VALMAX HYDROGEN

Green Hydrogen generators

Production Start-up

Gavrilov Valentin & Maksim
Haifa, Israel
2023

Green Hydrogen issues:

- High cost of electrolysis technology;
- High cost of Hydrogen transportation;
- Energy losses during Hydrogen transportation;
- Lack of preparedness of Hydrogen infrastructure.

Potential of the global Hydrogen market

- Impact of reducing emissions on limiting global warming to below 1.5°C;
- Green Hydrogen market size was $3.2B in 2021;
- Compound Annual Growth Rate is projected to be 39.5% from 2022-2030.

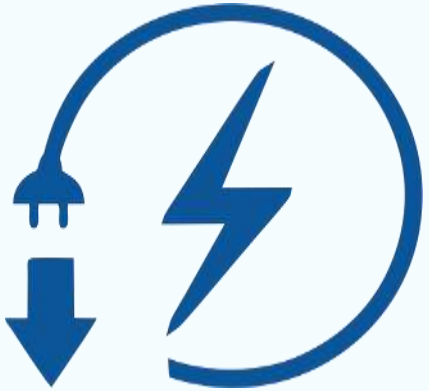
Our innovative solution

Our goal is to improve the production technology of hydrogen to make it more energy-efficient and accessible to the global community.

Our task is to develop a prototype, install a serial generator on demo project, lunch mass production, and establish distribution of equipment and energy around the world.

Hydrogen generators of competitors require **50-55 kWh/kg** input;

Our technology reduces electricity consumption to **11 kWh/kg**.

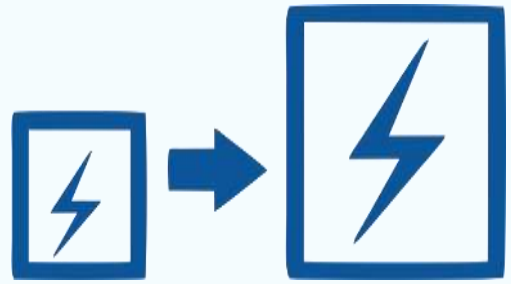


Power consumption is **5 times lower**

Given that 1 kg of hydrogen is equal to 33 kWh of energy.

Our technology target ratio of input to output will be 1:3

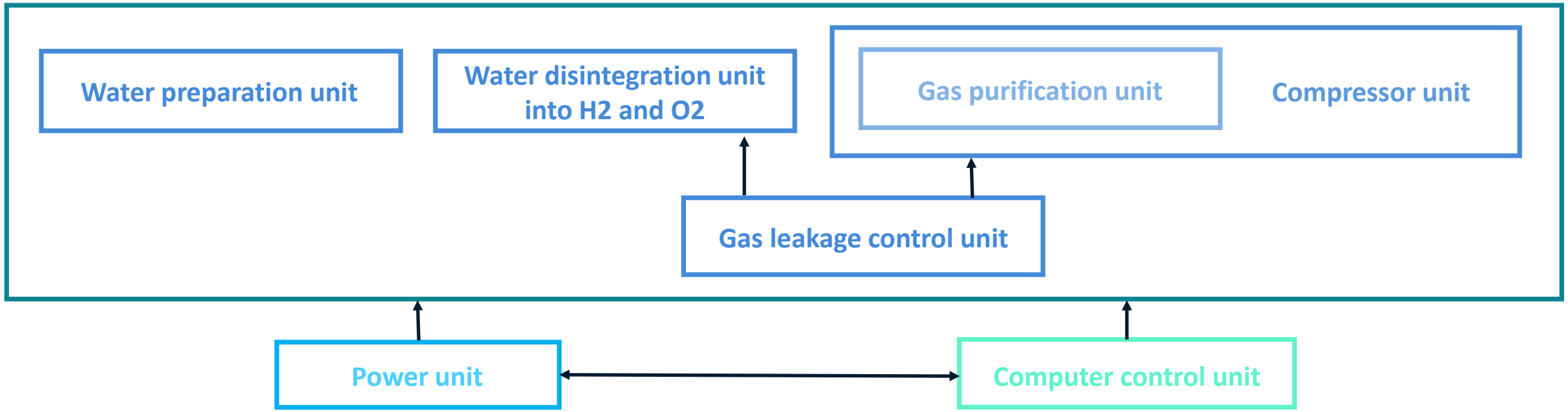
(input 11 kWt/h – output 33 kWt/h)



Our technology will provide the industry's best cost for green hydrogen at **€2/kg**.

