



Gli Elettrolizzatori e la loro filiera

Come si caratterizza l'industria italiana: dove siamo oggi e quale è il futuro

Giovedì 09 Giugno 2022 – Piacenza

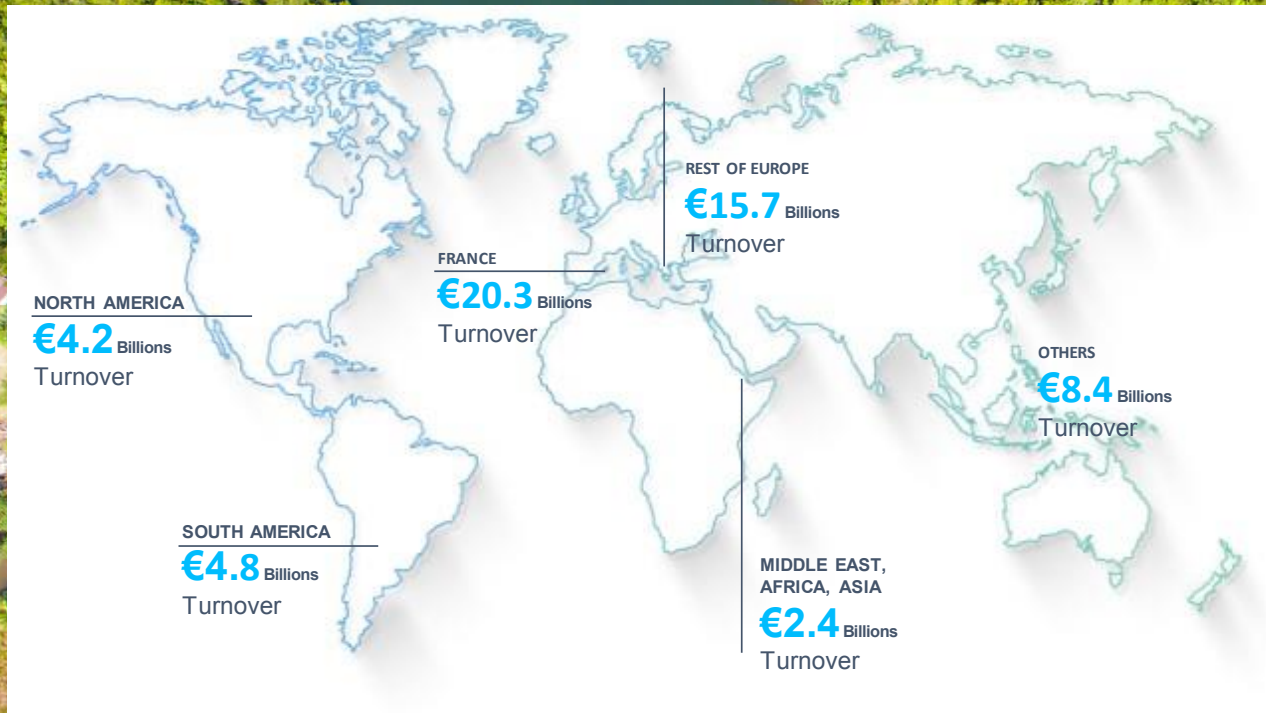
by Patrick GIUDICI – Proj. Engineering Manager (GBU Energy Solutions - ENGIE IT)



**ENGIE – Soluzioni di «Value Chains»
legate alla produzione di H2 Green con
elettrolizzatori**



ENGIE in the world



170.000 Employees

€55,8 BN
Turnover

101 GW
Total Power Plants
Installed Capacity

3 GW
RES Extra Installed
Capacity

€4 BN
RES
New Investments

ENGIE Italy: Key Figures

3.800

Employees

1

ML of Clients

60

Offices

16

District Heating networks (about 900 GWh/y of dispatched energy)

1,7

GW Total Power Plant Installed capacity

500

MW Renewables En. Installed capacity (PV and Wind – 20 Plants)



2.200

Schools

80

Hospitals

30

Univ.Campus, Museums and Theatres

300

Local Districts

10_k

Buildings Energy Saving Projects

2

Smart Cities

550_k

Public Spot Lights

2.600

Private Buildings

200_k

Home service clients

An aerial photograph of a dense, vibrant green forest. A dark blue river flows through the upper left corner, with a small boat visible on its surface. The forest extends to the bottom and right edges of the frame, creating a natural border for the central white text area.

