



Department for
Business, Energy
& Industrial Strategy

Carbon Capture, Usage and Storage

An update on the business model for
Industrial Carbon Capture



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Disclaimer

This update sets out further details on the government's current proposals on the potential business model for industrial facilities with carbon capture usage and storage (CCUS). The proposals, as set out in the document and its Annexes, in whatever form they are expressed, are indicative only and do not constitute an offer by government and do not create a basis for any form of expectation or reliance.

The proposals, including those within the Annexes, are not final and are subject to further development by the government, and approval by Ministers, in consultation with relevant regulators and the devolved administrations, as well as the development and Parliamentary approval of any necessary legislation, and completion of necessary contractual documentation. We reserve the right to review and amend all provisions within the document and its Annexes, for any reason and in particular, to ensure that proposals provide value for money (VfM) and are consistent with the current subsidy control regime.

This update takes into account engagement that has taken place throughout 2021 including since publication of the last Industrial Carbon Capture (ICC) Business Model update in November 2021 (on application to the waste sector and supply chain reporting requirements). This includes engagement with the ICC Expert Group, project developers, and other interested parties.

BEIS will continue such engagement as it works to refine its proposals, including engagement with the devolved administrations, to ensure that the proposed policies take account of devolved responsibilities and policies across the UK.

The proposed terms in this business model update, and associated consultation and draft ICC Contract (including the ICC Agreement and the ICC Standard Terms and Conditions) will be reviewed in light of this consultation but also remain subject to further development by the government in consultation with relevant regulators and the devolved administrations as well as subject to Parliamentary approval of any necessary legislative amendments and to ensure consistency with subsidy control principles. The proposals, as set out in this document and the consultation document, do not constitute an offer by government and do not create a basis for any form of expectation or reliance.

The draft ICC Contract does not constitute definitive drafting of the ICC Contract's terms. A number of the provisions and terms which require particular consideration and development have been square bracketed (with footnotes) in the ICC Contract. BEIS reserves the right to review and amend these square bracketed provisions, and all other provisions set out in the ICC Contract.

The draft ICC Contract does not indicate any willingness or agreement on the part of BEIS to enter into, or arrange entry into, the ICC Contract. The ICC Contract does not constitute an offer and is not capable of acceptance.

Section 1: Introduction

Background

The UK government has set in law a target to cut emissions by 78% by 2035, compared to 1990 levels. Developing carbon capture usage and storage (CCUS) is important for delivering this target. The Net Zero Strategy¹ aims to create four clusters by 2030, capturing and storing 20-30 megatonnes of carbon dioxide (MtCO₂) per year by 2030 and up to 50 MtCO₂ per year by 2035. It also raised the government's ambition to deliver 6 MtCO₂ per year of industrial CCUS by 2030 and 9 MtCO₂ per year by 2035. The Industrial Decarbonisation Strategy² (published in March 2021) explains that, without CCUS, emissions from current industrial processes could not be reduced to levels consistent with net zero.

In October 2021, it was announced that the HyNet and East Coast Clusters would be Track-1 clusters for the mid-2020s and that the Scottish cluster would be the reserve³. The government continues to be committed to Track-2 enabling 10 MtCO₂ per year of capture and storage capacity to be operational by 2030.

To help deliver our ambitions and unlock private sector capital investment, we have designed the Industrial Carbon Capture (ICC) business model, which will incentivise the deployment of carbon capture technology by industrial users who often have no viable alternative to achieve deep decarbonisation. Through the business model, we intend to provide support to industrial emitters to decarbonise efficiently and sustainably and drive world-leading innovation in carbon capture technologies, supporting UK-wide decarbonisation. The ICC business model comprises a capital grant (for initial projects) which will be funded by the £1 billion CCS Infrastructure Fund (CIF), and/or ongoing revenue support which will be funded by the Industrial Decarbonisation and Hydrogen Revenue Support (IDHRS) scheme.

We have been engaging closely with the industrial sector throughout the development of the ICC business model, with key milestones including the publication of business model updates in December 2020⁴ and May 2021⁵. In October 2021, a suite of documents was published, including updates on the ICC business model⁶, indicative Heads of Terms⁷ and a draft front-

¹ <https://www.gov.uk/government/publications/net-zero-strategy>

² <https://www.gov.uk/government/publications/industrial-decarbonisation-strategy>

³ <https://www.gov.uk/government/publications/cluster-sequencing-for-carbon-capture-usage-and-storage-ccus-deployment-phase-1-expressions-of-interest/october-2021-update-track-1-clusters-confirmed>

⁴ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/946561/ccus-business-models-commercial-update.pdf

⁵ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/984119/industrial-carbon-capture-icc.pdf

⁶ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1023095/icc-business-model-october-2021.pdf

⁷ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1023456/icc-indicative-heads-terms-october-2021-annex-b.pdf

end agreement⁸. In the October ICC business model update, we set out further minded-to positions on the commercial framework of the business model including capital grant support and risk allocation. We also set out additional eligibility criteria and considered the applicability of 'capture-as-a-service' (CaaS) delivery models. In November 2021, a further ICC business model update was published⁹ which included information on supply chain reporting requirements and the application of the ICC business model to the waste sector.

The first allocation process for ICC business model support is now underway. The Cluster sequencing for CCUS deployment Phase-2 guidance document¹⁰ was published in November 2021, alongside the indicative Heads of Terms for the ICC grant funding agreement¹¹, and the window for Phase-2 submissions closed on 21 January 2022.

Purpose of this document

This document's purpose is to provide an update on the proposed ICC business model, following on from the previous updates to the proposals as published in December 2020, May 2021, October 2021 and November 2021. This update focusses on a number of policy areas specified below.

This document follows the publication of the October and November 2021 ICC business model updates and focuses on updates to the minded-to positions on the following areas of the ICC business model: the commercial framework including the payment mechanism (asymmetric payments, Transport and Storage (T&S) fees, CCS projects that also include CCU, and an update on free allowances) and risk allocation, mitigations relating to the risk of the excessive carbon intensity of industrial products, opex reopener, extension provisions, and adaptations for Combined Heat and Power (CHP) projects. It includes an update on the legal contractual framework, including termination, Operational Conditions Precedent (OCPs), the Milestone Requirement, Qualifying Changes in Law, metering and reporting requirements. We also outline the changes to the model that are being considered for waste management CCS projects. Finally, this update includes information on the proposed Cluster Sequencing Process Track-1 negotiation approach and next steps. It should be read in conjunction with the December 2020, May 2021, October 2021, and November 2021 business model updates.

