

# Low carbon gas regulation from a TSO perspective

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# About Enagás



## A European TSO at the forefront of the development of renewable gases

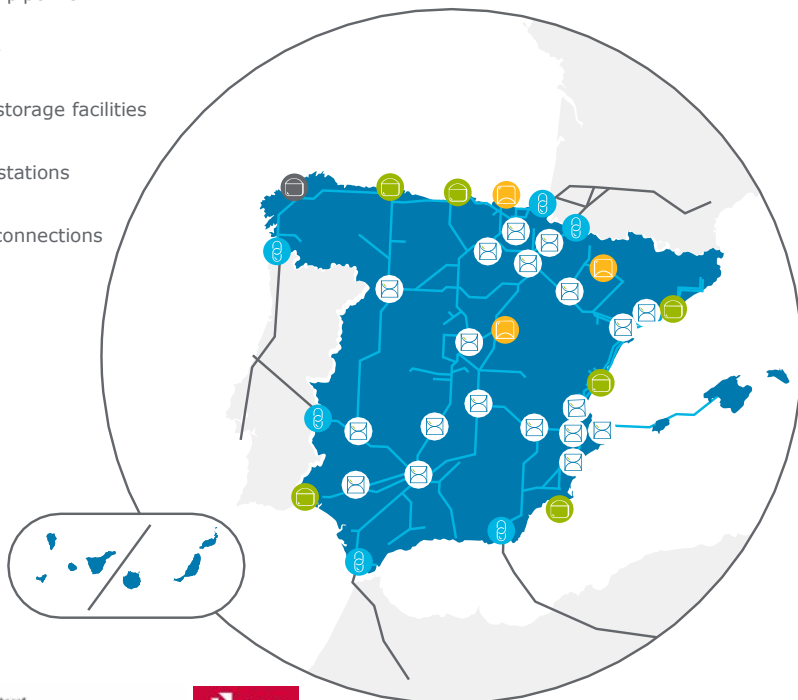
— 11,000 km gas pipeline

6 LNG terminals

3 underground storage facilities

19 compressor stations

6 international connections



### A leader in energy infrastructures

- Transmission, storage, regasification with over **50 years experience**
- EU accredited **independent TSO**
- **Technical Manager** of Spanish gas system
- Operating in **8 countries**

### Committed to decarbonisation

- Commitment to **carbon neutrality by 2040**
- GHG emissions over 2014-21 reduced **54%**
- Driving the development of **>50 renewable gas projects** alongside numerous partners in Spain and Latam
- Leader in **corporate sustainability**

### With a key role in delivering REPowerEU

- Supply **diversification via LNG**
- Accelerating the transition to domestically produced **hydrogen and biomethane**

