

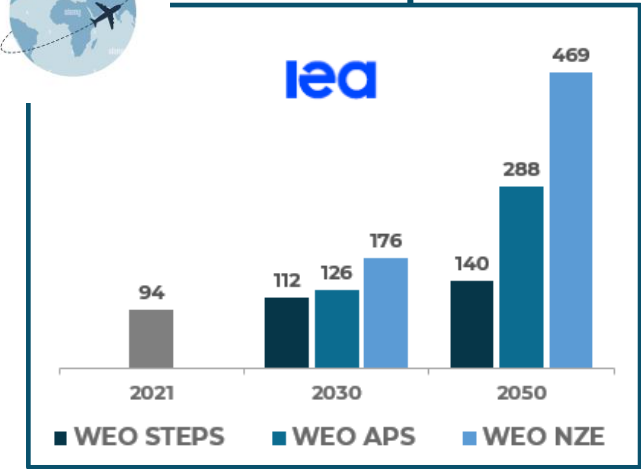


Hydrogen in Eni

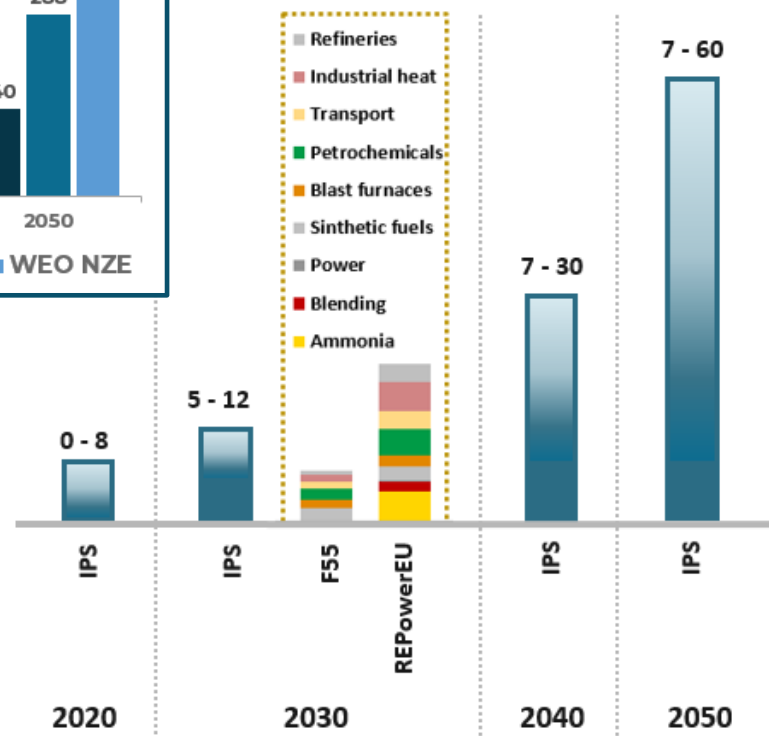
Andrea Pisano
Head of Hydrogen Initiatives

13 Ottobre 2023

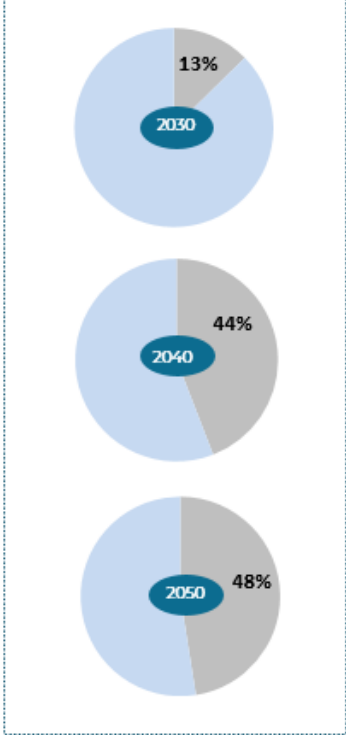
WHAT IS THE REAL EUROPEAN HYDROGEN MARKET?