ENGIE's purpose

“To act to accelerate the transition towards a carbon-neutral economy, through reduced energy consumption and more environmentally-friendly solutions.”



**Renewable Hydrogen -
the carbon-neutrality solution
for industry & heavy-duty mobility**



Our mission in Renewable Hydrogen

To be a leader in renewable (“Green”) hydrogen, a front runner in the development of a large-scale hydrogen economy that will enable the energy transition for customers in diverse industries and regions across the world.

Our vision

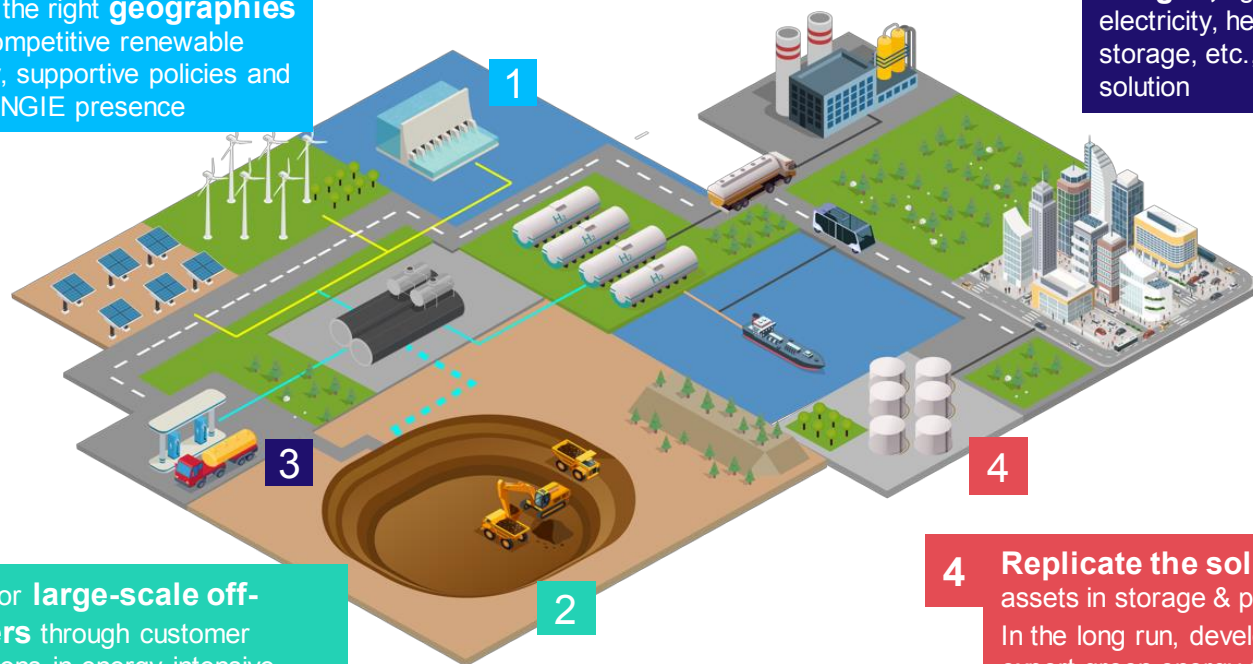
ENGIE is a front-runner in the development of an industrial-scale hydrogen economy worldwide