Alongside this document, we have published a draft of the ICC Contract for initial projects and a document summarising the ICC business model including a consultation on the proposed

⁸ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1023454/icc-front-end-agreement-october-2021-annex-a.pdf

⁹ <https://www.gov.uk/government/publications/carbon-capture-usage-and-storage-ccus-business-models/november-2021-updates-on-the-industrial-carbon-capture-and-dispatchable-power-agreement-business-models>

¹⁰ <https://www.gov.uk/government/publications/cluster-sequencing-for-carbon-capture-usage-and-storage-ccus-deployment-phase-2>

¹¹

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1031898/indicative-heads-of-terms-ccus-grant-funding-agreement-icc.pdf

business model¹². This consultation is seeking views from stakeholders on the proposed structure and content of the ICC business model and the accompanying draft contract. The consultation seeks to assess the extent to which the model is deliverable, investable and supports effective decarbonisation.

We are seeking feedback to inform the final ICC Contract which is planned to be published to align with negotiations commencing. The final ICC Contract will represent a generic contract applicable to all projects (with the exception of Waste CCS projects) with minimal scope for changes to the terms of the contract (see section 5). We are also seeking feedback on the draft ICC Contract from the waste sector, as the adapted Waste ICC Contract will likely contain many of the same provisions as the ‘generic’ ICC Contract. We have outlined our thinking on the proposed adaptations required for the Waste ICC Contract in section 4.

Alongside this update on the ICC business model, we have published a related consultation and draft contract on the Dispatchable Power Agreement (DPA), which is the business model for power CCUS.

¹² <https://beisgovuk.citizenspace.com/clean-electricity/ccus-industrial-carbon-capture-business-model>

Section 2: ICC Business Model Design

The ICC business model is comprised of capital grant co-funding (for initial projects) and ongoing revenue support via the ICC Contract. The ICC Contract is a 10–15-year private law contract between an industrial emitter (Emitter) and the relevant counterparty (the ICC Contract Counterparty), which is anticipated to be the Low Carbon Contracts Company Ltd (LCCC) subject to the successful completion of administrative and legislative arrangements.

This first section provides an update on the proposed commercial framework of the business model which is applicable for initial ICC projects. Some sub-sections provide additional information on minded-to positions described in previous updates including those published in May 2021, October 2021 and December 2020.

Section 4 describes potential ICC business model adaptations for waste CCS projects.

Commercial Framework I: Payment Mechanisms

Years referenced in the model

The following terms are used in this business model update to describe the different ways in which years can be defined in the model.

Contract Payment Term Years: This terminology is used to describe the 10-year initial period (Years 1-10) and up to 5-year extension period (Years 11-15) of the ICC Contract. Contract Payment Term Year 1 starts on the earlier of (i) the Start Date¹³ (i.e. when the project has successfully commissioned) and (ii) the final day of the specified 12-month Target Commissioning Window (TCW). Contract Payment Term Years are denoted in this publication with the subscript *y*.

Calendar Years: Calendar years, running from 1 January to 31 December, are used to track certain features of the model, namely the free allowance forfeiture and reconciliation processes (as a UK ETS year is the same as a calendar year) and annual changes to the fixed trajectory reference price during the first 10 Contract Payment Term Years. Calendar years are denoted in this publication with the subscript *f*.

Capex Payment Years: Capex Payment Years are used to administer the annual capex payment cap (which may vary each Capex Payment Year) and to track capex payments to the Emitter until capex payments are complete (which, if CO₂ is captured according to the expected amount, will occur at the end of Capex Payment Year 5 but, if not, may be up until the end of Capex Payment Year 10). The capex referred to here is that which will be provided through revenue support during operations (i.e. through the ICC Contract) and not the capital

¹³ In the October 2021 update, the Start Date was defined as when the OCPs have been satisfied by the Emitter (or waived by the Counterparty) and triggering the start of payments under the ICC Contract

grant, which will be provided prior to operations. Capex Payment Year 1 commences when operations start following satisfaction by the Emitter (or waiver by the ICC Contract Counterparty) of all OCPs, i.e. it will always start on the Start Date (as this triggers the start of payments). If the Start Date occurs: (i) within the TCW, Capex Payment Years will align with Contract Payment Term Years; or (ii) after the end of the TCW (but before the Longstop Date), Capex Payment Years will not align with Contract Payment Term Years, as Capex Payment Year 1 will commence after the start of Contract Payment Term Year 1. In scenario (ii), Capex Payment Years 1 to 9 will be full years (i.e. twelve month periods) and Capex Payment Year 10 will be eroded by the difference in the number of days between the start of Contract Payment Term Year 1 and the start of Capex Payment Year 1. Thus, Capex Payment Year 10 and Contract Payment Term Year 10 will end on the same day (which is the Specified Expiry Date in the ICC Contract). Figure 1 compares Contract Payment Term Years and Capex Payment Years in both scenarios (i) and (ii). Capex Payment Years are denoted in this publication with the subscript Cn .

Opex Payment Years: Opex Payment Years are used to administer the annual opex payment cap and to track opex payments to the Emitter. The annual opex payment cap is 110% of the greatest mass quantity of CO₂ that the Emitter is expected to capture in any of years 1 to 15 of the Opex Payment Period, based on the design capacity and projected availability of the Capture Plant. If the cap is reached (or exceeded) in any Opex Payment Year, then only the FAs portion of the monthly opex payment will continue to be payable to the Emitter (on a monthly basis) for the rest of that Opex Payment Year (see Payment Mechanisms section for further details). Opex Payment Years start at the same time as Capex Payment Years, i.e. on the Start Date. If the Start Date occurs after the end of the TCW (but before the Longstop Date), Opex Payment Year 10 will be eroded by the difference in the number of days between the start of Contract Payment Term Year 1 and the start of Opex Payment Year 1 (as described for Capex Payment Year 10). If extensions are granted, Opex Payment Years and Contract Payment Term Years will always align during the extension periods. Opex Payment Years are denoted in this publication with the subscript On .

Figure 1 (i): Contract Payment Term Years and Capex Payment Years where Start Date occurs within TCW