Hydrogen total consumption (Mt) in EU27 according to several info providers (IPS)



Import share on total H₂ demand - IHS



REPowerEU targets renewable hydrogen by 2030:

- 10 Mtpa domestic production
- 10Mtpa import (hydrogen or derivatives)
- 65 GW electrolyzer installed capacity



UNCERTAINTY



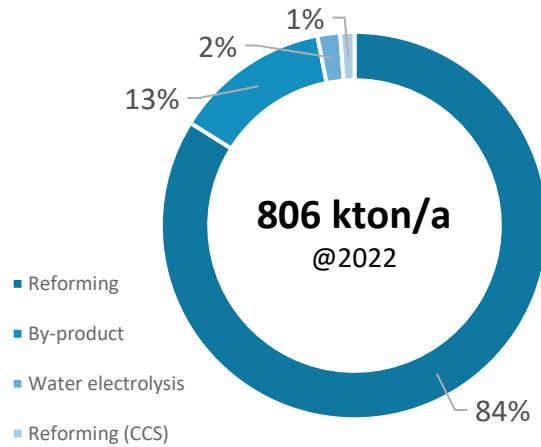
ENI IS LEADER IN HYDROGEN PRODUCTION IN ITALY



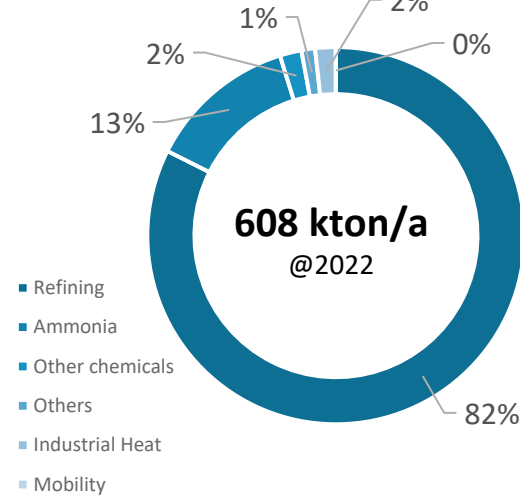
70 years of experience in hydrogen production and consumption

ITALY IS THE 5th HYDROGEN CONSUMER IN EUROPE

Production Capacity



Consumption



Eni is the main producer and consumer of hydrogen in Italy



Source: Fuel cells and Hydrogen Observatory

Production capacity is calculated on 365 days/year. Other: it covers the demand from small to medium scale hydrogen users, including the food industry, glass manufacturing, automotive, generator cooling in the power sector, metal welding and cutting, electronics, research labs and other small scale applications

(1) company is investigating the opportunity to build a new bio-refinery at Eni's industrial site in Livorno.

ENI - HYDROGEN INITIATIVES IN ITALY

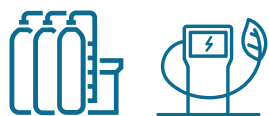


Main focus on hydrogen valleys to match production potentials and hydrogen demand (hard to abate and mobility sector)



New 3 Hydrogen Refueling Stations

Hydrogen for mobility:
Italy's first public hydrogen filling station opened in June 2022



Porto Marghera

Hydrogen production for mobility

Renewable hydrogen production plant at Porto Marghera, directly connected by pipeline to a new hydrogen refuelling stations mainly dedicated to supply hydrogen to a new buses fleet for public transport.

1,7 ton H2/day



Gela & Taranto

Hydrogen in refineries



IPCEI financed

Gela:
20 MW Electrolyzer
1,1 kton H2/year

Taranto:
10 MW Electrolyzer
0,6 kton H2/year

Two projects, in partnership with Enel Green Power, for the construction of renewable hydrogen production plants: in Gela and Taranto.

The produced hydrogen will be used directly at the Eni's biorefinery in Gela and the Eni's refinery in Taranto, respectively.