1 Target the right **geographies** with competitive renewable energy, supportive policies and local ENGIE presence

3 Develop domestic hubs with **multi usages**, aggregating other end-uses: electricity, heavy-duty mobility, process, storage, etc., to increase the value of the solution

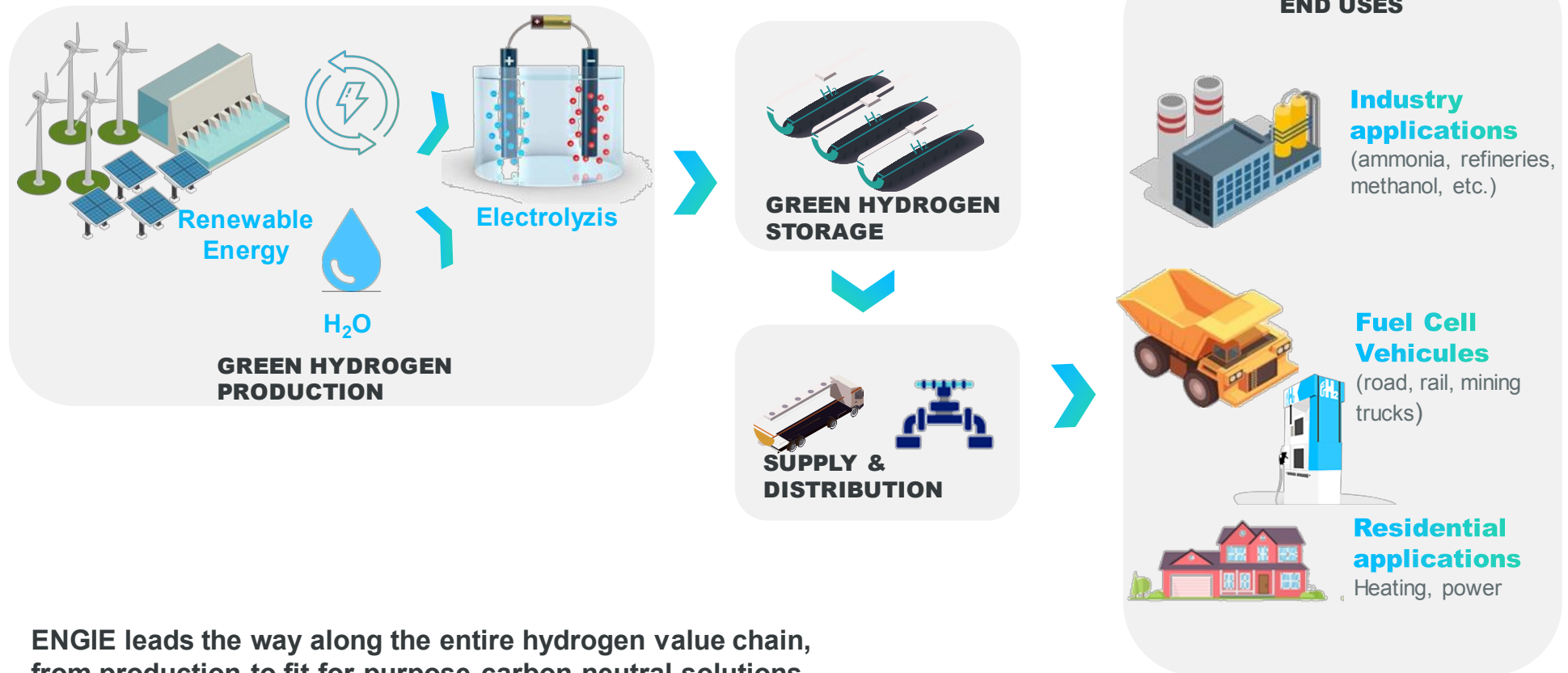
2 Anchor **large-scale off-takers** through customer solutions in energy-intensive industries such as mining, ammonia, steel, refineries...

