



**Next-generation of
competitive green Hydrogen
production**



Investment Summary



Investment Target: €3.5m



First tranche: €1m equity



Second tranche : €2.5m note
valuation based on series A round



Pre-money: €6 million



Milestone: €6.6M revenue by '25



€1m round close: Sep 2021



Problem

Existing hydrogen solutions have high CAPEX / OPEX and land requirements (for RES)makes scaling and price competitiveness (€/kg H₂) difficult.

95% of all hydrogen is generated from steam reforming of natural gas and coal, resulting in high CO₂ emissions. EU hydrogen consumption from two industries: oil refineries (52%) and ammonia production (43%).

Scale



High CAPEX

€1 000 / kW_e INSTALLED



Land requirements

88m² for 1 kg H₂ / DAY and 50 kWh per kg H₂ / DAY

Price



Electrolysis

€5/kg for production and
€4-8/kg for storing & trucking



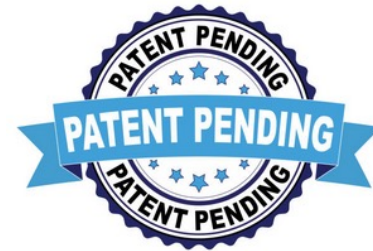
Steam Reform

€1.4/kg for production and
~€1/kg carbon capture & storing

Product & Solution

AIMING TO GET THE HYDROGEN PRODUCTION COSTS TO
€1.5 - €4 PER KG OF HYDROGEN,
without carbon valorization

