Department for
Business, Energy
& Industrial Strategy

Trigger for payment of HBM subsidy

Hydrogen business model stakeholder workshops

25th August 2022

Department for Business, Energy & Industrial Strategy

Agenda and aims

Agenda

Today, we will be discussing:

- Define in the contract when subsidy will be paid to producers, i.e. ‘trigger for payment’.
- Interaction of trigger for payment with on-site and off-site storage

Aims

- Work together with projects, investors and other interested parties to deliver an investable and value for money hydrogen business model
- Stakeholder workshops aim to improve policy development by enabling us to test initial policy thinking with projects and potential investors
- Today we’ll go through each agenda item and briefly outline what the issue is, what we’re thinking and why
- We’ll then invite views from you to understand the issue more as projects and investors

Note: The content in the following slides does not represent BEIS policy, but provides ideas for discussion

The session will be recorded for BEIS internal use only

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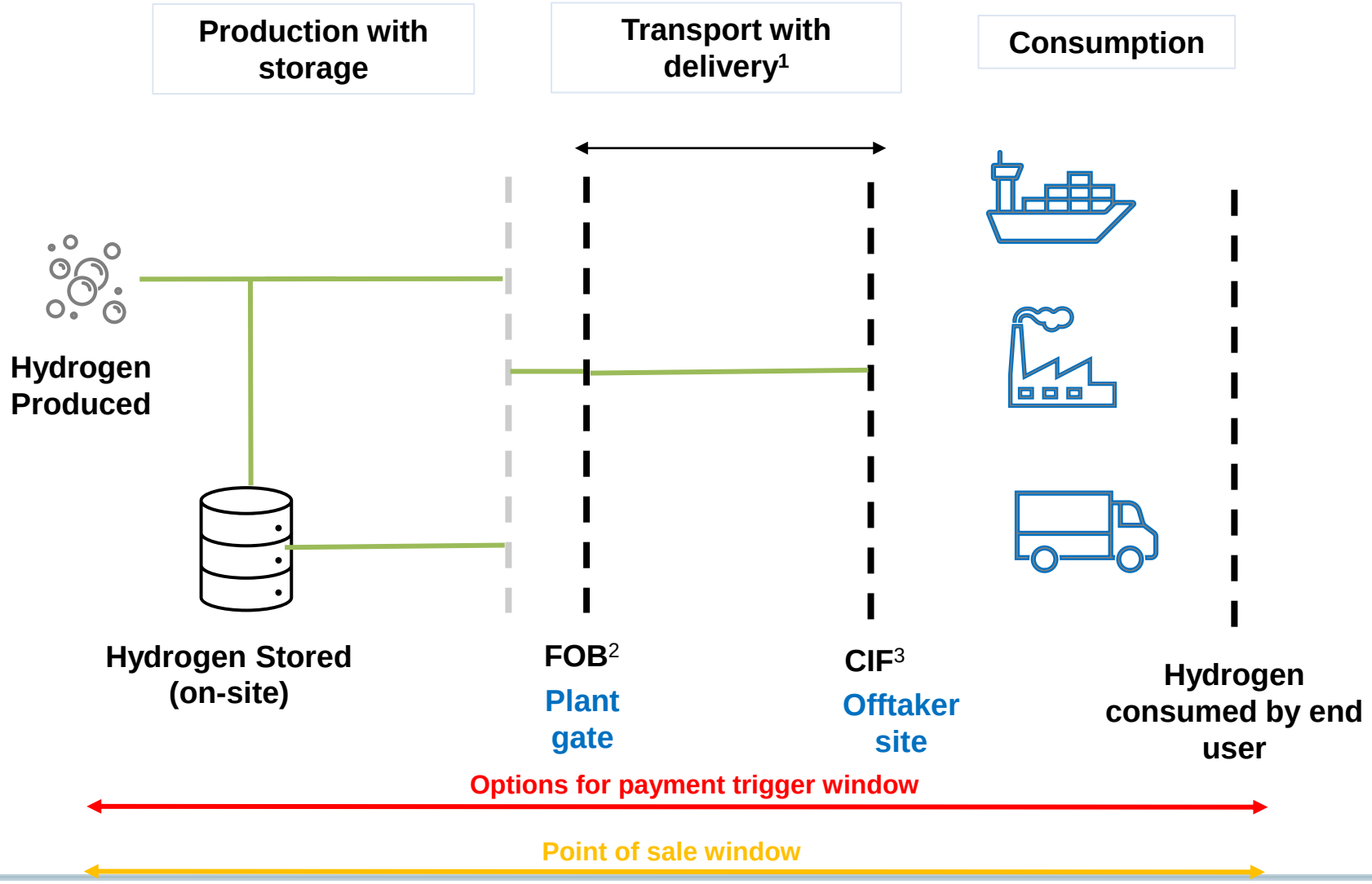
There are a range of potential triggers for payment – from the point at which hydrogen is produced, through the value chain to final consumption