4 **Replicate the solution** and leverage existing assets in storage & pipelines. In the long run, develop **international hubs** and export green energy to regions with limited RES potential



- Electricity
- Hydrogen
- Multifluid
- Heat & Cold
- Chemical Carrier

A Complex, investment-intensive value chain to activate



ENGIE leads the way along the entire hydrogen value chain, from production to fit-for-purpose carbon-neutral solutions

We act as developer, integrator & operator on the entire value chain

Subsidies



Investor
Financing



ENGIE

Developer
Integrator &
operator

Permitting
HSE



SYNCHRONIZE



FID

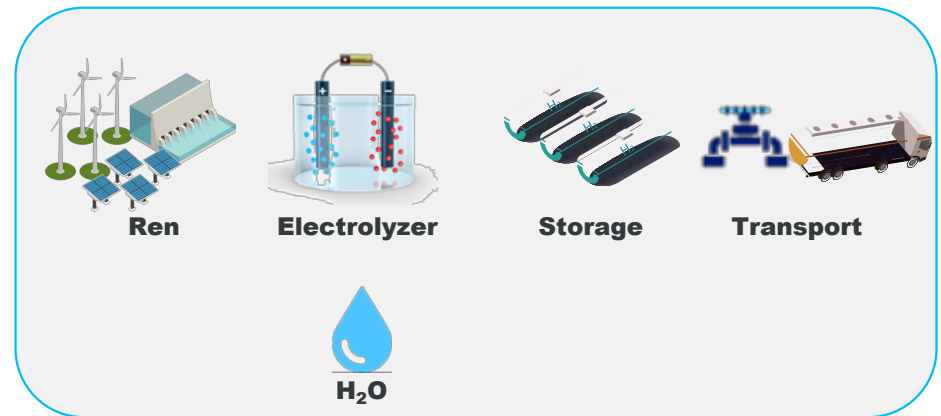


Orders

Offtakers



Design
Integrated
solutions



Hydrogen Figures & Targets for long-term development

~70

Projects underway
(20 > 50 MW and +50
< 50 MW)

10

Countries in 3 regions
(Europe, Americas,
AMEA)

200

Dedicated experts

4 GW

of Green H₂ capacity
by 2030 (0.6 GW by
2025)

700 km

of Transmission
pipeline by 2030 (170
by 2025)