BREAKTHROUGH SOLUTION FOR
LOW-COST CO₂-FREE
HYDROGEN PRODUCTION
DIRECTLY ON CUSTOMER SITE



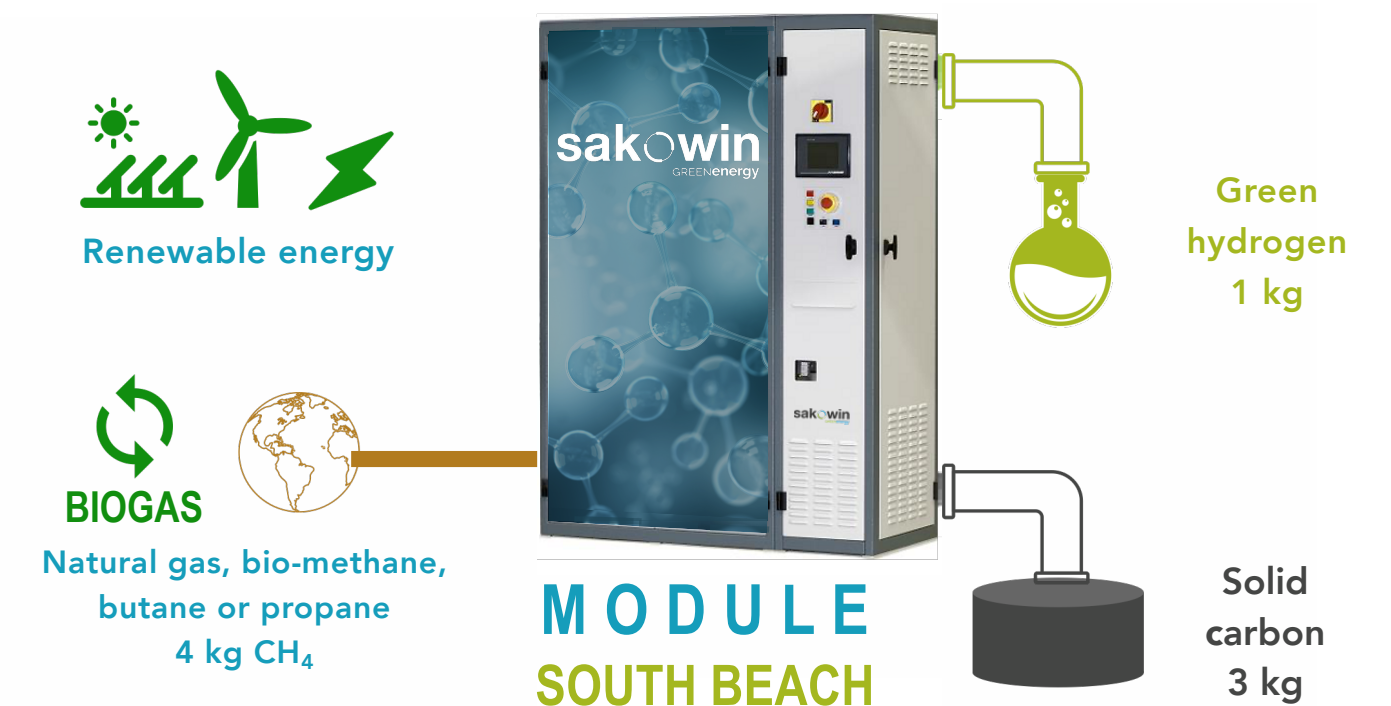
Highly competitive cost

Potential to reach ≤ 1 €/kg H₂ at place of consumption. Low energy need, low CAPEX and valorization of the solid carbon. Green hydrogen cost potentially lower than grey H₂.

On-site production

Compact, modular and stackable solution that can be installed on an existing natural gas supply. Does not require storage or transport of hydrogen.

