

# The gas industry evolution for a low and zero-carbon world

## *Snam plans and actions*



### ***En.odmev 021 virtual event***

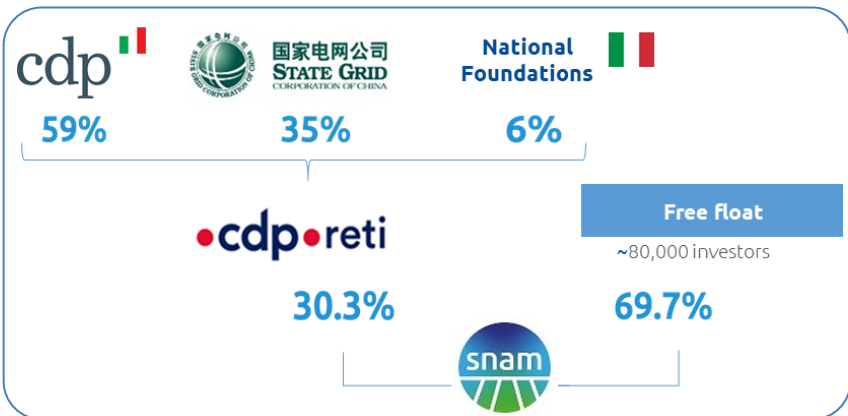
*March 4<sup>th</sup> 2021*

Mr. Andrea Stegher

**Snam** SVP Commercial & Stakeholder Engagement

**IGU** President elect 2025-2028 & Vice President 2021-2025

# Snam Net Zero Commitment by 2040



## International footprint



## Energy transition



~ € 28 bn  
Enterprise Value

~ € 1,100 mln  
Net Income (2020E)