Sustainability Award  
Bronze Class 2022  
S&P Global

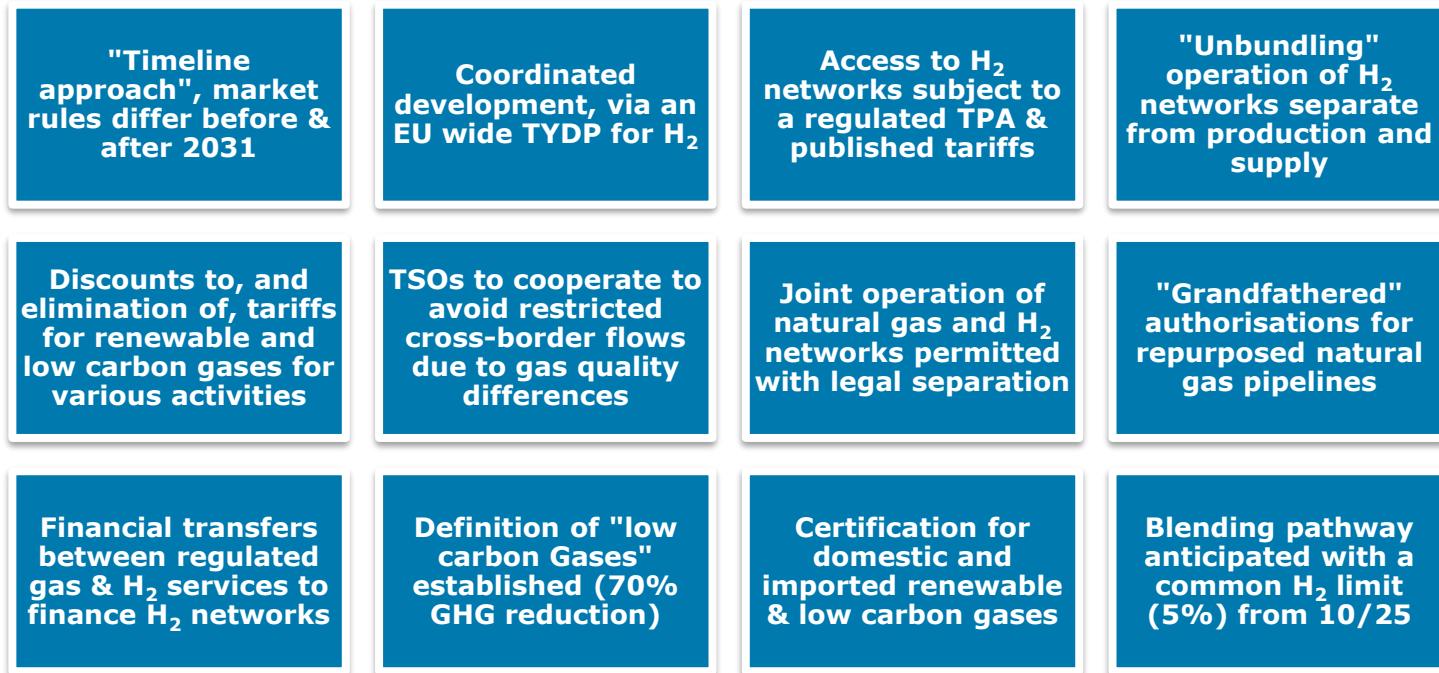
Member of  
Dow Jones  
Sustainability Indices  
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# EU-wide harmonized regulations necessary to unlock investments



The EU H2 & DG Package outlined comprehensive draft revisions to the Gas Directive and Regulation, highlighting the key elements of the future regulatory framework that will underpin the delivery of a low-carbon gases



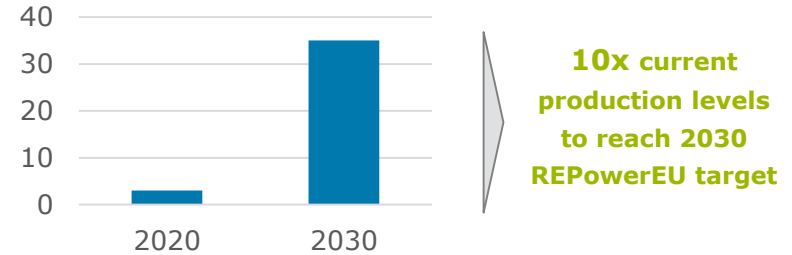
The draft regulatory package lays the foundations for H2 transport in Europe and recognises a central role for network operators in a future interconnected market.

# How can we accelerate the scale up of a low carbon gas market

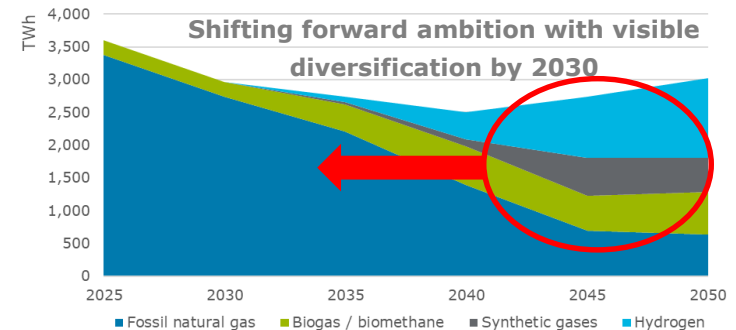
## REPowerEU plan aims to eliminate the EU dependence on Russian gas before 2030

- The current geopolitical context has highlighted the need to accelerate the clean energy transition, renewable gases have a key role to play in enhancing EU energy security.
- REPowerEU introduces **ambitious biomethane (35 bcm) and hydrogen targets (up to 20 Mt, ≈25-50 bcm) for 2030**.
- We need to take bold action to ramp up the existing growth trend for biomethane supply and deliver the green H2 project pipeline, in which most projects have not reached FID. This means **shifting forward the EU's 2050 vision for decarbonised gas consumption**, with visible diversification by 2030.
- Two key elements to meet this challenge are:
  - 1) **Mobilising and allocating funding** will be crucial to reach scale of renewable gases technology and production targets in the near future.
  - 2) An EU wide certification scheme for renewable and low carbon gases to **enable international trade**.

