CO2 T&S Network Interface Risk Provisions and UK ETS Free Allocation of Allowances

Hydrogen business model stakeholder workshops

Thursday 28 July 2022

Agenda

Today, we will be discussing three CO2 T&S interface risks:

1. CO2 T&S Timing Mismatch
2. CO2 T&S Outages and Constraints
3. CO2 T&S Abandonment

And additionally:

1. UK ETS free allocation of allowances

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

Scope and purpose of discussion

Scope for the discussion today:

1. CCUS-enabled hydrogen production (not electrolytic)

2. Non-Low Carbon Hydrogen Standard (LCHS) compliant hydrogen* (If the hydrogen produced meets the LCHS, we propose that producers receive HBM subsidy as normal e.g. even if it is during an outage or constraint)

3. The provisions will apply to pipeline CO2 transportation and storage networks only, as non-pipeline transportation and storage policy is in development

Why are CO2 T&S interface risk provisions important?

- CCUS-enabled producers need the **confidence to invest**, and the government needs to deliver **value for money,** reflecting the key **business model design principles**

- Due to the two-way reliance between the CO2 T&S network and its users, CO2 T&S interface risk provisions are critical to the **successful operation of the CO2 T&S networks**

- CO2 T&S network delays, outages or abandonment may impact **security of hydrogen supply**, **LCHS compliance, UK ETS liability, growth of the hydrogen economy** and **government decarbonisation commitments** (impacts for the producers, end users and government)

*Current thinking on these risks is subject to further work on how the LCHS will be implemented in the contract.

Deciding on provisions in a Timing Mismatch event

Definition

- **CO2 T&S Timing Mismatch (pre-start date construction and/or commissioning delay):** commissioning of the CO2 T&S network is delayed beyond the commissioning dates of the hydrogen facility, with the hydrogen facility unable to export CO_2 to the CO2 T&S network while waiting for it to be completed. A CO2 T&S Timing Mismatch event may lead to abandonment should the CO2 T&S network delay continue for an extended period of time.

Options we've considered:

We anticipate that the Producer is unable to commission or receive full HBM support without CO2 T&S Connection Conditions Precedent, so options include:

1. 'Time Relief' to allow Producers to delay their Target Commissioning Window, Longstop Period, and Longstop Date and align with the CO2 T&S network commissioning delay, no subsidy or compensation
2. 'Time Relief', plus compensation for costs which are reasonably incurred by the project as a direct result of the Target Commissioning Window, Long-Stop Period and Long-Stop Date being extended - ***Current thinking***
3. 'Time Relief', plus one of the subsidy options (a-d)

Options include:

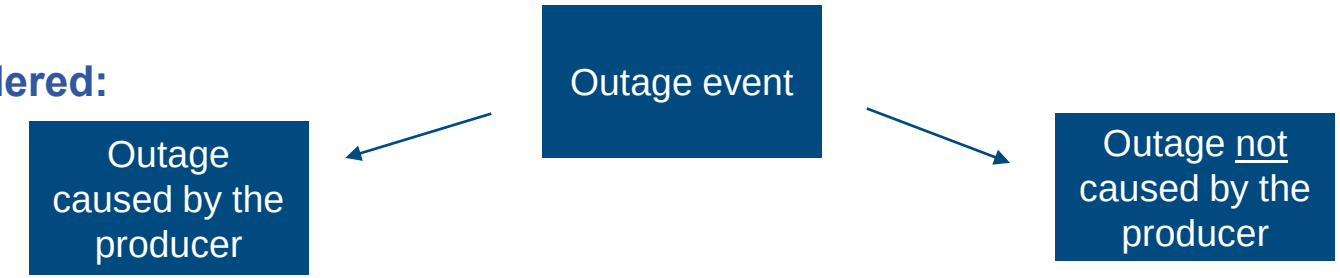
4. Producer is offered a 'Waiver of CO2 T&S Connection Confirmation Conditions Precedent' to begin unabated hydrogen production, no subsidy
5. 'Waiver', plus subsidy (adjusted for reference price):
   a. Variable operational costs only. *Excluded: fixed costs, debt principal repayment and return, and equity return*
   b. Fixed (*excl. debt principal repayment)* and variable costs. *Excluded: debt principal repayment and return, and equity return*
   c. Fixed and variable costs. *Excluded: debt and equity returns* - ***Current thinking***
   d. Full subsidy: fixed and variable costs with returns on debt and equity

Deciding on provisions in a CO2 T&S Network Outage or Constraint

Definition

- **CO2 T&S Outages and constraints:** producers are unable to insert any, or lower than expected (due to a constraint), volumes of captured CO2 into the network in the short/medium term. Outages can be caused by the producer, or not caused by the producer (e.g. by a fault in the CO2 T&S network). Outages can be planned, for example, due to T&SCos planned maintenance of the network, or unplanned.

