWh delivered	€50/ton CO <sub>2</sub>	€300/ton

**HYNOCA®'s delivered H<sub>2</sub> cost is similar to SMR H<sub>2</sub> from fossils**

## Climate contribution

(kg of CO<sub>2</sub> per kg of produced H<sub>2</sub>)





**A unique carbon offsetting technology**

Source: EY & Associés/ Element Energy, Company assumptions, BNEF database, Results from EVEA (study commissioned by the Company).  
1. At 30 bars of pressure operating 8,200 hours p.a. assuming an increase in revenue and costs equal to inflation of 1.1%. Case 1 assumes 30kg of H<sub>2</sub> produced per hour, Opex including personnel (charges included), insurance, maintenance, utilities, other opex. representing 8.7% of the Capex and installation costs which include: biomass preparation and grinding equipment, biomass drying, thermolysis and reformer, purification/compression, mechanical and electrical surveys/supervision/installation review, development costs, land, plant, miscellaneous networks/weightbridge/fencing, hydrogen network within the property limits, control and project management offices, miscellaneous. totalling €6,800k. Case 2 assumes 625kg of H<sub>2</sub> produced per hour, Opex representing 8.3% of the Capex and installation costs totalling €75,900k. 2. EY/France Hydrogène for Electrolyzers, load factor 2,000 h/year for electrolyzer. 3. Electricity at 55 euros/MWh (BNEF database). 4. Natural gas at 28 euros/MWh HHV (higher heating value) (Company estimate). 5. Transport at 1.2 €/kg based on EY & Associés/ Element Energy study. 6. Company estimates. 7. As part of a Hynoca® unit for mobility and using sustainable biomass.





# Quantifying our HYNOCA<sup>®</sup> process


**Sustainable biomass**  
(30% humidity)

→

**30 tons = one truck**




→



**1 ton**

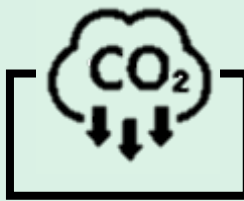
*Able to fuel a passenger car for up to 100,000km<sup>(1)</sup>*