1 TWh

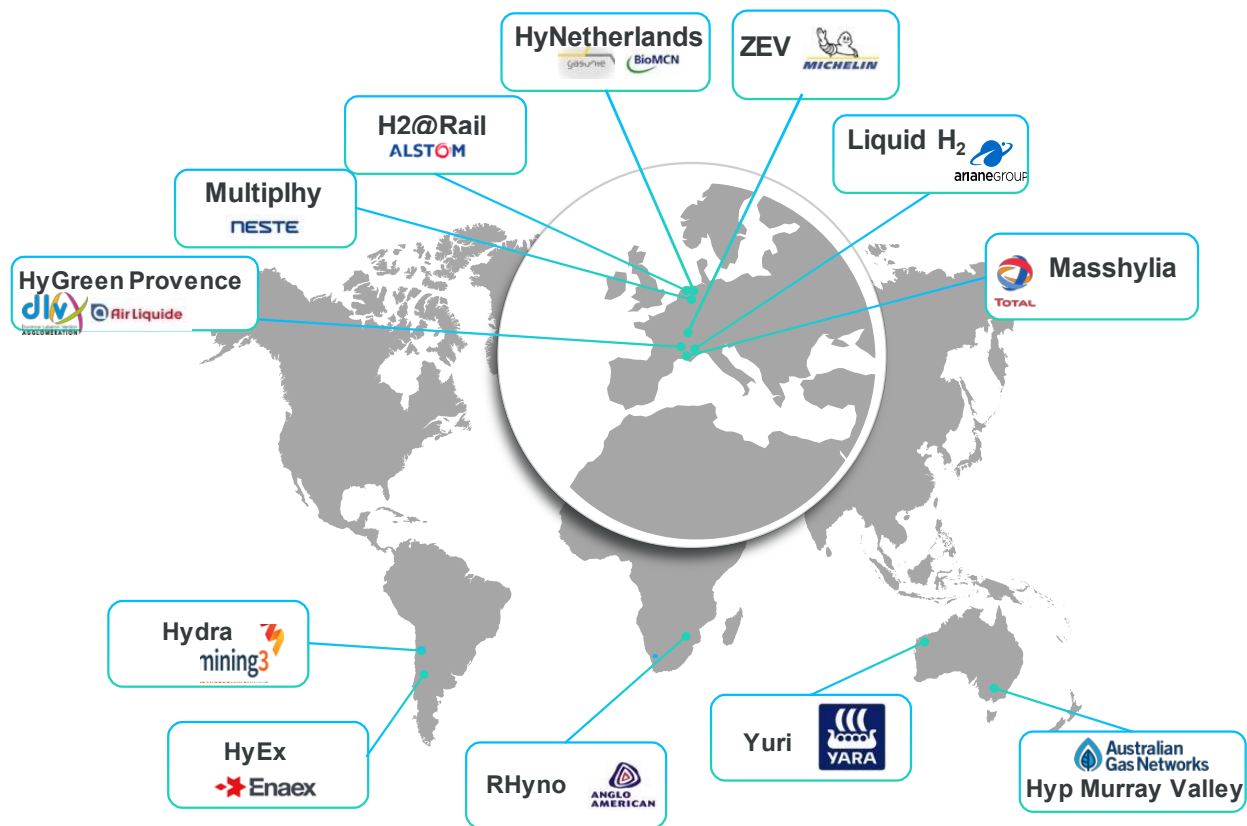
of Storage by 2030 (0.3
TWh by 2025)

> 100

refueling stations by
2030 (50 in 2025)

Image : Masshyla Project – La Mede biorefinery – Total Energies
IMRE Nedim – TOTAL Energies

We operate Worldwide



Projects

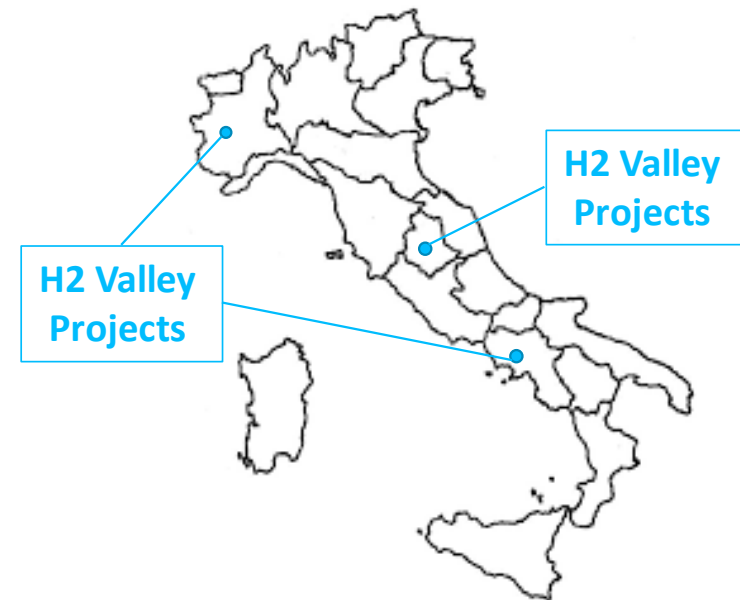
Sectors

HyGreen Provence	Mobility and industry
Multiphly	Bio refinery
H2@Rail	Trains
HyNetherlands	Chemical feedstock, industrial fuel and transport
ZEV	Mobility
Massshylia	Bio refinery
Liquid H ₂	Maritime and more
Hyp Murray Valley	Network injection
Yuri	Green ammonia
Rhyno	Mining
HyEx	Ammonia nitrate
Hydra	Mining

Hydrogen Valleys PNRR Projects



M2C2-I3.1 → Stanziati 500 mln €, di cui almeno il 50% destinati alle Regioni del Mezzogiorno (Abruzzo, Basilicata, Calabria, Campania, Molise, Puglia, Sardegna e Sicilia) «Elettrolizzatori installati in aree industriali dismesse».