Biomethane production, 2020 and REPowerEU goal (bcm)



Modelled EU consumption of gaseous fuels



Graph sources: below, produced using data from European Commission (2021) *Factsheet on the gas markets and hydrogen package*, data from Climate Target Plan Impact Assessment modelling Mix scenario.

**Fast track procedures to scale up the deployment and the integration of renewable gases is a crucial element to fulfil the EU's energy security and climate goals.**

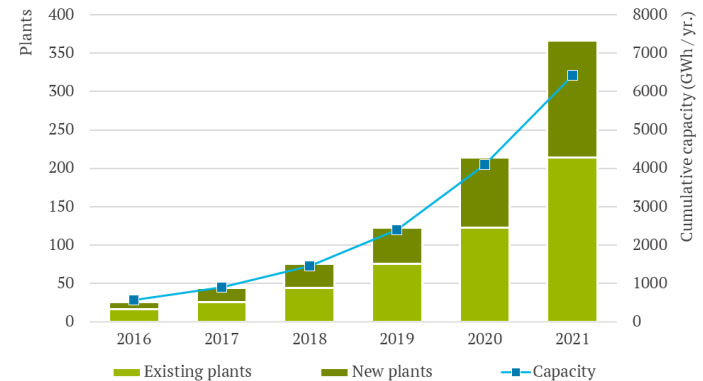
# Biomethane: a solution for today not just the long term



The REPowerEU plan sees biomethane as a key means to diversity gas supply, with 35 bcm of domestic production by 2030, a  $\approx 10$  fold increase on 2020 production levels.

- Reaching 35 bcm is possible, but needs efforts to **boost feedstock supply**. The priority in the short term should be to mobilise waste and residue feedstocks, with the lowest cost highest emissions savings.
- Biomethane is **compatible** with existing gas networks but scaling up will still require further infrastructure **investments** e.g. upgrading inc. pooled upgrading infrastructure between producers, reverse flow in high injection/low demand areas, bio-CNG/LNG refuelling for transport.
- **Regional mapping** ('zoning') of potential biomethane production in all Member States would lead to accelerated assessment of grid reinforcement needs.
- Growing the industry needs wider **policies and market design**:
  - Measures to boost **sustainable** feedstock supply
  - **Financial de-risking measures** to facilitate investments
  - Setting renewable gas **targets or quotas** to generate firm demand e.g. anchor 35 bcm target in EU legislation
  - Quality **standards and specifications** to ensure end user confidence.

Biomethane development in France



Source: Open Data Réseaux Énergies (ODRÉ)

A comprehensive package of support measures saw France's biomethane capacity increase >10 fold since 2016, but more EU countries need to introduce supportive policy frameworks to meet the REPowerEU goal.