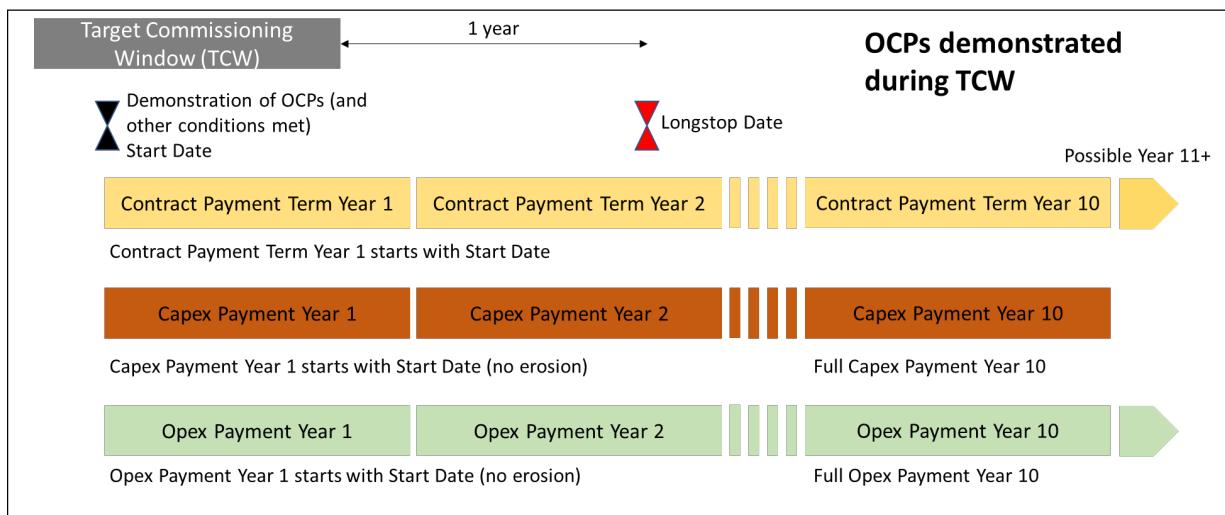
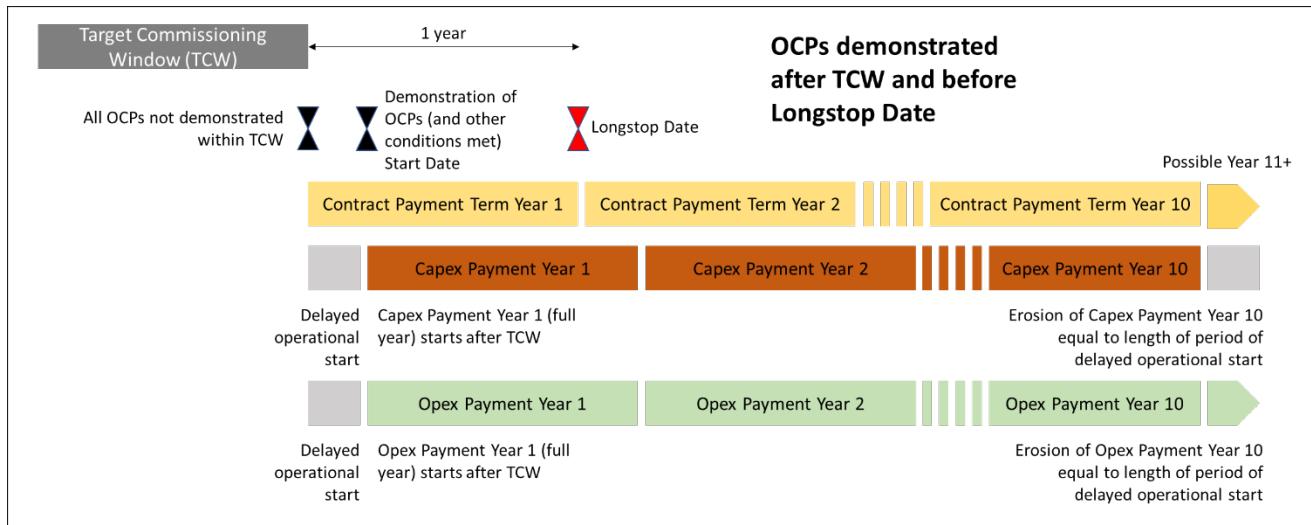


Figure 1 (ii): Contract Payment Term Years and Capex Payment Years where Start Date occurs after end of TCW but before Longstop Date



Carbon Price

A carbon price is used in the model for the below features:

- Extension Period Market Condition
 - To be eligible for an extension to the ICC Contract, the market carbon price must be less than the subsidy rate (details on this are in the section on Extension Provisions).
- Reference Price for the extension period
 - The reference price for the extension period (i.e. Contract Payment Term Year 11 up to and including Contract Payment Term Year 15) will be set as the prevailing market carbon price, rather than a continuation of the fixed trajectory from the initial 10-year period.
- Within the Waste ICC Contract payment mechanism (if the sector were to be subject to carbon pricing in the future)
 - For more details see Section 4

Where a market carbon price is used, our minded to position is to draw this from publicly available Exchange Delivery Settlement Prices from the daily reports published by ICE¹⁴. We are considering the frequency with which to apply changes to this price, either daily or monthly.

¹⁴ ICE runs a secondary market exchange where UKA-based contracts can be traded. The most liquid (and therefore likely to be most representative of ‘the carbon price’) of these is the futures contract expiring in December of a given year. Further information available at: <https://www.theice.com/products/80216150/UKA-Futures>

Our preference is to use a monthly average carbon price, according to calendar months and calculated by the ICC Contract Counterparty. In the possible absence of this contract in the future, a suitable alternative would be used.

When applying a market reference price to the ICC Contract, it needs to be reasonable for projects to realise that price either in the traded market (i.e. to buy or sell UK ETS allowances) or by passing it through to their consumers. Whilst allowances are traded on a daily basis, daily prices may be too granular for consumers to match and for businesses to plan their business decisions. We consider that a monthly price is most likely to achieve both of these objectives, whilst also averaging out volatility, which may be preferable for both Emitters and government.

We expect that the "monthly average carbon price" for any month will be calculated by dividing the sum of the Exchange Delivery Settlement Prices of the relevant December futures contract as traded on the relevant carbon market exchange for each relevant day in the month by the number of relevant days in the month.

T&S Fees

T&S fees will be paid by users of the T&S network to the T&S Co, in order for the T&S Co to collect its allowed revenue. In the October 2021 update, we stated that we were still considering the relative merits of T&S fees being paid to T&S Co by the Emitter or directly by the ICC Contract Counterparty. Following further work, our minded-to position is that T&S fees will be paid to T&S Co by the Emitter.

Within the ICC business model, T&S fees will be treated as a pass-through cost and will be a separate monthly payment (i.e. not part of the opex payment or capex payment). In order to ensure that the T&S fee costs are proportionate to the capture quantities agreed in the ICC Contract we propose the following caps:

- For the purposes of calculating the T&S Capacity Fee, the T&S Capacity¹⁵ will be the lower of: (i) the Emitter's transport and storage CO₂ capacity reserved on the T&S Network in accordance with the T&S Connection Agreement; and (ii) the Maximum T&S Capacity, which will be agreed on a project-by-project basis as part of negotiations;
- For the purposes of calculating the T&S Volumetric Fee, if the actual Metered CO₂ Output to T&S in a Settlement Unit is greater than the Maximum CO₂ Output to T&S (which will be agreed on a project-by-project basis as part of negotiations), the Metered CO₂ Output to T&S for such Settlement Unit shall be deemed to be equal to the Maximum CO₂ Output to T&S; and
- For the purposes of calculating the T&S Residual Fee, the size of connection will be the lower of: (i) the Emitter's transport and storage CO₂ connection reserved on the T&S Network in accordance with the T&S Construction Agreement; and (ii) the

¹⁵ This is subject to change as T&S capacity booking methodology is developed.

