

ANOTH₂ER WAY TO THE FUTURE

SAIPEM

IVHY™ 100

FOR YOUR GREEN HYDROGEN PRODUCTION PLANT



SAIPEM



WHAT IS GREEN HYDROGEN?

Green hydrogen is produced via electrolysis, a process whereby water is split into hydrogen and oxygen using electricity entirely generated from renewable energy sources.

HOW CAN GREEN HYDROGEN BE USED?

It can be used in **various sectors** in the existing industry, such as **petrochemical, fertilisers, refineries** and **biorefineries**. It can also be used for **mobility, heating, power** and **new products** such as **green ammonia, green methanol, e-fuel** and **e-methane**. This means embracing a decarbonization process to reduce carbon footprint **toward net zero**.

IN WHAT DIRECTION IS THE BUSINESS GOING?

According to several studies, green hydrogen production **is expected to grow significantly** in the next decades **gradually replacing grey hydrogen** consumption and satisfying **emerging applications demand**.

SAIPEM IVHY™ 100

GREEN HYDROGEN SOLUTION powered by nel•

IVHY™ 100 is Saipem's **sustainable, reliable, industrialized, scalable and modular** solution for green hydrogen generation, based on Nel's alkaline technology.

IVHY™ 100 addresses the growing green hydrogen demand for the decarbonization of hard-to-abate industries and the production of green derivatives, such as ammonia, methanol and sustainable fuels, to support our Clients in their journey towards Net Zero.



**FAST AND
SECURE DELIVERY**

**EFFECTIVE AND
PREDICTABLE OPERATION**

**GUARANTEED
DESIGN AT SCALE**

PRODUCT PERFORMANCE

H₂ Flowrate about 19,000 Nm³/h

Capacity (scalable) 100 MW

H₂ Output P (adjustable) 30 barg

H₂ Output T 40°C

H₂ Purity > 99.99%

Plant Footprint Overall 23,000 m²
Core 13,000 m²

IVHY™100: SAIPEM AND NEL'S NEW TECHNOLOGY

GUARANTEED SCALE DESIGN.

Combining Saipem's expertise in the field of development of "green grids," with that of Nel, a key electrolyser player in the market for nearly 100 years and an industry leader, means making **a reliable technology with guaranteed performance**.

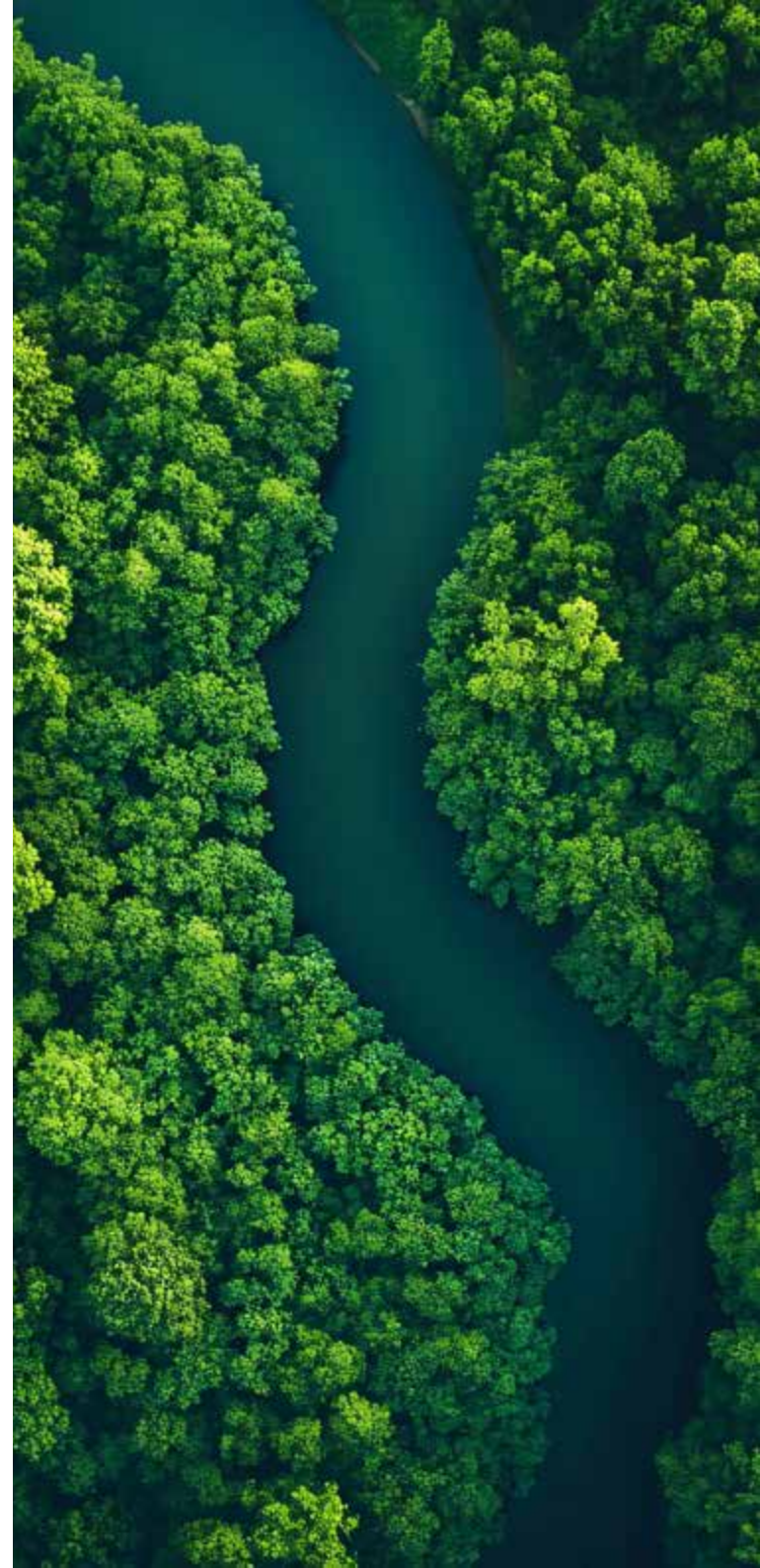
Saipem's Green Hydrogen Industrialized **IVHY™100 solution is a pre-engineered, modular and scalable solution** that can produce hydrogen by using 5 electrolysis modules, each with a capacity of 20 MW.