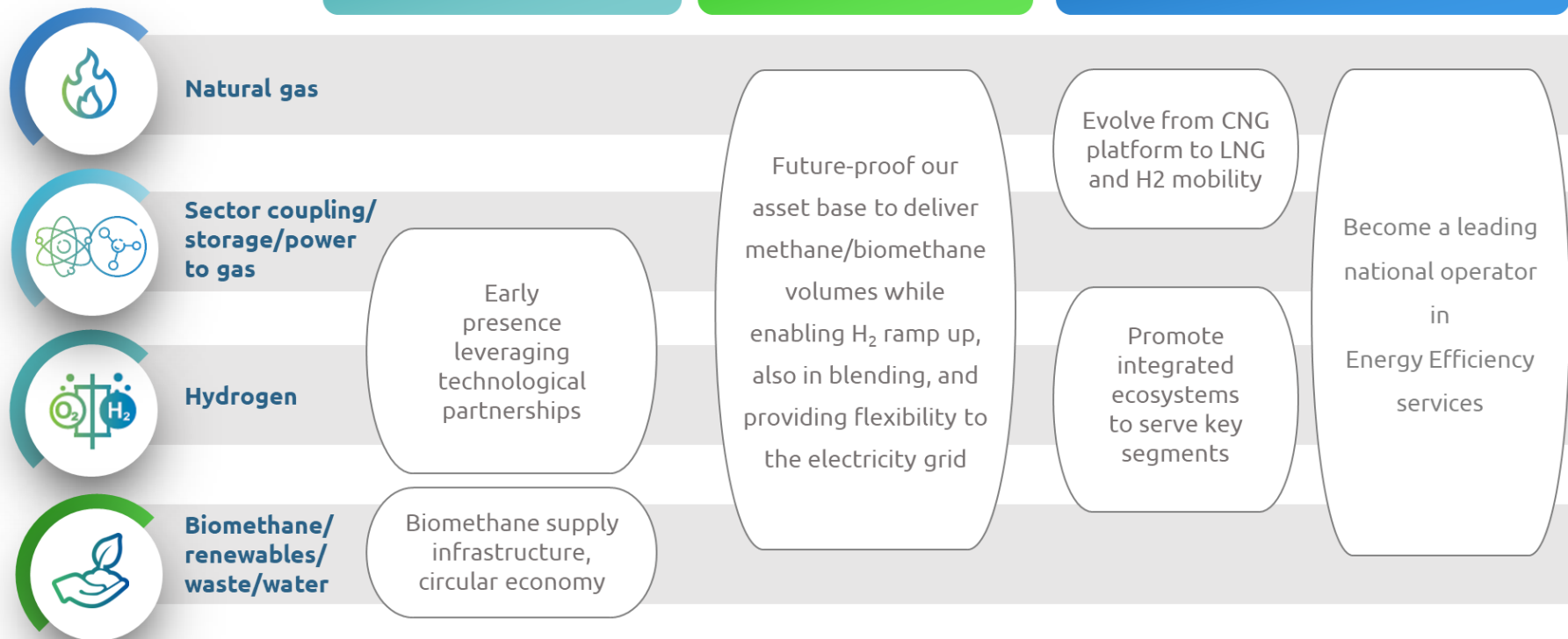
~ 42,000 km pipelines\*

~ 20 bcm UGS capacity\*

~ 20 bcm regas capacity\*

\*including associates

> € 0.7 bn Energy Transition investments up to 2024



# Snam's role in promoting low and zero carbon gases: the Gas for Climate initiative



Gas for Climate was initiated in 2017 to **analyse and create awareness** about the role of **renewable and low carbon gas** in the future energy system, aiming for full compliance with the Paris Agreement target to limit global temperature increase to well below 2°C. To this end, the entire economy has to become **(net) zero carbon** by mid-century.



**Gas Vision 2050:**  
Building support for competitive low-carbon gas in the future EU energy system

As of 2020, Gas for Climate group consists of ten leading European gas transport companies and two biogas consortia.



Important need to enhance interactions with other markets and players



# Biomethane: supporting elements, status and perspectives



EBA 2020 Statistical Report

725

BIOMETHANE PLANTS

2.4

bcm OF BIOMETHANE

18,943

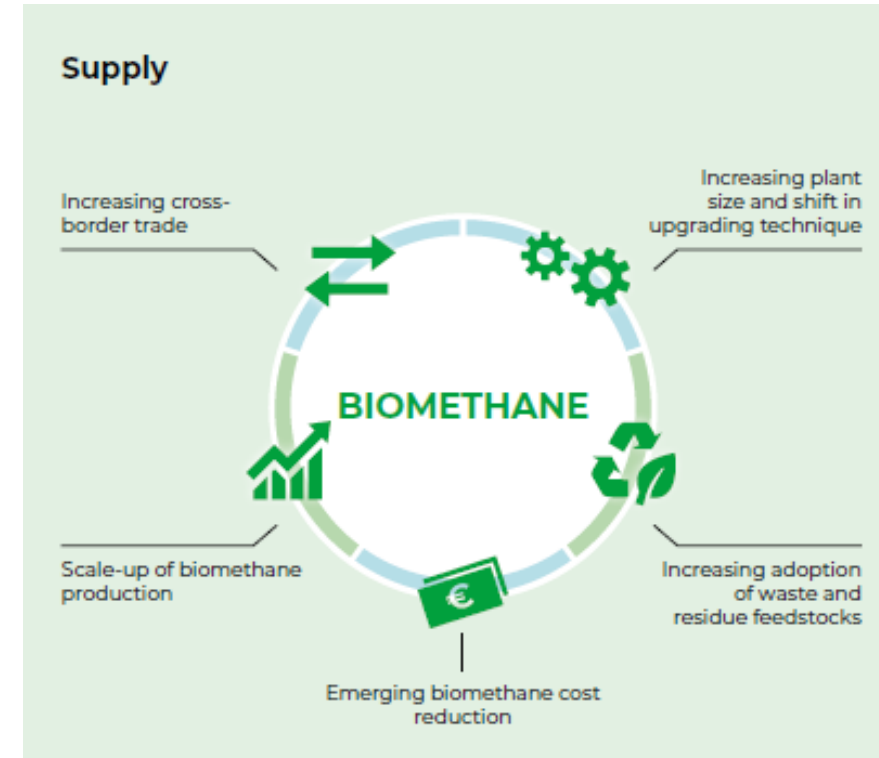
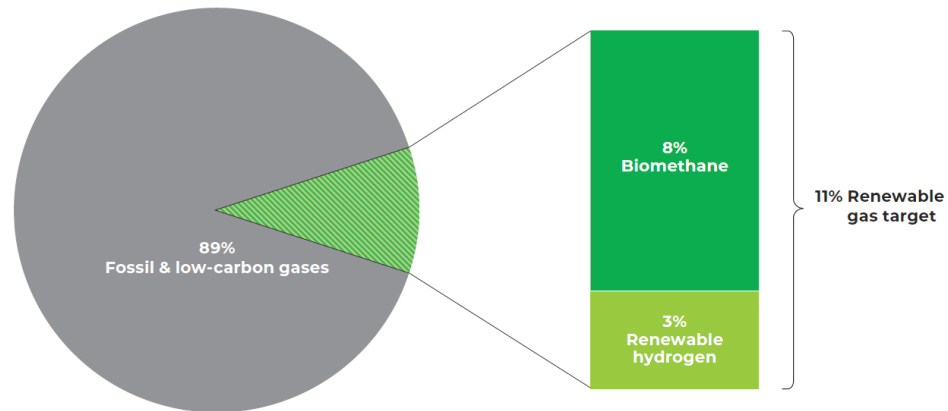
BIOGAS PLANTS

