

Hydrogen uptake in Colombia from German industry perspective

Carlos Poveda
Siemens Energy – Transformation of Industry
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Our contribution to Colombia's economy



Siemens Energy
Colombia contributes to

0,2%

of country's GDP and

0,5%

of the GDP of industrial
sector

110

Years doing business in
Colombia and more
than **65 years with
own operation**

Contributed with more than **€100M**
on taxes, salaries and social security
contributions



26

References registered
as **100% colombian
product**

About **65%**
of the products
manufactured are
exported to the
Americas

13,5%

of the Colombian
exports of electrical
equipment

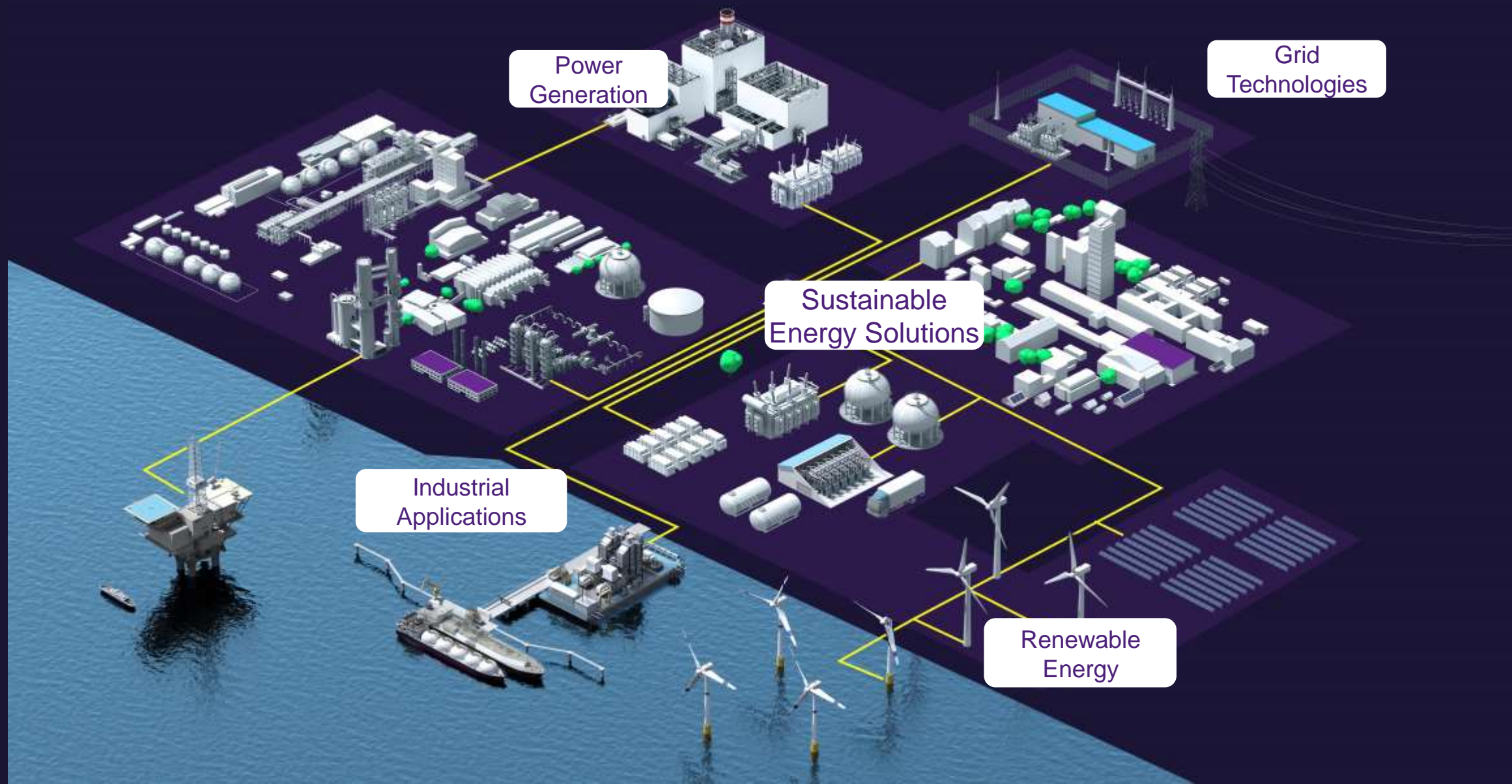
0,2%

of total Colombian
exports

Siemens Energy Colombia
participates on

Solutions for the entire energy value chain

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ENERGY





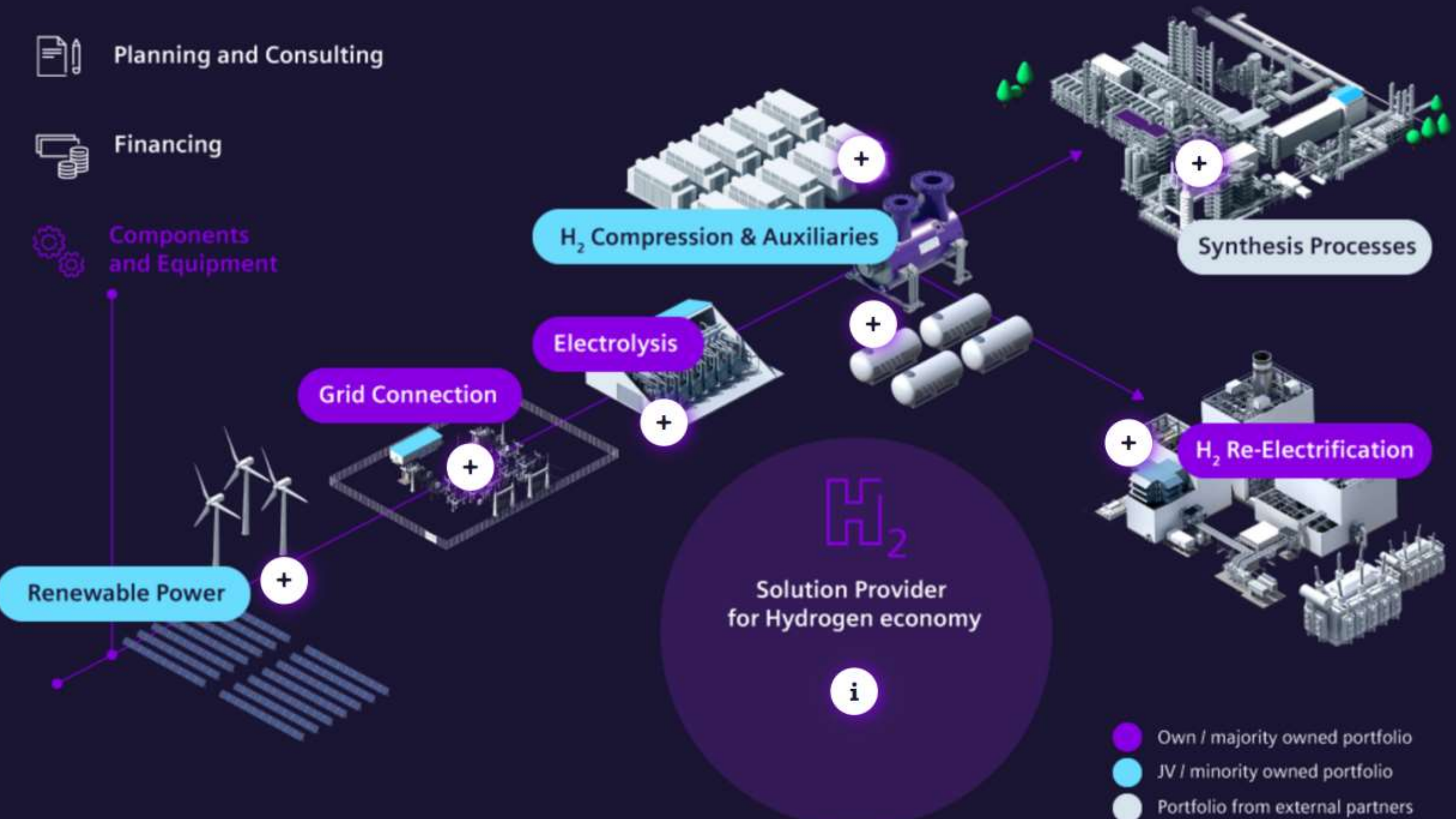
Planning and Consulting



Financing



Components and Equipment



Solution Provider
for Hydrogen economy



- Own / majority owned portfolio
- JV / minority owned portfolio
- Portfolio from external partners