1. Potentially to off-site storage facility – considered later in this slide pack
2. International Commerce term - FOB (free on board) where the buyer is liable during transit
3. International Commerce term - CIF (cost, insurance and freight) where the seller is liable

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Our objectives are to define the trigger for payment of the subsidy such that it is investable, demonstrates value for money and avoids complexity

We have already set out some positions on payment[1]

(4.2) Payment will be conditional on a) the sale of hydrogen; and b) volumes of hydrogen produced and sold complying with the Low Carbon Hydrogen Standard (LCHS)

(4.15) Monthly billing period, 28 day payment period

Using the HoT as a starting point we can start to define the trigger for payment of the subsidy:

- No payment for volumes not complying with the LCHS
- Payment are not only based on produced volumes, nor stored volumes. Volumes have to be sold (to qualifying end users)
- Future volumes cannot be paid for – volumes have to leave the plant
- Both sales price information and volume information is needed to calculate the subsidy

Relevant key design principles

Investability – risk to sit with party best placed to manage it

Value for money – subsidy should be accurate and only reflect costs which HMG wants to support

Avoids unnecessary complexity – approach needs to be transparent and work with settlement system

1. As published in the Indicative Heads of Terms

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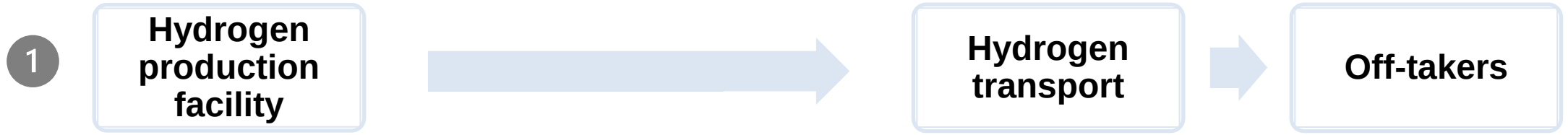
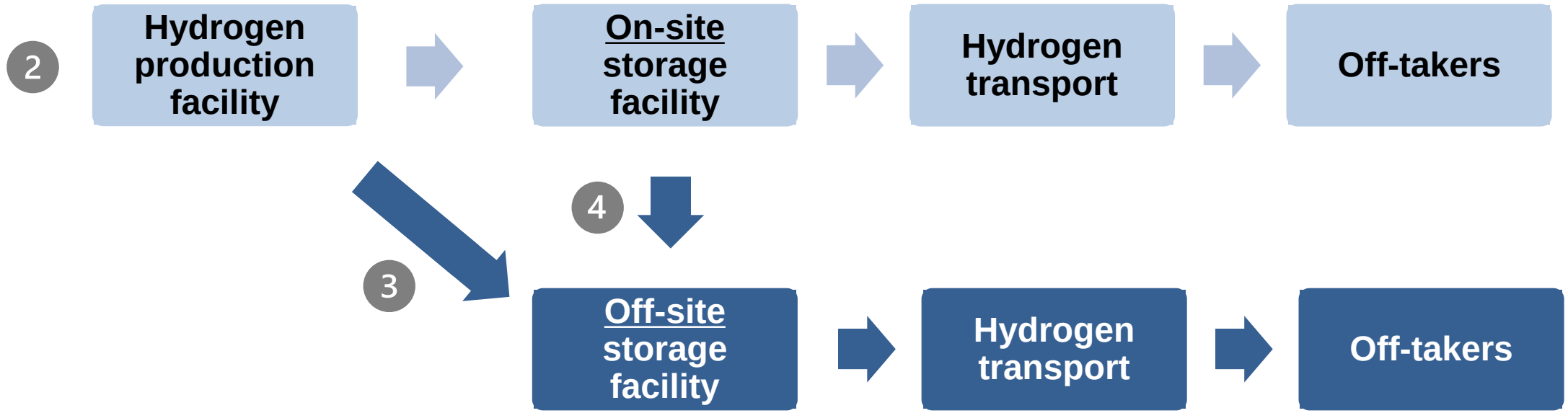
We have considered various scenarios for which the trigger for subsidy payment to producers needs to apply

