

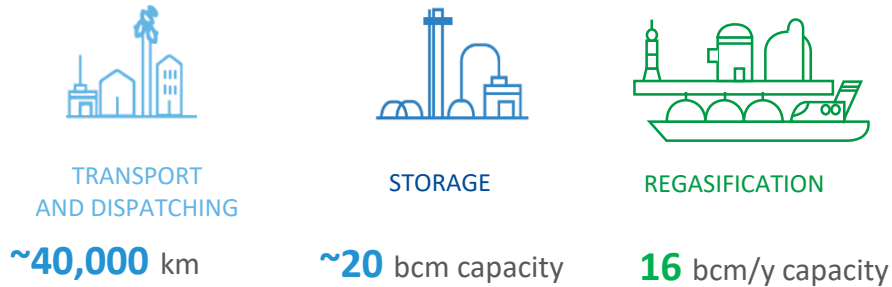


Brussels | BG, 12th November 2019

Camilla Palladino – Executive Vice President Corporate Strategy and Investor Relations


The role and objectives of gas infrastructure are evolving

Integrated presence along the value chain



- Ensure security of supply and diversification
- Foster efficiency in operation and investments
- High level of flexibility
- Ensure independent third party access
- Promote market liquidity and new services
- Ensure high quality supply standards

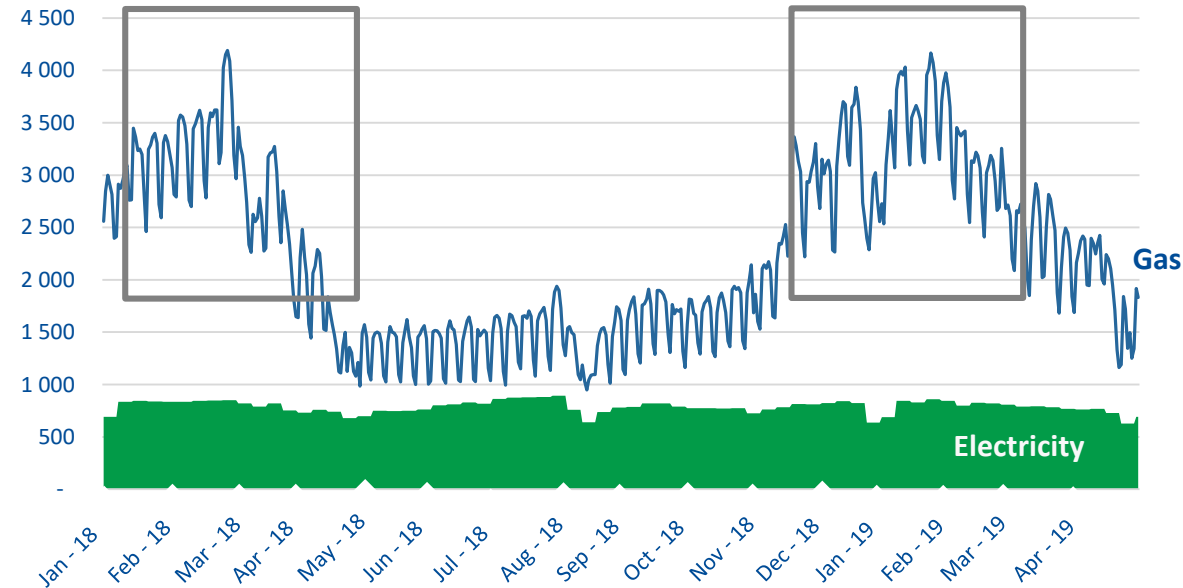
Gas Infrastructures Operator as enabler of decarbonization options

- 
- Support decarbonization with gas as renewable energy vector
 - Coupling electricity and gas system
 - Further development of Energy Union
 - Innovation on technologies, businesses
 - Digitalize assets and processes

Gas infrastructure provides flexibility to the energy system, also on a seasonal basis

Gas infrastructures are crucial to cover seasonal peak

Gas consumption in Italy, GWh



Gas

Electricity

Commodity¹ Average price: c. **13 Eur/MWh**

Average price: c. **51 Eur/MWh**

Transport BBL: **11 Eur/kw/100 km**

Britnet: **230 Eur/kw/100 km**

Storage **1 bcm ~ 10 TWh**
(0.5-1.0 bn EUR)