EFFECTIVE AND PREDICTABLE OPERATION.

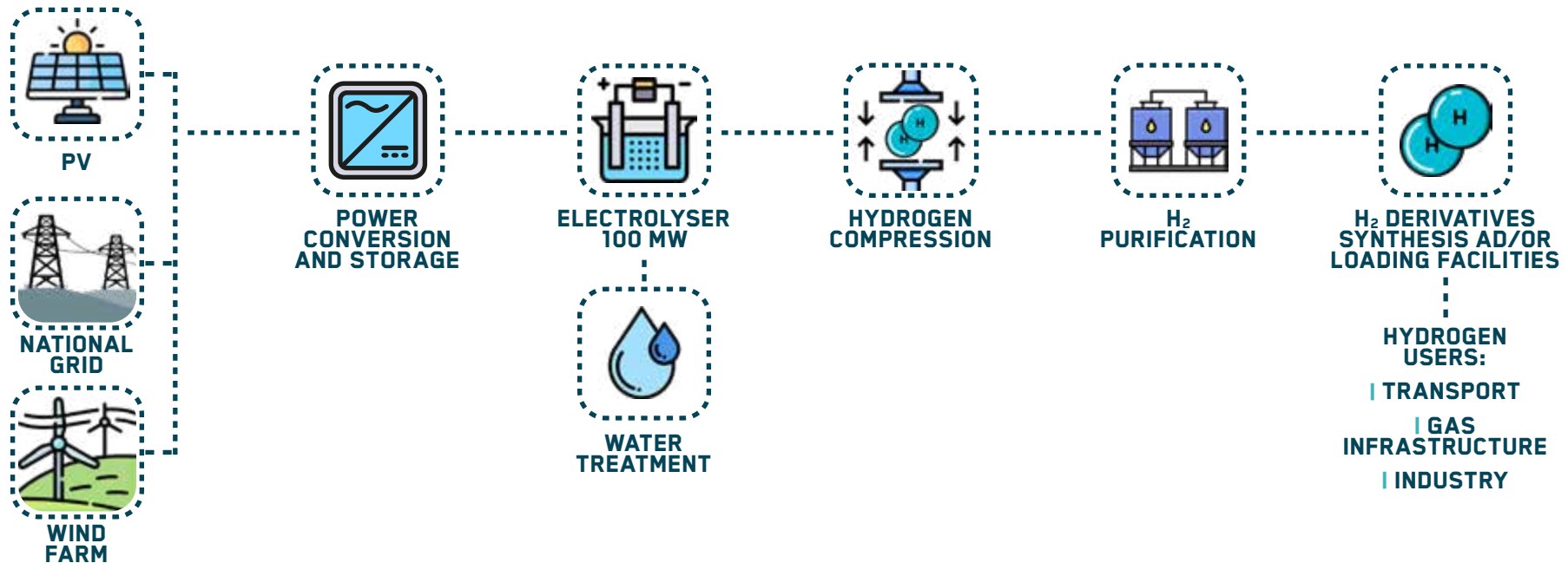
With a **simple and robust design**, Saipem **IVHY™100** can be built with **fixed and competitive time and cost**, to create a Power to Gas Hydrogen plant that uses alkaline technology, follows a replicable production approach to achieve capex/opex reduction, and is constantly improving technology, ensuring LCOH reduction.

FAST AND SECURE DELIVERY.

IVHY™100 is a turnkey, **off-the-shelf solution** consisting of transformers, rectifiers, electrolyser, and all the technology needed for hydrogen compression and purification. **Installation is quick**, as is commissioning, thanks to Saipem's expertise as an EPC contractor and Saipem's pre-engineered package ready for EPC projects.



For many years, Saipem has been engaged in the design and construction of **several hydrogen generation plants** and more than **130,000 km of onshore and offshore pipelines** to transport liquids and gas. But, at the same time, Saipem is also developing studies for the transportation of H₂ and is implementing projects to change existing pipelines and compressor stations for hydrogen use.



**SAIPEM ACTS AS
OVERALL PLANT INTEGRATOR
AND SINGLE POINT RESPONSIBILITY**

SAIPEM AND NEL A UNIQUE PARTNERSHIP

Choosing a partner like Nel, leader in alkaline electrolysers, means reliability, efficiency and safety.

1 ENERGY EFFICIENT ELECTROLYSERS

Nel's state-of-the art electrolyser technology demonstrates the **highest energy efficiency** figures in the market during the lifetime of the electrolyser, backed by **solid performance guarantees**.

2 TESTED AND PROVEN TECHNOLOGY

Nel has almost **a century of experience** developing electrolysers that are tested and proven by clients **across the world**.

3 RELIABLE FLEXIBILITY

Nel's **atmospheric pressure design** offers the flexibility to operate between 15-100%, this ensures a high level of plant availability, and **minimizes costs** related to shutdown and maintenance.





ENGINEERING FOR A SUSTAINABLE FUTURE

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