

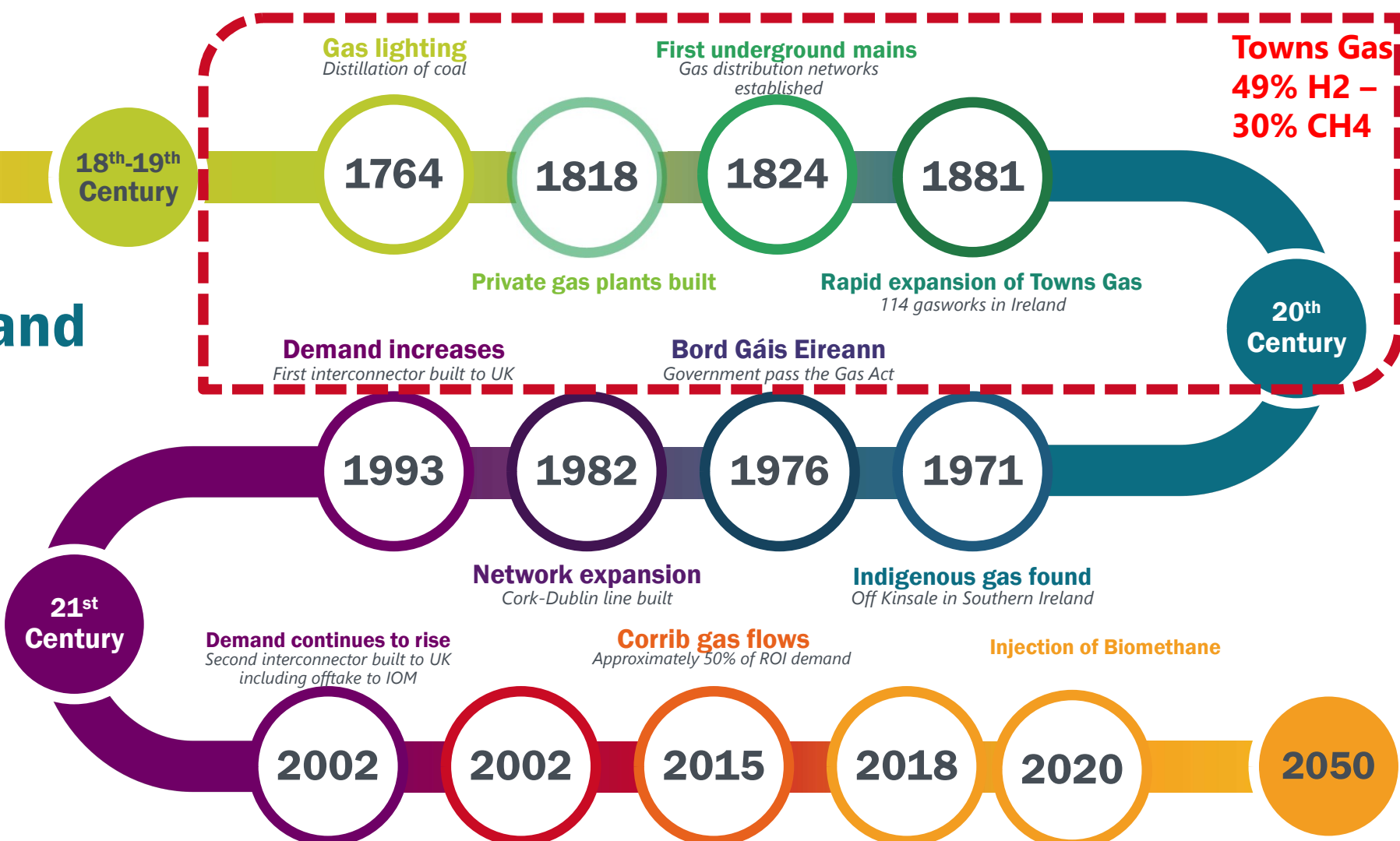
Gas  
Networks  
Ireland

# Hydrogen & the Gas Network

Hydrogen and Ireland's Gas Network

# Gas in Ireland

Where we came from



# Ireland's gas network



## Security of Supply

Providing 34% of Ireland's primary energy needs. Proven ability in harshest weather conditions.



