



SHEPHERD+ WEDDERBURN

BRIEFING: CCUS BUSINESS MODELS

1. CCUS: business models

- 1.1 Carbon Capture Use and Storage (**CCUS**) is a critical element of decarbonisation. The Committee on Climate Change has explained that it is not possible to get to net zero to following its “Balanced Pathway” without it. The Westminster and Scottish Governments continue to work to develop CCUS in Great Britain. The Energy Bill introduced into Parliament in July 2022 makes provision for a regulatory framework to promote CCUS.
- 1.2 This document answers some key questions about CCUS. It deals first with the proposed Industrial Carbon Capture Contract and then addresses some issues about transportation and storage, (**T&S**).

2. CCUS support for capture, overview

- 2.1 The key documents that regulate the relationship with the Government and an Emitter are as follows:
 - 2.1.1 The Grant Funding Agreement, (**GFA**) between BEIS and the Emitter. Indicative Heads of Terms were published by BEIS on 8 November 2021.¹
 - 2.1.2 The Industrial Carbon Capture Contract, (**ICC Contract**). This will be awarded by BEIS. It will be a contract between the Emitter and the Low Carbon Contracts Company, (**LCCC**). It will comprise: (i) a “Front End” which sets out the contract terms and parameters that are project specific, and (ii) the Standard Terms and Conditions, which are intended, broadly to apply to all Emitters. Drafts were published in April 2022.² Specific variations are being considered to cover CHP and waste to energy plants.³
- 2.2 The Government needs to pass legislation for aspects of CCUS, including an Act of Parliament and various statutory instruments. The Energy Bill has been introduced.
- 2.3 Another set of documents will govern the regulation of T&S and the regulation of the relationship between the T&S Operator, (**T&SCo**) and the Emitters. These include:
 - 2.3.1 A licence governing T&SCo’s conduct; and and a
 - 2.3.2 A Network Code, which will have contractual effect between Emitters and T&SCo.⁴ A detailed “Indicative Heads of Terms” for the Network Code was published by BEIS in late June 2022.

¹ [Link](#)

² See Industrial carbon capture business model: summary and consultation: April 2022 update, (**April 22 Consultation**), Industrial carbon capture business model: April 2022 update, (**April 22 Update**), Draft: Industrial carbon capture: standard terms and conditions (Annex A): April 2022 update, (**April Ts&Cs**), and Draft: Industrial carbon capture front end agreement (Annex B): April 2022 update, (**April 22 Front End**). These are all available at [Link](#)

³ See See November 2021: Updates on the industrial carbon capture and dispatchable power agreement business models, [Link](#) (**November Update**). The CAAS subcontract checklist is also relevant. This covers Capture as a Service, (**CAAS**). See April 22 Consultation for more detail.

⁴ See Draft: carbon capture, usage and storage network code indicative heads of terms: BEIS, 24 June 2022 and the accompanying explanatory note. [Link](#)

3. The Grant Funding Agreement, (GFA)⁵

- 3.1 **Parties.** The parties will be the Emitter and the Secretary of State, (**SoS**).
- 3.2 **Amount of support.** This is designed to support capex. The grant will be provided on a “*last spend*” and not a “*match spend*”. There will be a real focus on maximising private sector funding.
- 3.3 **Cost overruns.** The amount of support will be capped at a “Maximum Sum” which will be the lesser of (a) an agreed amount; and (b) an agreed percentage lower than 50% of the actual construction costs. The Maximum Sum cannot be increased to cover overspends. This means that the Emitter can bear significant risks in respect of overspends.
- 3.4 Review rights for the SoS are contemplated which could lead to a decrease in support. A termination for convenience right is included in the Heads published by BEIS. It will be important to have clarity on the circumstances in which this will be triggered.
- 3.5 **Change of control etc.** The Emitter must retain the assets acquired or improved using the grant, unless the SoS agrees. A change of control will need the SoS’s consent. Parties entering into GFAs will have to consider the implications for disposals etc.
- 3.6 **Security over assets.** Any grant of security over these assets need SoS’ consent. The Emitter needs to provide security to the SoS, this is contemplated to be in the form of a Parent Company Guarantee. Clearly wider corporate funding plans need to be considered against these provisions.
- 3.7 **Subsidy control.** The Heads place potentially material subsidy control risk on the Emitter.

