Hydrogen Transport and Storage Infrastructure Consultation

Hydrogen Transport Infrastructure Business Model

20 October 2022

Department for Business, Energy & Industrial Strategy

Housekeeping

- **No planned fire alarms**. In the event of an emergency please follow the signs to nearest emergency exit and move away from the building.
- **We will try and facilitate online discussion as well as participation.** Please bear with us in terms of any difficulties in doing this.
- If we do not have time to respond to your question, you are welcome **to reach out to us via email**: hydrogentransportandstorage@beis.gov.uk.
- **We may record the session** for note taking purposes. We have no plans to share the recording.

Structure for the workshop

No	Agenda	Time
1.	**Introductions**	5 minutes
2.	**Background**	10 minutes
3.	**Discussion 1** (break out)	25 minutes
4.	**Discussion 2** (break out)	15 minutes
5.	**Discussion 3** (break out)	15 minutes
6.	**Discussion 4** (all together)	15 minutes
7	**Next steps**	5 minutes

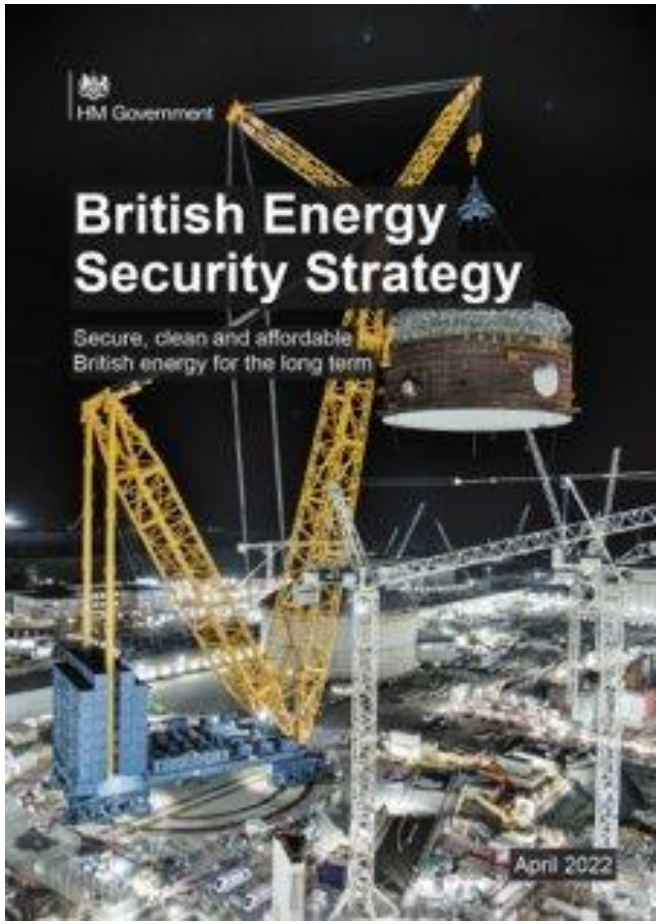
Objectives of the workshop

1. **Present background** to our work.
2. **Generate discussion and gather initial views** for a hydrogen transport infrastructure business model.

- This is to supplement written responses that are required as part of the consultation process.
- Any evidence shared today will not constitute the same type of formal evidence gathering.

Context to the workshop

- **Hydrogen Strategy** set out a 5GW hydrogen production capacity ambition by 2030.
- This hydrogen production capacity ambition was doubled to **10GW by 2030 in the British Energy Security Strategy**.
- To meet this ambition, hydrogen transport and storage infrastructure will be required.
- As such, in the BESS, there was a commitment to **design new business models for hydrogen transport and storage infrastructure**.
- Building on this commitment, this consultation aims to seek views on optimal **business model design options** for these business models.
- This workshop is focussed on a **business model for hydrogen transport infrastructure.**

