Hydrogen Regulatory Framework

We will start at 12.02 to allow participants to finish previous meetings and join the call

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#GT8

Gas Transmission

Welcome and Opening

Thank you for joining us today

Tony Nixon

Regulation Director

Innovation
- *Materials and processing*
- *Automation and measurement*
- *Digital systems and simulation*
- *Business process and management*
- *Asset development for risk mitigation*

FutureGrid
- *2% H2 asset testing*
- *20% H2 asset testing*
- *100% H2 asset testing*

Regional Programmes
- *East Coast Hydrogen*
- *Capital Hydrogen*
- *Hydrogen Valley*

Sectors
- *Heat*
- *Power*
- *Industry*
- *Transport*

Hydrogen Policy
- *Blending*
- *Strategic decision on H2 for heating 2026*
- *T&S business models*

Data
- *Data specification*
- *CNI*
- *Environmental impact*

Asset Management
- *RIIO-3*
- *Investments*
- *Asset Management Plan*

Commercial Frameworks
- *Trading*
- *Capacity*
- *Charging*
- *Balancing*
- *Connections*
- *Gas Quality*
- *System Operations*

Implementation Strategy
- *Phasing*
- *Delivery*
- *Funding*

Supply Chain
- *Market engagement*
- *Procurement*

Regulation
- *Regulatory framework*
- *Cost allocation*
- *Asset repurposing*

Customer and Stakeholder
- *Stakeholder landscape*
- *C+S intelligence*

Network Modelling
- *Methane*
- *Hydrogen*
- *Repurposing & newbuild*

Engineering Policy
- *Policy Framework*
- *GSMR*

ProjectUnion

Who will be speaking?

Carole Hook
Head of Future Frameworks

Craig Neilson
Future Regulatory Frameworks Manager

Paul Sullivan
Head of System Capability & Risk

Jennifer Pemberton
Stakeholder Strategy Manager

Logistics

Should last for approximately about 60 min

Questions and polling via slido.com #GT8

Believe in children Barnardo's

All callers will be placed on mute

We will circulate the slides and a recording of this webinar

Agenda

1. Introduction and overview

2. Six critical areas

1. **A large-scale hydrogen network is a crucial requirement to enable the UK achieve net zero** and its development and is not contingent upon any other policy decisions

2. **Interim arrangements are needed**: investment decisions will need to be supported well before the business model and supporting regulatory framework concludes in 2025 – extension of the RIIO natural gas framework is optimal

3. **A RAB model for hydrogen transportation will best overcome market barriers** across all stages of network evolution

4. **Socialising to natural gas consumers offers an attractive opportunity to close the funding gap** recognising the natural gas users of today are like to be the hydrogen users of tomorrow

5. **A form of strategic planning is critical**: this is needed before the FSO is in place

6. **Storage will be a vital component** in the development and ongoing management of the hydrogen market

3. Questions

Quick poll

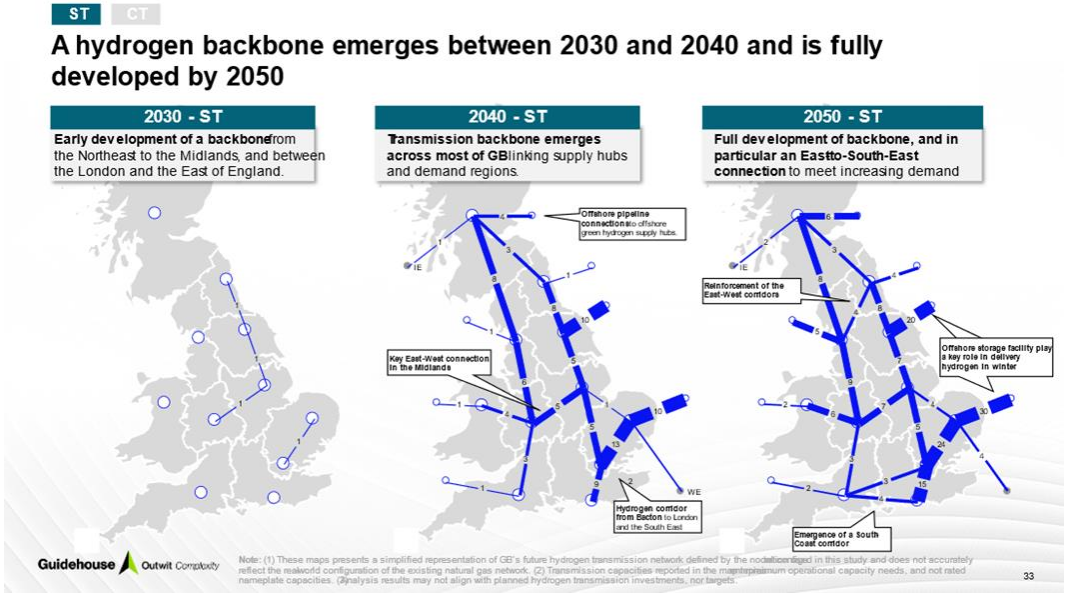
What do you think are the biggest challenges facing Hydrogen regulation?