Maximum T&S Size of Connection, which will be agreed on a project-by-project basis as part of negotiations.

These caps will be subject to change as T&S fee policy develops. BEIS published an update on the T&S Regulatory Investment (TRI) business model in January 2022, which included further information on the design of T&S fees¹⁶.

Payment Mechanisms

Settlement and billing

A settlement unit of one day (starting at 0:00 and ending at the end of 23:59 of the same day) is the minimum period used to calculate payments that are to be made to or from the Emitter under the ICC Contract. A Billing Period, which is the frequency with which payments to/from the Emitter are made, will include the amount which is calculated for every settlement unit in a calendar month.

Capacity Limits

During any Opex Payment Year, opex payments related to the Metered CO₂ Output to T&S will be capped when the total Metered CO₂ Output to T&S reaches or exceeds 110% equivalent of the Maximum Annual CO₂ Capture Quantity. This figure will be the greatest mass quantity of CO₂ that the Emitter is expected to capture in any of Opex Payment Years 1 to 15, based on the design capacity and projected availability of the Capture Plant. The Maximum Annual CO₂ Capture Quantity will be set on a project-by-project basis and will be agreed during negotiations.

This cap will allow the project to benefit from realistic efficiency improvements and allow normal variations in output and will also ensure opex payments are not made where the amount of CO₂ captured is materially greater than anticipated. We are considering the interaction of this cap with the carbon intensity check proposals described below.

Payment equations

This section sets out the proposed payment equations that have been developed for the ICC Contract.

Table 1: Payment equation symbols

Symbol	Description	Units
$AACF_f$	Actual annual capture factor in the relevant calendar year f	%

¹⁶ The TRI January 2022 update can be found here: <https://www.gov.uk/government/publications/carbon-capture-usage-and-storage-ccus-business-models>

ADJ_i^{base}	Sum of the Strike Price Adjustments applicable to settlement unit i (apart from inflation adjustments) occurring immediately prior to the relevant indexation anniversary, in respect of a base year	£/t
C	Metered CO ₂ Output to T&S Estimate for Capex Payment Years 1-5	t
$CO2_{aux}$	Auxiliary CO ₂ Generated in all settlement units in the relevant year	t
$CO2_{in_II}$	Metered CO ₂ Input from Industrial Installation in all settlement units in the relevant year	t
$CO2_{out_T\&S}$	Metered CO ₂ Output to T&S during the relevant settlement unit i	t
$CO2_{out_T\&S, on}$	Metered CO ₂ Output to T&S for each settlement unit i in the relevant Opex Payment Year On	t
dy_f	Number of settlement units in the relevant calendar year f	-
$AMCMRP$	Average monthly carbon market reference price	£/t
CP_i	Capex payment for each settlement unit i	£
CP_m	Monthly capex payment	£
CP_{Total}	Sum of the capex payments for each settlement unit since the Start Date	£
CPI_{base}	Consumer Price Index (CPI) for October in the calendar year immediately preceding a base year	-
CPI_i	Consumer Price Index (CPI) for January of the relevant calendar year	-
CPR	Capex Payment Rate	£/t
MA	Maximum Annual CO ₂ Capture Quantity	t
MCP	Monthly capex payment	£
OP_i	Opex payment for each settlement unit i	£
OP_m	Monthly opex payment	£
r	Total return component	£
$R_{B,i}$	Reference price that applies during the relevant settlement unit i	£/t

S_i	Strike price that applies during the relevant settlement unit i	£/t
S_{base}	Initial strike price as agreed in the ICC Contract	£/t
$T\&S_i$	T&S Payment for each settlement unit i	£/t
$T\&S_m$	Monthly T&S payment combining capacity, volumetric and residual components ¹⁷	£/t
TCP	Total capex payment without rate of return (excluding capital grant)	£
$T_{FA,f}$	Total annual FA allocation for calendar year f	t
$x_{e,f}$	Expected annual capture factor for calendar year f	%
$YCCM_{Cn}$	Yearly capex cap multiplier for the relevant Capex Payment Year Cn . This is the CO ₂ capture quantity estimate for year Cn as a proportion of the CO ₂ capture quantity estimate over Contract Payment Term Years 1-5	-
Π_i	Inflation factor applicable to settlement unit i	-

Opex payments

Opex payments will be calculated daily using the following equation, which comprises a term incorporating the strike price and revenue for forfeited UK ETS free allowances:

$$OP_i = CO2_{out_T\&S}(S_i - R_{B,i}) + R_{B,i} \left(\frac{x_{e,f} T_{FA,f}}{dy_f} \right)$$

The trajectory and starting value of the base reference price will be set out to Emitters before the first contracts are negotiated. This payment formula applies for the first 10 Contract Payment Term Years of the ICC Contract. If, during this period, $(S_i - R_{B,i})$ is less than zero, then $(S_i - R_{B,i})$ shall be set as zero. More details on this are provided in the Asymmetric Payments Section.

As described above, an annual limit will apply to opex payments, such that, if, at any time during any Opex Payment Year, $\sum CO2_{out_T\&S,i, on} \geq MA \times 1.1$, all further amounts of $CO2_{out_T\&S}(S_i - R_{B,i})$ shall be zero.

The actual annual capture factor, $AACF_f$, is the capture rate adjusted to take account of emissions generated from providing energy to the capture plant and only emissions from industrial installations, and considers stored CO₂ only:

¹⁷ The period over which this will change will be determined in a future update on the T&S business model

$$AACF_f = \frac{\sum CO2_{out_T\&S} - \sum CO2_{aux}}{\sum CO2_{in_II}}$$

More details on the actual annual capture factor are provided within the ‘Free allowances’ section below.

The expected annual capture factor, $x_{e,f}$, is an estimate of the actual annual capture factor and is required to calculate payments before the actual annual capture factor is known (the actual annual capture factor will be known after the end of a calendar year). The value for the expected annual capture factor will be stated in the contract and will apply for the calendar year in which operations start (i.e. for the calendar year in which the Start Date occurs). From the second calendar year onwards, the expected annual capture factor will be equal in value to the actual annual capture factor for operations in the previous calendar year¹⁸, i.e. $x_{e,f} = AACF_{f-1}$.

The term, $R_{B,i} \left(\frac{x_{e,f} T_{FA,f}}{dy_f} \right)$, represents compensation for forfeited free allowances. This is applied during the first 10 Contract Payment Term Years and is zero for any subsequent years (i.e. during any extension years).

Thus, monthly opex payments are $OP_m = \sum OP_i$.