4. ICC Contract

- 4.1 Any emitter considering an industrial CCUS project needs to consider several key commercial and legal questions, including the following:
- 4.1.1 How does the ICC Contract work?
 - 4.1.2 What happens if there are project overruns?
 - 4.1.3 What happens if my CCUS capture does not work as planned?
 - 4.1.4 How do I recover my costs, (capex, opex, T&S fees)?
 - 4.1.5 What happens if there are cost overruns?
 - 4.1.6 What happens at the end of the initial 10-year term?
 - 4.1.7 What happens to my ETS Free Allowances?
 - 4.1.8 How are T&S risks managed?
 - 4.1.9 Will I be able to claim for economic loss against T&SCo?
 - 4.1.10 How will BEIS approach negotiations?
 - 4.1.11 What else should I be aware of?

How does the ICC Contract work?

- 4.2 The ICC Contract is allocated by the SoS and the parties are the Emitter and the LCCC.
- 4.3 The Emitter must: (i) show demonstrable commitment to the project 18 months after contract signature, (the **Milestone Delivery Date/MDD**) and (ii) deliver the project by the Longstop Date, (**LSD**). Failure to do so can result in termination, meaning the Emitter will not recover its costs.
- 4.4 Payments from the LCCC to the Emitter reflect the fact that it is more expensive for the Emitter to install and operate CCUS systems than to continue to emit and use ETS Free Allowances/

⁵ The key documents are: (i) The Carbon Capture and Storage Infrastructure Fund An Update on the Design of the CCS Infrastructure Fund, BEIS, May 2021 and the CCUS: Grant Funding Agreement for Industrial Carbon Capture Indicative Heads of Terms. [Link](#)

purchase allowances. Payments cover capex, opex, T&S fees and forfeited ETS Free Allowances.

4.5 Payments are made per tonne of CO₂ captured. In other words, they depend on performance.

4.6 Payments run for ten years from the earlier of:

4.6.1 The **Start Date** i.e. when the project is fully commissioned and various conditions satisfied, e.g. Capture Rate, Flow Rate and metering installed.

4.6.2 The end of the **Target Commissioning Window**.

4.7 This means that if the Start Date occurs after the Target Commissioning Window the ten-year term is eroded, giving the Emitter less chance of achieving cost recovery under the ICC Contract.

What happens if there are project overruns under the ICC Contract?

4.8 We set this out in a table as follows assuming a signing date of 1 August 2023.

Milestone Delivery Date	Target Commissioning Window	Longstop Date
18 months after signature.	12 months latest end, 31 Dec. 27	12 months after end of TCW.
1 February 25	1 January 27 – 31 December 27.	1 January 28 - 31 December 28.
Must demonstrate real commitment, spend, and resource allocation etc. If not met LCCC can terminate.	Start Date cannot happen before start of TCW. 10-year payment term starts at Start Date. If Start Date after TCW payment term ends 10 years after end of TCW. Result. Start Date after end of the TCW = erosion of payment term.	If Start Date does not happen by LSD then LCCC may terminate.
Reliefs: Force Majeure. T&S delay. No relief, (examples): Supply chain issues. Damage to plant.		

What happens if my CCUS capture does not work as planned?

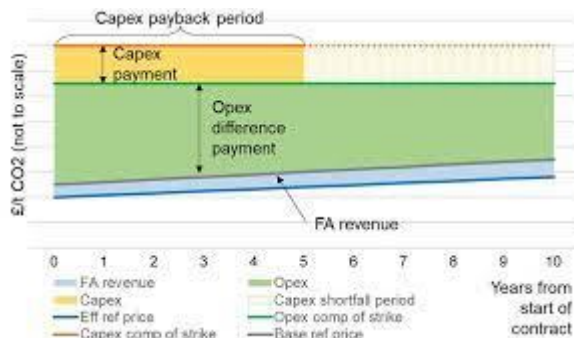
4.9 Payments are made per tonne of CO₂ captured. This means that less capture leads to less cost recovery.

4.10 The plant's CO₂ capture rate must be the higher of 85% and 5% lower than the rate specified in the project's application for the ICC Contract. If it is not it will not achieve Start Date and obtain revenues. If the Start Date is not achieved by the end of the TCW the contract can be terminated.

4.11 Once the Start Date is achieved, the flowrate must be as specified in the contract. A prolonged failure to achieve the CO₂ capture rates can lead to termination.

How do I recover my costs, .(capex, opex, &S fees)?

