

Hydrogen Transport and Storage Infrastructure Consultation

Market Framework workshop

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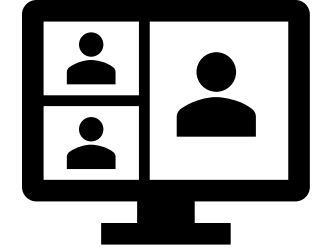


Department for
Business, Energy
& Industrial Strategy

Housekeeping

- Raise “hand” if you wish to speak.
- Feel free to ask questions or make points in the “chat”.
- Please state name and organisation the first time you speak.

What is the purpose of this workshop?



- Why a Market Framework workshop?
- Enable us to set out some of the issues we want stakeholders to engage with in relation to **question 45 and 46**.
- Provide stakeholders with the opportunity to air views on the existing market framework and/or industry commercial arrangements framework.
- Provoke discussion ahead of formal response.
- Help us to identify priority matters.
- Put faces to names!

Questions 45 & 46



Question 45:

In your view, are the existing **market framework** and **industry commercial arrangements** for hydrogen optimal for supporting the development of hydrogen **transportation** and/or **storage** infrastructure?

Please note we are seeking your views on the **whole existing market framework and industry commercial arrangements**, including any possible gaps, and not just matters relating to the Gas Act.

Please explain your answer and provide any relevant evidence.

Question 46:

If you answered 'No' to the previous question, how do you think this should be addressed:

- a) Through **amendments** to the existing market framework / industry commercial arrangements?
- b) Through the **replacement** of aspects of the existing market framework / industry commercial arrangements (for example, with new arrangements that are specifically designed for hydrogen)?
- c) Through a **different approach**?

Please explain your answer and provide any relevant evidence.

What do we mean by the market framework?



- The Gas Act creates a market framework for hydrogen (hydrogen is a "gas").
- Certain activities across the value chain are prohibited, unless under license, e.g:

Activity	Description
Transportation of gas	Conveying gas through pipes to premises or a gas transporter's pipes
Shipping of gas	Arranging with a transporter for gas to be conveyed through pipes
Supplying of gas	Supplying gas conveyed through pipes to premises

- ‘Unbundling’ requirements limit vertical integration (e.g. transportation and shipping).
- There are requirements placed on transporters in respect of third-party access.
- “Storage facility” ownership is not licensable (*should it be?*), but there is a requirement for ownership independence and third-party access must be offered.

There are *exceptions* and *exemptions* to this

- The Act provides a number of *exceptions* from prohibition (and thus licencing requirements), for example:
 - Conveyance or supply to an associated business.
 - Conveyance to premises for supply to large consumers (where supply expected to exceed 75,000 therms a year).
 - Supply to very large consumers (where supply expected to exceed 2 million therms a year).
- The Act also enables the SoS to grant, by order, *exemptions* from prohibitions, e.g. the Gas Act 1986 (Exemption) (Onshore Gas) Order 2013.
- Storage facility owners may apply for a **minor facility exemption**:
 - The test for this exemption being whether it is economically/technically necessary for the operation of an efficient gas market (*what would this mean for hydrogen storage?*).