Options we've considered:



1. No subsidy during outages caused by the producer - ***Current thinking***
2. Provide subsidy (see options 4b-e)

We've previously outlined the principle in the HBM consultation guiding the approach: *"In principle, where the producer is at fault for producing hydrogen that does not meet the standard, we are minded to not provide support. On the other hand, where the producer is not at fault, we are considering the most appropriate way of managing the risk."*

3. Not to differentiate between unplanned and planned outages and to offer the same subsidy in both scenarios - ***Current thinking***
4. Subsidy (regardless of whether producers pause, or produce unabated, adjusted for reference price):
   a. No subsidy
   b. Variable operational costs only. *Excluded: fixed costs, debt principal and return, and equity return*
   c. Fixed (*excl. debt principal repayment)* and variable costs. *Excluded: debt principal repayment and return, and equity return*
   d. Fixed and variable costs. *Excluded: return on debt and equity* - ***Current thinking***
   e. Full subsidy: fixed and variable costs with returns on debt and equity

Deciding on provisions in a CO2 T&S Abandonment event

Definition

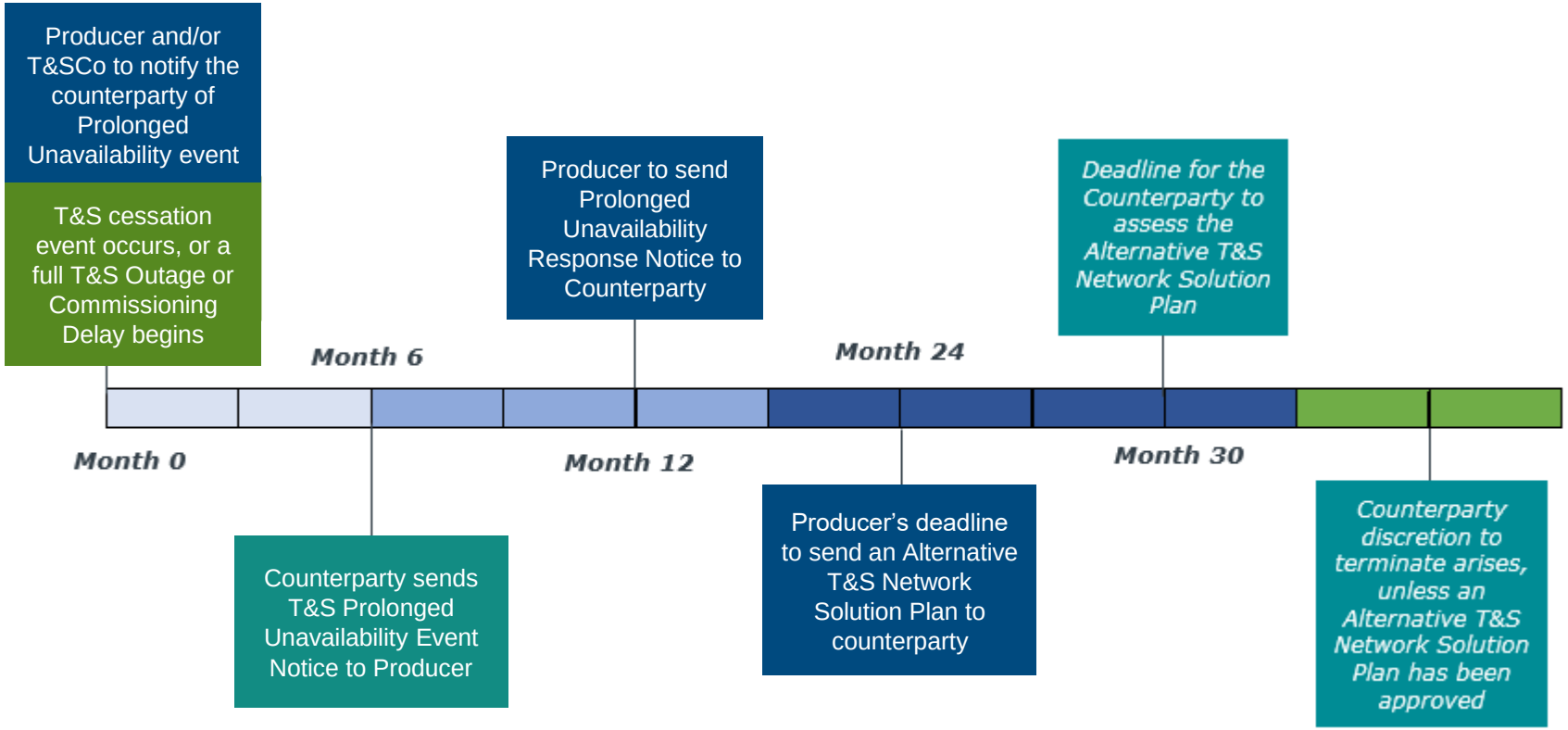
- **CO2 T&S Abandonment / User Stranded Asset (pre-start date or post):** If a CO2 T&S network is confirmed to be abandoned (due to being discontinued, delayed for at least 36 months, or experiences an outage which is continuing for 36 months), and no alternative CO2 T&S option is deemed viable, the hydrogen project will be considered as stranded and the agreement terminated.