Six critical areas

Gas Transmission

1. A large-scale hydrogen network is a crucial requirement to enable the UK achieve net zero, its development and is not contingent upon any other policy decisions

- Hydrogen infrastructure needs are **not contingent** on a heat decision
- To achieve net zero ambitions, large scale infrastructure needed by the **early 2030s**

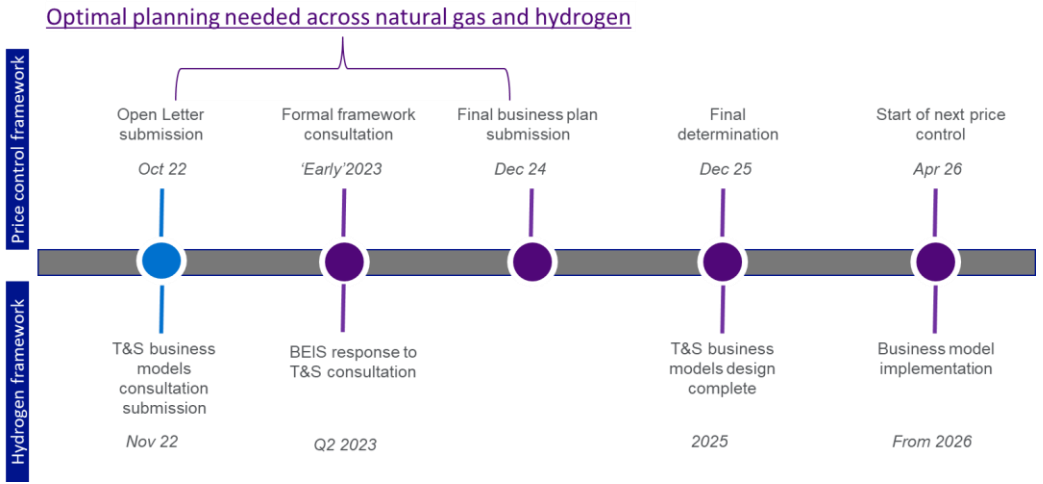


"In all net zero scenarios, integrated infrastructure planning across electricity and hydrogen transmission can provide **energy system savings of up to £38 billion by 2050**, *which will be supported by no-regret network investments common across all scenarios over the next decade"*

Recent study by Guidehouse

Interim arrangements are needed: investment decisions will need to be supported well before the business model and supporting regulatory framework concludes in 2025

- Lead times dictate work needs to start now
- Repurposing existing assets ~20% of new build alternative
- We are building our business plans for 2026 -2031 now
- Consider needs for natural gas and hydrogen networks



Extension of the existing natural gas framework is optimal to take this forward in the interim

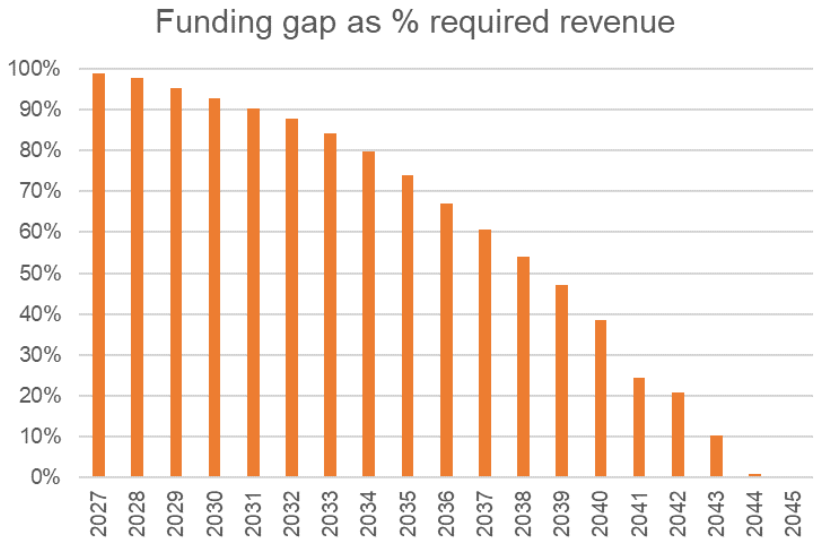
During the period 2026 – 2031 **critical conversion activities** will be required to remain on a pathway for the initial hydrogen network to be in place by the early 2030s