4.12 This is set out in the following BEIS infographic.⁶



⁶ See BEIS April 22 Consultation, page 17

- 4.13 **Capex** is a fixed amount per tonne of CO₂ captured. The fixed sum covers capex and an agreed rate of return. It is recovered over a five-year term, which is extendable to allow recovery of the agreed amount.
- 4.14 **Opex** is the difference between the: (i) Reference Price; and (ii) Strike Price, (adjusted for CPI). The Reference Price will apply to all projects. The Strike Price will be individually agreed. The payment is one-way, i.e. there are no payments from the Emitter to the LCCC, (for the initial 10-year term).
- 4.15 **T&S fees** are passed through on a capped basis.
- 4.16 **Free allowance payments** represent payments for forfeited free ETS allowances.

What happens if there are cost overruns?

- 4.17 Some capex may be recoverable under the GFA. The SoS' liability under the GFA is capped. The Emitter bears material cost overrun risk as a result.
- 4.18 There is an opex re-opener 1 year after the Start Date of the ICC Contract. This is two way, and enables savings to be captured. There is a cap on increases, but no cap on decreases.

What happens at the end of the 10-year term?

- 4.19 Here the Emitter may find that the prevailing price of carbon, along with the free allowances do not cover the additional operating costs of CCUS after the ten year term. However, BEIS are keen to see viable projects supported. The ICC Contract is extendable, year by year for up to five years.
- 4.20 Some key points to note are as follows:
- 4.20.1 The average market price for carbon must be lower than the Strike Price + T&S fees.
 - 4.20.2 The payments will be two way. If Strike Price + T&S Fees are lower than the carbon price the Emitter will pay the LCCC the difference.
 - 4.20.3 Extensions are granted annually with an assessment of compliance with the conditions for extension annually.
 - 4.20.4 The plant must have a good CO₂ Capture Rate to qualify for extension.

What happens to my ETS Free Allowances?

- 4.21 As noted above, these will generally be forfeited in exchange for payment.

How are T&S risks managed?

- 4.22 There are various risks associated with the T&S network. These include:
- 4.22.1 Stranding, i.e. the T&S network does not commission, or ceases to operate permanently.
 - 4.22.2 Timing mismatch, i.e. the T&S network commissions late.
 - 4.22.3 Unplanned outage risk.

If these risks crystallise, pre-agreed compensation or extension of time mechanisms will apply.

- 4.23 Loss of revenue/production and other forms of economic loss will not be compensated. This is a point reflected in the draft Network Code.
- 4.24 Prolonged T&S unavailability gives the LCCC the right to terminate.
- 4.25 The licence/economic regulation regime proposed by BEIS will include significant incentives for T&SCo to commission the T&S network on time and to the required standard. This will give some comfort to Emitters on T&S commissioning risk.

Will I be able to claim for economic loss against T&SCo?

- 4.26 No. The relationship between the Emitter and T&SCo will be governed by a Network Code. The draft is clearly modelled on electricity and gas industry codes, (such as the NGESO Connection and Use of System Code). The draft Network Code caps liability and excludes liability for economic loss, loss of production etc.

- 4.27 Funders of T&SCo are not likely to accept material risks in this regard, and if BEIS allocated material risks to T&SCo, that would increase the cost of capital, and therefore each User's fees.

How will T&SCo charges be regulated?

- 4.28 The allowed revenues of T&SCo and charges will initially be agreed with BEIS and then revised by Ofgem.
- 4.29 At first sight, because T&S fees are passed through under the ICC Contract, there is no risk associated with increases. However, the pass through is capped, and after either years 10 or 15 Emitters will be fully exposed to these, as there will be no ICC Contract to cover the costs. Accordingly, it will be sensible to monitor developments in respect of T&S fees and respond to consultations etc.
- 4.30 Changes will be consulted upon. Mounting a successful challenge against this sort of decision is very difficult. Potential Emitters should note that the Energy Bill proposal is that they will be able to appeal to the Competition and Markets Authority in respect of some matters, including, potentially, material price control decisions.

How will BEIS approach negotiations?

- 4.31 BEIS are clear that they want to stick as closely to the Standard Terms and Conditions as possible. Their focus will be on issues that are truly project specific, as an example the Strike Price.

What else should I be aware of?