## Flexible

A secure, instantly available energy source which has made renewable deployment possible



## Future proofed

One of the safest and most modern gas networks in Europe



14,617km

of gas pipeline could wrap around Ireland's coastline four times



## Diversity

Supplying energy, for 710,000+ connections in power generation, heat and transport



## Renewable readiness

€2.7bn network capable of transporting biomethane and hydrogen

Existing Pipelines	
Pipelines Owned by Others	
Interconnection Points	
Entry Points	
Renewable Gas Entry Point	
Decommissioned Entry Point	
Gas Fired Power Generators	



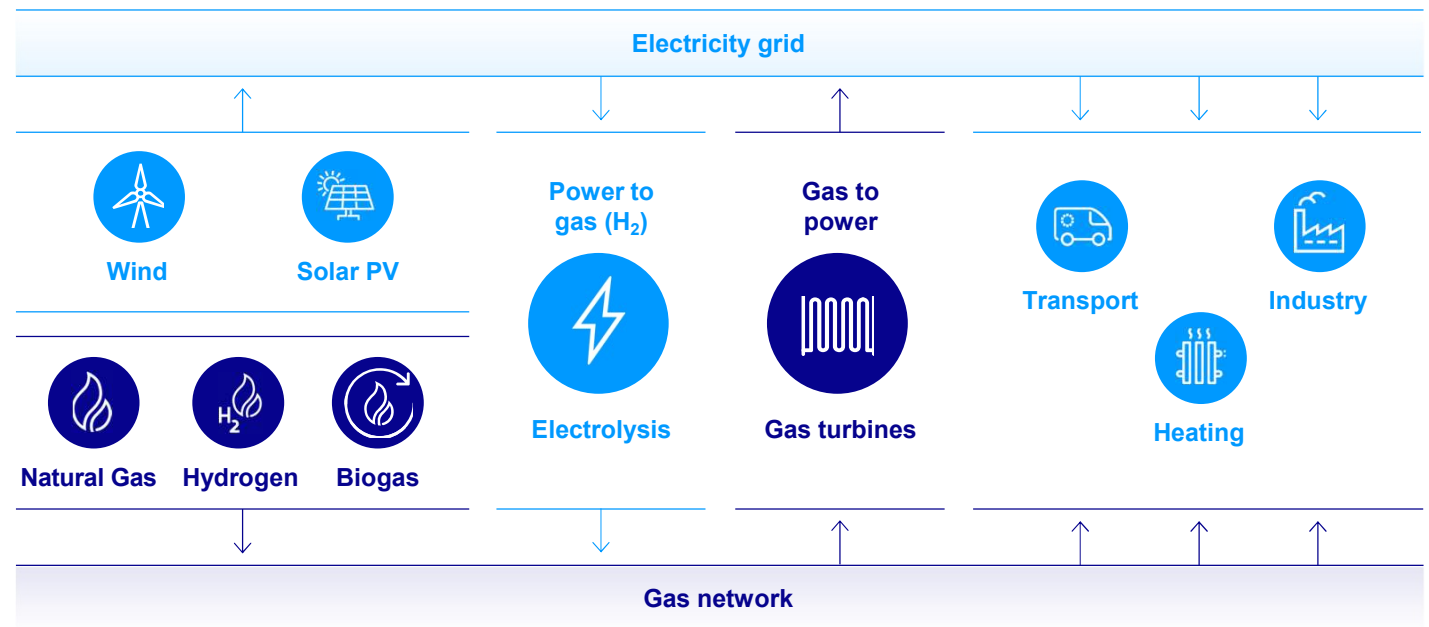
# Infrastructure Delivery



# Transforming Ireland's entire energy system

- Decarbonisation of gas infrastructure and increased integration of gas and electricity systems will complete the decarbonisation of the energy system.
- Gas offers a solution for hard to reach / high energy intensity sectors.
- The gas network offers safe, efficient, cost-effective and secure transportation and storage of H<sub>2</sub>.