DISSOCIATION OF METHANE (CH₄) BY LOW ENERGY SAKOWIN PROCESS

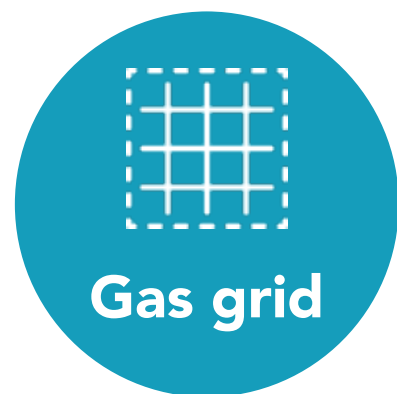


1 MODULE = UP TO 1 TON OF HYDROGEN/DAY

Market

METHANE PLASMALYSIS, A NEW ALTERNATIVE

Focus on decarbonizing key sectors in EU



€120B

EU market
by 2050

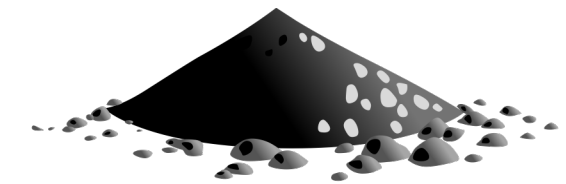
95% of H₂

made from
gas and coal

327 TWH

current energy
demand

Solid carbon



€23B market in 2026

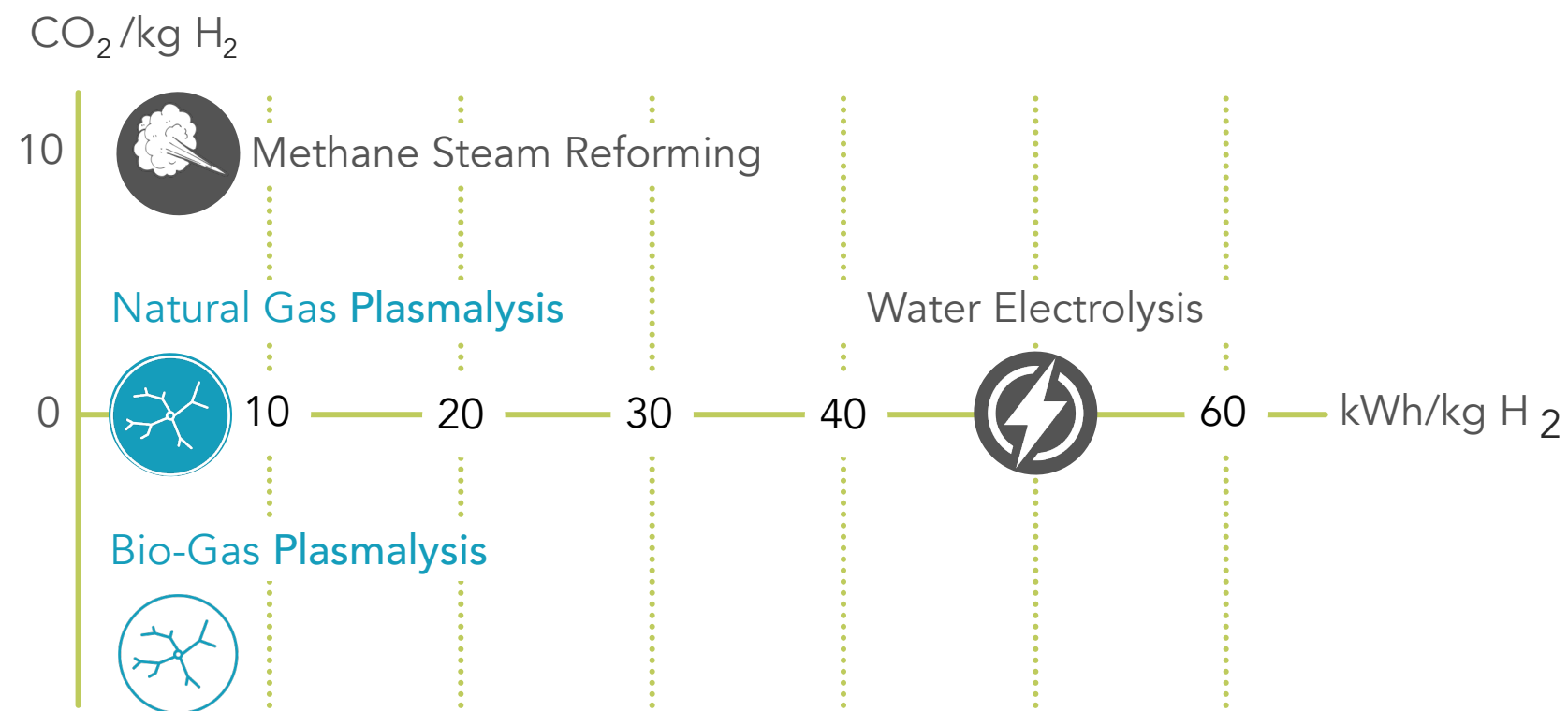
The Hydrogen Roadmap Europe 2050 hydrogen could provide up to 24% of total energy demand