15.8

bcm OF BIOGAS

Setting a binding target for 11% renewable gas

2030 11% renewable gas target



Snam commitment to upscale biomethane

- Industrialization of agricultural production
- Develop a platform for growth in the circular economy

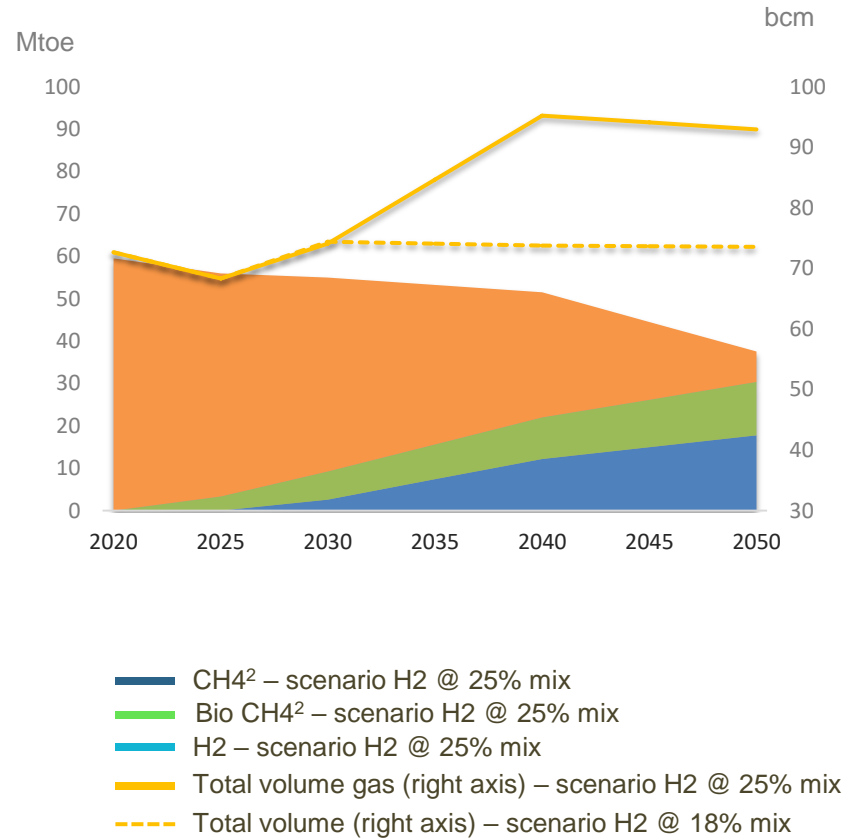
# H2 and gas infrastructures evolution



## Transporting H2: key facts

- Hydrogen is 3.8x less dense than natural gas<sup>(1)</sup>
- Hydrogen travels faster through a pipeline than natural gas, containing additional pipeline capacity requirements
- Pipelines offer flexibility for sector coupling, also through linepack