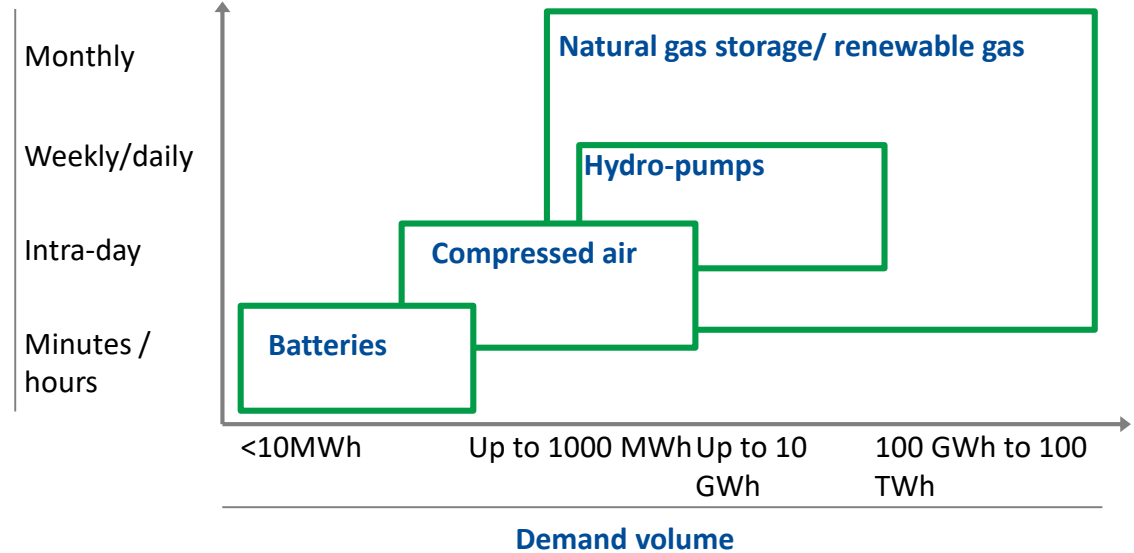
= **700 mn** new Tesla Powerwall 2
(investment cost: €5.6tn)

1. 2019 September average

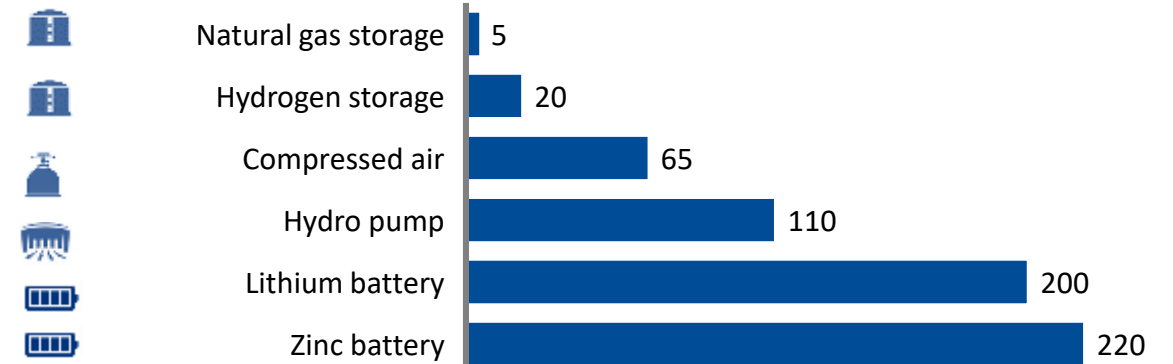
2. Excluding commodity costs and eventual final conversion into electricity

Gas allows seasonal storage

Durata



Operational storage costs², Eur/MWh



Snamtec: the Snam of the future



From a company focused on:

- fossil fuels
- iron
- an «underground» business



...to a company:

- leader in the **renewables**
- with a **high technological profile**
- **interconnected** with the territory