We expect the payback of our generators will be
8 – 9 years.

How does it work

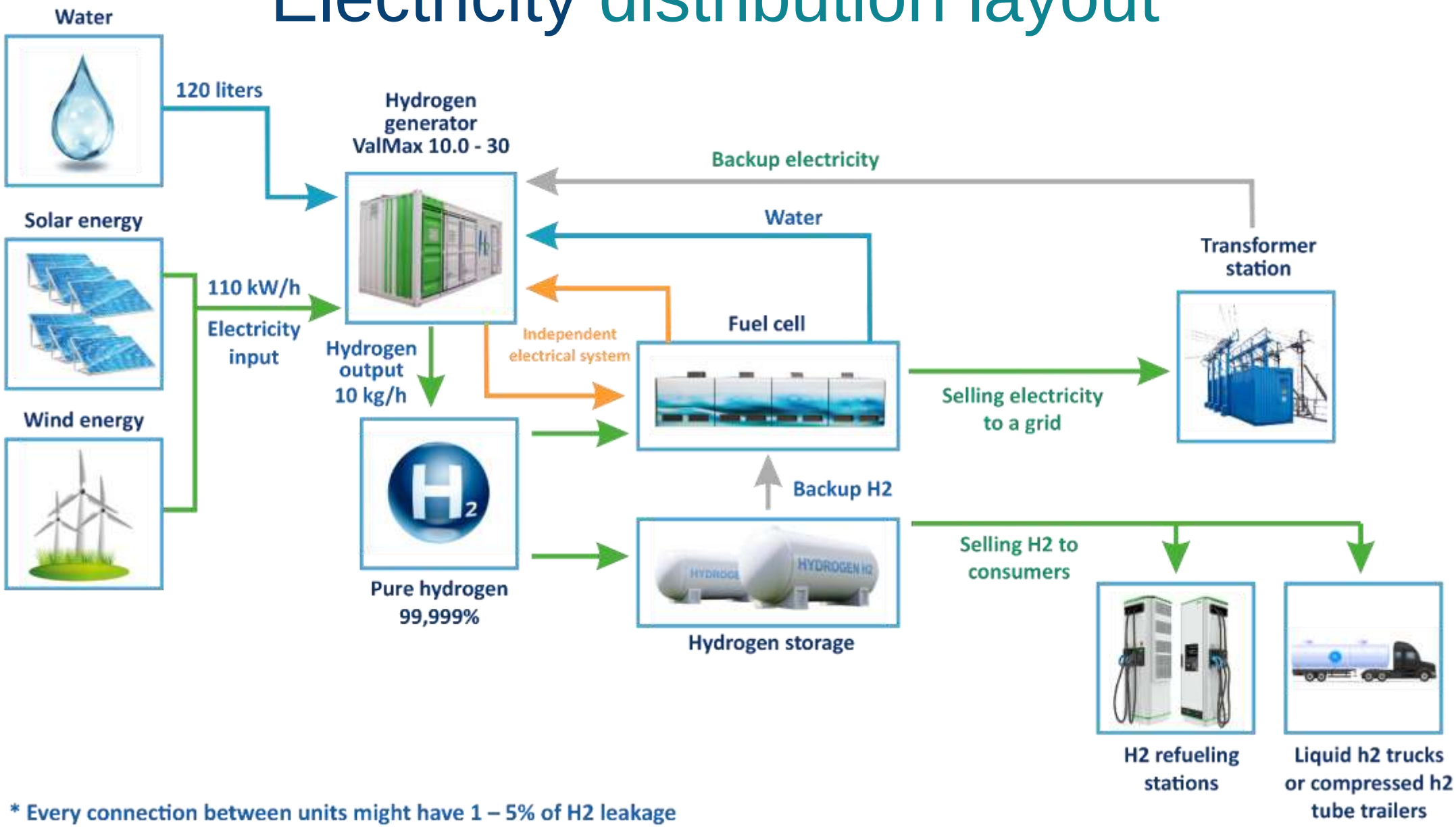


- The principle of our electromagnetic pulse (EMP) hydrogen generator is built upon a combination of (1) Felix Ehrenhaft's magnetolysis, (2) Stanley Meyer's use of electromagnetic pulses, and a (3) third factor developed by us, which is in the process of being patented.
- An extended interface allows to inform the user about the generator state, gas production volumes for any selected period of time and any violations in the generator for all popular communication systems: e-mail, SMS, messengers. Also ISA-95 interface for ERP will be available.
- Several generators can be cascaded into a general gas production system, while the management system logically controls the performance of each individual generator to optimize energy and water consumption.

Preliminary characteristics of our generators

	Model Base ValMax 1.0 - 30	Model Optimal ValMax 5.0 - 30	Model Progressive ValMax 10.0 - 30
Technology			
Generator type	Electromagnetic pulse (EMP) hydrogen generator	Electromagnetic pulse (EMP) hydrogen generator	Electromagnetic pulse (EMP) hydrogen generator
Input			
Water consumption	12 liters/kg	12 liters/kg	12 liters/kg
Electricity consumption	11 kWh/kg	11 kWh/kg	11 kWh/kg
Output			
Production of H_2	1kg/h	5kg/h	10kg/h
Pressure	30 barg	30 barg	30 barg
Purity	up to 99,999%	up to 99,999%	up to 99,999%
Other			
Dimensions: L*W*H (m.)	2,9*1,6*2	7*2,4*2,6 (20ft container)	12*2,4*2,6 (40ft container)