A regulated asset base (RAB) model for hydrogen transportation will best overcome market barriers across all stages of network evolution

- RAB model is **well understood**
  - Attractive long-term and lower risk proposition for investors
  - Stability and predictability for bill payers
- **Deferred investment recovery** approach tackles key challenges in the early hydrogen market
- **Flexibility** allows for adjustment to suit prevailing market conditions
- **Optimal** use of existing frameworks including transactional effects of asset repurposing
- Must be supported by **robust revenue regulation**
  - Overseen by an economic regulator with multiple energy vectors within its remit

Key challenge: High costs and limited early user base.

Early adoption of a RAB model would significantly alleviate the challenge



Socialising to natural gas consumers offers an attractive opportunity to close the funding gap (recognising the natural gas users of today are like to be the hydrogen users of tomorrow)

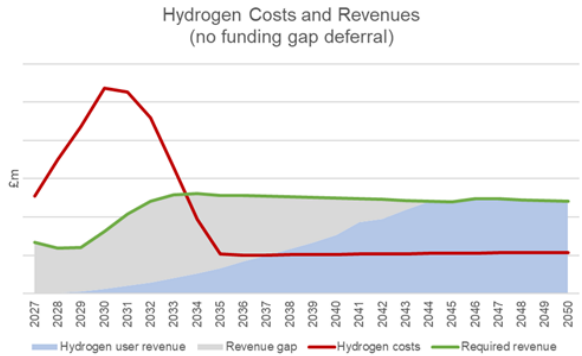
- Assumption: Many of todays gas users will become hydrogen users tomorrow

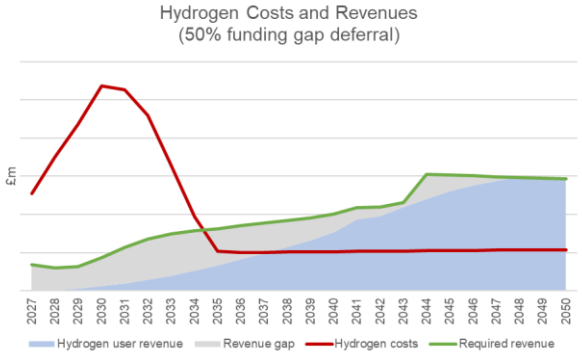
- Natural gas users will benefit from hydrogen infrastructure investment in a number of important ways
- Impact could be mitigated by maximising investment recovery deferral via the RAB
- The options to manage the funding gap are not limited to existing licensees
- Could be largely achieved through application of the existing regulatory and commercial frameworks for natural gas

Benefits to natural gas users

- ✓ Avoid decommissioning costs
- ✓ Mitigation of stranding risks
- ✓ Fair asset transfers
- ✓ Operational synergies
- ✓ Financial benefits

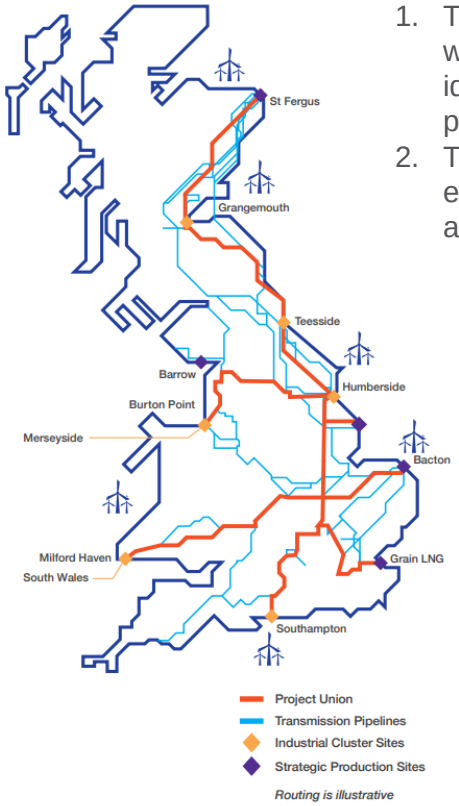
Simulation of a deferred revenue model





A form of strategic planning is critical: this is needed before the FSO is fully in place