Snamtec – Tomorrow's Energy Company

Energy efficiency



- Real-time remote leak detection
- Energy Efficiency
- Cogeneration
- Equipment substitutions

Green gas



- Investments in biomethane
- Projects on hydrogen (blending) and power to gas
- Sector coupling gas-electricity, and new green gases connections

Sustainable mobility



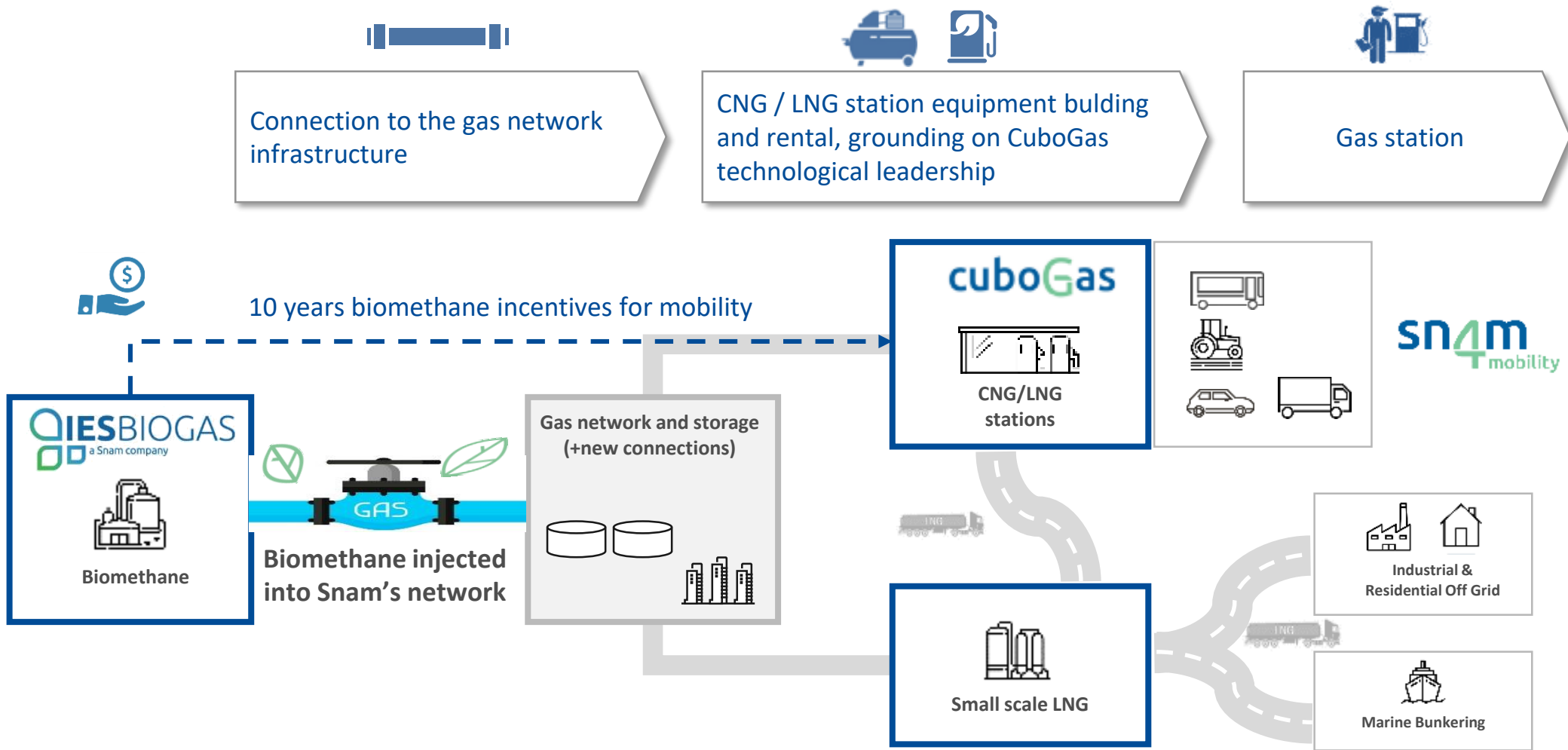
- €100m investment in CNG and in SSLNG
- Cooperation along the chain on the development of sustainable mobility

Technologies



- «Smart gas» project
- Neural network forecasting project (DAFNE)
- Testing drones and satellites for asset monitoring

Biomethane value chain: focus on mobility



(1) -95% of CO2 using 100% Bio LNG/CNG



Circular economy
Thanks to biomethane, CNG vehicles can contribute to reduce waste and eliminate emissions

The production cost of hydrogen is set to decline rapidly in Italy in the coming years, as green hydrogen production capacity scales up...