→



**Biochar 5.5 tons**

↓



**11+ tons**  
of CO<sub>2</sub>e<sup>(2)</sup> sequestered

Supporting customers' decarbonization ambitions

1. Company estimate. 2. CO<sub>2</sub> equivalent.



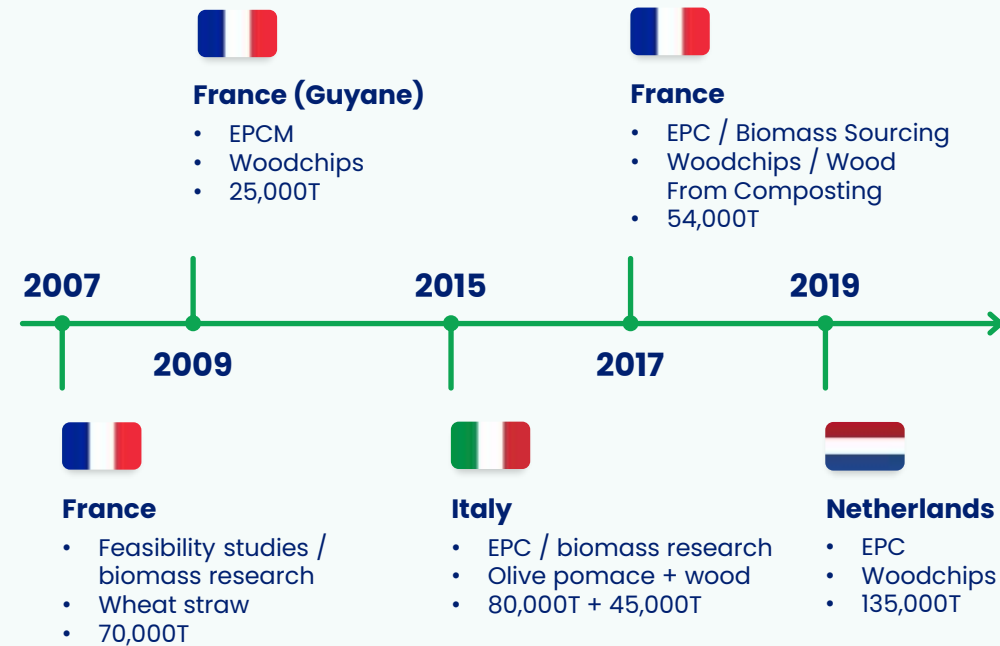
## 03. Biomass and biochar

# Haffner Energy is an expert in sustainable biomass sourcing



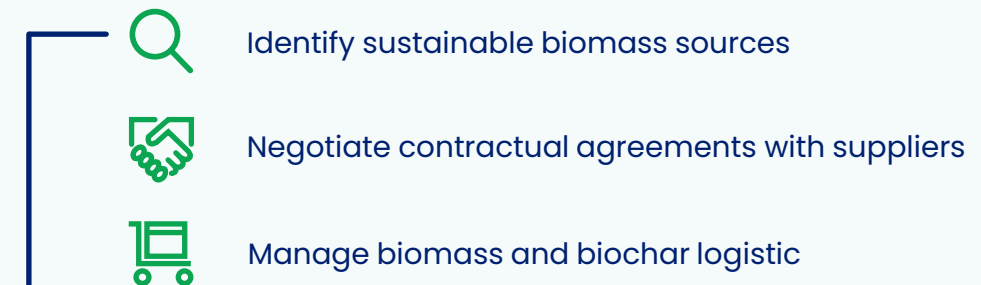
Haffner Energy enjoys strong experience in biomass-to-energy and biomass sourcing

## Selected Haffner Energy projects



Role / Biomass Type / Amount of Biomass

Haffner Energy can source sustainable biomass for its clients through its **Biomatch service**



Haffner is committed to sourcing local and sustainable biomass for its clients:

Supplying **locally available biomass**

Supply should be in **proximity** to the HYNOCA®

Applying **strict monitoring**

**Strict traceability system** covering the whole supply chain

Relying on certified suppliers

**All suppliers** certified

# HYNOCA®'s versatility regarding feedstock



Strasbourg HYNOCA® station biomass



The HYNOCA® process is **extremely versatile** vis-à-vis the types and quality (water content) of **sustainable biomass used**



This versatility allows HYNOCA® to have **constant access to biomass that has no other competitive use**



This grants HYNOCA® **two key competitive strengths:**  
**Ensuring the process' sustainability** in compliance with the EU cascading principle



**Value creation** for producers who could not otherwise value their biomass

**HYNOCA® creates value by using sustainable biomass with no competitive use**





# HYNOCA<sup>®</sup> is able to produce **high-quality biochar** to offset carbon emissions



Strasbourg station biochar

## Biochar is both environmentally and economically valuable



Biochar is a solid carbon **by-product of biomass** thermolysis



Used in **agriculture as a permanent soil additive** when mixed with topsoil. Notably, its properties enable greater soil **water and nutrient retention**, leading to **higher productivity**



Biochar has the potential to **generate revenue stream for HYNOCA<sup>®</sup> clients**

## Biochar carbon credits<sup>(1)</sup> are highly valuable



A **carbon credit** is an intangible product that represents the **avoidance, reduction or sequestration of a CO<sub>2</sub> equivalent from the atmosphere**



Biochar is **the most mature carbon sequestration vector**: if deployed on a global scale, the carbon offset impact of Biochar is expected to be to 1.8–4.8 GtCO<sub>2</sub> per year by 2050<sup>(2)</sup>



Carbon removal via biochar is permanent and cost-effective. Biochar carbon credits can be thus **sold at a higher price<sup>(3)</sup>** than other credits linked to carbon capture

**HYNOCA<sup>®</sup>, by producing biochar, allows clients to reach their Net Zero targets by offsetting their carbon emissions**

Sources: Nature, Pro-Natura International, Barclays.

1. Only when the biochar is produced from sustainable biomass. 2. COP-26 to create market scale, Barclays, Equity Research, 18 October 2021. 3. Biochar and carbon credit information letter, Pro-natura international, February 2021.