Without storage



With storage



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We propose the trigger for the subsidy payment to be at the plant gate (without storage) to achieve our key design principles - Scenario 1

Calculating the subsidy at the plant gate helps meet our key design principles:

- Sales price & volume info aligns at the plant gate at a fixed point in the simplest way:
  - HBM supports the cost of hydrogen production up to the point it leaves the plant - transport opex not supported by the HBM
  - Plant gate captures sold volumes (which meet the LCHS) leaving the plant gate
- Payment at the plant gate is investable for producers:
  - Producer is paid for production and sale of hydrogen – reflecting activity in their control. Transport could be provided by producer, offtaker or third-party
- Approach works better for producers with multiple offtakers as plant gate used for payment

This position has implications for our metering approach and MRV framework

- Payment would be based on information provided by producers on a monthly basis:
  - Sales prices (from invoices for offtakers)
  - Sold volumes (from plant gate meters)
- Counterparty/third-party can verify via:
  - Invoices (already produced for offtakers)
  - Data on volumes from plant gate meter
- Counterparty/third-party audit can monitor to:
  - Check volumes are sold to qualifying users (via access to offtaker meters[1] & invoices)
  - Check hydrogen produced is within limits of the volume cap (via plant meter checks)
  - Check offtaker is not reselling volumes (via access to offtaker meters)

1. We may consider a de minimus amount of hydrogen sales to request access to meters at offtaker sites

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With storage, we propose the trigger for payment to be when the hydrogen is sold and leaves the storage facility – no payment for only moving into storage

We propose treating hydrogen moved into on-site and off-site storage similarly:

- The same principles apply:
  - Hydrogen has to be sold, and has to leave the storage facility
  - Payment would not be made moving hydrogen into storage
- Decisions to move the hydrogen into storage (on-site or off-site) and decisions to sell the hydrogen would rest with the producer at all times
- The strike price will support the capex and/or opex associated with small scale storage[1]
- The reference price floor for calculating the subsidy would correspond to the time-period when the hydrogen is sold (as opposed to when it is produced)

We are proposing to allow third-party storage facilities which are also used by others

- Allowing the use of third-party storage facilities will increase the likelihood of large-scale/off-site storage facilities being able to operate economically and help grow the storage market
- Should help with use of geological sites outside of plant boundaries
- If hydrogen is sold to the third-party owner of a storage facility to be sold again – this is out of scope for subsidy (risk-taking intermediary) [2]

We are proposing to allow offtakers to use off-site storage facilities

- Hydrogen sold and transported from the plant gate to an off-site storage facility on behalf of the offtaker will be treated as a delivery made to the offtaker

1. Negotiated on a project-by-project basis by taking into account necessity, affordability and value for money for government

2. Government is considering the treatment of the government hydrogen village heating trial, which may require a limited use of risk-taking intermediaries, to enable it to be supplied by HBM subsidised hydrogen.

