Gli Elettrolizzatori e la loro filiera

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

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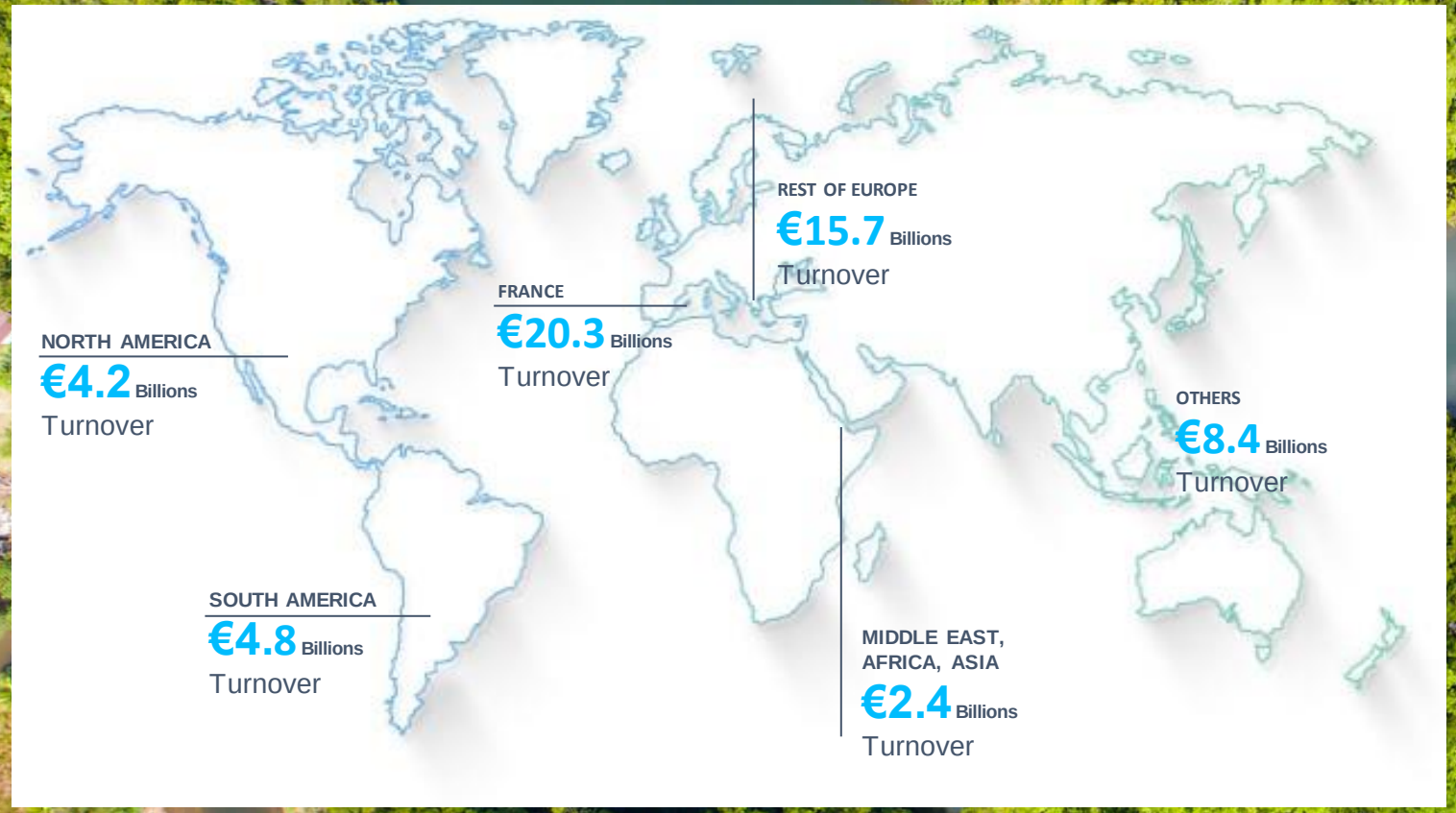
ENGIE – Soluzioni di «Value Chains» legate alla produzione di H2 Green con elettrolizzatori