Siemens Energy

The right partner to lead green hydrogen solutions



Proven industrial-grade large-scale electrolyzer systems

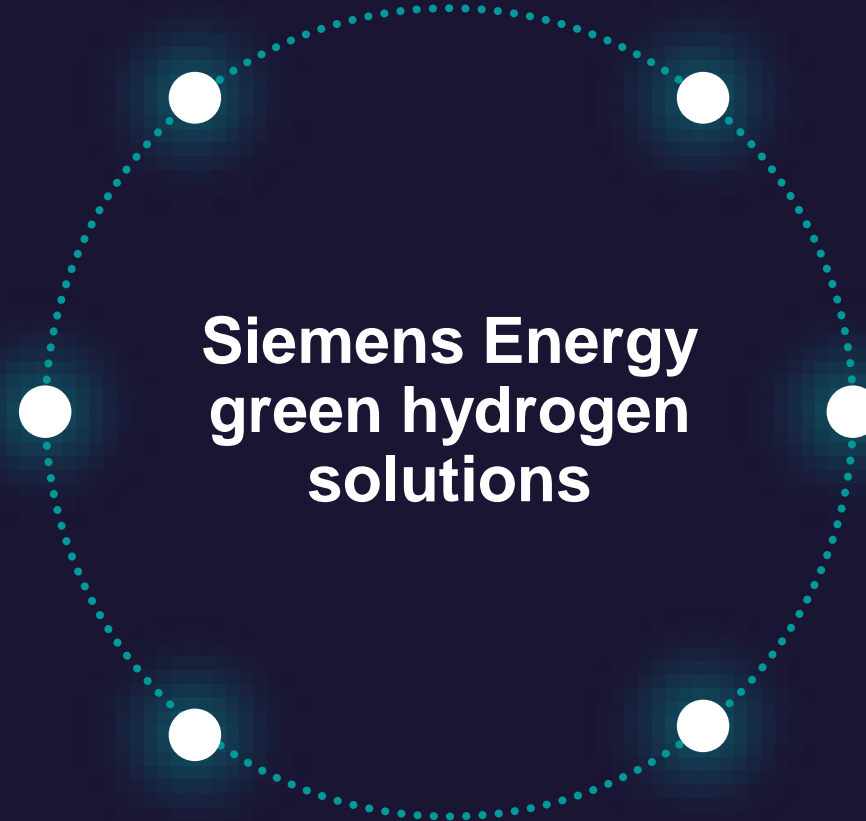
>200,000 operating h in MW range

Scalable solutions

Pre-fabricated and pre-engineered packages

Energy Consulting & Digital Services

H₂ value chain design and optimization



Siemens Energy green hydrogen solutions

Fully integrated solutions

from green electrons to green molecules with our strong partner ecosystem

Global G2M setup and customer domain know-how

configuration of industry-specific solutions

Reliable technology and reliable partner

with highest standards in safety and project excellence

Ready to deliver large-scale electrolysis systems + capacity increase in Germany is locked and loaded

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- Implementation of **modern robots**
- **Fully automated** production line
- **Industry 4.0 Digitalization** implemented



- **Inhouse design** allows for internal and external local packaging
- **Packaging** will be established depending on the development of the markets



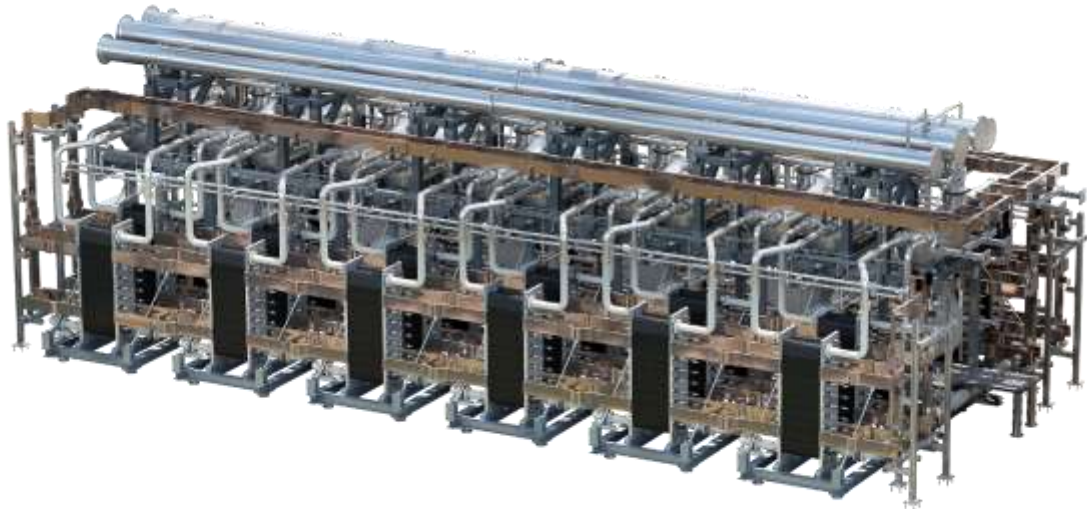
- **Capacity growth plan locked-in** and layouts finalized
- **Additional 1 GW per year** depending on demand



Silyzer 300 – Full Stack Array

The next paradigm in PEM electrolysis

Silyzer 300 – full stack array (24 stacks)



17.5 MW
plant power demand

>75.5 %
plant efficiency

24 stacks
to build a full stack
array

335 kg
hydrogen per hour



Projects in implementation based on Silyzer 300 platform

Scale-up is already happening

6 MW plant

8.5 MW plant

up to 20 MW plant

50 MW plant

70 MW plant



H2Future Linz

- Green hydrogen for the steel making process
- Our partners: VERBUND, voestalpine, Austrian Power Grid (APG), TNO, K1-MET



Power-to-Gas Wunsiedel

- Green hydrogen for industry, grid services and mobility
- Our partners: WUNH2, Siemens AG, Rießner Gase, SWW Wunsiedel GmbH



Trailblazer Oberhausen

- Green hydrogen for Air Liquide pipeline infrastructure
- Our partner: Air Liquide



e-Methanol Kassø

- Green hydrogen for CO₂-neutral shipping at large-scale
- Our partner: European Energy



FlagshipONE

- Green hydrogen for CO₂-neutral shipping at large-scale
- Our partner: Ørsted

Colombia gathers the necessary elements to develop its roadmap for H₂

- Colombia is one of the 20 most vulnerable countries to climate change
- COP21 - Colombia committed to reduce 51% of greenhouse gas emissions by 2030.
- Energy security risk related to declining oil and gas reserves in the coming years.
- Almost 2 million Colombians do not have access to energy.
- It has a great potential for renewable generation: Wind & Solar



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