Missione 2: Rivoluzione verde e transizione ecologica

Componente 2: Energia rinnovabile, idrogeno, rete e mobilità sostenibile

Investimento 3.1: Produzione in aree industriali dismesse (Hydrogen Valleys)

Hydrogen Valleys PNRR Projects



STUDI DI PRE-FATTIBILITA' IN CORSO



Il Lay-out di impianto



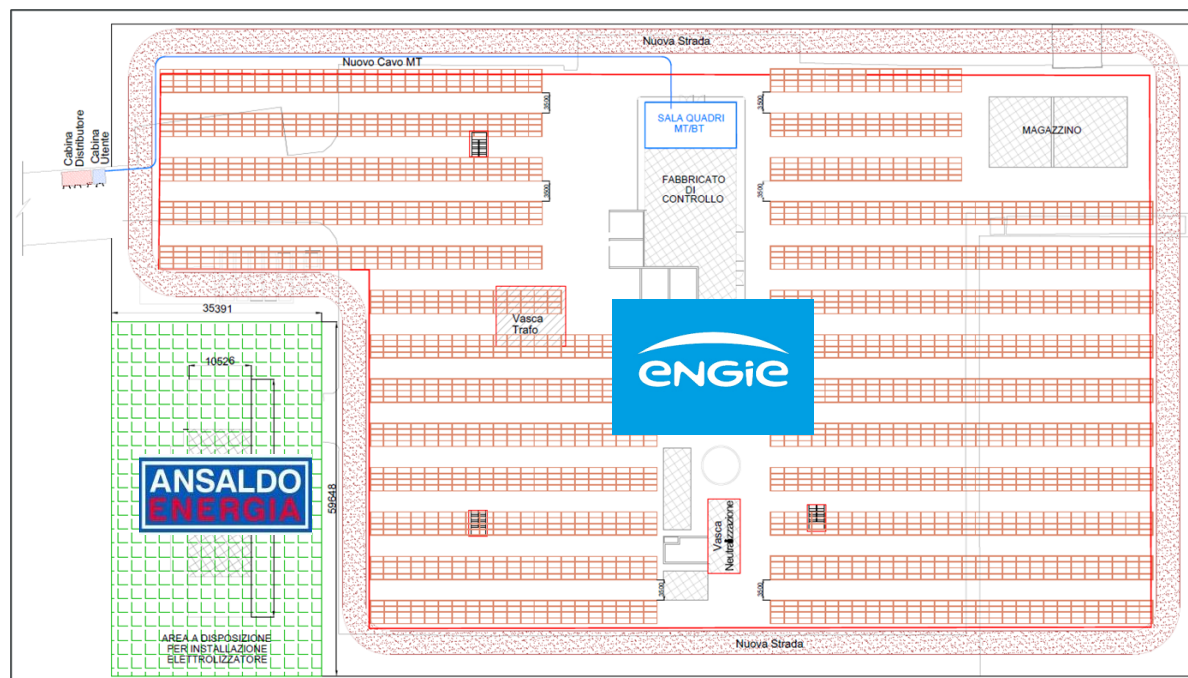
Superficie disponibile:
c.ca 20.00 mq



- Impianto solare a pannelli fotovoltaici – 13.000 m² circa – Produz.: c.ca 1,35 MW



- Area per installazione impianto produzione e stoccaggio di H₂ (Electrolysers&Storage)





THANK YOU!



**ENGIE - The hydrogen
economy enabler**