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

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

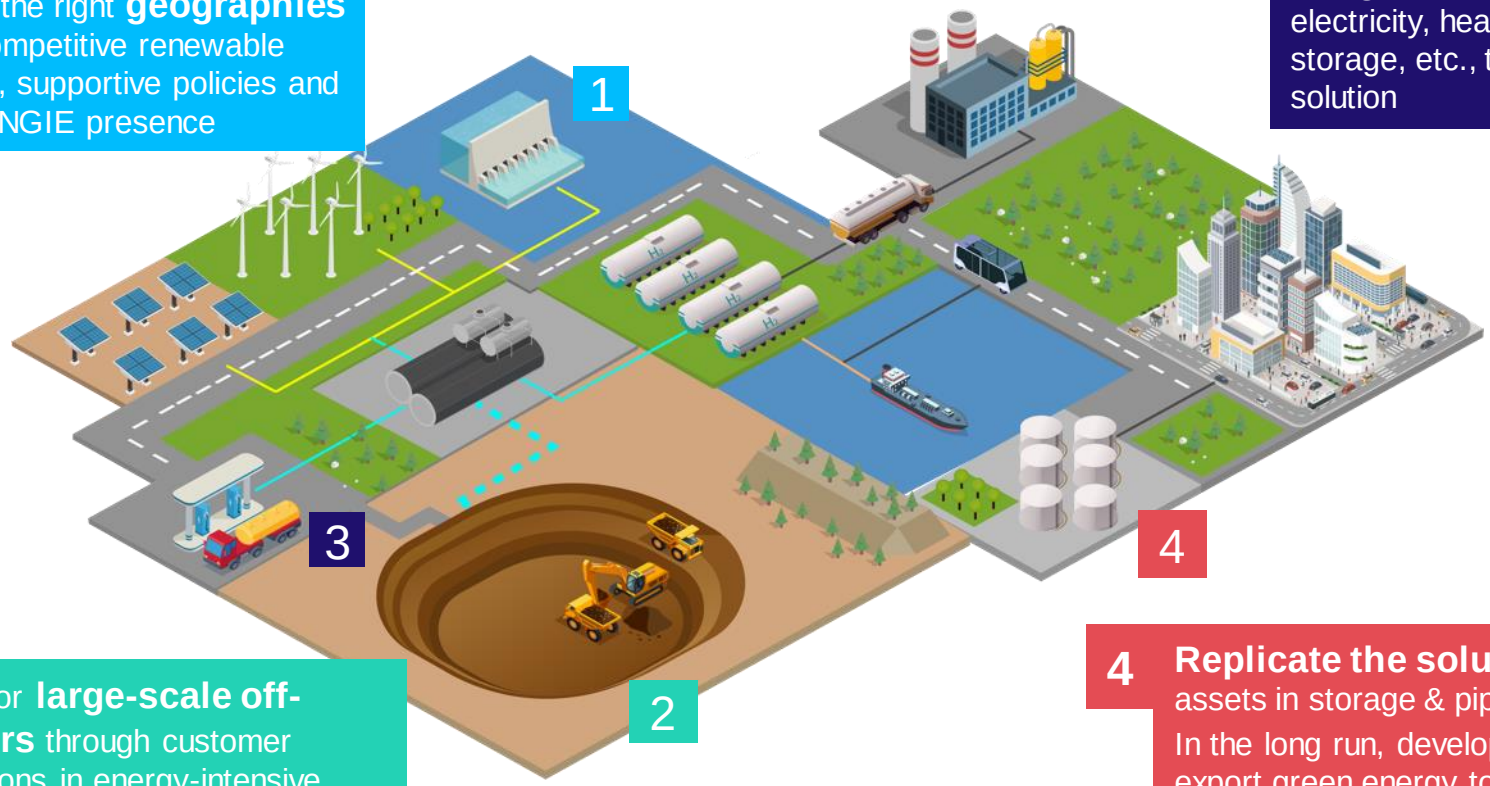
To be a leader in renewable (“Green”) hydrogen, a front runner in the development of a large-scale hydrogen economy that will enable the energy transition for customers in diverse industries and regions across the world.