Emmisions	no	no	no
By-product O_2	8kg/h	40kg/h	80kg/h
Price	≈ €750 000	≈ €2 500 000	≈ €5 000 000

Electricity distribution layout



* Every connection between units might have 1 – 5% of H2 leakage

Our business model

Selling generators

100% payment

EMP hydrogen generator ValMax 1.0 – 30

sale of generators at full cost with their installation at customers sites

Selling energy

30% down payment

20% fee

EMP hydrogen generator ValMax 5.0 - 30
EMP hydrogen generator ValMax 10.0 - 30

30% down payment for equipment.
20% fee of the cost of each:
- kg of hydrogen used or sold;
- kWh of energy used or sold.

Our risks and solutions

Plan A

Step 1. The prototype is made in 2023. Input 11kWh has been achieved.

Step 2. The serial generator is included in the power system of the demonstration project in 2024.

Step 3. The certificates are obtained, mass production launched in 2025.

Plan B

Step 1. Prototype produced in 2023. Targets partially met. Since in the industry it is believed that electricity consumption of 39.4 kWh equals 100% efficiency of a H2 generator, we have a huge margin between 11 - 39.4 kWh/kg.

Step 2. The serial generator is included in the power system of the demonstration project in 2024.

Step 3. The certificates are obtained, mass production launched in 2025.

Plan C

Step 1. The performance of the generator is unsatisfactory. We are moving on to the development of a AEM generator with increased efficiency. 2024

Step 2. The serial generator is included in the power system of the demonstration project in 2025.