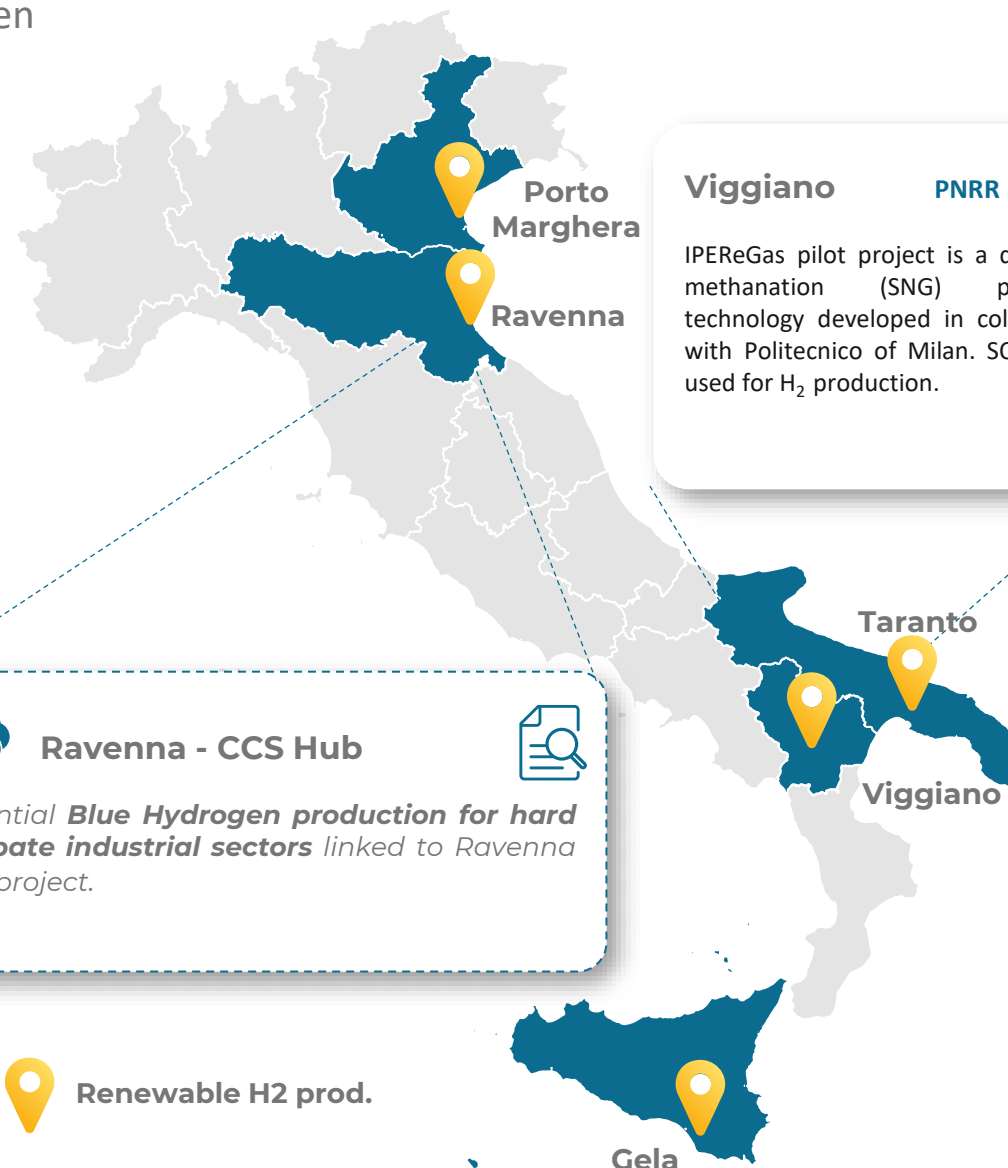
Ravenna - CCS Hub



Potential **Blue Hydrogen production for hard to abate industrial sectors** linked to Ravenna CCS project.



Renewable H2 prod.



Viggiano

PNRR



IPEReGas pilot project is a direct CO2 methanation (SNG) proprietary technology developed in collaboration with Politecnico of Milan. SOEC cell is used for H₂ production.