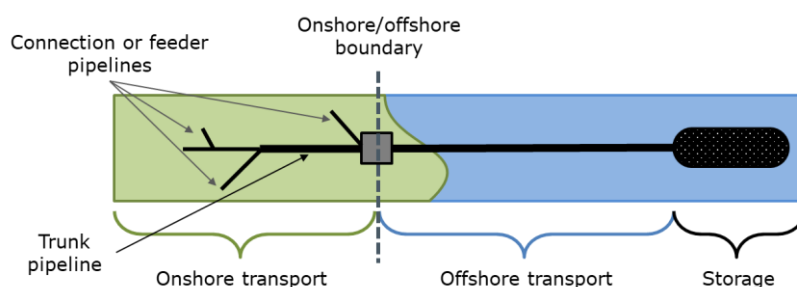
- 4.32 **Carbon intensity.** There are provisions to prevent "gaming", to achieve a higher CO₂ output so as to get higher payments. This includes reporting certified by a director and a technical director.
- 4.33 **LCCC termination rights.** Various default termination rights apply.
- 4.34 **Termination payments.** The Emitter has to pay a termination payment if termination occurs after the Start Date in certain default scenarios.
- 4.35 **Change in law protection.** This applies for changes in law that were not foreseeable at the agreement date, and which have a specific effect on CCUS and not other sectors of the economy. Compensation and cost protection mechanisms apply.
- 4.36 **Force majeure.** Prolonged FM gives the LCCC the right to terminate.
- 4.37 **Non – pipeline Transport, (NPT).** The interface between NPT and T&S has been considered and it is clear that T&SCo will have to accept CO₂ delivered from NPT sources.

5. The T&S regime

- 5.1 Some key issues are as follows.
- 5.1.1 What is T&SCO's role?
 - 5.1.2 What are the key documents that regulate T&SCo?
 - 5.1.3 Third party network access.
 - 5.1.4 Development of the price control.
 - 5.1.5 Appeal against price control decisions.
 - 5.1.6 Calculation of tariffs for users.

What is T&SCO's role?

- 5.2 T&SCo will own and operate the onshore and offshore transport network and offshore storage. It will obtain and hold onshore and offshore consents and rights, (granted by the North Sea Transition Authority and others). It will provide access to the system to Emitters and convey CO₂ to the store. The following BEIS diagram provides a useful overview.⁷



- 5.3 T&SCO will also be responsible for:
- 5.3.1 Expansion of the network, which is currently addressed by the *Storage of Carbon Dioxide (Access to Infrastructure) Regulations 2011*. BEIS is considering changing these regulations.
 - 5.3.2 Decommissioning the offshore T&S network in accordance with the Energy Act 2008, and the onshore network in accordance with any relevant planning consents.
 - 5.3.3 Certification of the delivery of CO₂ on to the network.
- 5.4 **Ofgem** will act as the “economic regulator”.

What are the key documents that regulate T&SCo?

- 5.5 The key documents are in two sets. The first set regulates T&SCo’s relationship with BEIS/ the SoS, and Ofgem.⁸ These include the following:
- 5.5.1 A new Act of Parliament which will set out Ofgem’s duties and functions as economic regulator, BEIS’ role and duties and provide for an economic licensing regime.⁹ This is set out in the Energy Bill.
 - 5.5.2 The *Storage of Carbon Dioxide (Access to Infrastructure) Regulations 2011*. The Energy Bill provides for amendment of these regulations.
 - 5.5.3 The T&SCo licence¹⁰ which will contain mechanisms for determining allowed revenues, regulate charges and provide for certain other obligations, including in respect of the T&S Network Code, (discussed below), and Long Term Development Statements. It will also contain “financial ring fence” provisions, and a restriction on the disposal of assets, restrictions on granting security and restrictions on activity outside the scope of the core T&S business.
 - 5.5.4 The Revenue Support Agreement. This will provide for the recovery of shortfalls in Allowed Revenue in certain circumstances when various “Risk Mitigation Mechanisms” have not secured recovery of the revenue.¹¹
 - 5.5.5 The Government Support Package. This comprises two agreements:
 - (i) The Supplemental Compensation Agreement between the SoS and T&SCo. This is designed to cover the costs arising from CO₂ leakage risk, i.e. a risk of a need of material corrective action at the store arising from leakage and/or significant “irregularities” such as an unforeseen material geological event. This is designed to provide “backstop” support. The

⁷ See January Update page 33

⁸ Note also the *Energy Act 2008* which provides for the licensing of storage and the Storage Licence under that.

⁹ January Update page 18. See also Duties and Functions of the Economic Regulator for Carbon Dioxide Transport & Storage Networks Government response to the consultation, BEIS, January 2022, [Link](#)

¹⁰ BEIS published indicative Heads of Terms in January 2022.

¹¹ BEIS published high level terms in January 2022.

intention is that to the maximum extent possible T&SCo should manage this risk itself on commercially reasonable terms, including via insurances.¹² This is not designed to cover expected operation and maintenance.

- (ii) The Discontinuation Agreement. This is also between the SoS and T&SCo. This provides the SoS with the right to discontinue the Supplemental Compensation Agreement in certain circumstances – broadly focussed on the SoS’s liabilities reaching a certain threshold. In such circumstances compensation is payable to debt and equity investors. The sum payable is expected to be equal to the regulated asset value of the T&S network/store along with certain breakage costs.