Options we've considered:

A) Abandonment process:

1. Align with the ICC and DPA position (diagram to the right) for the steps that producers must take following a prolonged CO2 T&S unavailability event, leading to the counterparty discretion (but not obligation) to terminate the producer's agreement. ***Current thinking***

2. Diverge from the ICC and DPA precedent at any stage of the process e.g. to reduce the length of time before the counterparty discretion to terminate arises, or to allow producers to have more influence over the termination of their contract (producer may want to terminate earlier)



Deciding on provisions in a CO2 T&S Abandonment event

Options we've considered:

Abandonment process is followed, and it results in the producer's agreement being terminated. Termination payment options outlined below

B) Termination Payment

1. No compensation
2. Compensation – options below

Current thinking

Compensation scope options:

1. For termination events that occur pre <u>and/or</u> post start date (vs only pre or only post)
2. For post agreement date costs only (vs pre and post)
3. Capped at the Total Capex Payment (vs not capped)

Current thinking

Compensation item options:

4. Development and pre-development costs in respect of the Hydrogen Production and/or Capture Assets
5. Costs which are wholly attributable to the construction, installation, testing, completion or commissioning of the Hydrogen Production Assets and/or Capture Assets
6. Decommissioning costs in respect of Hydrogen Production Assets and/or Capture Assets
7. Break costs associated with the Producer's contractual arrangements associated with the Project
8. Exclusions: Return on debt and equity, ETS costs, Break costs associated with the Producer's financing arrangements associated with the Project
9. *Reductions: savings made by the Producer arising directly from the relevant CO2 T&S network event, Net Recoverable Value of the Facility.*

UK ETS free allocation of allowances

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How have we thought about this question?

- HBM design to incentivise production and use of low carbon hydrogen
- Ensure business model is compatible with policies across the value chain

Options we've considered

a. Allow producers to apply for FAs and retain in full any benefits of those FAs

b. Allow producers to apply for FAs and government nets off producer benefit of FAs against their UK ETS cost

c. Allow producers to apply for FAs and require forfeiting of FAs up to capture rate with government paying a pre-set price for forfeited FAs. Producers keep unforfeited FAs.

d. Don't allow producers to apply for FAs and compensate for loss of expected value

e. Don't allow producers to apply for FAs and don't compensate ***Current thinking***

Guiding context on UK ETS FAs

- Hydrogen production and carbon capture and storage (CCUS) are regulated activities under UK ETS
- As outlined in HBM consultation response, we are minded to leave liability for UK ETS costs with producers
- Hydrogen production eligible for FAs, with amount based on grey hydrogen benchmark, not CCUS-enabled production
- FAs are aimed at reducing carbon leakage, supporting industrials that face international competition from countries that fail to recognise the cost associated with emitting carbon

Thank you and questions

Thank you for joining today's stakeholder workshop

We appreciate that you continue to provide invaluable insight and feedback on the hydrogen business model

Any further questions, please contact one of us directly or use the hydrogen business model inbox

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