BEIS Session on Waste Management with CCUS

28th June 2021

Agenda

Time	Item	Duration	Lead
13:00	Introduction from BEIS	5 mins	Will Lochhead
13:05	Eligibility criteria for waste management facilities	20 mins	Treasure Udabor
13:25	Adaptions of the ICC business model	30 mins	Emma Robinson
13:55	AOB	5 mins	Will Lochhead
14:00	End		

Meeting Procedure

Please:

- ✓ Turn off your video
- ✓ Mute your microphone
- ✓ Raise questions via raising your hand or via the chat function
- ✓ Meeting will be recorded

Disclaimer

The proposals set out in the following slides are indicative only and do not constitute an offer by government and do not create a basis for any form of expectation or reliance.

Our final position is subject to change, including to take into account the views of industry and others, as well as approval by Ministers, in consultation with relevant regulators and the devolved administrations, and other considerations, such as value for money and subsidy control.

Eligibility Criteria

Waste Management Eligibility Criteria

Waste Management (Energy from Waste, ACT and hazardous waste incineration)

In order for a waste management project to be eligible for support, it must**:**

1. Meet the general eligibility criteria defined in the May 2021 ICC business model update; and
2. Meet a range of specific waste management technical eligibility criteria:
    i. It must be an **existing plant or plant fully committed** to being established (e.g. with planning permission) that intends to apply CCS with minimum **20 years** of remaining operational life once the CCS plant is operational.
    ii. It must be **classed as an eligible waste management technology**.
    iii. It must have **high efficiency ratings (in some cases) and ensure air quality is protected**, meeting Best Available Techniques for emissions to air, land and water and in some instances **require minimum heat output** for certain facilities to align with broader BEIS objectives to decarbonise heat.

Waste Management Eligibility Criteria

1. Meet the general eligibility criteria defined in the May 2021 ICC business model update;

   - The project must be located in the UK.
   - The project must meet the definition of an industrial facility.
   - The project must have access to a carbon transport solution and storage site.
   - The project must have commenced pre-FEED studies or be ready to commence pre-FEED no later than the end of December 2022.
   - The project must be operational no later than the end of December 2027.
   - The project must meet a range of technical eligibility criteria.

Waste Management Eligibility Criteria

2. Meet a range of specific waste management technical eligibility criteria:

i. It must be an **existing plant or plant fully committed** to being established (e.g. with planning permission) that intends to apply CCS with minimum **20 years** of remaining operational life once the CCS plant is operational

This means that:

- ✓ The plant must be existing with plans to retrofit CCS
- ✓ If a newbuild, it must have obtained planning permissions, be seeking EA permitting and should be entering into the EPC stage.
- ✓ It should have at least 20 years left of remaining operational life in order to qualify, this will start when the CCS plant is operational

Q. Do we agree with this criteria? How do we evidence this?

Waste Management Eligibility Criteria

2. Meet a range of specific waste management technical eligibility criteria:

ii. It must be **classed as an eligible waste management technology**.

This includes:

- ✓ **Energy from Waste** (the incineration/combustion of Municipal Solid Waste (which includes waste from businesses) and/or Clinical Waste). BEIS to confirm whether incineration with co-firing in the production of fuels is in scope.
- ✓ **Advanced Thermal Treatment / Advanced Conversion Technologies** (using gasification or pyrolysis for the conversion of waste either into useful energy or useful chemicals or fuels). BEIS to confirm with stakeholders whether Advanced Thermal Treatment as a terminology best defines pyrolysis and gasification rather than ACT which may be about gasification.
- ✓ **Hazardous Waste Incineration – High Temperature Incinerators** (for example using High Temperature Incinerators for the incineration of Hazardous waste)
- × Does not include Advanced Biological Treatment (i.e. Anaerobic Digestion) – this technology is out of scope

Q. Do we agree with this criteria for waste management technology?

Waste Management Eligibility Criteria

2. Meet a range of specific waste management technical eligibility criteria:

iii. It must have **high efficiency ratings (in some cases) and ensure air quality is protected**, meeting Best Available Techniques for emissions to air, land and water and in some **instances require minimum heat output** for certain facilities to align with broader BEIS objectives to decarbonise heat.

Eligibility Criteria	EfW (Incineration/combustion)	ATT / ACT (gasification/pyrolysis)	High Temperature Incinerators
CHP status: no CHP, CHP capable, CHP active	Options: • For projects to be **CHP active** or • For projects that are **CHP active** to be **assessed favourably in assessment process**	No specific CHP requirements	No specific CHP requirements, however the CCS facility should be self sufficient
Efficiency Ratings	R1 and CHPQA	Typical industry standard[TBC] and/or R1 equivalent [TBC]	Typical industry standard [TBC] and/or R1 equivalent [TBC]
Air quality	Must ensure air quality is protected, meeting Best Available Techniques for emissions to air, land and water.		

Q. Do we agree with this criteria?
Q. What are the typical efficiency ratings we expect to see for ACTs and HTIs?

Application of the ICC business model to Energy from Waste

Potential for negative emissions

- We are aware that a proportion of the waste in commercial waste incineration is biogenic. Incineration and capture of biogenic waste could result in negative emissions, however the scale of negative emissions potential of these processes are uncertain and an MRV system for negative emissions has yet to be developed.
- Given the nascent stage of understanding of the negative emissions potential of biogenic waste incineration, the Industrial Carbon Capture business model cannot offer any additional support for negative emissions in waste incineration.
- Work is ongoing in BEIS to develop an MRV system for negative emissions. A business model for BECCS is also being developed, though the eligibility criteria for this model is yet to be determined. It is important for projects to note that if a project receives support for the building of a capture plant under the Industrial Carbon Capture business model then further support for the capture plant would not be available via another model.