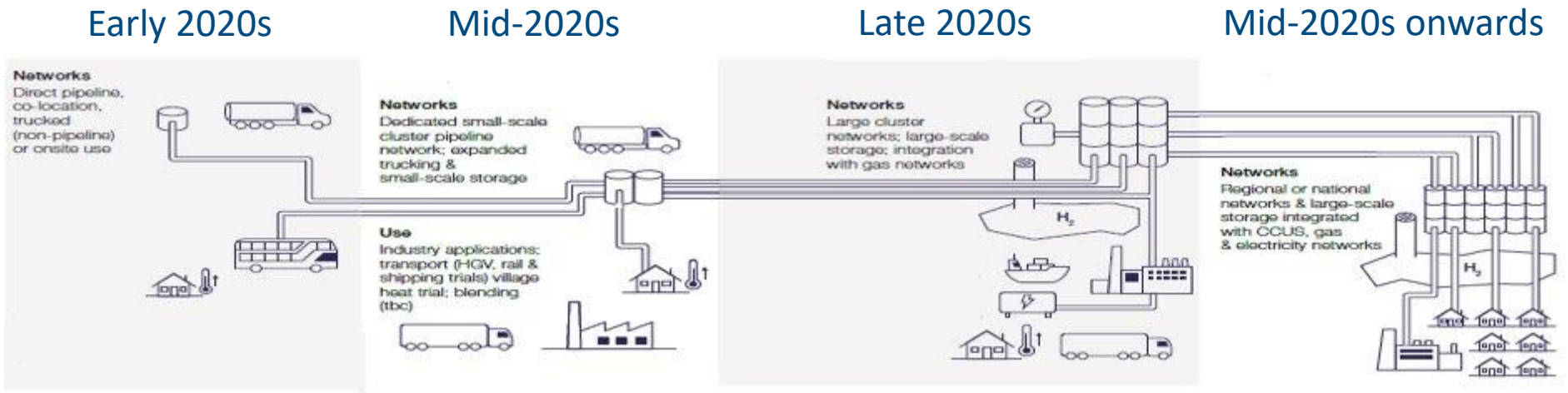


Our vision for the evolution of hydrogen transport infrastructure

- “We aim to reach a large, liquid and competitive hydrogen market enabled by an integrated and resilient network with multiple entry and exit points, connected by several storage facilities at various scales”.

- Network can be onshore and offshore pipelines, pipelines transporting different forms of hydrogen or vehicular transport via road, rail or sea, etc.

- Focus for the business model is on **onshore pipelines transporting hydrogen as a gas**, based on early demand for this infrastructure and development lead-in times.



Importance of hydrogen transport infrastructure

Network input for the hydrogen economy

- Resilience
- Security of supply
- Economies of scale

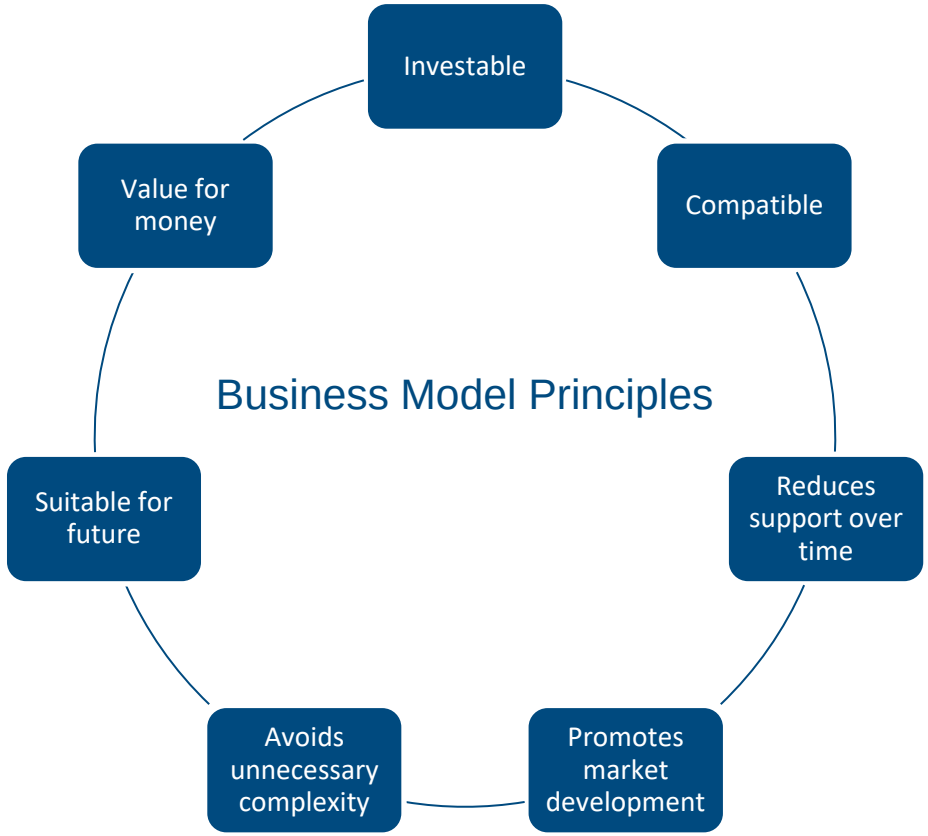
Network output for the hydrogen economy

- Mature market
- Reduction in overall cost of the hydrogen economy
- Allowing hydrogen economy to play supporting role to wider energy system