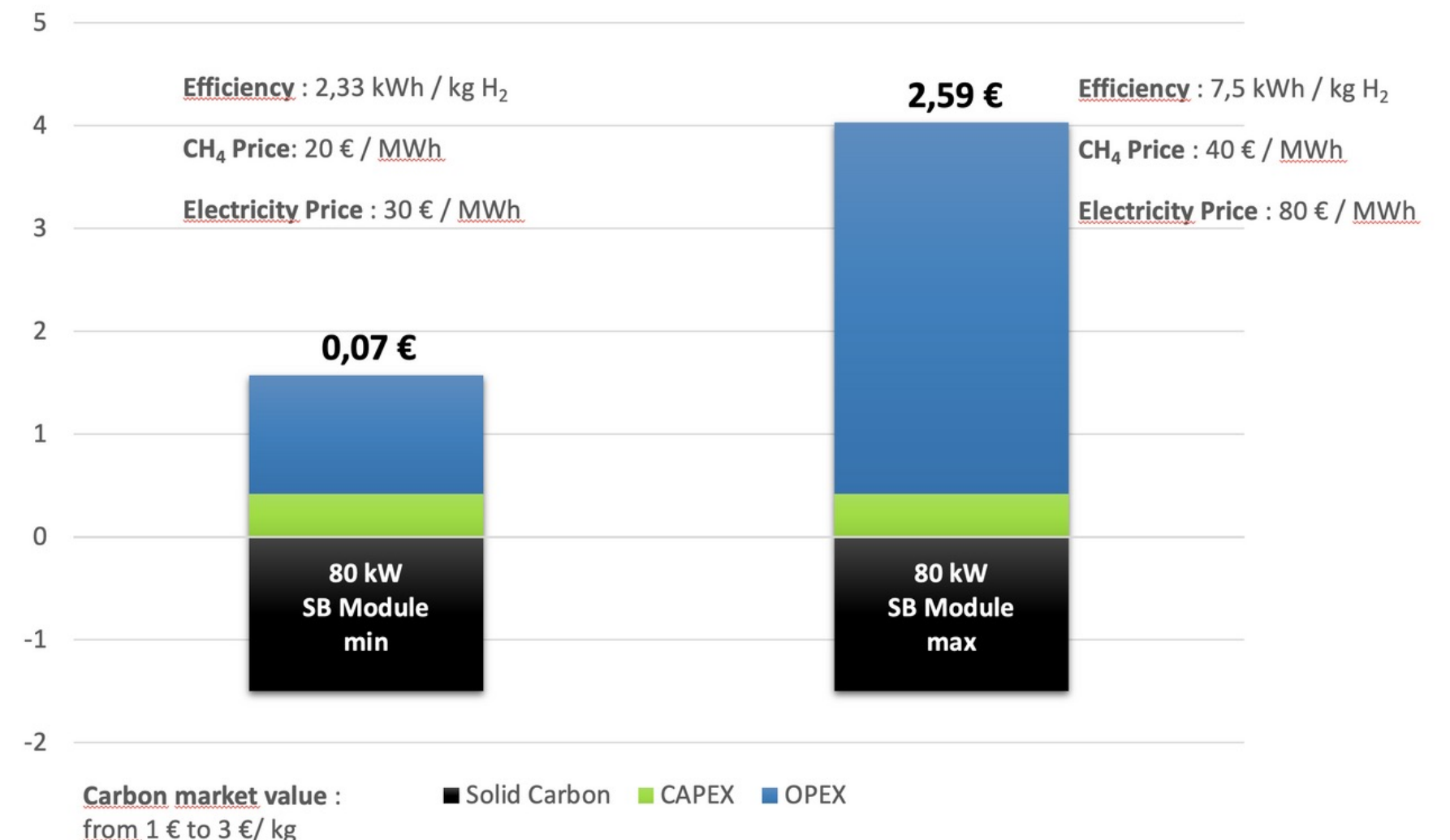
Competing Technologies

2 VALUABLE PRODUCTS :
HYDROGEN
SOLID CARBON

HYDROGEN PRODUCTION COST in €/kg



Methane plasmalysis requires low energy, like steam reforming and low CAPEX to produce H₂ at low cost and without CO₂ emissions.