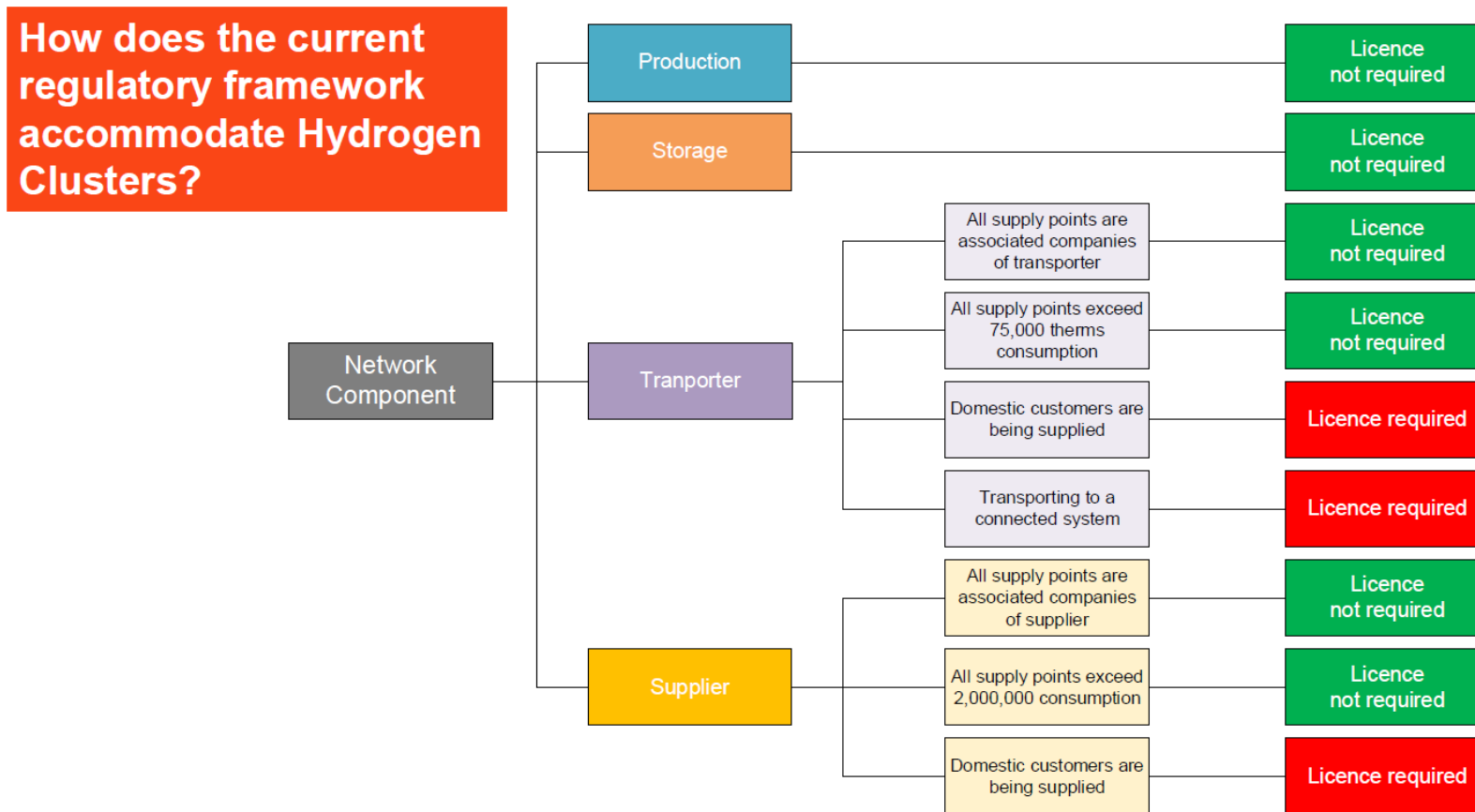
But **not** conveyance to a transporter's pipeline.

Industry commercial arrangements



- The Uniform Network Code (UNC) forms the basis of the arrangements between Gas Transporters and Gas Shippers.
- It is a requirement of the Gas Transporters licence and requirements include:
 - Services should be provided on a non-discriminatory basis.
 - Cost reflective pricing.
 - Balancing.
 - Etc.
- Equivalent arrangements for Independent Gas Transporters.
- Can the UNC adequately accommodate hydrogen?

Some of this has been looked at previously e.g. work led by Cadent



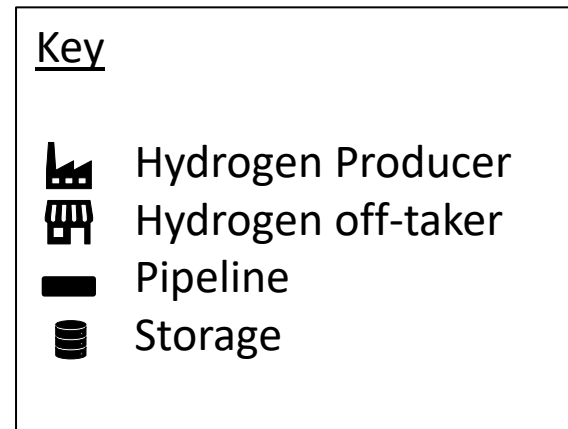
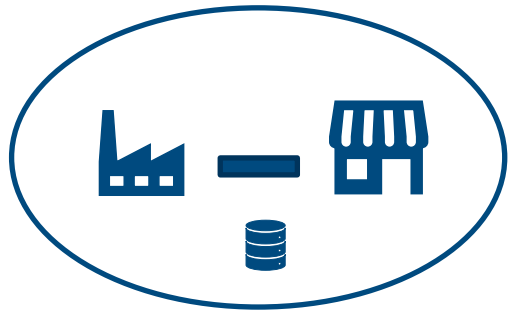
Do existing arrangements create any unwarranted barriers for participants in the hydrogen economy? Could they be more supportive?



- The existing arrangements have been developed/evolved to facilitate a mature, liquid natural gas market.
- However, the hydrogen economy is in its infancy.
- Are any of the existing requirements (e.g. licencing arrangements) overly burdensome for the emerging hydrogen economy?
- Are any new requirements needed?
- Sticking-plasters or major overhaul?

