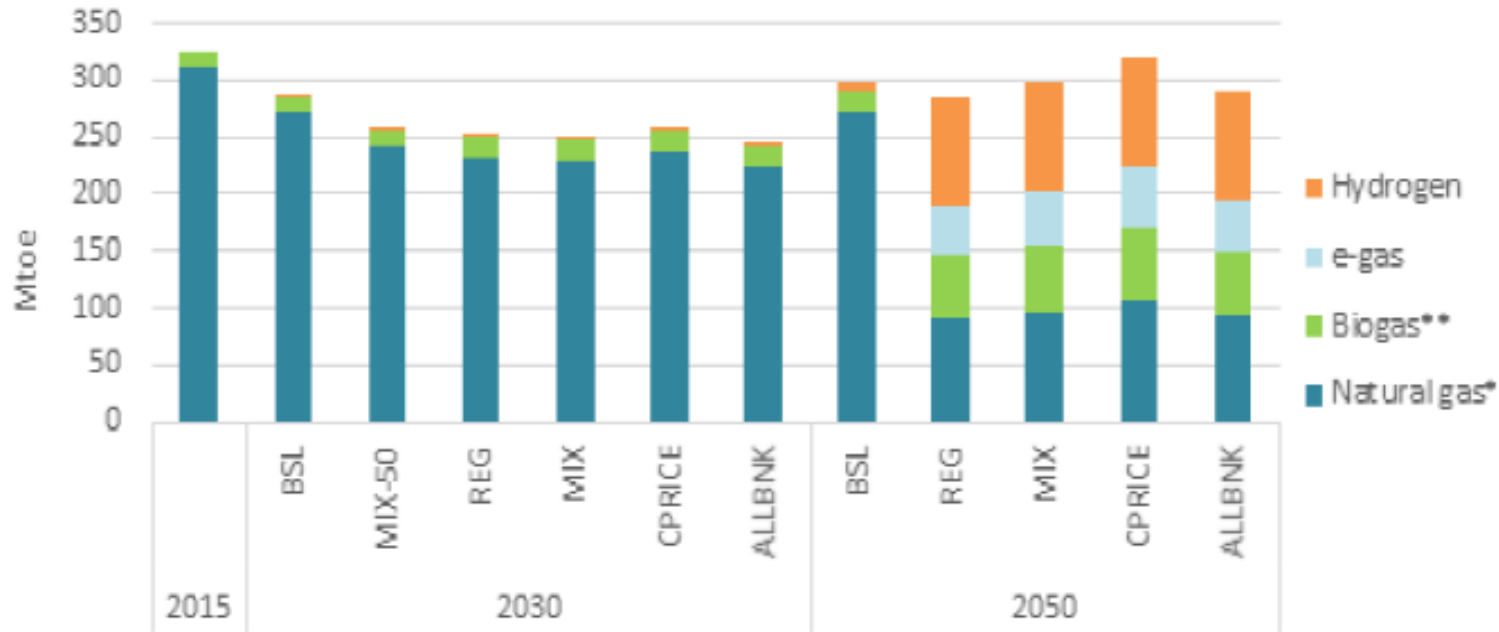




**SCENARI ENERGETICI : L'ITALIA, CON L'EUROPA,  
ALLA SFIDA DELLA DECARBONIZZAZIONE**  
Camilla Palladino – EVP Corp. Strategy and Inv. Relations  
SNAM