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



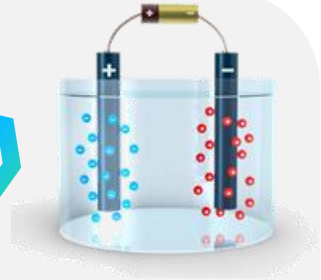
- **Electricity**
- **Hydrogen**
- **Multifluid**
- **Heat & Cold**
- **Chemical Carrier**

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

A Complex, investment-intensive value chain to activate

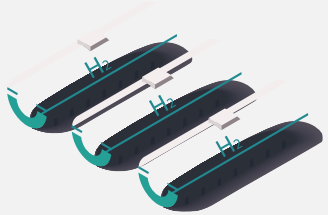
Renewable Energy



Electrolyzis

H_2O

GREEN HYDROGEN PRODUCTION



GREEN HYDROGEN STORAGE

SUPPLY & DISTRIBUTION

END USES

Industry applications
(ammonia, refineries, methanol, etc.)

Fuel Cell Vehicules
(road, rail, mining trucks)

Residential applications
Heating, power

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

Permitting
HSE

SYNCHRONIZE

FID

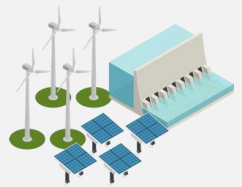
Orders

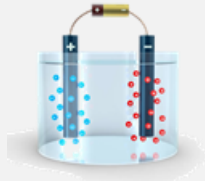
ENGIE

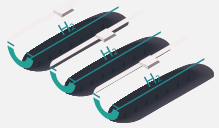
Developer
Integrator &
operator

Offtakers

Design
Integrated
solutions


Ren


Electrolyzer


Storage


Transport


H_2O

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 H_2 capacity by 2030 (0.6 GW by 2025)

700 km
of Transmission pipeline by 2030 (170 by 2025)

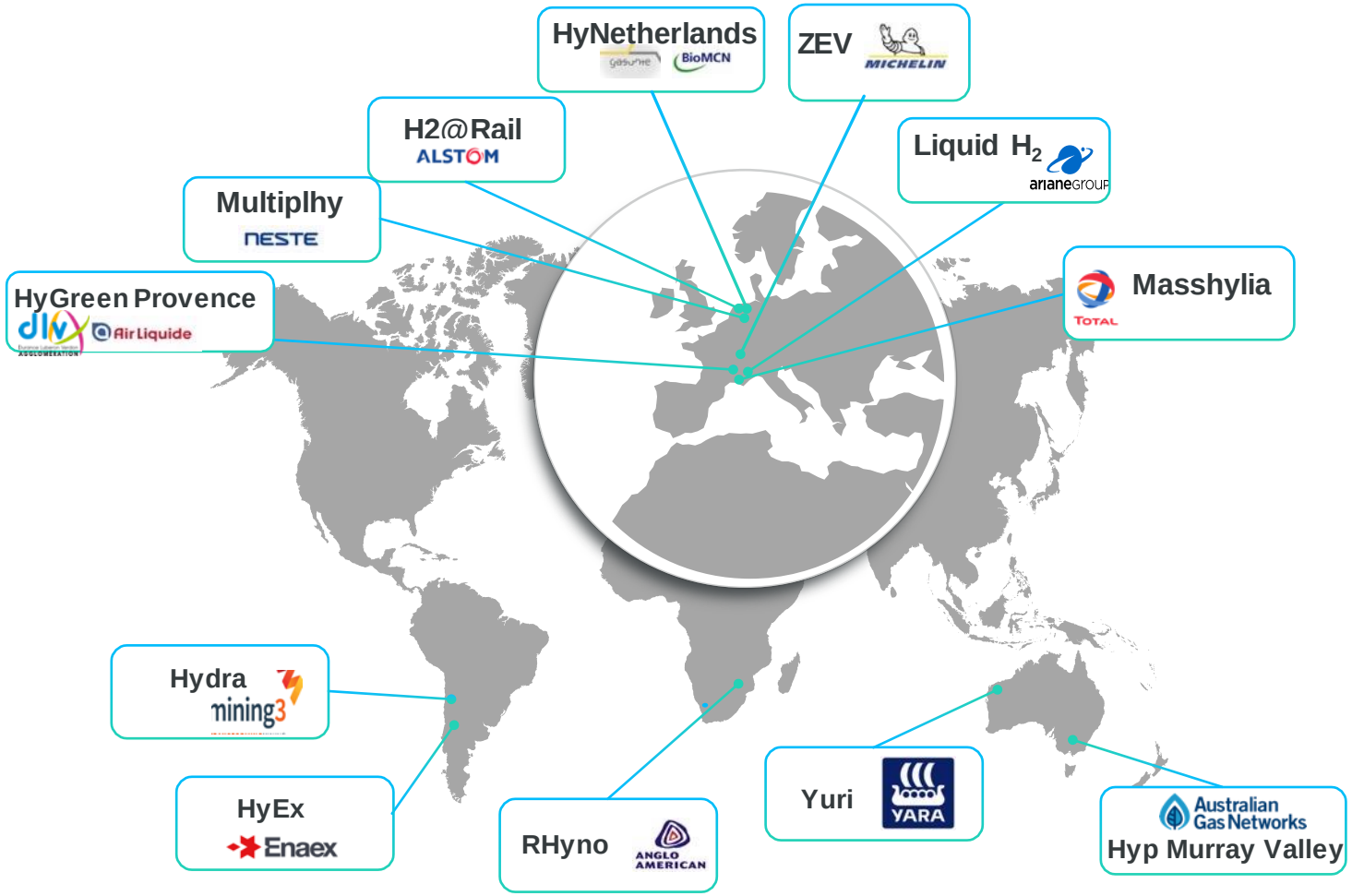
1 TWh
of Storage by 2030 (0.3 TWh by 2025)