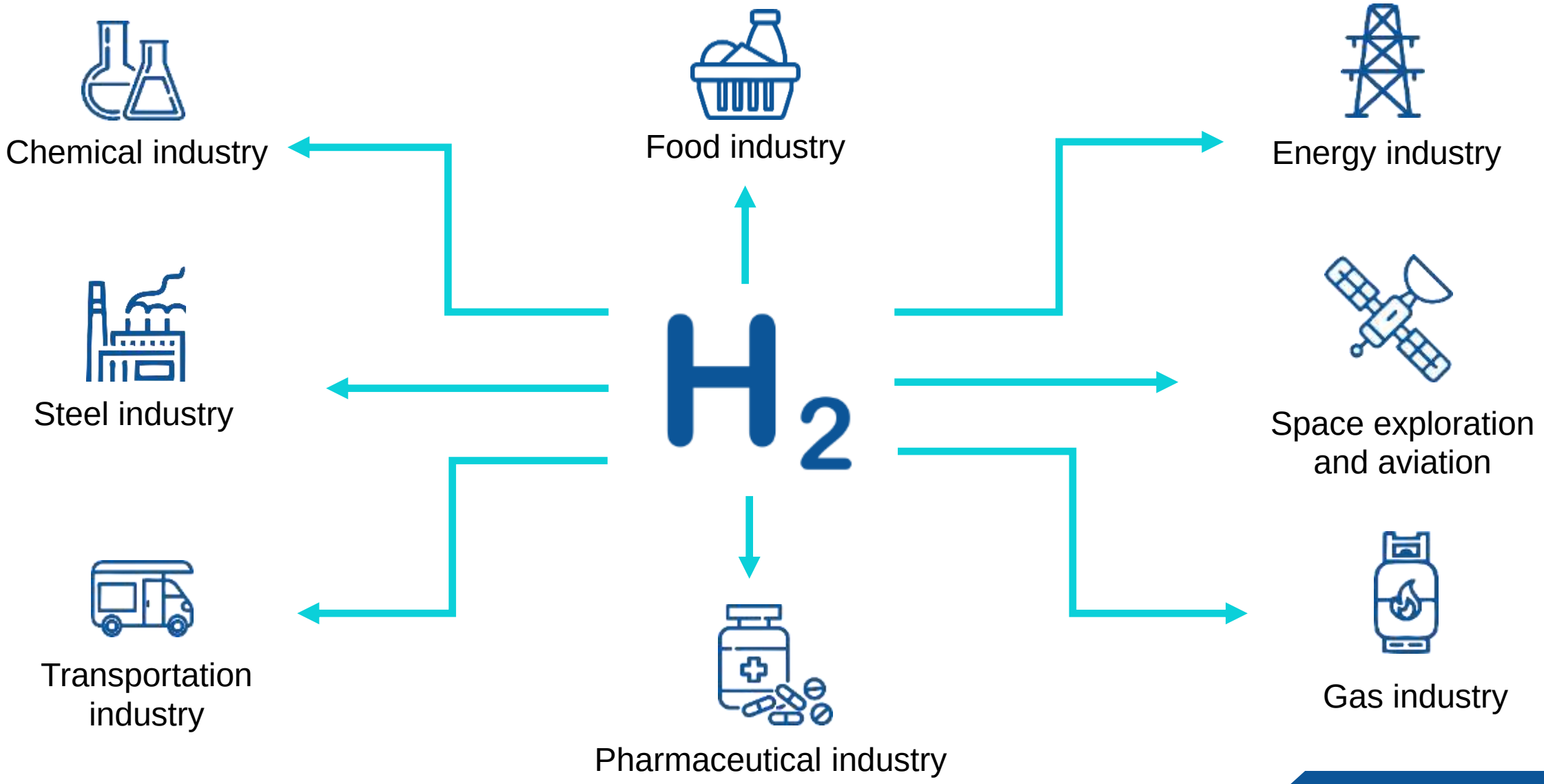
Step 3. The certificates are obtained, mass production launched in 2026.

Step 1. The performance of the generator is unsatisfactory. Some units of the prototype have potential.

Step 2. The serial sample of the unit is used in the working generator of the partner and increases its efficiency. 2024