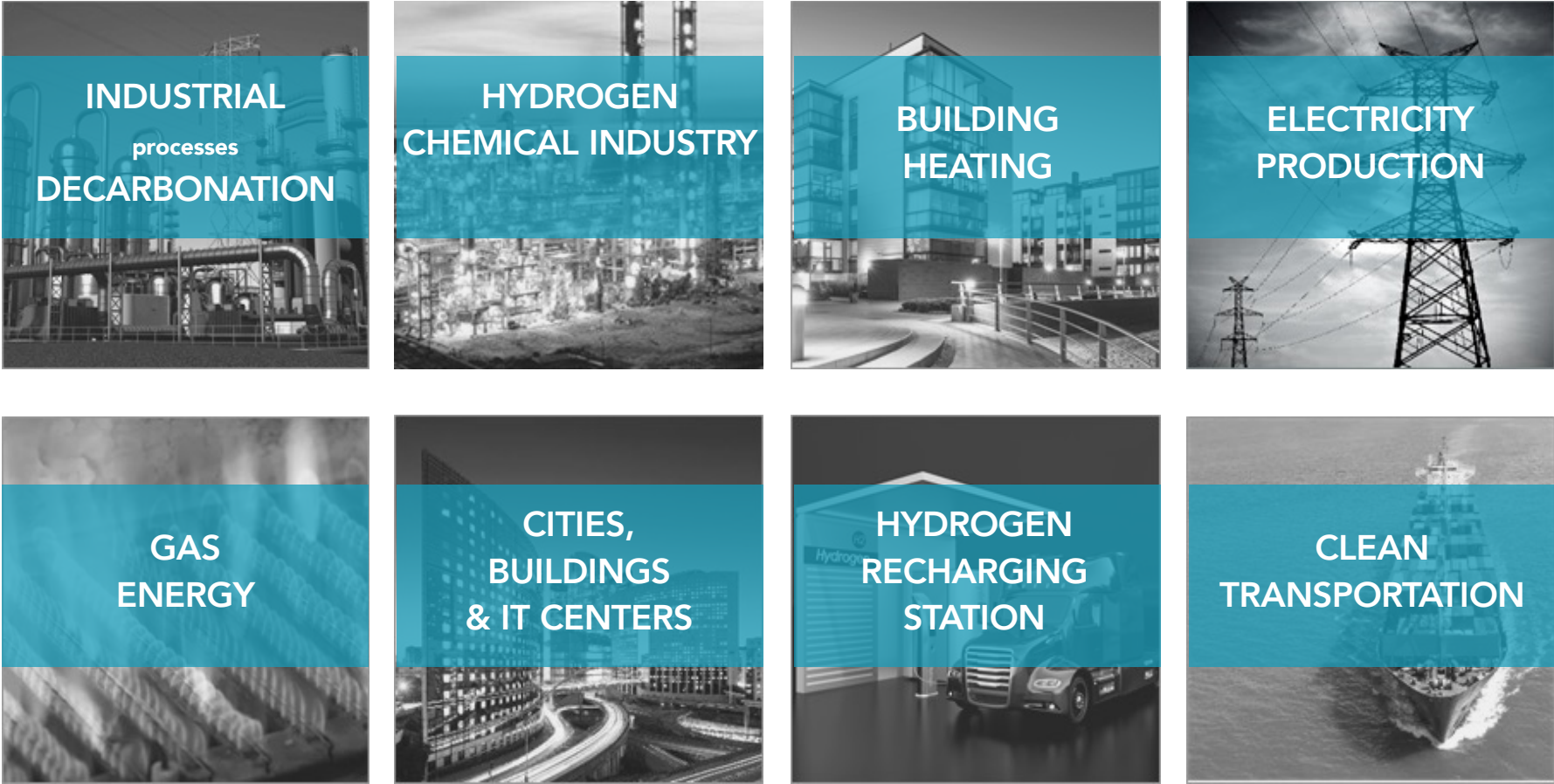


METHANE PLASMALYSIS,
A NEW ALTERNATIVE

Business Model

From 2022 - 2025 Sakowin will generate revenue through selling license agreements to system integrators on a 3-year timeline. From 2025 all stand-alone units will be sold as part of a license agreement. The benefit of this is that within the license agreement Sakowin will co-develop the equipment with the client and Sakowin can generate revenue before having commercially available products.

ACCESS THROUGH OEMS CO-DEVELOPMENT PARTNERSHIPS



6 W Lab unit

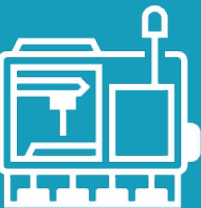


COGS: €33k

SP: €120k

M: 72.5%

80 kW Demonstrator



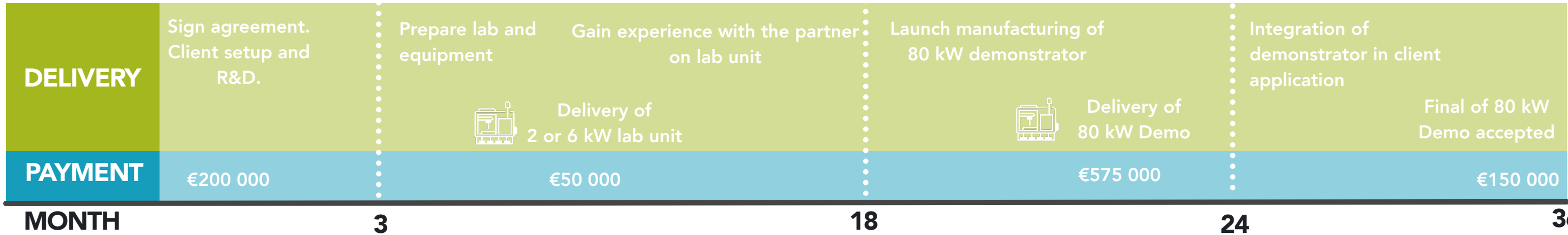
COGS: €207k

SP: €800k

M: 74.1%

PRODUCT DELIVERABLES

This typically would take about 18 months to complete, the first client's process will run over 36 months until the end of 2024. As of 2024, the process will be 12 months. Payments are done across the 4 stages of delivery. Average license contract is €1m.