> 100
refueling stations by 2030 (50 in 2025)

Annual figures on 31/12/2019

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

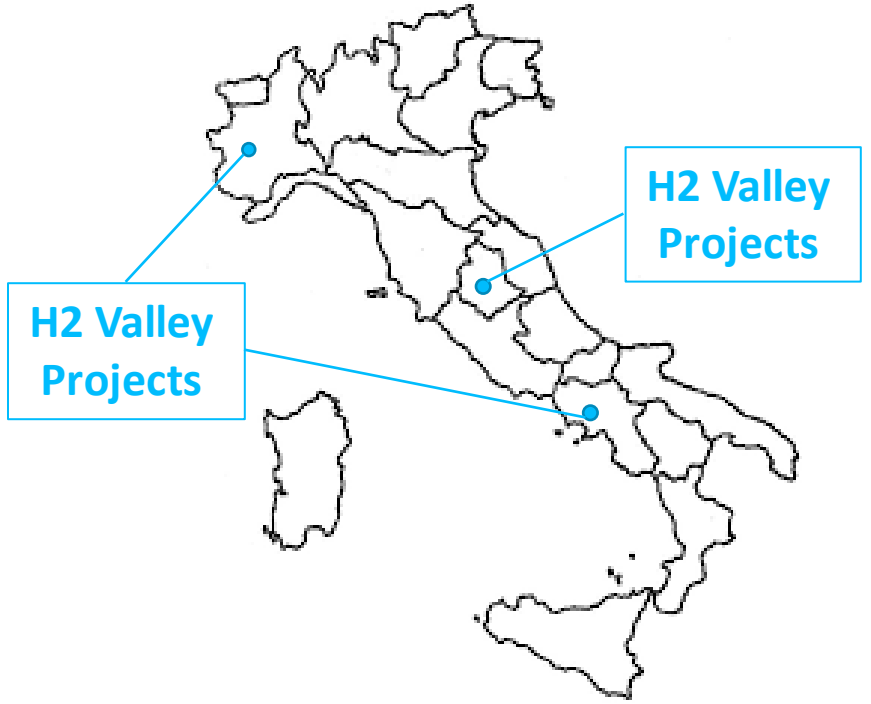
We operate Worldwide



Projects	Sectors
HyGreen Provence	Mobility and industry
Multiplhy	Bio refinery
H2@Rail	Trains
HyNetherlands	Chemical feedstock, industrial fuel and transport
ZEV	Mobility
Masshylia	Bio refinery
Liquid H2	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