Capex payments

Capex payments paid during operations (not the capital grant) will be calculated daily according to the following equation:

$$CP_i = CPR \times CO2_{out_T\&S}$$

where

$$CPR = \frac{TCP + r}{C}$$

Thus, monthly capex payments are $CP_m = \sum CP_i$. Capex payments are subject to an annual cap so that, in any capex payment year Cn , if $\sum CP_{i,Cn} \geq (TCP + r) \times YCCM_{Cn}$, no further capex payments are made for that year.

Capex payments will cease on the earlier of either (i) once total capex payments are complete, which is when $CP_{Total} \geq TCP + r$ or (ii) at the end of Capex Payment Year 10.

T&S payments

¹⁸ We are still considering the timings of the forfeiture and reconciliation processes to determine the availability of data for calendar year $f-1$ to apply to forfeiture for calendar year f . Additionally, we are considering if this approach should hold in instances of long T&S outages or constraints.

The T&S fee payment will be a pass-through and will be paid monthly, where
 $T\&S_m = \sum T\&S_i$.

Inflation adjustments

Annually on 1 April, the strike price will be adjusted by the inflation factor:

$$S_i = ((S_{base} + ADJ_i^{base}) \times \Pi_i)$$

where

$$\Pi_i = \frac{CPI_i}{CPI_{base}}$$

This uses the value for the CPI in January of the same calendar year to make the inflation adjustment.

Collateral Requirement

In the typical running of the agreement, there will be no requirement for collateral to be provided by the Emitter. Where, over the course of a year, there are 3 instances where the emitter fails to make requisite payments to the ICC Contract Counterparty, the ICC Contract Counterparty will be entitled to require a defined sum of collateral be provided by the Emitter to act as assurance for the satisfactory payment of incurred amounts. The collateral will be held for a subsequent 12 month period from posting, or for 12 months following any further payment failures during that period, or will be repaid on conclusion of the contract. The amount of collateral will be a sum equivalent to a representative payment profile over the given collateral period.

Asymmetric Payments

In general, contracts for difference operate on the basis of ‘two-way’ payments, meaning that (i) if the strike price is above the reference price, the Emitter is paid by the ICC Contract Counterparty and (ii) if the reference price is above the strike price, the Emitter pays the ICC Contract Counterparty.

The ICC business model has some features, in particular a fixed trajectory reference price which is determined in advance of contract signature and set for the first 10 years, which mean that requiring payments where the reference price is above the strike price would not lead to optimal cost outcomes for government or the Emitter. The fixed trajectory reference price is not linked to the prevailing market carbon price and there is currently no or limited low carbon product benefit realised by Emitters when carbon prices are high.

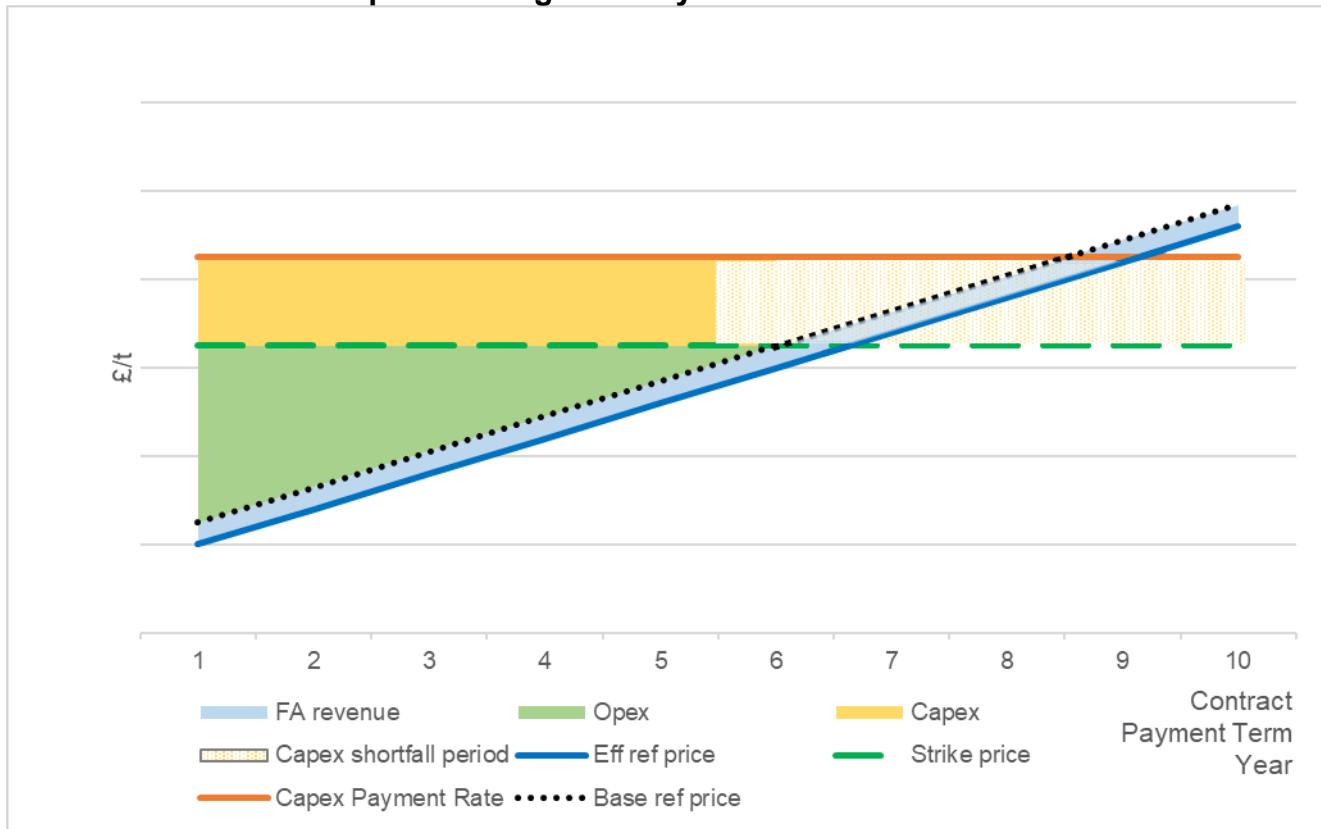
Therefore, we are minded-to make ‘asymmetric’ (or one-way) payments a design feature of the ICC business model for initial projects for the first 10 years of the ICC Contract. This means that in scenario (i), payments will be made to the Emitter as normal but in scenario (ii), there will be no reverse payments (from the Emitter to the ICC Contract Counterparty) when the

reference price exceeds the strike price. In the extension period, when the reference price becomes a floating market carbon price, this would not apply and the Emitter would pay the ICC Contract Counterparty if the reference price were above the strike price.