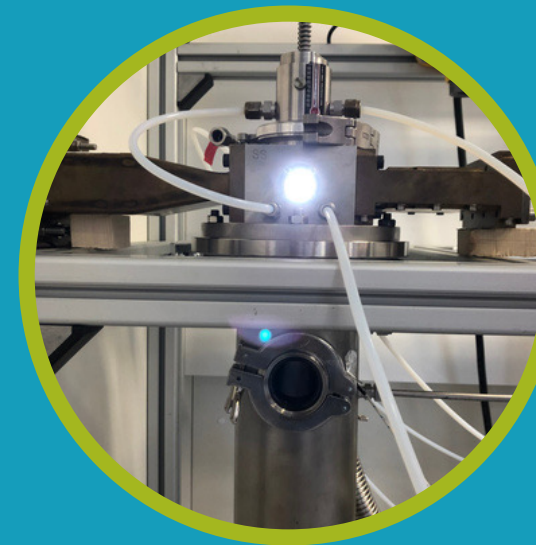
Traction summary

6 month update

IMAGES OF CURRENT PRODUCT PROTOTYPE



LABORATORY PROTOTYPE



METHANE PLASMA



METHANE PLASMA OUTPUT

COMMERCIAL

- Confirmed client for Hydrogen Refuelling Station co-development for transport solution for oil and gas extraction without CO2
- Signed Swiss lab as client & scientific partner to integrate Sakowin's solution into a hydrogen refueling station
- Operational prototype - targeting an energy efficiency equivalent to methane steam reforming

FINANCES

- Secured Regional Innovation Partnership financing for €200k
- Investment offer for €1.5m across 2 tranches
- Previous fundraising: approx. €2.2M across 3 smaller rounds including €1,7M non-dilutive financing

TECHNOLOGY

- 3 patents filed around methodology - using the microwave plasma technology to produce gaseous hydrogen and solid carbon from methane
- Build and optimizing a 2kW microwave plasma reactor running in Sakowin's Laboratory in Aix en Provence
- Demonstrating an operational prototype - targeting an energy efficiency <7.5 kWh (microwave) per kg of H2 produced

Team

Mr Gatt strategically built a core team of expertise and skills to meet the requirements of the business growth at each stage.

Currently, there is 8 active staff (2 FTEs, 2 investors, 1 co-development partner and 3 subcontractors after the investment round, the company will recruit 3 more staff over a 2-year period.



Gerard Gatt
CEO

With 35-year experience in growing companies, Mr. Gatt is one of the first 17 employees at Citrix Systems (NASDAQ). This is where he cut his teeth in growing and commercializing a tech product. In May 2020 started on the decomposition of methane through microwave plasma technology, a truly novel innovation at the time. Gerard built the team and successfully financed the development of a 1st prototype.



Yves George
VP SALES

Yves George is currently managing Sakowin's commercialization. Yves has a telecom (Nortel, Motorola, Nokia and Alcatel) and mobile radio system engineering background. He started in R&D roles and moved into sales for over 10 years, sales mainly related to non-telecom clients within the energy and transport sectors for whom he managed sales budgets of 200 M€. Yves is a Sakowin equity holder (2017)



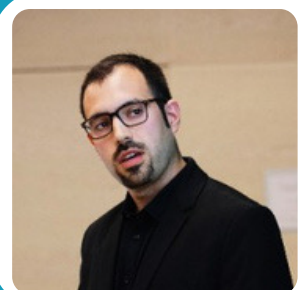
Giovanni Trimboli
PRODUCT ENGINEER

Serial entrepreneur (sold Novolabs). Currently assisting in managing the lab, prototype engineering and development. Engineer by profession and focused on equipment and design engineering. Dedicates time to product development and in addition switching to an active board member.



Dr. Marilena Radoiu
MICROWAVE EXPERT
(PhD in Chemistry)

Dr. Marilena Radoiu is an expert in microwave sustained plasmas and her main role is to implement the microwave plasma technology into the laboratory prototype and to help its transition to the final industrial equipment. Her company (MTC) has agreed to a 5-year technology and IP transfer to Sakowin's FTE team. Additionally, Marilena owns 0.5% equity of Sakowin and MTC has a royalty deal of 5% of EBITDA.