# Gas scenarios – evolving to green and low carbon gases



Note: \* includes manufactured gases, \*\* includes waste gas

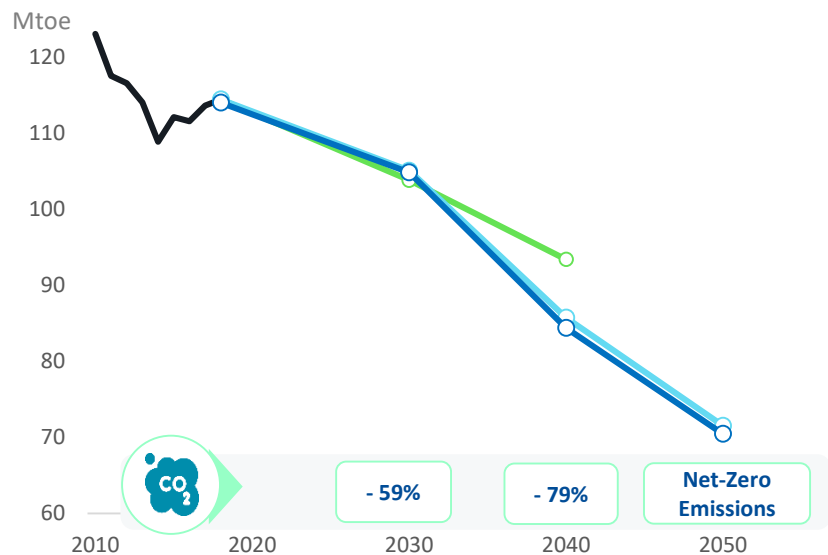
In a fully EU decarbonized scenario

- Max penetration of biogas (from agri residues and from waste)
- H2 to cover 50% of the gas energy needs
- Natural gas to remain in the mix, with CCS and for feedstock uses

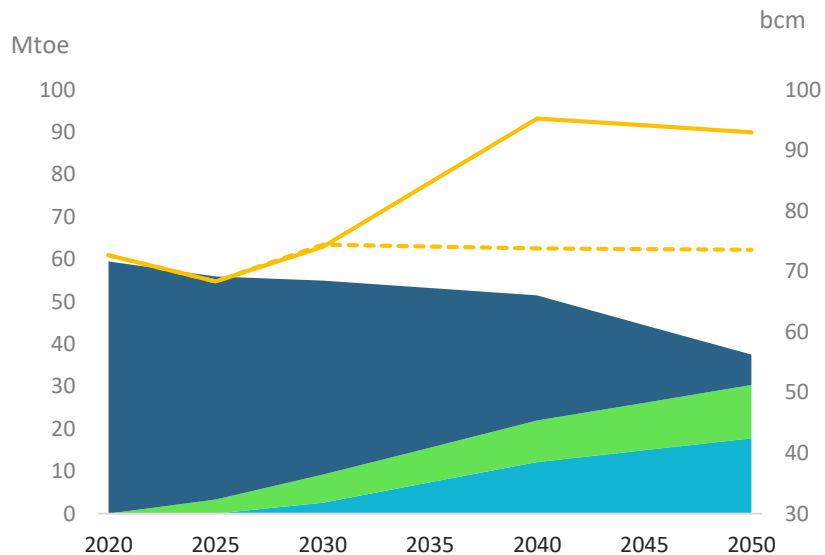
# Infrastructure development: large volumes of green gases to be moved (efficiently) require new system approach