As green hydrogen achieves scale, hydrogen production costs can significantly fall in the coming decades

Green hydrogen



- Production from **water** and **green electricity** in an electrolyzer
- Carbon neutral**

Blue hydrogen



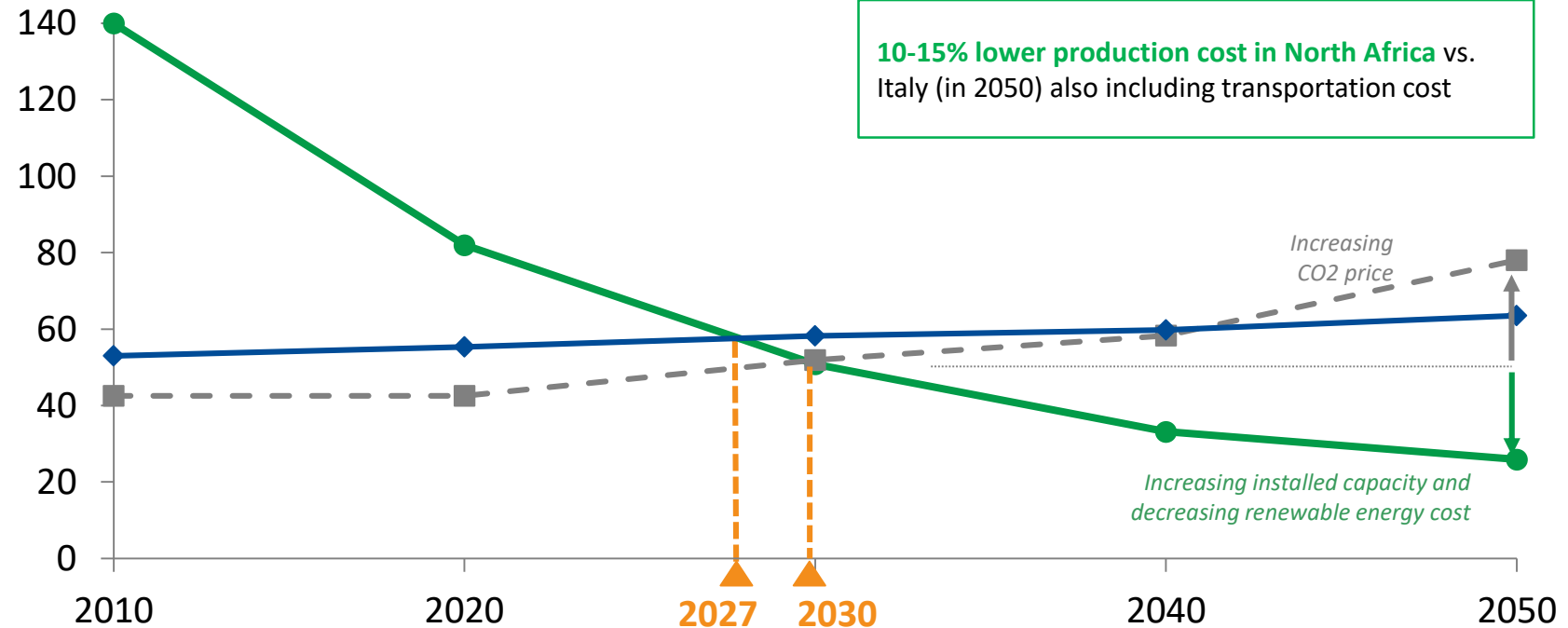
- Natural gas steam reforming with CCS
- Low carbon emission**

Grey hydrogen



- Production from **natural gas** or **coal** in a reformer
- Emits CO2**

Cost of hydrogen production, EUR/MWh



Continued rollout of green hydrogen capacity required to drive down cost – ~50 GW should be installed globally by 2030 to achieve indicated cost

¹ Installed capacity required to achieve indicated cost reduction of green hydrogen, assuming 12% learning rate.