Figure 2 shows the scenario where the fixed trajectory reference price equals and then exceeds the strike price during the first 10 years of the ICC Contract. In this graph:

- The first term in the opex payment equation ($CO2_{out_T\&S}(S_i - R_{B,i})$) is the difference between the strike price and the base reference price multiplied by captured and stored CO₂ per settlement unit *i* (green area between the two dashed lines). When the base reference price equals or exceeds the strike price (i.e. from c. year 6 onwards), payments related to this term made to the Emitter from the ICC Contract Counterparty cease and no payments are made from the Emitter to the ICC Contract Counterparty.
- Capex payments are unaffected and will continue to be paid (if capex has not been fully repaid), irrespective of the relative values of the base reference price and the strike price.
- FA revenue will continue to be paid in line with FA forfeiture, irrespective of the relative values of the base reference price and the strike price.
- T&S fees (not shown in the diagram) are paid by the ICC Contract Counterparty to the Emitter as a pass-through (i.e. for the Emitter to pass straight through to the T&S operator), irrespective of the relative values of the base reference price and the strike price, during the first 10 years of the Contract.

Figure 2: Payment scenario where fixed trajectory reference price equals/exceeds the strike price during first 10 years of the ICC Contract



Initially ICC Contract holders will not be permitted to sell negative emissions credits if they use biogenic material in their fuel or feedstock. However, if, following a review of this prohibition within the parameters set out in the ICC Contract (initiated through a defined trigger to review this provision), sales are permitted and the Emitter receives revenue from selling associated negative emissions credits, this revenue may be subtracted from the payment through the business model and would not be subject to payment asymmetry, i.e. the Emitter may be obliged to make a net payment to the ICC Contract Counterparty if the negative emissions revenue to be subtracted is greater than the opex payment. More details of the treatment of negative emissions are provided in the section ‘Commercial Framework II’.

Payments during extension period

As described in the October 2021 update, it is expected that payments during the extension period will be subject to a carbon market reference price instead of the continuation of the fixed-trajectory reference price used in the first 10 years. Additionally, there will be no free allowance forfeiture or related price or volume protection, asymmetric payments will cease and there will be no capex payments.

Payments in this period will be equal to:

$$OP_i = CO2_{out_T\&S}(S_i - AMCMRP)$$

summed over a calendar month plus monthly T&S fees, $T\&S_m$. However, if $OP_m + T\&S_m$ in a calendar month is negative, the Emitter will pay the ICC Contract Counterparty the absolute value of $OP_m + T\&S_m$.

Free Allowances

The May 2021 ICC business model update set out information on how we anticipate free allowances (FAs) in respect of captured and stored emissions will be approached for initial, 'first-of-a-kind' projects. It is anticipated that a different position will be taken for future contracts as the business model evolves, the CCUS sector matures and the UK ETS market develops.

For initial projects, for the first 10 years of the ICC Contract, a number of FAs allocated to an Emitter under the UK ETS (in respect of all captured and stored emissions, whether biogenic or fossil fuel derived) will be forfeited soon after allocation in one lump sum for the year, in line with the expected annual capture factor:

$$F_{FA,f} = T_{FA,f} x_{e,f}$$

where $F_{FA,f}$ is the number of FAs forfeited in a calendar year. FA forfeiture is proposed for biogenic emissions because payments for these captured emissions would be calculated by applying the fixed trajectory reference price (in the first 10 years of an ICC Contract) and this approach ensures that the ICC Contract provides price assurance for FAs in respect of all captured emissions. It also means that any residual emissions remain exposed to the market carbon price.

In return the Emitter will be compensated for these forfeited FAs, on a monthly basis, at the value of the fixed trajectory reference price (for the first 10 years of the ICC Contract). Residual emissions (and any remaining free allowances which have not been forfeited) will remain subject to the UK ETS.

We also provided our minded to position on volume assurance in respect of FAs in order to mitigate the uncertainty over the number of FAs the Emitter will be allocated over the lifetime of the ICC Contract. Providing price and volume assurance via the forfeiture and monetisation of FAs is unlikely to be replicated for future rounds.

Volume Assurance

Carbon abatement savings are a key element of the business case for industrial emitters seeking to deploy CCS. We have previously stated that we plan to account for this in the business model via the forfeiture and monetisation of FAs (rather than Emitters keeping and potentially selling the FAs on the market) to provide price assurance for those carbon savings and to protect against risk of over- or under-compensation in light of a fixed trajectory reference price. The below proposals on volume assurance are minded to positions and policy development is ongoing while we consider their implementation.

Given the importance Emitters will place on the value of carbon abatement savings and the significant uncertainty regarding the future of the relatively new UK ETS, and FAs within it, we acknowledge that, in the absence of any certainty relating to their FA volume allocation over the initial 10 years of the ICC Contract, Emitters could add a risk premium to their strike bids to hedge against this uncertainty. Therefore, for initial projects only, we are seeking to provide a degree of volume protection in respect of the value of an Emitter's FA allocation in order to minimise the risk of inflated strike prices and to support value for money. However, our intention is that the degree of volume protection will reduce during the term of the ICC Contract (see below). This proposal is only intended as a backstop protection measure, given the uncertainty around future UK ETS policy on free allocation, to ensure the investability of the business model.

We propose introducing the concept of a number of 'protected FAs' in each year of the ICC Contract. This will ensure that total FA compensation is either for the figure of 'protected FAs' or the volume of FAs forfeited, whichever is higher, thus providing the Emitter with certainty as to revenues through FA forfeiture.¹⁹ Note that 'protected FAs' is a feature of the business model and will not result in an increase in the FAs actually allocated to the Emitter under the UK ETS.

Protected FAs (formula in the table below) would decrease in each Contract Payment Term Year, over the initial 10 years of the ICC Contract. The number of protected FAs is a product of the following:

- Theoretical FAs: This is intended to represent the volume of FAs the Emitter would have been allocated if the UK ETS laws which are in force and the policies to which the government is committed²⁰ relating to FAs at the date of the Contract signature (i.e. the Agreement Date) are applied.²¹ This is because these are foreseeable so protection from them is not considered necessary. An example would be the law, at the point of contract signature, on activity level changes. By contrast, any new or amended laws and policies developed following Contract signature will not affect theoretical FAs, and therefore the model protects the Emitter from these, on the basis that they are not considered to be foreseeable, and their impacts cannot be anticipated by the Emitter. It should be noted that the figure for Theoretical FAs does not impact the actual number of FAs allocated to the Emitter under the UK ETS.
- FA trajectory: This is a stepped downwards trajectory that gradually reduces government protection over the contractual term (similar to other elements of the ICC Contract, such as the fixed trajectory reference price for the first 10 years of the ICC Contract) while still providing a level of certainty and protection for Emitters (ensuring the value for money of the business model). The FA trajectory is 100% in Contract Payment Term Year 1, decreasing linearly to 50% by Contract Payment

¹⁹ We are considering how this approach may be adapted should an alternative carbon leakage policy be implemented during the first 10 years of an ICC Contract.