## Energy scenario: Towards Net-Zero

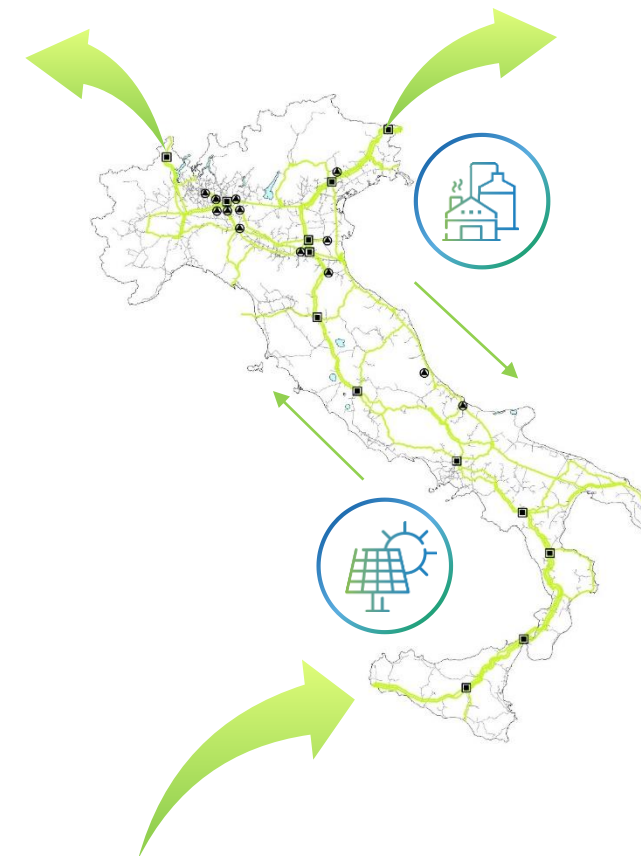


## Evolution of gas mix and volumes



- CH4<sup>1</sup> – scenario H2 @ 25% mix
- Bio-CH4<sup>1</sup> – scenario H2 @ 25% mix
- H2 – scenario H2 @ 25% mix
- Total volume gas (right axis) – scenario H2 @ 25% mix
- Total volume (right axis) – scenario H2 @ 18% mix