Step 3. Started mass production of the unit. 2025

Our start-up’s potential segments



Our start-up’s potential markets

Nordic countries

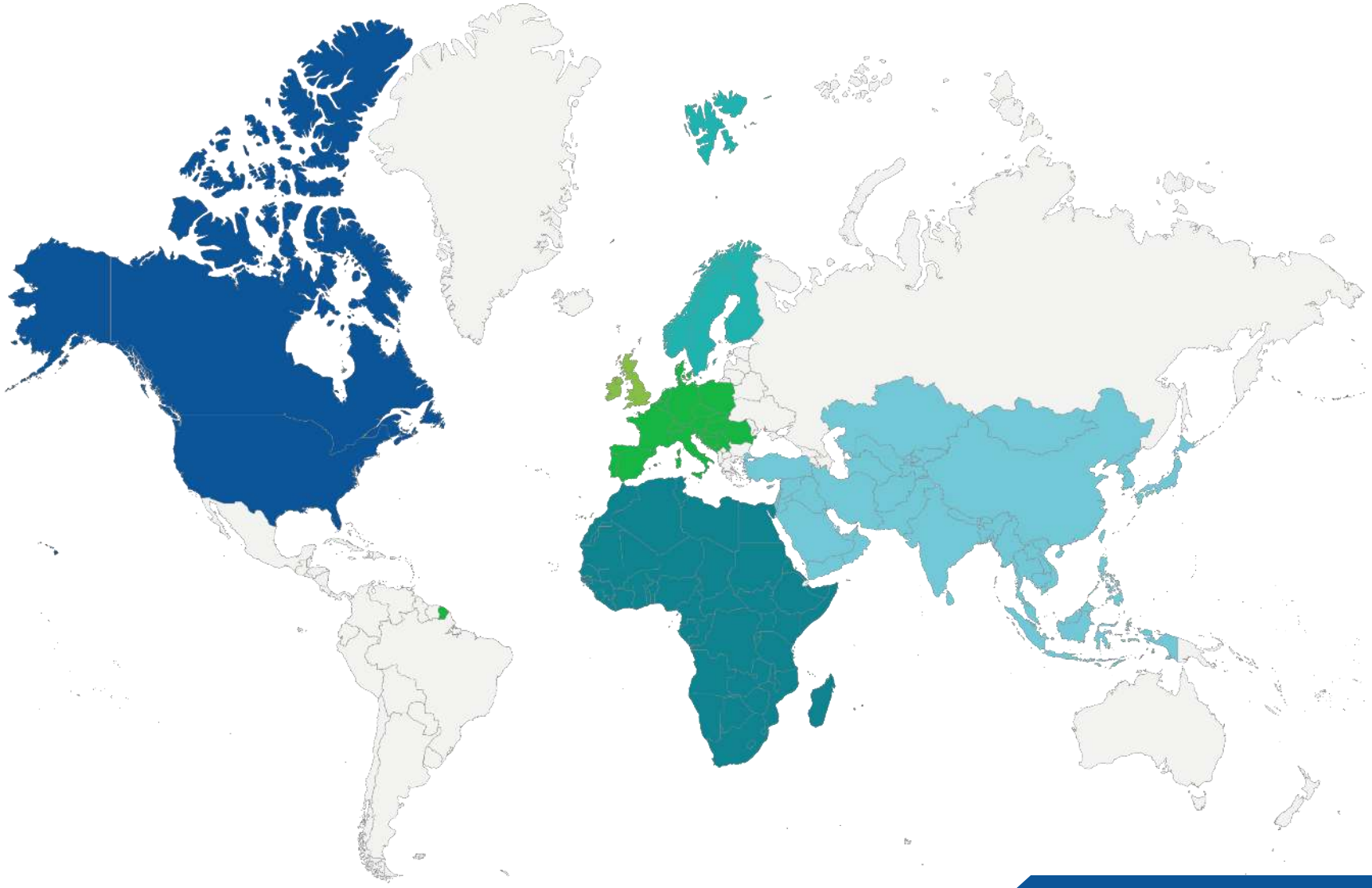
Europe

Great Britain

North America and Canada

Asia

Africa



Our clients

We analyzed the number of companies that are our potential clients.