By 2050, hydrogen could provide up to ~220 TWh of final energy demand in Italy, nearly one quarter of the total national energy demand

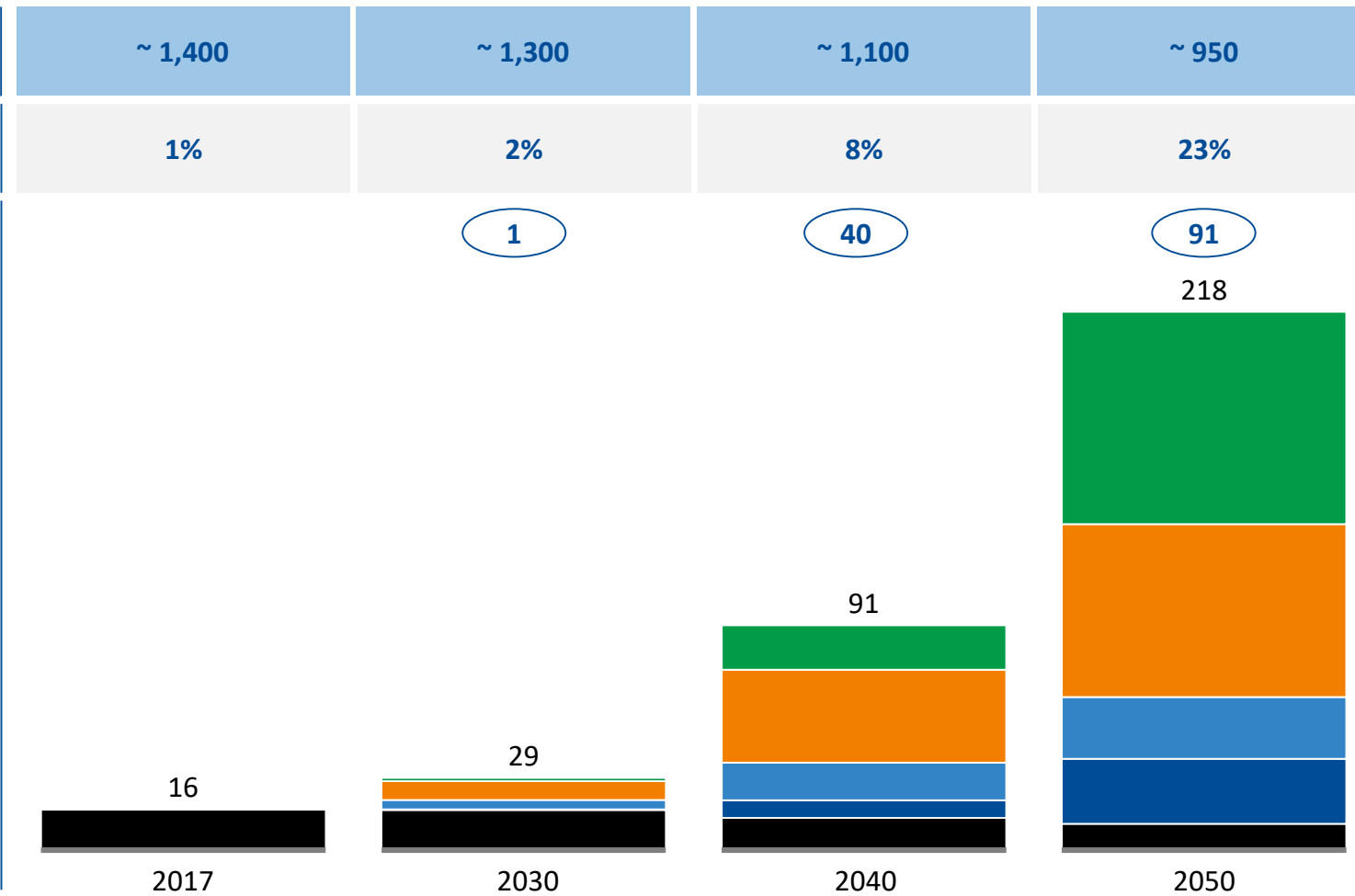
xx

Electrolyzer capacity necessary to supply all demand¹, GW

Total final energy demand, TWh

Thereof H₂, %

Hydrogen demand by end-use sector, TWh



Outlook in line with EU hydrogen roadmap (24% of demand from H₂ in 2050), but with more uptake in buildings, and less demand from industry²