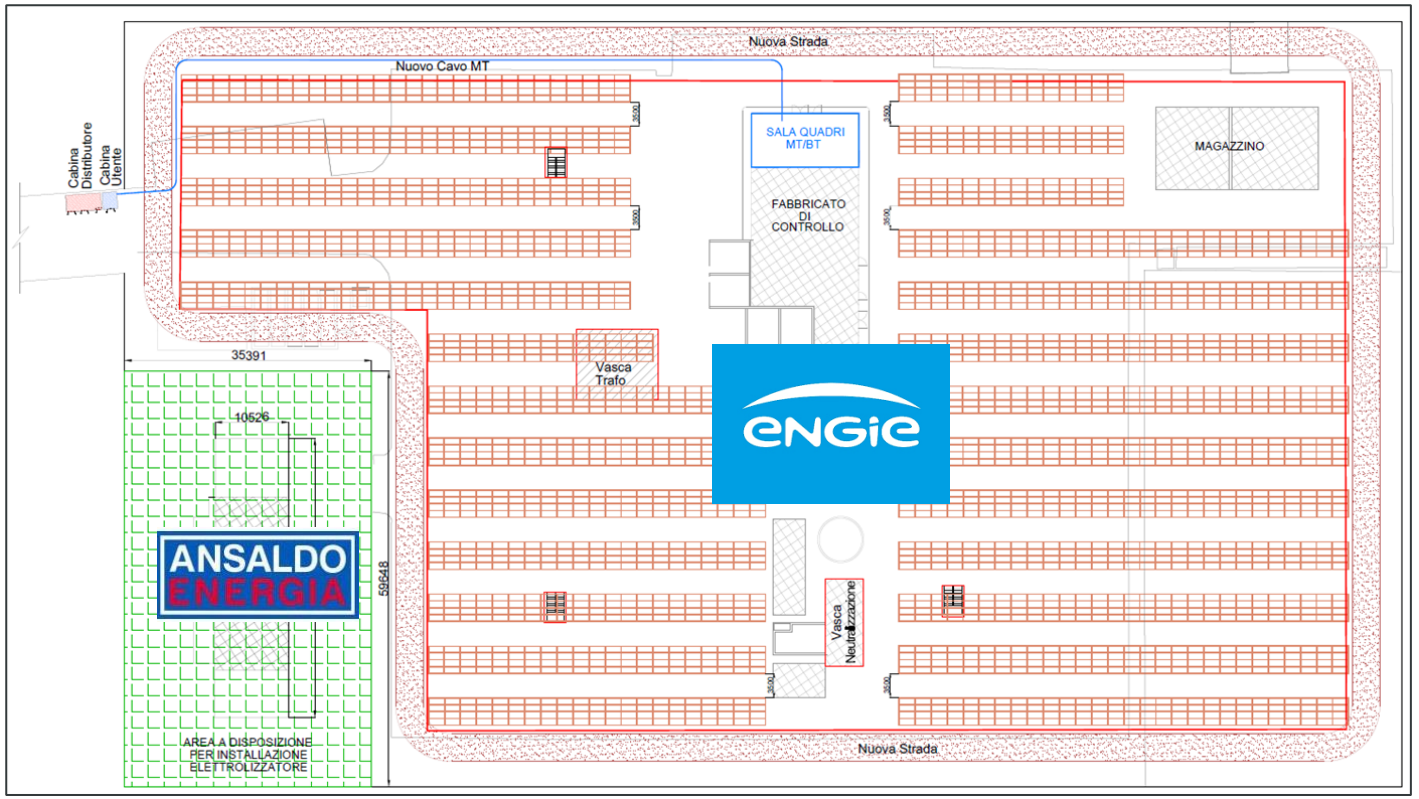
STUDI DI PRE-FATTIBILITA' IN CORSO

Il Lay-out di impianto

Superficie disponibile:
c.ca 20.00 mq

- Impianto solare a pannelli fotovoltaici – 13.000 m^2 circa – Produz.: c.ca 1,35 MW

- Area per installazione impianto produzione e stoccaggio di H_2 (Electrolysers&Storage)



ENGIE - The hydrogen economy enabler

ENGIE