²⁰ This will be defined further in due course

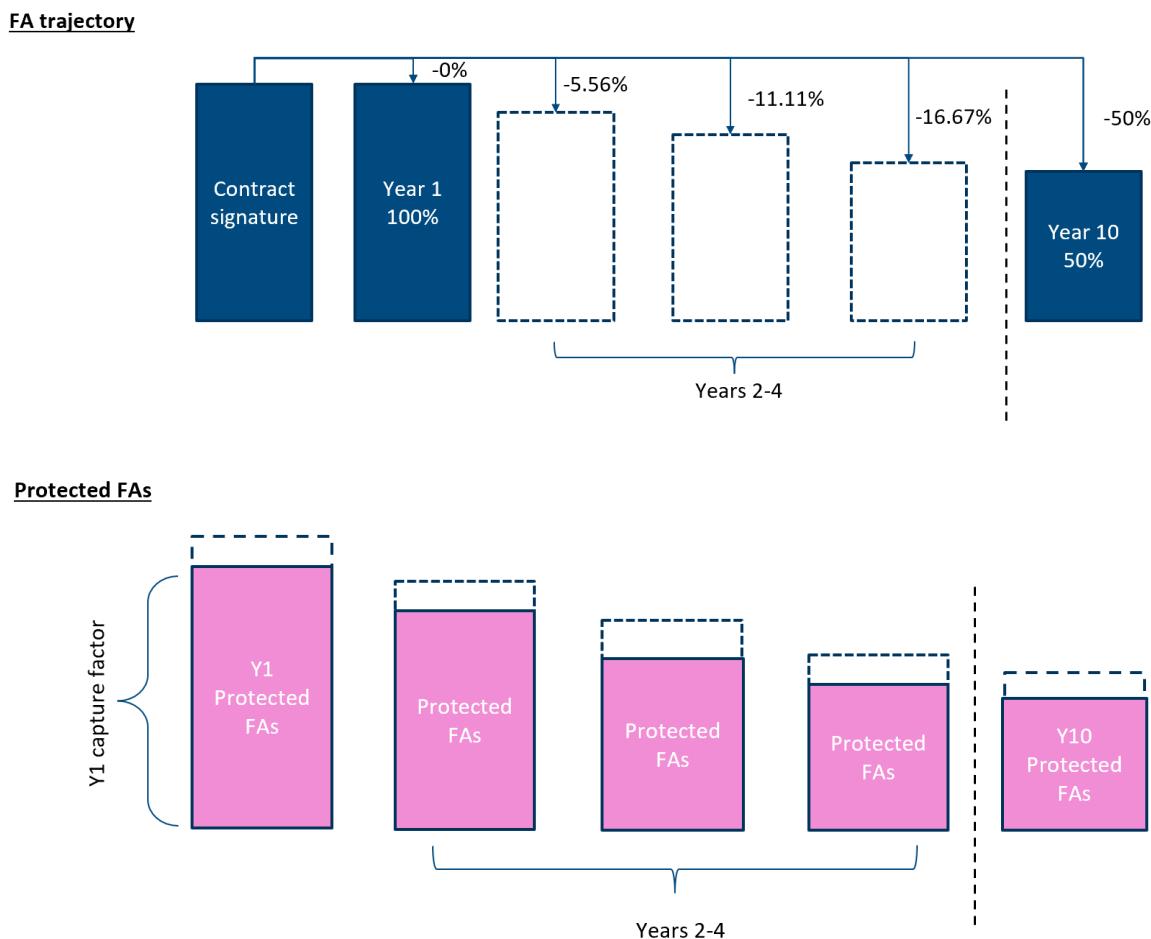
²¹ We are considering further how Theoretical FAs will be translated into the ICC Contract, mindful of the administrative burden in determining this.

Term Year 10. The downward trajectory is calculated from the start of Contract Payment Term Year 1.

- Expected annual capture factor: As described in the Payment Mechanisms section and further detailed below.

The FA trajectory and number of Protected FAs for a number of Contract Payment Term Years are shown in Figure 3.

Figure 3: Visual representation of FA trajectory and Protected FAs. The latter is dependent on an individual project's capture factor.



The number of Protected FAs is a theoretical figure, and the Emitter does not receive additional FAs for the relevant number under the UK ETS; rather, it would receive the equivalent value for this number via ICC Contract payments.

Table 2: FA equation symbols

Symbol	Term	Description
$CO2_{aux}$	Auxiliary CO ₂ Generated in all settlement units in the relevant year	CO ₂ generated from providing energy to the capture plant

$CO2_{in_II}$	Metered CO ₂ Input from Industrial Installation in all settlement units in the relevant year	CO ₂ generated from industrial installation(s) that normally enter the capture plant for capture
$CO2_{out_T\&S}$	Metered CO ₂ Output to T&S during the relevant settlement unit i	Captured CO ₂ that enters the T&S network
dy_f	Number of settlement units in the relevant calendar year f	Number of days in calendar year f
$D_{FA,f}$	Protected FAs in calendar year f	Theoretical FAs x Trajectory x expected annual capture factor $D_{FA,f} = H_{FA,f} Y_{FA,y} x_{e,f}$
$H_{FA,f}$	Theoretical FAs in calendar year f	The number of FAs an Emitter would receive that calendar year if the UK ETS FA laws in force and policies committed to at the date of Contract signature are applied
$R_{B,i}$	Reference price that applies during the relevant settlement unit i	Annual compensation FAs are priced at this price
$T_{FA,f}$	Total annual FA allocation for calendar year f	This is the actual allocation of FAs as per the prevailing UK ETS legislation
$AACF_f$	Actual annual capture factor in the relevant calendar year f	This is similar to the CO ₂ capture rate (which is relevant for eligibility, OCPs, contract extension condition and termination). However, it subtracts emissions from providing energy to the capture plant and associated facilities and considers the CO ₂ permanently stored but not the CO ₂ directed to CCU (see below for more details). (The next section discusses the reconciliation between the expected annual capture factor, $x_{e,f}$, and the actual annual capture factor, $AACF_f$.)
$x_{e,f}$	Expected annual capture factor in calendar year f	This is the expected figure for the actual annual capture factor which is used to determine Forfeited FAs, Protected FAs and payments for these for calendar year f . Forfeited FAs and these