## Vision for future energy systems



# Network Evolution

## Preparing for Blends- 2023-2030

- Getting the existing gas network ready to accept blends of hydrogen/natural gas at the Moffat Interconnection Point in Scotland and accept green hydrogen injection at certain points on the gas network

## Cluster Development- 2023-2030

- Support the development of hydrogen clusters, including the production, storage, transport and end-use of green hydrogen at key locations

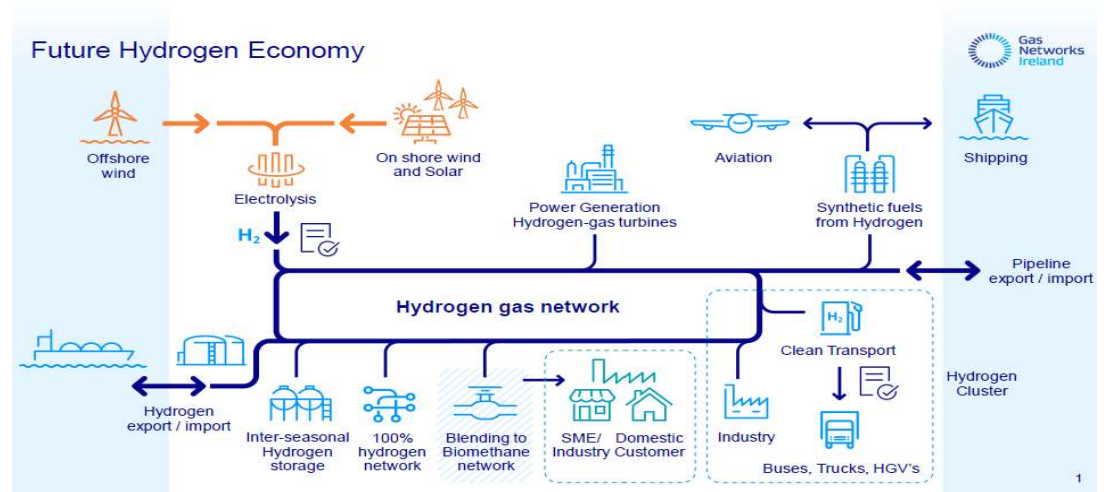
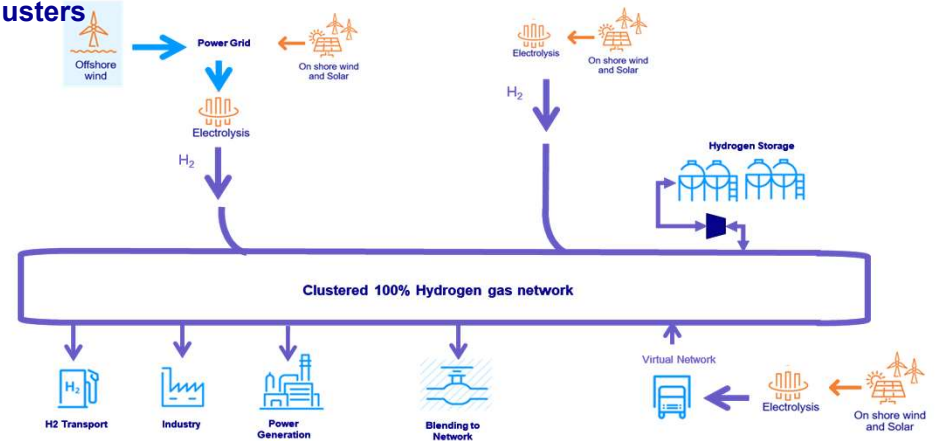
## Network Conversion - 2030-2040

- Hydrogen networks are developed to link these clusters, providing resilience to the energy system and access to decarbonisation for gas dependant customers not in proximity to the clusters.

## European Backbone – 2040-2045

- Repurposing one of the existing gas interconnectors to enable green hydrogen export/import, providing energy system resilience and access to the UK and European hydrogen networks

### Hydrogen Clusters



# Technical and safety feasibility study of injecting green hydrogen blends into the gas network – CAP 2021



**Distribution** medium and low pressure network consisting of polyethylene pipelines, gas installations and service lines, totalling 12,140 km.

Compatible with blends of up to 20% and even 100% hydrogen  
Significant evidence base generated through UK and EU projects which is applicable to Ireland  
Some further qualification research required  
A pilot blending project should be progressed in Ireland



**Transmission** high pressure gas network consists of steel pipelines, subsea interconnectors, gas installations and compressors, totalling 2,477 km.