Q. Are there any implications of this?

Uncertainty around waste sector exposure to carbon price

- Waste incineration processes are not currently subject to the ETS or any other form of carbon pricing. As mentioned in Budget 2021, the Government has committed to exploring expanding the UK ETS to new sectors and will set out these plans over 2021.
- There may not be certainty over the future approach to carbon pricing before this business model is finalised and indeed, before contract negotiations begin.
- Due to this, and the need to ensure we have sufficient time to design a business model most appropriate for the support of CCS projects in Energy from Waste, we will continue to refine the model in parallel to assessment and project development, similar to our approach with the H2 model.

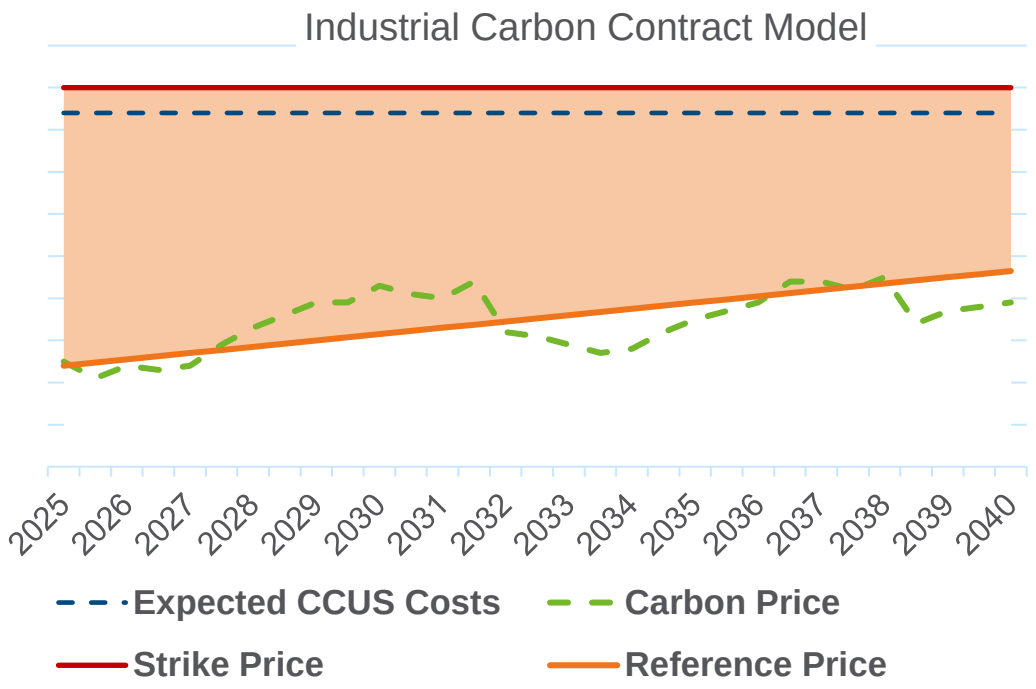
Q. Does this approach create any implications for potential projects/stakeholders?

Q. More broadly, is the Industrial Carbon Capture model viable for waste incineration CCS projects if they are not exposed to a carbon price?

Potential adaptions of the ICC business model

Generic ICC Business Model

- The contract payment will be calculated based on the difference between a ‘strike price’ and a ‘reference price’.
- The ICC Contract will have an **overall duration of up to 15 years** (with extension or reopener at 10 years), with capex repayment within a target 5 year period.
- The **strike price** will be **negotiated bilaterally** for FOAK projects.
- The **reference price** proposed is a fixed **price trajectory** that is defined in advance of contract negotiation, removing the emitter’s risk exposure to the market carbon price for the CO_2 they capture by providing certainty over revenues per tonne of captured CO_2.
- The model will also include specifications on how ETS free allowances will be treated.
- In the long-term we anticipate that the model will evolve, including introduction of a competitive allocation process and a market-driven carbon price to promote permanent CO_2 abatement.



Uncertainty around waste sector exposure to carbon price

Given the differences between the commercial incentives for waste incineration and for energy intensive industries, we are exploring some potential adaptations of the business model to ensure it is appropriate for waste incineration projects.

Feature	Current ICC contract	Applicability to waste incineration
Capex co-funding grant	Capital grant co-funding for a portion of the capital cost	Larger EfW corporates **may not require capital co-funding support** in order to aid investment in CCUS deployment, but this is dependent on the corporate structure of the plant ownership.
Reference price	Fixed price trajectory defined in advance of contract negotiation	A reference price based on the carbon market price may be more suitable for EfW as plants are better able to pass onto customers if the waste sector is included in the UK ETS. This could also help minimise competitive distortions in the EfW sector since only a small number would be able to fit CCS initially. We are exploring a **CO_2 market reference price** (subject to future policy on carbon pricing in the waste sector), potentially combined with a floor price of the reference price trajectory to minimise HMG exposure if carbon price falls. We assume that if the CO_2 price exceeded the strike price, the EfW plant would be required to pay the difference to HMG.
Capex payback period and contract length	5 years within an overall contract length of 10/15 years	Do potential lower costs of capital and a lower IRR mean there it would be preferable to have a **longer capex payback period** for EfW plants?

AOB

End