# TSOs can fast-track the delivery of a European Hydrogen Backbone

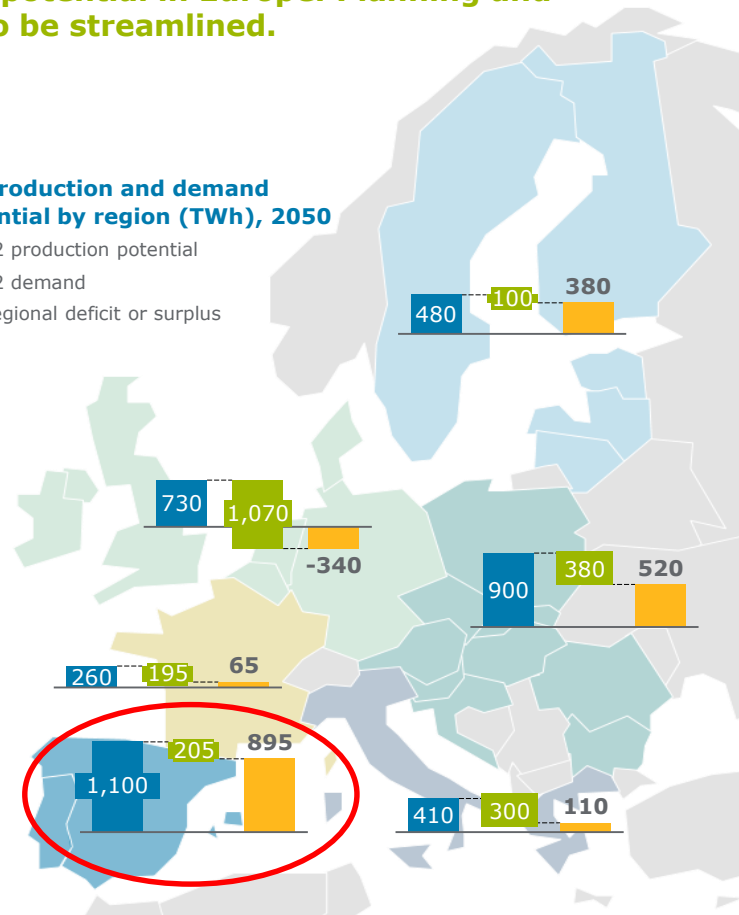


The existing gas infrastructure is a key enabler to unlock green H2 potential in Europe. Planning and permitting of renewable gas supply infrastructure projects needs to be streamlined.

- **Development can be driven in two directions.** One is a bottom-up approach creating local H2 valleys, the other is via top down European coordination, by establishing from the outset plans for a pan-European backbone.
- Projects of Common Interest (PCI) and Important Projects of Common European Interest (IPCEI) should be used to **rapidly develop key infrastructure projects for hydrogen integration** (including the pipeline network, underground storage, import terminals, etc.).
- **Large-scale hydrogen storage should not be overlooked**, and will be a core component of the hydrogen network, enabling supply and demand balancing and enhancing energy security.

## H2 production and demand potential by region (TWh), 2050

- H2 production potential
- H2 demand
- Regional deficit or surplus



An orderly transition requires strong coordination at regional and EU level. H2 infrastructure development must build on TSO's existing infrastructures.

# Regional coordination needed for H2 compatible cross-border infrastructure

**The Iberian Peninsula has the potential to produce more than 1.100 TWh, enough to cover domestic demand and allow for significant exports of green H2 of ~900 TWh to central European demand centers.**

- Spain could provide Europe with 21 bcm or 1.9 mt H2 per year (**~18% of the total forecast in the REPowerEU Plan for domestic H2 production by 2030**) and replace 6 bcm of current natural gas consumption.
- Enhanced **HyReady interconnection capacity** would allow for 21 bcm to be exported from Spain through France.
- The 21 bcm of green H2 production would require **7.6 GW of net power from grid-connected electrolyzers**.
- The **associated RES wind & solar PV** power to supply the electrolyzers would be **20 GW**.

## Possible development of dedicated H2 infrastructure



**By 2030, a 1,400 km H2 network could be available in Spain, from adapted pipelines and new developments and H2 storage, at an affordable cost, including.**

# Conclusions

- **Gas infrastructures are key to the energy transition**, although a transformation of TSO's core business towards the transport of the renewable & low carbon gases needed for decarbonisation is anticipated.
- The proposals of the **draft EU Hydrogen & Decarbonised Gas package**:
  - Cover many of the measures needed to **kick-start the renewable and low carbon gas market**.
  - Recognise a **central role of hydrogen network operators** in a future interconnected market.
  - Enhance the certainty needed to start to **unlock investments**.
  - Could permit **extra flexibility in several areas** to further enable TSOs to facilitate market growth.
- The current highly volatile energy market requires dramatic acceleration of renewable hydrogen and biomethane output and a rethink of their competitiveness, as they hold the potential to fulfil the core EU policy pillars of decarbonisation, affordability and energy security.
- Member States need to develop policy frameworks to **scale up biomethane ten fold**, to fulfil its contribution to the REPowerEU plan for enhanced energy security and deliver wider environmental/social benefits.
- Bolder policies are needed **to mobilise infrastructure investment and underpin international trade** in order to meet current security of supply challenges, in addition to our climate objectives, so as to create a robust and interconnected renewable and low carbon gas market.
- A European Hydrogen Backbone has an essential role to play in facilitating a **liquid, cost efficient and interconnected** future H<sub>2</sub> market. TSO expertise and asset repurposing are central to realising this vision.

**Enagás stands ready to work with stakeholders to develop the gas infrastructures needed to fulfil EU policy goals, from REPowerEU, 2030 decarbonisation goals and ultimately the Green Deal.**



Thank  
you