Pipeline steel grades compatible with blends of up to 20% and even 100% hydrogen  
Material testing required for certain pipelines in order to maintain operating pressures  
Installations and compressors largely compatible but more research required on certain components  
Several studies are underway (e.g., HyNTS, Gasunie, HIGGS, GERG and EPRG hydrogen) which will support the GNI study



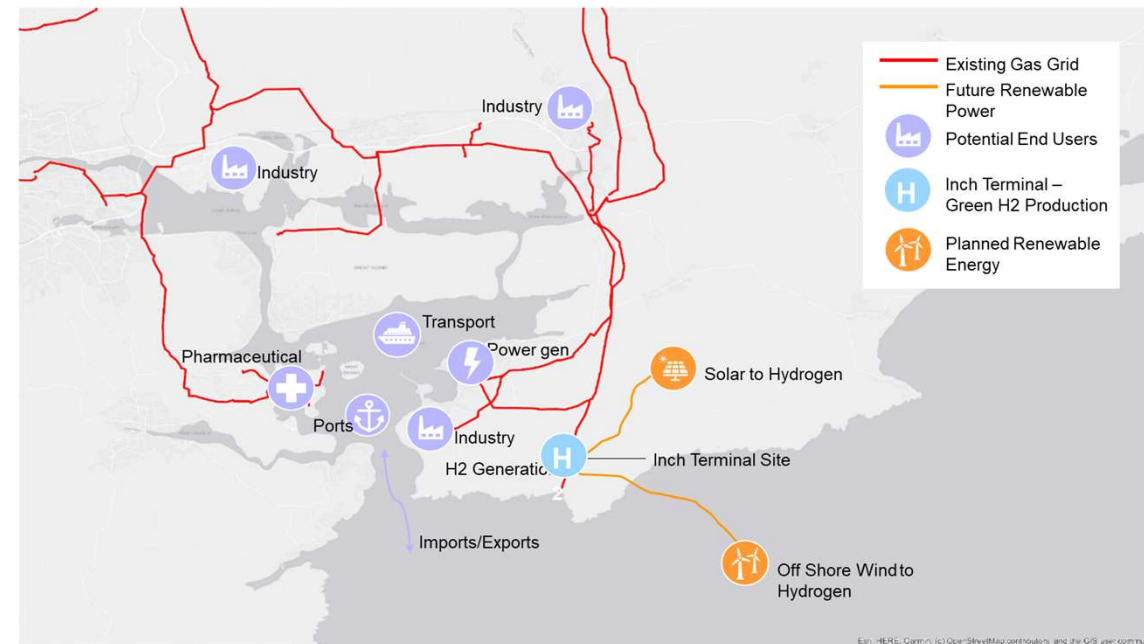
**Homes and business** – Over 706,000 customers using gas for space heating, water heating and gas cooking.

All domestic appliances (such as cookers, boilers etc.) manufactured since 1996 are able to accommodate 20% hydrogen blends today, with no end user changes required.  
Development of new 100% hydrogen ready gas appliances well advanced.  
Further research and testing is required to determine the impact on gas engines, gas turbines, and industrial and commercial equipment.

**GNI report due to be published shortly**

# Cork Hydrogen Opportunity

- Gas Networks Ireland has significant infrastructure & customers in the area
- Projects progressing on renewable gases in the greater Cork area
  - Graze & Central Grid Injection in Mitchelstown
- Existing pipelines and installations could be repurposed to transport & store hydrogen
  - Linking multiple production & supply sites
  - Managing third party access to H2 infrastructure
  - Storage for network operation
  - Storage for production optimisation
- An initial production of hydrogen in Cork could provide a larger decarbonisation potential through existing networks
  - Can provide initial routes to market through blending
  - Repurposing/new pipeline can provide routes to larger national & internal markets





# Ireland's Potential Journey

1.3GW  
Dedicated  
Offshore  
Wind  
= 20% H<sub>2</sub>  
blend ROI

56TWh/yr  
Total ROI Gas  
Demand 2021

90TWh/yr  
Potential for  
Hydrogen  
Production (SEAI)

**2024:** Pilot blending projects commence

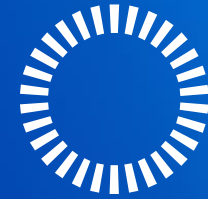
**2030:** Hydrogen infrastructure development as part of clusters

**2040:** Extensive 100% hydrogen network linking clusters and large users

**2050:** National 100% hydrogen network. Reversal of interconnector(s) for hydrogen export with potential capacity of circa 18GW



<https://ehb.eu/>



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Questions?