- 5.5.6 The Liaison Agreement. This provides that T&SCo will not change certain documents or the T&S network in certain ways. It also provides for ongoing reporting and information requirements.
- 5.6 The second set of key documents will regulate the relationship between Users and T&SCo. These include:¹³
- 5.6.1 The Network Code, which will set out the terms of the transportation and storage of CO₂, the process for connection, and obligations on T&SCo in respect of operation of the T&S system.
 - 5.6.2 A charging statement setting out charges.
 - 5.6.3 Connection and Construction Agreements, which will regulate user/T&SCo specific matters.
- 5.7 These documents will have contractual effect and be binding on T&SCo under its licence. Amendments to the codes will be subject to a governance process. The intention is that these will be in the same terms across GB where possible.

Third party network access¹⁴

- 5.8 The starting point for BEIS’ analysis is that T&SCo will be obliged to connect new Emitters, but that financial support may be required. This is potentially a significant liability, as new connections may require significant additional spending and funding. Third party access is already regulated, see the *Storage of Carbon Dioxide (Access to Infrastructure) Regulations 2011*. These arrangements will need to be reviewed, and the Energy Bill gives BEIS the power to do so.

Development of the first price control¹⁵

- 5.9 The price control is a critical element of the funding package for T&SCo. It sets the “allowed revenue” which T&SCo will be allowed to recover. The model that BEIS has selected builds on the models used by Ofgem in electricity and gas, and Ofwat in water. BEIS will develop the initial control.
- 5.10 Ofgem will develop subsequent controls.

Appeal against price control decisions¹⁶

- 5.11 Ofgem will likely implement subsequent controls by modification to T&S licence. BEIS has opted for a CMA appeal mechanism similar to that applicable to gas and electricity network companies. Emitters will have appeal rights.

Calculation of tariffs for users¹⁷

¹² BEIS published high level terms in January 2022.

¹³ See January Update page 12

¹⁴ See January Update page 12

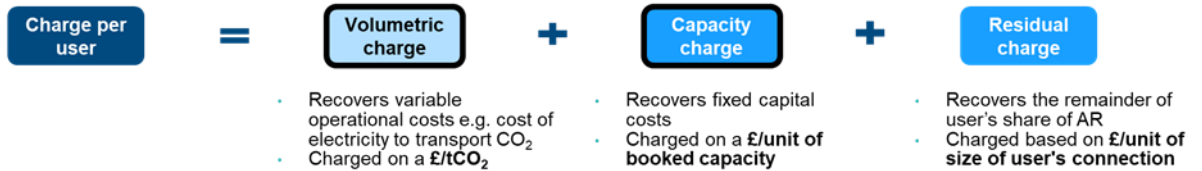
¹⁵ See January Update section 4.

¹⁶ See January Update section 4

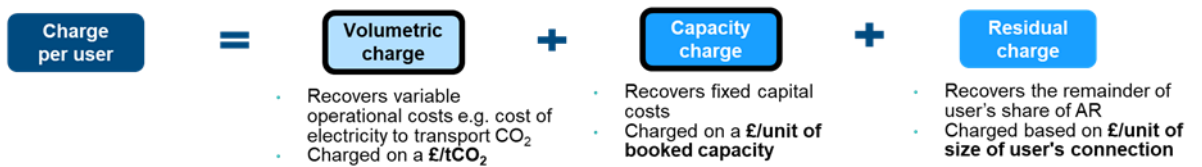
¹⁷ See January Update section 5

- 5.12 Charges will be determined according to a methodology, developed by consultation. This is to be “informed by a set of guiding principles”.¹⁸ These will presumably be formulated in a way similar to that applicable to NGENSO’s Connection and Use of System Code. T&SCo will be required to consult on changes to the methodology and changes will be subject to Ofgem oversight.
- 5.13 The following illustration from BEIS January Update shows a notional network. Charges will be split between: (i) onshore transport; and (ii) offshore transport and storage.
- 5.14 The proposed use of system charges are set out in the following BEIS diagram from the January Update.

Onshore pipeline use of system charges



Offshore pipeline and storage use of system charges



Key



- 5.15 Use of system charges will not have a locational element. The basic proposal at this stage is a “postage stamp” approach, with no locational element, although BEIS are clear that this does not preclude locational charging later on. There will be no connection charges.
- 5.16 The requirement to pay charges will be secured by collateral provided by all users.

¹⁸ See January Update page 33