- An **integrated energy system** will minimise consumer disruption and deliver the lowest cost pathway to net zero
- The **hydrogen network** could drive efficiency, minimise environmental impact, constraints and whole energy system costs
- A **strategic whole system planning body** is critical (such as the FSO)
- **Interim measures** are needed ahead of this, including
  - Common planning assumptions
  - Potential hydrogen investment proposals
  - Decision support tools, such as Real Options Analysis



1. The government should work with Ofgem to proactively identify systemically important projects
2. This will enable Ofgem to expedite investment decisions as appropriate

Storage will be a vital component in the development and ongoing management of the hydrogen market

- **Storage will be vital**: Allows production and demand to develop on separate but parallel pathways
- Suitable **business design** options
- Business model support should focus on **large scale storage** as a priority
- Storage could play a role in **network optimisation:** May reduce need for additional infrastructure investment (e.g. compression)

*"longer duration storage solutions reduce net zero system costs by **between £13bn and £24bn** in the scenarios modelled".*

Afry report to BEIS

*"Hydrogen storage plays a **key role in all net-zero scenarios** during low-wind periods by providing non-intermittent hydrogen supply to support both gas and electricity systems when green hydrogen production is limited"*

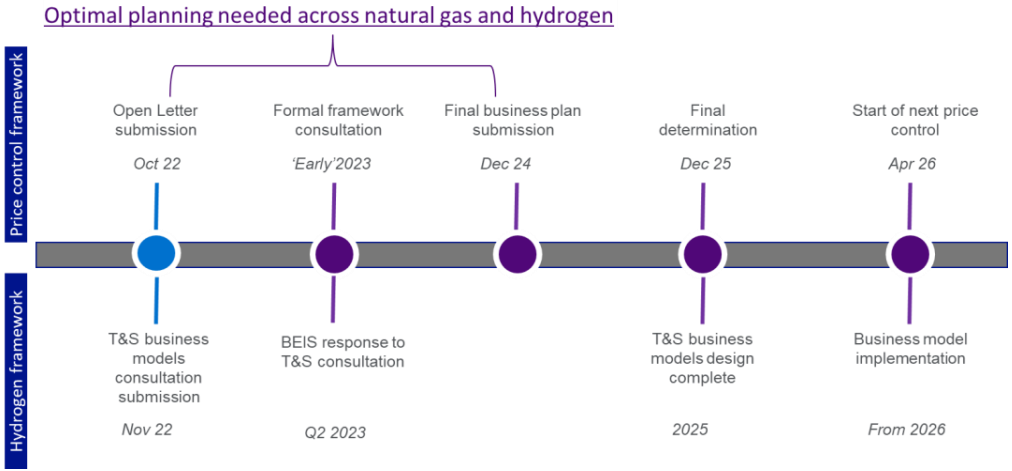
Guidehouse 2022 report

*"The whole energy system of the future will require strategic storage to **balance inter-seasonal demand and supply** and increase resilience against external security of supply risks. This will include large-scale geological hydrogen.."*

FES 2022

What next…

- BEIS have committed to publish a response to the T&S consultation alongside a summary of the responses received **Q2 2023**
- We **welcome any discussion** on what is needed from the hydrogen regulatory framework, including the principles proposed in our key messages
- We will continue to engage on this in more detail through the **GMAP working group**



Pace is needed in delivery of the enduring regulatory framework for hydrogen networks – to avoid delay we must **adopt the existing RIIO framework** for natural gas until it is designed and implemented

Reflections / Q&A

1. **A large-scale hydrogen network is a crucial requirement to enable the UK achieve net zero** and its development and is not contingent upon any other policy decisions

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3. **A RAB model for hydrogen transportation will best overcome market barriers** across all stages of network evolution

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6. **Storage will be a vital component** in the development and ongoing management of the hydrogen market

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Quick poll

How would you prioritise the areas we've outlined?

Questions

What next?

You will receive the recording and material from today’s session

If you have any further questions or would like to discuss anything specific please get in touch with Carole.Hook@nationalgrid.com

Feedback is important to us, therefore if you have not already taken part, we would like to put you forward for a survey

Thank you for joining us

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