	Chemical industry	Steel industry	Energy industry	Food production industry	Transportation industry	Pharmaceutical industry	Space exploration and aviation	Gas & Oil industry
Nordic countries	**531**	**662**	**17679**	**6417**	**1283**	**954**	**193**	**103**
Denmark	46	49	2838	372	74	266	10	43
Sweden	264	271	9572	713	143	24	148	19
Norway	89	290	331	1732	346	357	18	9
Finland	132	52	4938	3600	720	307	18	31
Europe	**3346**	**21812**	**39604**	**55884**	**58826**	**941**	**886**	**1041**
Germany	498	14559	1205	879	176	80	479	84
Austria	37	48	154	12154	2431	10	16	6
Belgium	124	219	8136	3147	629	20	11	19
Italy	656	845	12878	4714	943	27	29	31
Holland	320	1982	1680	12400	6480	67	16	475
Switzerland	2	127	435	6108	1222	119	80	9
Spain	624	1354	13786	6025	33600	138	139	216
France	700	1970	1160	3100	12000	280	89	188
Portugal	384	708	170	7357	1346	200	27	13
North America	**1361**	**717**	**75401**	**93610**	**29922**	**905**	**1683**	**3369**
USA	270	664	74622	60400	23280	425	1663	3040
Canada	1091	53	779	33210	6642	480	20	329
United Kingdom	**592**	**3400**	**337**	**6115**	**1223**	**112**	**480**	**5**
Asia	**2784**	**1910**	**21027**	**32478**	**9034**	**579**	**782**	**1474**
Africa	**627**	**117**	**3182**	**4270**	**2103**	**94**	**368**	**329**

Our competitors

Direct Competitors

Companies using alkaline, PEM, and SOE technologies

Strength of competitors
- Already have a pool of clients and suppliers.
- The development and supply of H_2 generators has been established.
- A range of generators of various capacities has been approved.

Weakness of competitors
- Still high H_2 price.
- High costs and water consumption.
-Gradually obsolete hydrogen production technology.

Ways to compete with them
- Offer generators with 300% efficiency.
- Show financial benefit at least
2 times when using our generators.
- Indicate to high reliability of hydrogen supply at any facility with our generators.

Indirect Competitors

Companies producing other types of green hydrogen, pink, yellow, blue, turquoise hydrogen.

Strength of competitors
- More well-known types of green energy on the market.
- High loyalty of potential customers.
- Already have a pool of clients and suppliers.

Weakness of competitors
- Low level of environmental friendliness.
- Often non-compliance with the policy of a green company.
- High cost of energy.
- Extra transportation costs.
- Low efficiency.

Ways to compete with them
- Reorientation of customers using more effective hydrogen generators.
- Providing the most environmentally friendly H2 generators.
- Providing Flexible control system for all generator parameters and interaction with customer’s equipment.
- Guarantee of No Extra transportation costs.

Substitute Competitors

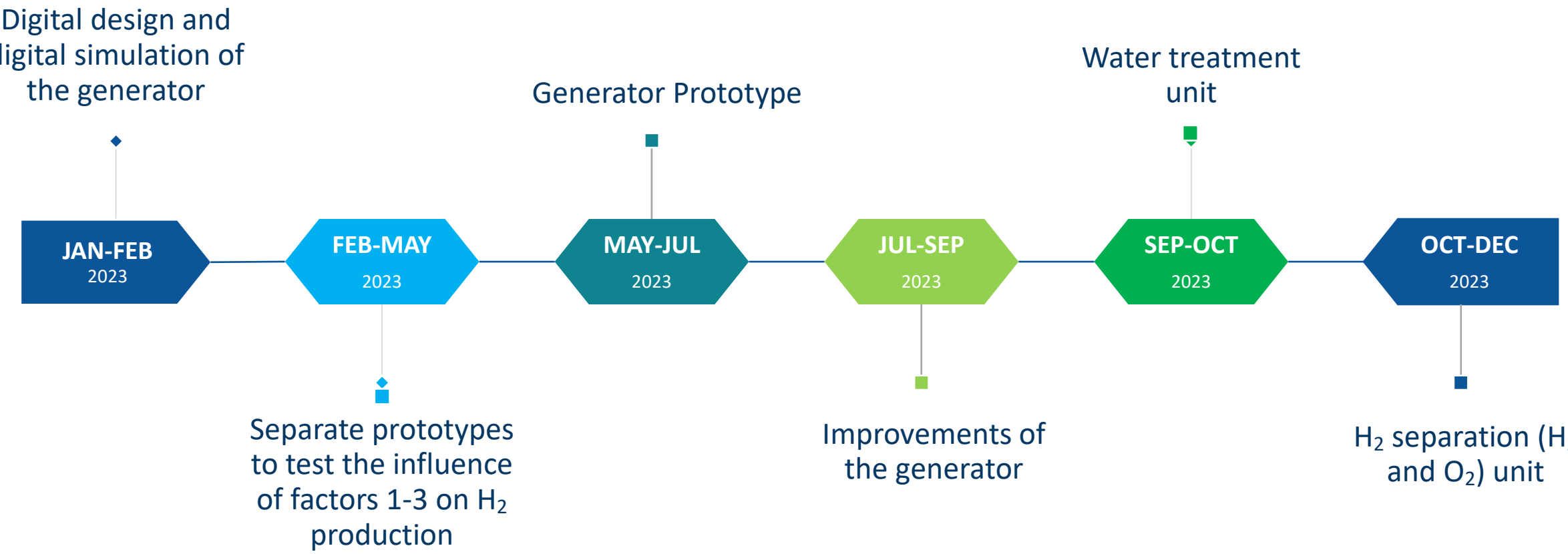
Companies producing grey, brown, black hydrogen, and energy from traditional sources