Alvaro Martin Ortega
R&D LAB ENGINEER
(PhD in Physics & Microwave plasma)

Dr. Alvaro Martin Ortega has a PhD in physics and microwave plasmas. Alvaro is the R&D Lab engineer and works closely with Dr. Marilena Radoiu to operate and optimize the lab prototype, learn about technology, innovation and IP / know-how.

A total of €1.65m raised across various entities



Investment Round

Sakowin is currently undergoing a €3.5M fundraising round, which will be over 2 tranches:

- An initial €1M equity raise with pre-money valuation at €6m - Sep 2021
- Follow-on round of €2.5M convertible notes valuation based on series A round end of 2022

This €3.5M funding will allow to complete the 80 kW demonstrator Q4 2024.

€1M - SEP 2021

Focus

Extend the runway for R&D, product development and expand the team and secure CTO.

Milestones

By end of 2021 ensure that the 2kW laboratory equipment is functional and able to reach initial performance

€2.5M - Q4 2022

Focus

- Optimization of chemical reaction of methane decomposition to be reach <7.5 kWh (microwave) per kg/H₂
- Design and automation of the gas/solid separation process at a pre-industrial level.

Milestones

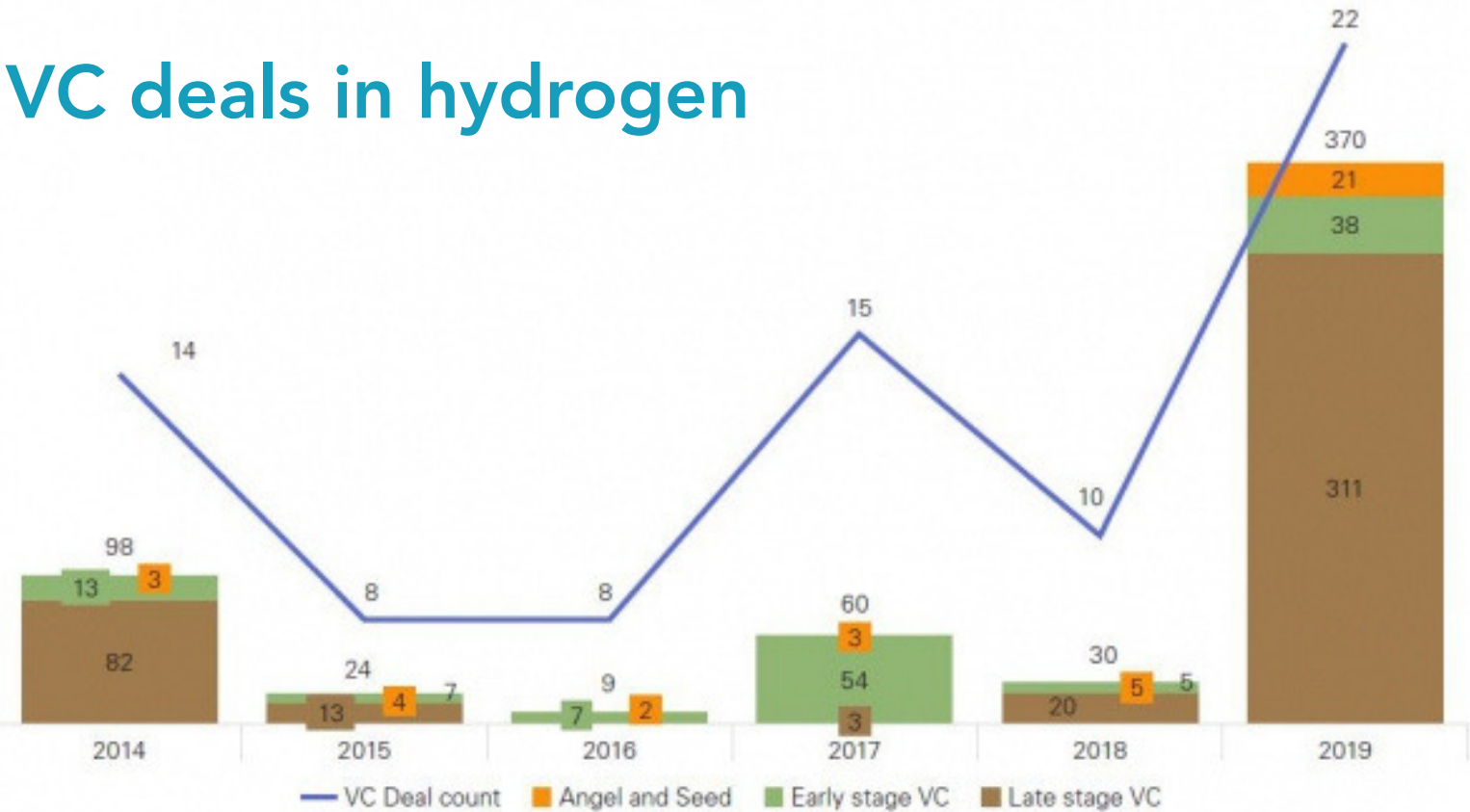
Q1 2022 deliver a 2 kW laboratory equipment to EMPA (existing client)
Q4 2022 deliver to client a 6 kW prototype equipment, integrated into a compact cabinet, including a pre-industrial gas/solid separation.