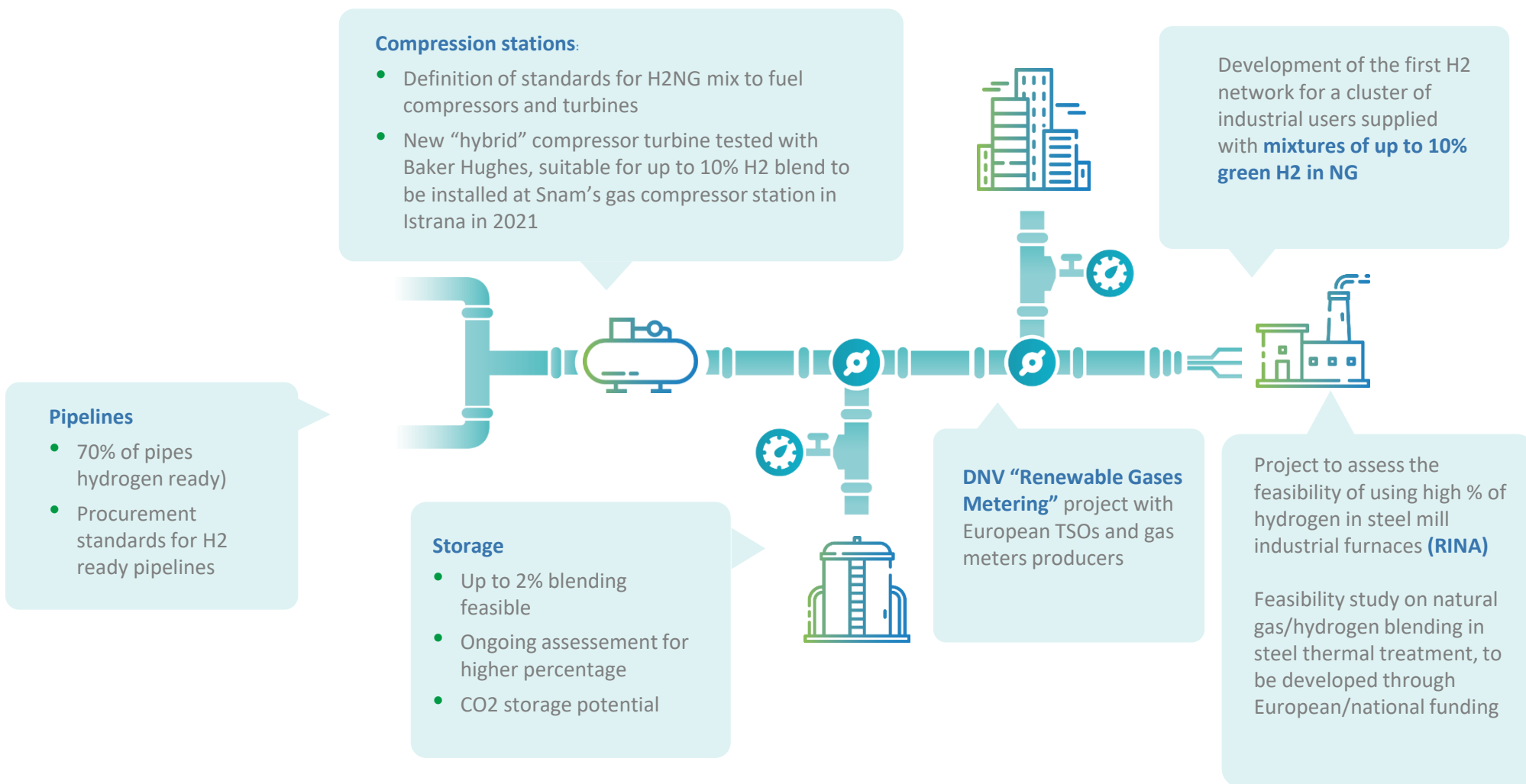
## The 2050 grid



- Scenario Snam-Terna CEN
- Scenario H2 @ 25% mix
- Scenario H2 @ 18% mix
- Final energy consumption (historic)

(1) CH4 and Bio-CH4 to 2050 also with CCS

# Ensuring “H2-readiness” along the infrastructure value chain

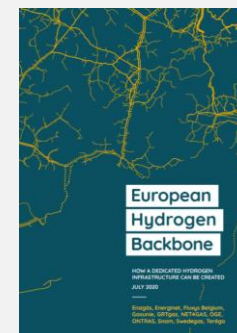


## Sector collaboration

**H2 Gas Asset Readiness (H2GAR)** cooperation between EU TSOs. 6 working groups on pipelines, compressor stations, separation systems, metering, safety and underground storage

**European H2 Backbone** plan – done in collaboration with 11 EU gas infrastructure companies - for a dedicated hydrogen transport infrastructure