Early hydrogen archetype case study 1 – associated business

- Hydrogen producer and associated off-taker (likely co-located or closely located).
- Point-to-point pipeline needed for conveyance of gas.



- Licences most likely not required (as associated business meets an exception).

Early hydrogen archetype case study 2 – tube trailer

- Hydrogen producer and off-taker.
- Tube trailer used to transport hydrogen.



- Licences most likely not required (as only conveyance through pipelines is captured by the Gas Act).

Early hydrogen archetype case study 3 – point-to-point pipeline

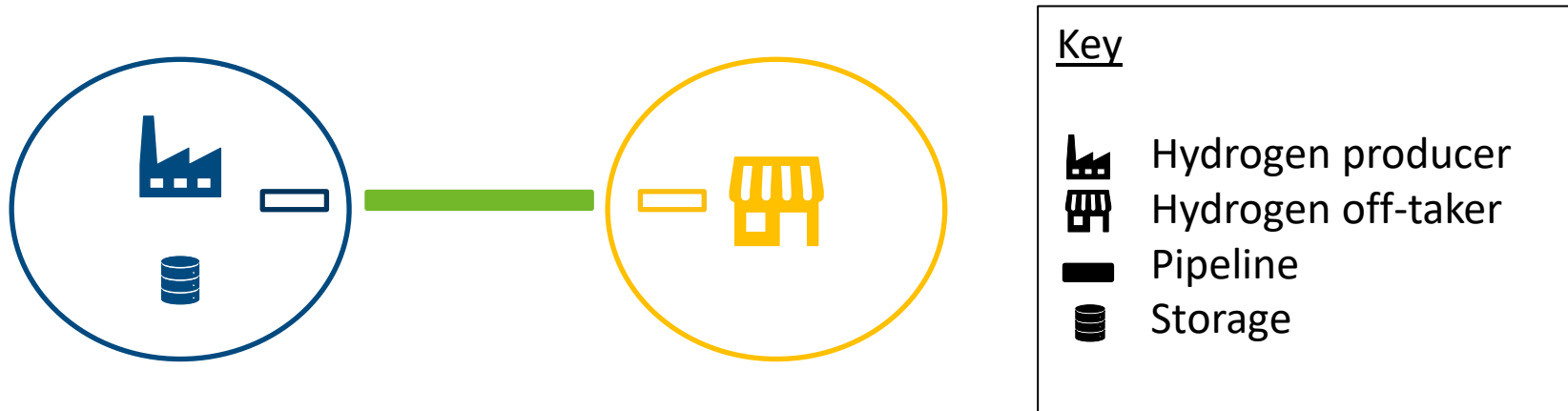
- Hydrogen producer and off-taker.
- Point-to-point pipeline needed for conveyance of gas.



- Licencing requirements may depend on size of the off-taker (premises) (conveyance < 75,000 therms p/a and supply < 2m therms p/a).

Early hydrogen archetype case study 4 – transporters pipeline

- Hydrogen producer and off-taker.
- Pipeline owned and operated by gas transporter used to convey hydrogen.







- May or may not fall outside scope of Gas Act licence exceptions (so licencing may or may not apply).

Early hydrogen archetype case study 5 – transporters pipeline and storage

- Hydrogen producer and off-taker.
- Pipeline owned and operated by gas transporter used to convey hydrogen.
- Storage connected to transporters pipeline.



Key

-  Hydrogen producer
-  Hydrogen off-taker
-  Pipeline
-  Storage





- Pipelines may or may not fall outside scope of Gas Act licence exceptions.
- Storage may or may not be captured by the Gas Act.

Early hydrogen archetype case study 6 – domestic consumers

- Hydrogen producer and domestic off-taker.
- Pipeline owned and operated by gas transporter used to convey hydrogen.



Key

-  Hydrogen producer
-  Hydrogen domestic off-taker
-  Pipeline
-  Storage

- Pipelines may or may not fall outside scope of Gas Act licence exceptions.
- H100 and Village trials are planning exemptions.

Discussion points and considerations

Overarching questions

1. Are the existing **market framework** and **industry commercial arrangements** for hydrogen optimal for supporting the development of hydrogen **transportation** and/or **storage** infrastructure?

Subsequent question

2. Are there any **deficiencies** which should be addressed as a **matter of priority**?
3. Are there any deficiencies which should be addressed in the **longer-term**?
4. Can existing arrangements be **adjusted** or do we need to **start from scratch** for hydrogen?

Considerations

- Is the transporter >> shipper >> supplier model appropriate for hydrogen, both near term and longer term?
- Are existing ownership unbundling/independence requirements appropriate for hydrogen T&S infrastructure?
- Are existing third-party access requirements appropriate for hydrogen T&S infrastructure?
- What services will hydrogen storage provide (and to whom) and how can these services be supported?