Strength of competitors
- Well-established infrastructure.
- Most common and well-known energy solutions.
- High efficiency due to production scale.
- Low energy prices.

Weakness of competitors
- Very strong negative impact on environmental pollution.
- High equipment operating costs.
- Barrier to the transition to less well-known eco-friendly technologies.

Ways to compete with them
- Shift focus to a green energy technologies.
- Providing High efficiency generators (enables to provide all the power required by customers on demand).

Our plans for 12 months



Currently, we have assembled a prototype generator in our temporary laboratory to test the influence of 1st – factor, electrical impulses on the decomposition of water, with very promising results.

Long term plans

2023

- an operating final version of a prototype of a generator is developed;

- indicators of consumption and output are confirmed by a third party technical supervision;

- certification procedure started;

- patent procedure started;

- an Internet platform is launched.

2024

- production and installation of a demo generator in the power supply system of the existing project;

- pre-seed venture capital started to raise;

- patent is received;

- detailed financial plan is created and approved;

- a marketing plan and advertising campaigns are created;

- Creation a client base of potential customers;

- flow charts and production instructions are written.

2025

- factory facilities rented, recruitment lunched, mass production started.

- certificates received;

- seed venture capital started to raise;

- suppliers of equipment and components secured;

- active sales on the client base lunched;

- CRM launched and connected to the web-platform.

- preparation for ERP launch.

Estimated start-up costs for 2023

R&D personnel costs (3 - 5 people).	220,000 €
Costs for R&D materials and equipment	70,000 €
Laboratory + equipment + utilities + communications	8,000 €
Web site	3,000 €
The total costs	**301,000 €**

Personal funds - 50% (150,500 €)
Borrowed funds - 50% (150,500 €)

Our startup is looking for your support

- **Investors support:** we are open for funding and investments;
- **Marketing support:** we are welcoming help to raise awareness of our brand and promoting our startup;
- **Partners support**: we are happy to connect our team with key industry players, suppliers, and customers.

Sign Letter of Intention today –
Get your Innovative Generator in 2025*

- ✓ you will be the first to receive notifications about the stages of the project;
- ✓ special discount for partners with signed LOI - 15%;
- ✓ usage of partner equipment in complex energy systems;
- ✓ extended warranty up to 5 years with no extra charge;
- ✓ free of charge installation works.

*** Our factory will start mass production of the first generators at the beginning of 2025**

- ✓ **Innovative green H_2 generators;**
- ✓ **Record low electricity consumption 11kWh/kg;**
- ✓ **Zero emissions;**
- ✓ **Record price for Green H2 - €2/kg at your premises.**

By becoming a part of this start-up, you will contribute to the world's affordable alternative fuel

With best regards,

Valentin Gavrilov
vg@valmaxh2.com
+ 972 555 567 400

Max Gavrilov
mg@valmaxh2.com
+ 972 512 289 102
+ 358 45 155 4750

www.ValMaxH2.com