## 04. Technology and maturity



# HYNOCA<sup>®</sup> technology already operational in **Strasbourg**



## Production<sup>(1)</sup>



**Wood chips**  
as feedstock  
(~22 tons a day)



Target daily  
production  
capacity of  
**720kg** hydrogen



**~4 tons**  
**biochar**  
per day

## Fuelling capacity<sup>(1)</sup>



**72 buses**  
@40,000km/  
year/bus

or



**900**  
light-utility  
@20,000km/  
year/vehicle

or



**1,700**  
light-vehicles  
@15,000km/  
year/vehicle

## Shareholders

Ville de  
Strasbourg



R-GDS



**R-ENR**  
85%

**Haffner Energy**  
Making Hydrogen Super Green  
15%

1. Company estimate.

# Thermolysis & cracking modules in operation in Strasbourg



Partnership with

**R-HYNOCA** | Réseaux  
Hydrogen  
No Carbon

With the support of





# HYNOCA® in Strasbourg







## **06. 2021–2022 Annual Results**

# Key facts for the year 2021–2022

## Successful IPO:



- 14 February 2022: capital increase of €66.7m and **€59.3m** net of expenses
- Share premium of €58.5m

## Commercial contract with Kouros SA:



- Signed on 28 October 2021, effective on 23 November 2021, cashed on 24 January 2022
- 7-year supply agreement for equipment and maintenance services
- **€1.5m down payment**, chargeable on each order at a rate of €0.15m per €1m

## Patent and know-how license agreement with Kouros SA:



- Signed on 28 October 2021, effective on 23 November 2021, cashed on 16 December 2021
  - **€0.5m**: exclusive license in Central and Eastern Europe including Russia, Central Asia and certain African countries. Complemented by a variable part due for each Equipment manufactured and marketed
  - **€0.5m**: non-exclusive license of patents and know-how for Kouros' own use on Zero Emission Mobility platforms in Europe



# Acceleration of the Company's structuring

## Executive Committee



**Philippe  
Haffner**

Co-founder  
President & CEO



**Marc  
Haffner**

Co-founder  
Chief Technology  
Officer



**Adeline  
Mickeler**

Chief Financial Officer  
*Appointed in March 2022*



**Alban Reboul  
Salze**

Chief Operating Officer  
*Appointed in April 2022*



**Christian  
Bestien**

Business  
Development Director



**Marcella  
Franchi**

Marketing and  
Communication  
Director



**Guillaume  
Suray**

Strategic cross-  
functional projects  
(HSE-CSR, IT) Director



**Frédéric  
Aubert**

Industrial Director

- Recruitment of **17 people** since the IPO in February 2022
- **40 employees** as of June 2022
- **60 new hires expected** in the next year, notably to strengthen operations and sales





# Active partnerships with industrial players

1

HRS



- **3-year** partnership
- HRS **hydrogen refueling station** integration option
- **HYNOCA® Mobility solutions** for HRS customers seeking **100% green alternatives to electrolysis**

2

VICAT



- **Short-term** development of **green solutions to produce syngas, biochar, hydrogen and electricity**, based on Haffner Energy's patented HYNOCA® technology
- Application to the **activities of cement factories, heavy industries** in view of their deployment in **decarbonization**

3

EREN



- *Joint venture* in which Haffner Energy will hold **20% of the capital** (possibility of increasing to 40%)
- Objective: to **accelerate the deployment of HYNOCA® technology, particularly internationally**
  - Eren Industries: **recognised international know-how** and **financial resources in the development of major industrial projects in the** field of renewable energy
  - Haffner Energy: highly differentiated **decarbonization and hydrogen production technology** with low dependence on electricity connection

# Post closing event: R-Hynoca contract amendment of 31 May 2022

Contract with R-Hynoca, a joint venture with ENR (Réseau Energies Renouvelables), itself a subsidiary of the Strasbourg-based energy company R-GDS

## Initial contract of 20 July 2020

- **Phase 1:** €1,536K
  - 1 demonstration module with Syngas production
  - Go/no go on 21 December 2021 and €700K buy-back of the demonstrator if no go
- **Phase 2:** €2,854K
  - 2 additional modules and hydrogen production of the whole
- **Total contract:** €4,390K
  - **3 modules** installed for a **hydrogen production of 33 kg/h**

## Amendment of 31 May 2022

- **Phase 1:** €1,536K
  - Demonstrator purchased for €700K
- **Intermediate phase:** €0K
  - Installation of a new demonstrator owned by Haffner Energy
- **Phase 2:** €2,854K
  - 2 modules with hydrogen production of 30 Kg/h
- **Total contract:** €4,390K
  - **2 modules** installed for a **hydrogen production of 30 kg/h**