Working for a «Hy-ready» network



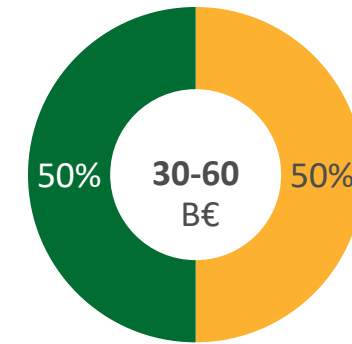
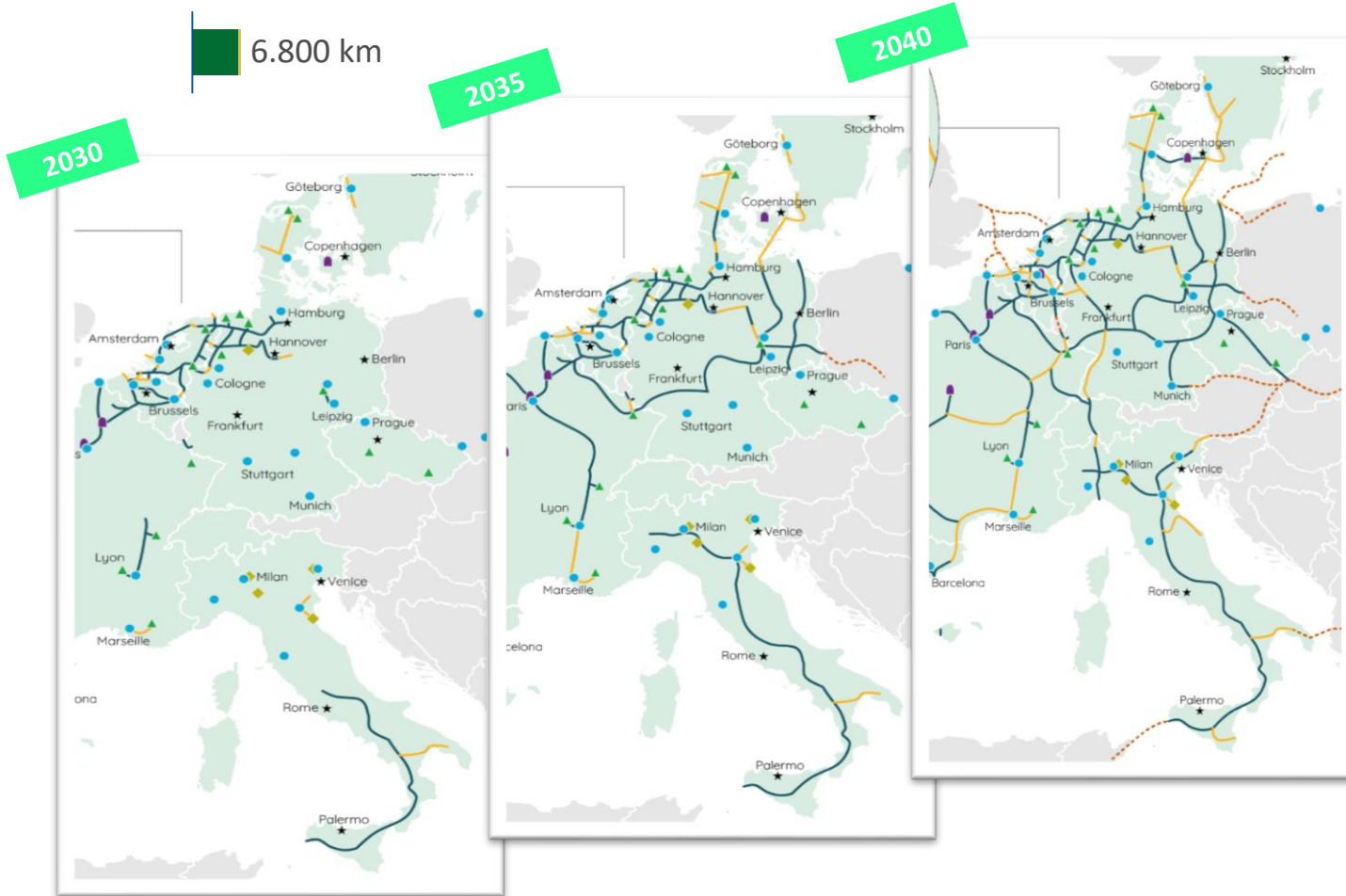
# From 1 grid (NG) to 2 (or 3) grids (H2, CO2) – EHB, a shared vision to engage in a truly European undertaking



■ Retrofitted pipelines    
 ■ New pipelines

■ ■ 23.000 km

Investment for European Hydrogen backbone 2020-2040



**ENERGINET**

gasunie    
 OGE    
 ontras   
 crossing borders in energy    
 Gastransport GmbH