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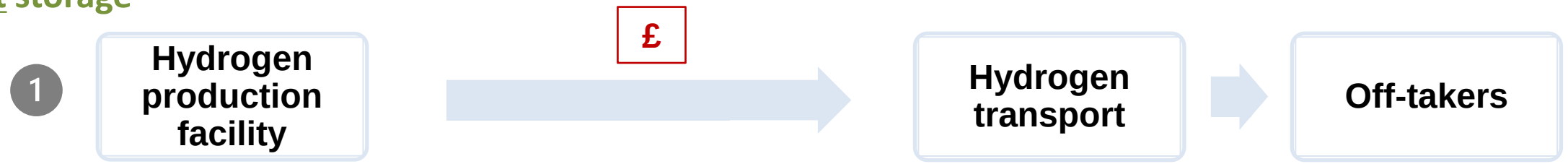
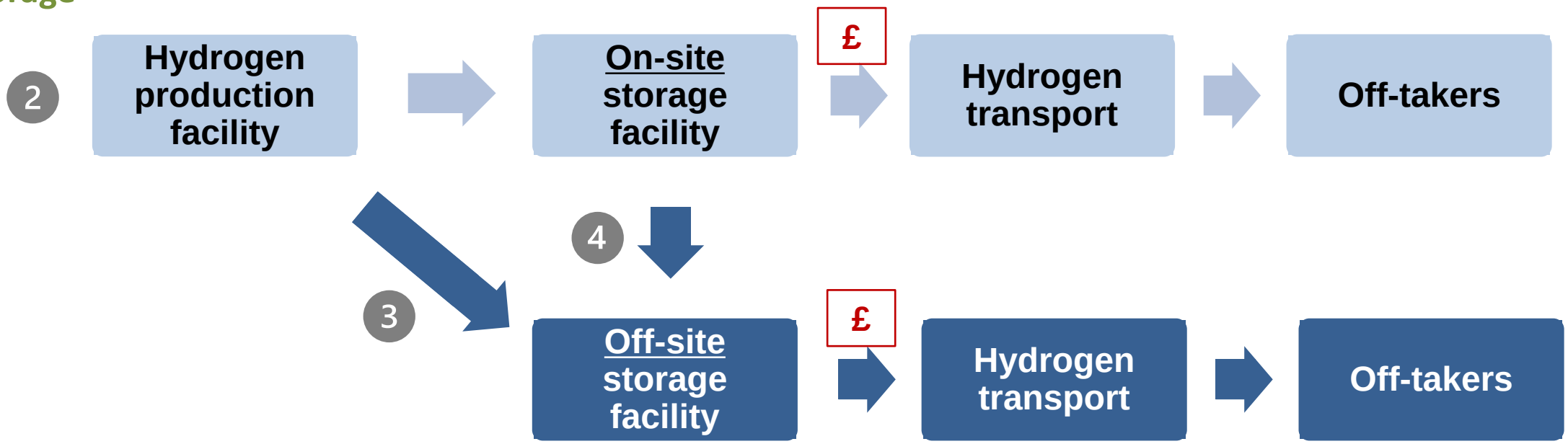
When taking storage facilities into account (both on-site and off-site) we propose to pay when the hydrogen is sold and leaves facility

Key: £ = payment trigger

Without storage



With storage



Discussion

Q: Are there any scenarios for which our proposal for the trigger for payment approach does not work?
If so, please explain

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Annex: Hydrogen business model summary – following consultation

The hydrogen business model is being designed to **incentivise the production and use of low carbon hydrogen,** to deliver the government's ambition of up to 10 GW of low carbon hydrogen production capacity by 2030, subject to affordability and value for money. The business model will provide producers with revenue support to overcome the operating cost gap between low carbon hydrogen and fossil fuels in order to unlock private investment in hydrogen projects.

Adjustments to subsidy

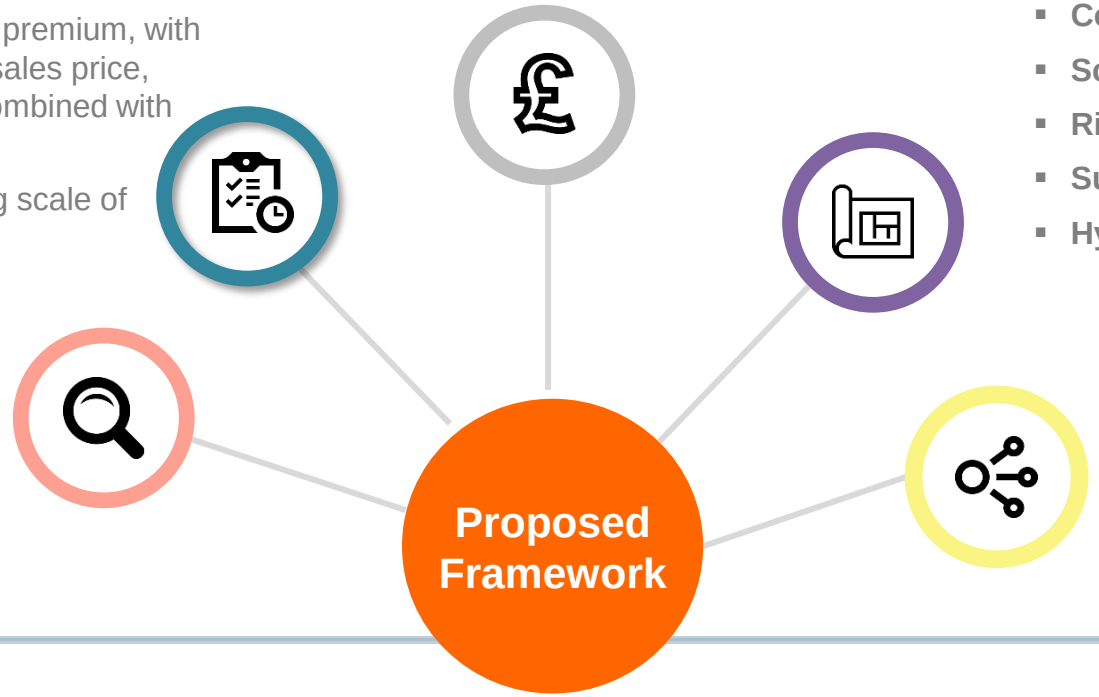
- **Strike price indexation,** vary by cost category
- **Feedstock users and own consumption**, under consideration