ENI IS FOCUSING ON POSSIBLE ROLE OF ITALY AS HYDROGEN IMPORT HUB

Taking advantages from existing assets and existing industrial activities



UK

Evaluation of the low carbon H₂ opportunities in the UK, including support to Bacton and Hynet CO₂ clusters



Germany

Potential development of new electrolyzer > 100 MW for the production of renewable hydrogen in refining sector



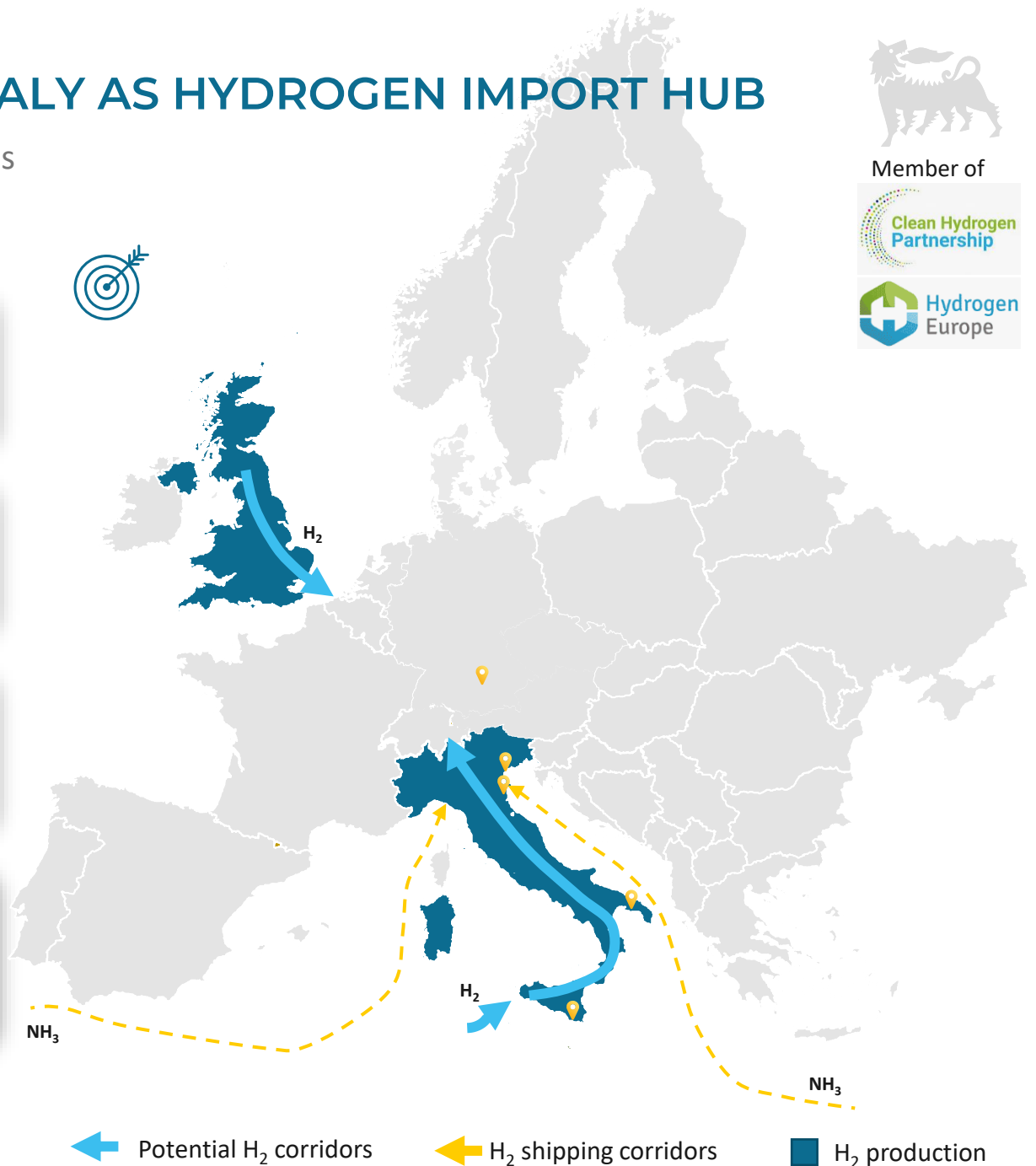
H₂ transport North Africa - EU

- Identification of the best transportation options
- Identification of H₂ demand scenarios across the corridors



Large scale H₂ export hubs

Ongoing studies with third parties in regions (i.e. North Africa, Middle East) with high potential for low carbon and renewable hydrogen production to develop regional export hubs



Member of



← Potential H₂ corridors

← H₂ shipping corridors

■ H₂ production