Booked as of March 31, 2022 : Phase 2 additional termination loss of €1,886k (total of €2,282k) & €700k of off-balance-sheet liabilities

# Key figures 2021 – 2022 (IFRS)



Key Figures			
In k€	31 March 2022	31 March 2021	Comments
Turnover	384	4,225	1 <sup>st</sup> H <sub>2</sub> R-Hynoca contract in 2022 /Last AEB cogeneration contract
Other Products	1,204	214	Kouros license agreement (€1m)
<b>EBITDA</b>	<b>(2,703)</b>	<b>(1,774)</b>	Material margin: -€119K vs. +€736K Structuring of H <sub>2</sub> activity, with increased salaries and external charges
<b>Operating Result</b>	<b>(4,726)</b>	<b>(2,972)</b>	R-Hynoca phase 2 additional termination loss of €1.9m
<b>Net Result</b>	<b>(4,807)</b>	<b>(3,027)</b>	
Equity	54,253	(194)	Net capital increase of €59.3m
<b>Available Cash</b>	<b>61,429</b>	<b>3,336</b>	
<b>Net Cash Position</b>	<b>55,277</b>	<b>(2,925)</b>	Cash flow of €58.2m including €0.9m of investments (development costs capitalized)



# Outlook 2022–2023: Backlog and pipeline

## Backlog 2022–2023: €33m

Unchanged from IPO

- **Backlog** = *signed purchase contract or purchase order / signed letter of intent or specifications / specifically created project company with financial commitment / advance payment received*
- **Backlog details:**
  - Kouros: Commercial contract signed and €1.5m down payment received
  - Roussel: 2 SPVs created (Chamboeuf and Montmarault projects)
  - Corbat : SPV created
  - R-Hynoca : contract signed
- **Objective : backlog converted into contracts** mainly by year-end

## IPO 's Pipeline : €183m

- **Pipeline** = *preliminary feasibility study completed / budget offer or preliminary business plan / letter of intent sent / participation in tender*
- **Commercial prospects continue to develop**
  - In hydrogen
  - In hypergas (renewable gas), accelerated by the strategic issues of Europe's energy independence
  - in France, including overseas regions, and in Europe
- **Objective :** part of the **Pipeline converted into contract beginning 2023**





# Outlook 2022–2023: Turnover



**Revenue registered on a percentage of completion basis**



**Ability to book turnover dependent on supply delay**



**Longer supply delay and tension on certain components**

- Estimated 9 to 12 months delay for the electronic components of the thermolysis module
- > 9 months for the purification module (PSA)
- 6 to 7 months for thermolysis ovens



**Ongoing building of safety stocks / anticipation**

- 8 PSAs ordered, 12 SBR modules being ordered

**Impact of procurement delays**  
**Expected turnover above €25m (vs > €30m at IPO)**

# Perspectives



**Strong structural trends** supporting the deployment of the technology, accelerated by the strategic issues of Europe's **energy independence** and **decarbonisation**



**Carbon negative technology** contributing to global Net Zero targets



**A technology allowing continuous production throughout the year** for more than 8,000 hours with no impact on the electricity grids



**Flexible, versatile** technology for mobility and industry and **reduced dependence** on electricity sources



**Cost competitive and decoupled from electricity prices**, weather conditions and natural gas prices



Contribution to the **circular economy** with positive impact on local communities, production at the place of consumption. Support to local agro-forestry chains, local jobs that cannot be relocated

**Confirmation of €250m revenue target for the 2025-26 financial year and a long-term EBITDA margin of 25%**

# Integration of Haffner Energy into the new *Euronext Tech Leaders* market segment alongside more than 100 high-growth European technology companies

7<sup>th</sup> June 2022

Launch

+ 100

Companies selected  
from 700 Tech  
companies

July 2022

Creation of the *Euronext Tech Leaders* Index



Objective: to be a catalyst for the next generation of technology leaders

## ■ Criteria :

✓ **Technological leadership**

✓ **Market capitalisation**

✓ **Growth**

- Haffner Energy will be able to benefit from all the **services developed by Euronext** and its **partners** to assist participants in their stock market journey