Transportation



Buildings



Industry energy



Industry feedstock

Existing feedstock

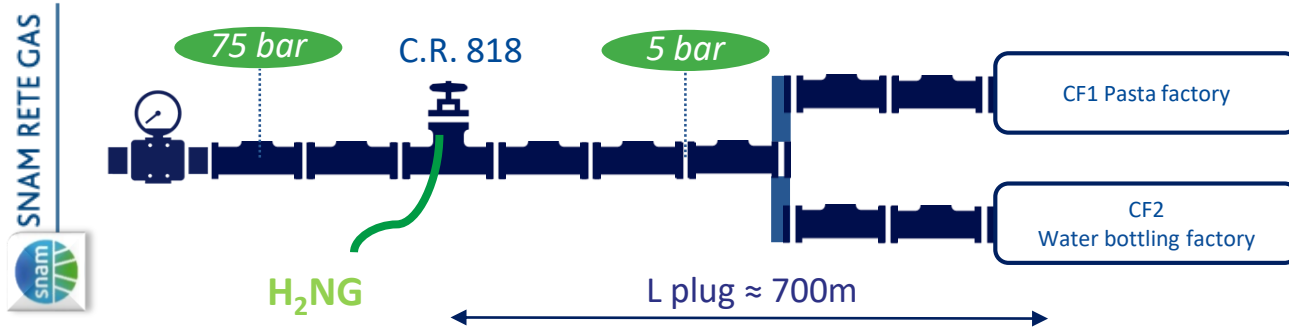
1. Assuming an electrolyzer efficiency of 75% with a 35% load factor

2. Less industry demand as existing H₂ demand in Italy is lower vs the rest of Europe (as gas prices are high in Italy, SMR is less competitive); More buildings uptake as green H₂ costs decline faster in Italy than in the rest of Europe (due to cheap solar) and hence become competitive for heating (primarily in buildings) heating

Ramping up Hydrogen: blending transportation test in existing infrastructure

Key features

Pilot Project: injection of **H₂NG mix of 5% in volume** in a part of the network to check the compatibility of actual infrastructure to trasport H2NG mix



#idrogenoinrete
#snam4hydrogen



Bloomberg

snamchannel • Segui Contursi

snamchannel A Contursi Terme (SA) oggi avviamo la sperimentazione dell'immissione di una miscela di idrogeno e gas naturale nella rete di trasporto. È la prima in Europa. Presenti il sottosegretario al @mise_gov @andrea_cioffi_sa e l'AD Snam Marco Alverà. #idrogenoinrete #snam4hydrogen

#energytoinspirethefuture
#energyforthefuture #gas #energia #energia #gas #campania #igerscampania #contursiterme
pietro_porreca_novantatre
graziolipina
pappacenanap Auguri alla SNAM che non si fermasse

Place a 243 persone

Accedi per mettere "Mi piace" o commentare.

andrea cioffi @andrea_cioffi · 1 apr
Eccoci! Io e Marco Alverà, AD di @snam, abbiamo appena immettere, in via sperimentale, una percentuale del 5% di gas utilizzato per alimentare due aziende di Contursi. Nel video vi racconto com'è andata!
#idrogenoinrete

Bloomberg @business · 28 mar
Your next plate of pasta could be hydrogen-powered
Traduci il Tweet

Your Next Plate of Pasta Could Be Hydrogen-Powered
It's not like Mama used to make. Your next plate of fusilli might have an extra twist: it could be produced using hydrogen, as part of an experiment by Ital...
bloomberg.com



Thank you