Discussion 1: Business Model Design Options

Hydrogen transport infrastructure business model

- This consultation, through stakeholder input, aims to determine high-level design options for the hydrogen transport infrastructure business model.
- Once a high-level design option has been established, further work on details building off the high-level design option will take place.
- What should the high-level design option for the transport business model be?



What is the optimal business model design option

Growth phase

- Pipelines begin to get built (or repurposed), these pipelines begin to connect, and network(s) starts to form.
- Market barriers include unknown demand & supply, limited user base, and high-costs.
- Regulated Asset Base (RAB) primarily used for networks but in a mature market.
- **What should the business model design option be in a growth phase?**
- **Is compatibility with a steady state phase needed (for example, same business model)?**
- **Is compatibility with the existing price control needed?**

Steady state phase

- A network has formed, and any new growth is minimal.
- Market barriers include those associated with a natural monopoly.
- A RAB has been used for networks in a mature market.
- A RAB would make sense for a hydrogen network (network transporting hydrogen as a gas) in a steady state phase.
- **Do you agree that a RAB design option makes sense for the hydrogen transport infrastructure business model in a steady state phase?**
- **Is compatibility with the existing price control needed?**

Break out discussion on business model design options

Main question.

- **Which of the high-level design options should be taken forward for the transport business model?**

Subsequent questions.

- How should risk be allocated between investors/developers, users and HMG?
- Is a RAB the optimal design option for a steady state phase?
- Can a RAB also be used in a growth phase?
- Is a RAB optimal in a growth phase?
- Is compatibility between a business model in a growth and a steady state phase required?
- Is compatibility between a hydrogen transport infrastructure business model and the existing price control required? How would these interact?

Discussion 2: External funding mechanism

Is there a need for an external funding mechanism

- An external funding mechanism is basically additional funding from an external source (not users of the infrastructure) to help owners and operators meet their revenue needs through a limited user base.
- This external source could, for example, be energy consumers, natural gas consumers, or from central government.
- If an external funding mechanism is needed, as we move to a steady state phase, an external funding mechanism should become less needed as number of users increase, and owners and operators can meet their revenue needs through users.

Break out discussion on external funding mechanism

Main questions.

- **Is there a need for an external funding mechanism during a growth phase?**
- **What are potential approaches to funding an external funding mechanism?**

Subsequent question.

- How would an external funding mechanism interact with the business model?
- At what point can this external funding mechanism end?

Discussion 3: Interim measures

Are interim measures needed before a business model

- A commitment to design business models by 2025 and allocation etc to follow after that design.
- However, there may be some projects that want to progress now.
- Could industry work together to align development timelines with hydrogen transport infrastructure business model and other policy timelines?
- What measures would be useful to these projects to allow them to progress?

Break out discussion on interim measures

Main questions.

How could project timelines align with policy timelines including timelines for the hydrogen transport infrastructure business model?

Are there any interim measures that we should be exploring to support the development of infrastructure before a business model is available?

Subsequent questions.

Are there any existing measures that could be used?

Would these existing measures need to be amended to work for hydrogen transport infrastructure?

Are there non-funding measures that could be used to progress early projects?

Are there any potential bridging measures that could work?

Discussion 4: Other issues

Other questions from the consultation to discuss

- Are there any other questions from the consultation you would like to discuss?
    - For example, those with an interest in infrastructure not associated with onshore pipelines transporting hydrogen as a gas, is a support needed for that type of infrastructure and, if so, can a business model focussed on onshore pipeline transporting hydrogen as a gas be used as that support?
- Are there any other questions that the consultation did not recognise that we should to consider in the short-term?

Next steps

- The consultation closes on **Tuesday 22 November 2022**.
- Formal written responses to the consultation are still required.
- This workshop was just to gather initial views and supplement the upcoming formal written responses.

Thank you