## Evolution of gas mix and volumes



## The 2050 grid



(1) BNEF; (2) CH4 and Bio-CH4 to 2050 also with CCS

# Ensuring “H2-readiness” for infrastructure value chain

Sector collaboration

## Compression stations:

- Definition of standards for H2NG mix to fuel compressors and turbines
- New “hybrid” compressor turbine tested with Baker Hughes, suitable for up to 10% H2 blend to be installed at Snam’s gas compressor station in Istrana in 2021

Development of the first H2 network for a cluster of industrial users supplied with **mixtures of up to 10% green H2 in NG**

## Pipelines

- 70% of pipes hydrogen ready)
- Procurement standards for H2 ready pipelines

## Storage

- Up to 2% blending feasible
- Ongoing assessment for higher percentage
- CO2 storage potential

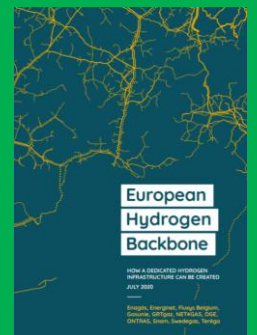
DNV “Renewable Gases Metering” project with European TSOs and gas meters producers

Project to assess the feasibility of using high % of hydrogen in steel mill industrial furnaces

Feasibility study on natural gas/hydrogen blending in steel thermal treatment, to be developed through European/national funding

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

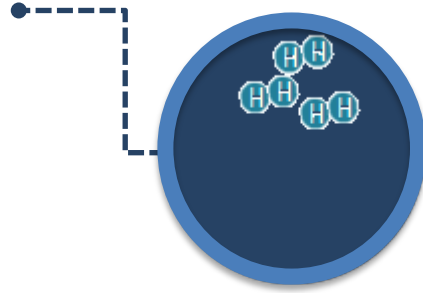
**European H2 Backbone plan** – done in collaboration with 11 EU gas infrastructure companies - for a dedicated hydrogen transport infrastructure



# H2NG Snam approach



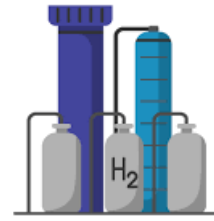
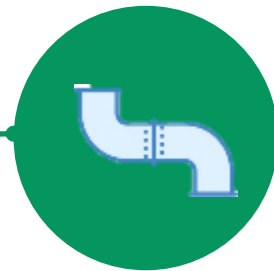
## Carbon Steel pipelines behaviour vs. H<sub>2</sub>



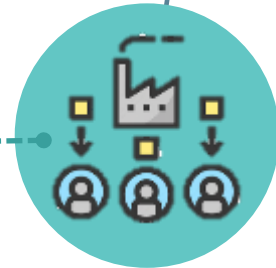
## Pilot Projects



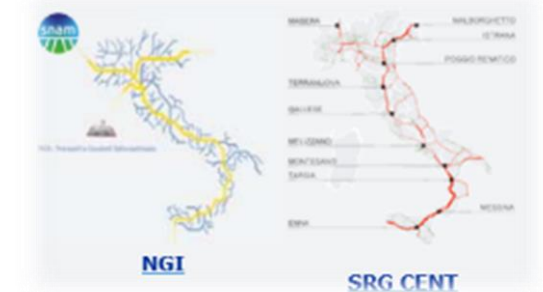
## International/national H<sub>2</sub> Standards



## Supplier management

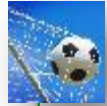


## Snam Technical Standards





# Test 2019 first test



## Goal

Injection into a **portion of the network** of a **mixture of H2NG up to 10 % of volume** to check compatibility of current infrastructure to transport **H2NG mixtures**.

## CONSTRAINTS



CNG distributors



Underground storage in porous rocks



Gas turbines of compressor stations



End Users with production processes sensitive to gas quality

### *Mixture features (Natural gas up to 10% H2)*

- ✓ Quality characteristics set by Ministerial Decree for natural gas transport
- ✓ Materials HE (Hydrogen Embrittlement)
- ✓ ATmospheres and EXplosives zones identification

### *Public bodies Involved*

- ✓ Fire Departments



*A Sustainable Future – Powered by Gas*  
<https://www.wgc2022.org/>

***Thanks for your kind attention!***

*andrea.stegher@snam.it*