FLUXYS    
 SWEDEGAS    
 GR1gaz

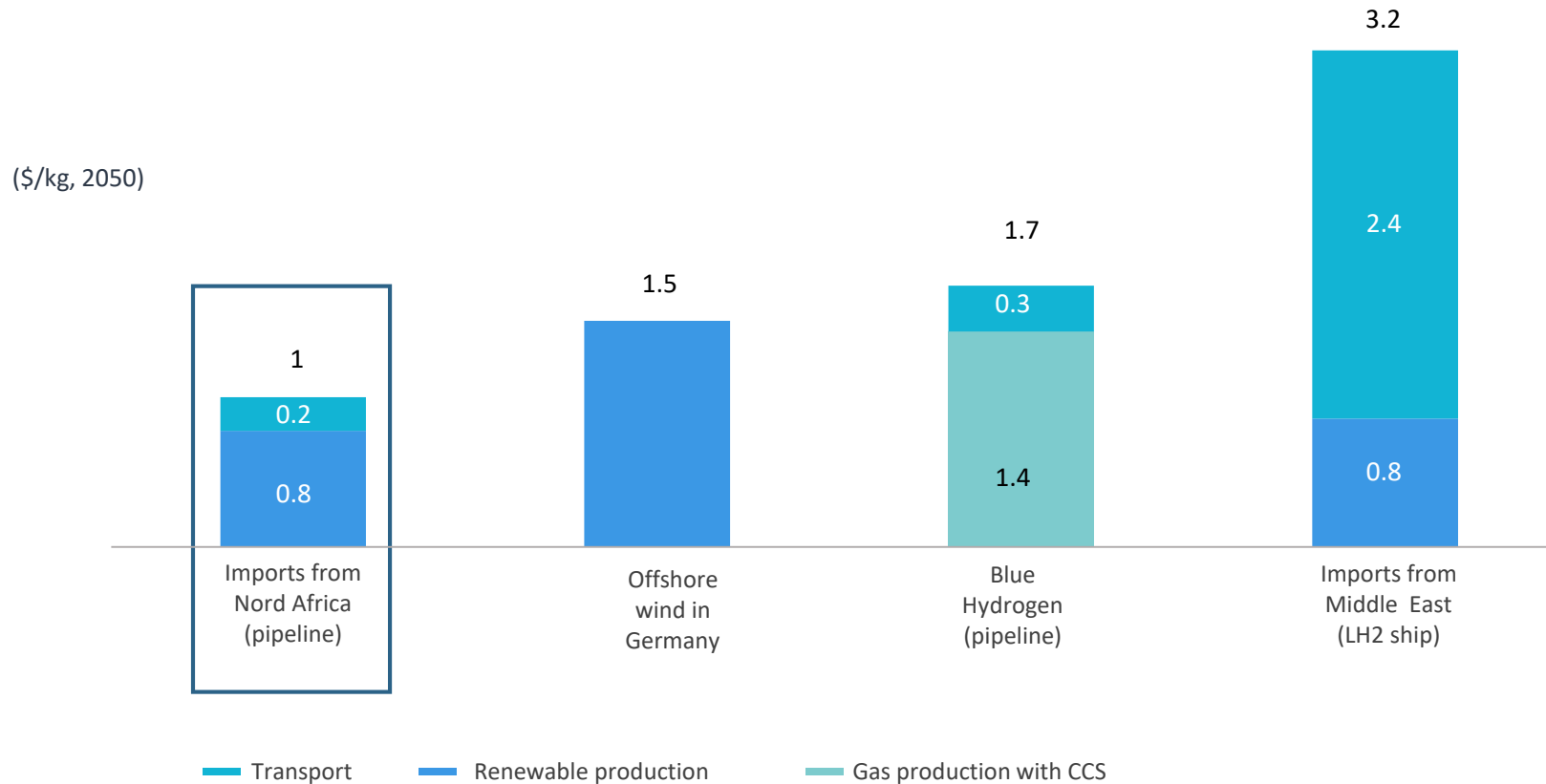
TERĒGA    
 enagas    
 snam    
 NET4GAS

▲ Potential H2 storage – salt cavern    
 — Converted gas network    
 — New H2 pipes    
 — Possible new routes    
 ● Industrial cluster    
 ◆ Potential H2 storage – depleted fields

# Pipeline transport able to deliver large volume at lower costs



## Delivery cost of hydrogen in Germany by 2050\*



European decarbonization will rely on:

- Access to large, competitive renewable resources,
- Connection via affordable transport routes

**Italy well positioned to be a H2 hub**

\*Cost projections for large scale production and transport, excluding local distribution  
Sources: BNEF analysis for the Global Gas Report 2020





Thank you