Scenario Analysis

The green hydrogen industry is expanding. Hydrogen Road Map Europe report: towards 2030, focus on priority segments on blending of hydrogen into the natural gas grid and use in commercial, transportation fleets, larger passenger vehicles, heavy transport (trucks, trains, ships), material handling, and the decarbonization of existing hydrogen production.

The recent increase in corporate-led deals suggests that the hydrogen ecosystem is poised for further growth, as notably the strategies of corporates are cooperative and value adding, as opposed to competitive and value capturing.

VC deals in hydrogen



Timing

The combination of the timing, the need for low cost, scalable, modular green hydrogen production and interest makes for a great investment into Sakowin. Sakowin has a unique opportunity to move across the EU to gain market share in the hydrogen refueling and industrial heating sub-markets, failure to do so promptly opens the opportunity for more-resourced competitors to enter.

Profit and Loss					
	2021	2022	2023	2024	2025
Module South Beach 90kg/day (6kW)	-	-	-	1 200 000 €	2 880 000 €
Module South Beach 1200kg/day (80kW)	-	-	-	-	1 600 000 €
Magnetron	-	-	-	-	120 000 €
License South Beach (Set up R&D)	-	225 000 €	-	250 000 €	500 000 €
License South Beach (Equipment Delivery)	-	-	720 000 €	750 000 €	1 500 000 €
License South Beach (Final integration)	-	-	-	-	-
Total Revenue	- €	225 000 €	720 000 €	2 200 000 €	6 600 000 €
Cost fo revenue	-	45 000 €	240 000 €	630 000 €	1 836 000 €
Gross Profit	- €	180 000 €	480 000 €	1 570 000 €	4 764 000 €
		80,0%	66,7%	71,4%	72,2%
Cost of salaries RD net of JEI	37 367 €	248 464 €	418 384 €	586 508 €	1 223 600 €
Cost of salaries NON - RD	140 000 €	140 000 €	161 240 €	168 320 €	273 000 €
TOTAL COST OF SALARIES	177 367 €	388 464 €	579 624 €	754 828 €	1 496 600 €
Operating expenses (net of grants & CIR)	- 71 809 €	109 619 €	220 702 €	268 252 €	458 934 €
EBITDA	- 105 558 €	- 318 083 €	- 320 326 €	546 921 €	2 808 466 €
Depreciation	44 037 €	75 747 €	132 877 €	129 247 €	147 413 €
EBIT	- 149 595 €	- 393 830 €	- 453 203 €	417 674 €	2 661 052 €
Net Non Operating Interest Expense	5 950 €	5 727 €	4 611 €	3 422 €	2 231 €
Pretax Income (EBT)	- 155 545 €	- 399 557 €	- 457 814 €	414 252 €	2 658 821 €
		-177,6%	-63,6%	18,8%	40,3%
Tax Provision	-	-	-	-	457 938 €
Net Income	- 155 545 €	- 399 557 €	- 457 814 €	414 252 €	2 200 883 €
		-177,6%	-63,6%	18,8%	33,3%

Fundie Ventures

Fundie Ventures is an impact investment consultancy based in Madrid that supports companies raising €0.5-5m to become investment-ready and help with fund raising.



Stuart Minnnar

PARTNER

stuart@fundie.ventures

www.fundie.ventures

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