Mitigation of two main risks

- Manage **price risk** through variable premium, with reference price based on achieved sales price, with floor at the natural gas price, combined with price discovery mechanism
- Manage **volume risk** through sliding scale of strike price

Additional considerations

- **Contract duration** between 10-15 years
- **Scaling of volumes**, under consideration
- **Risk allocation,** outlined
- **Subsidy cumulation**, under consideration
- **Hydrogen transport and storage**, small-scale



Scope and delivery mechanism

- Applicable on a UK-wide basis
- Producers as recipients of subsidy
- New production that meets the Low Carbon Hydrogen Standard
- Open to range of end users
- Private law contract

Allocation

- **CCUS-enabled**, Phase-2 process ongoing
- **Electrolytic**, first allocation round launched 20 July
- Price-competitive allocation by 2025 as soon as legislation and market conditions allow

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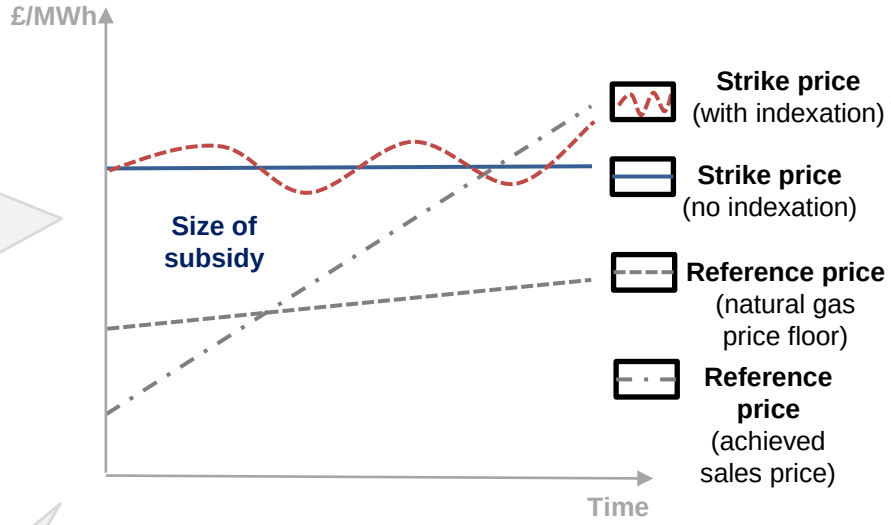
Annex: Hydrogen business model payment mechanism – key components

CORE COMPONENTS

STRIKE PRICE: reflects the price the producer needs to achieve to cover their costs of production and return on investment; strike price level and cost components to vary for different production technologies

REFERENCE PRICE: intended to represent the market price received by the producer. For initial projects, reference price is the higher of the producer's achieved sales price and the price floor, which is the lower of the Natural Gas price (NBP Month Ahead) and the Strike Price.

PRICE DISCOVERY: reward for sales above the natural gas price floor to promote price discovery, with potential cap of reward if sales price exceeds a certain threshold (to be determined)



ADJUSTMENTS

SLIDING SCALE OF STRIKE PRICE: higher strike price in response to lower offtake volumes in order to help manage volume risk

INDEXATION OF STRIKE PRICE: intended to provide security of supply to end users, protect producers where production cost change is unmanageable, and HMG from excessive risks and costs.

- Electrolytic – CPI indexation for all cost components, including electricity
- CCUS-enabled – natural gas indexation for natural gas cost with CPI indexation for all other cost components, including electricity

QUALIFYING END USER VOLUMES: consider if adjustments to payment mechanism are needed to accommodate sales to feedstock users, own consumption, and intermediaries