		payments are subsequently reconciled using the actual annual capture factor after the end of calendar year f (further details on reconciliation are set out below).
$Y_{FA,y}$	FA trajectory in Contract Payment Term Year y	<p>Trajectory is 100% in Contract Payment Term Year 1 and reduces linearly each year to 50% in Contract Payment Term Year 10.</p> <ul style="list-style-type: none"> • 50% reduction needed over 9 years (as in Contract Payment Term Year 1 there is no reduction) • $50 / 9 = 5.56\%$ annual reduction <p>This will be converted to a value for calendar year f, $Y_{FA,y}$, with appropriate weighting.</p>
$F_{FA,f}$	Forfeited FAs in calendar year f	<p>The number of FAs forfeited in a calendar year.</p> $F_{FA,f} = T_{FA,f} \chi_{e,f}$
$N_{FA,f}$	Annual Compensation FAs in calendar year f	<p>The number of FAs that an Emitter would receive compensation for (on top of compensation for Forfeited FAs) if the actual FA allocation fell below the Theoretical FA allocation:</p> $N_{FA,f} = D_{FA,f} - F_{FA,f}$ $N_{FA,f} = H_{FA,f} Y_{FA,y} \chi_{e,f} - T_{FA,f} \chi_{e,f}$ <p>with the condition that if:</p> $T_{FA,f} > H_{FA,f} Y_{FA,y}, N_{FA,f} = 0$
$P_{FAC,i}$	Payment for Annual Compensation FAs in settlement unit i	Payment in addition to that which is paid for Forfeited FAs up to the level of Protected FAs

If an Emitter's FA allocation from the UK ETS ($T_{FA,f}$) is higher than Theoretical FAs multiplied by FA trajectory ($H_{FA,f} Y_{FA,y}$), it does not require any Annual Compensation FAs. Thus, the

Annual Compensation FAs, and volume protection as a whole, is a backstop in the event that an Emitter's FA allocation were to fall below this level.

Payments for Annual Compensation FAs (if required) would be paid alongside payments for Forfeited FAs. These payments are calculated by multiplying the Annual Compensation FAs by the base reference price, in the applicable settlement unit:

$$P_{FAC,i} = R_{B,i} \left(\frac{N_{FA,f}}{dy_f} \right)$$

Table 3: Contract Payment Term and Calendar Year symbols

Symbol	Description	Units
$dy_{f y}$	Number of settlement units of calendar year f in Contract Payment Term Year y	-
$Y_{FA,f}$	FA trajectory in calendar year f calculated from weighted average of FA trajectory from relevant Contract Payment Term Years	%

The discrepancy between Contract Payment Term Years and calendar / UK ETS years has implications for the trajectory applied for FA volume protection. 100% protection would be offered in Contract Payment Term Year 1 ($y = 1$), which would decrease in a linear way to 50% protection in Contract Payment Term Year 10 ($y = 10$). This protection would apply proportionally to each calendar year:

$$Y_{FA,f} = \frac{dy_{f|y-1}}{dy_f} Y_{FA,y-1} + \frac{dy_{f|y}}{dy_f} Y_{FA,y}$$

Figure 5 shows an example of where the Contract Payment Term Year starts on 1 April, i.e. 90 days through a calendar year of 365 days, along with the calculation for the trajectory for the calendar year.

Figure 5: Example of an ICC Contract with a Contract Payment Term Year starting on 1 April. Figures in the boxes show the FA trajectory for each Contract Payment Term Year, compared with the FA trajectory for each calendar year.

Contract Payment Term Year	100	94.44	88.89	83.33	77.78	72.22	66.67	61.11	55.56	50	n/a
Calendar Year	100	95.81	90.26	84.70	79.15	73.59	68.04	62.48	56.93	51.37	50

↓

$$90.26\% = \frac{90}{365} \times 94.44\% + \frac{275}{365} \times 88.89\%$$

Capture factor

The actual annual capture factor represents the proportion of CO₂ captured and stored from the CO₂ being fed from process streams into the capture plant, subtracting the CO₂ produced from providing energy to the capture plant (because these need to be reported under the UK ETS but a capture plant does not receive FAs). The model also has an expected annual capture factor, which is an estimation of the actual annual capture factor and is used to determine payments and Forfeited FAs for an upcoming calendar year. These Forfeited FAs and payments are reconciled after the end of each calendar year (detailed in the section below). The actual annual capture factor is calculated as follows:

$$AACF_f = \frac{\sum CO2_{out_T\&S} - \sum CO2_{aux}}{\sum CO2_{in_II}}$$

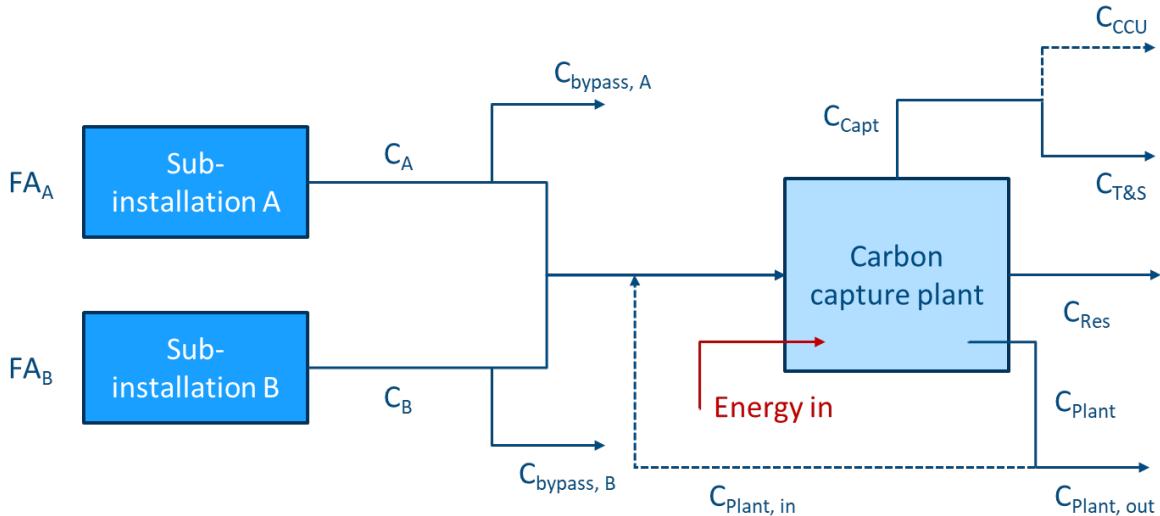
To provide further clarity, an example using a fictitious plant is shown in Figure 4 to illustrate the components that make up the actual annual capture factor. In this example, the actual annual capture factor would be:

$$AACF_f = \frac{C_{T\&S} - C_{Plant}}{C_A + C_B}$$

Table 4: Symbols used for schematic in Figure 4 (defined for illustration purposes)

Symbol	Description	Units
C_A	CO ₂ emissions from sub-installation A	t
$C_{Bypass,A}$	Emissions from sub-installation A bypassing the capture plant	t
C_{Capt}	CO ₂ captured by the plant	t
C_{CCU}	Captured CO ₂ used for CCU (if relevant)	t
C_{Plant}	CO ₂ generated from providing energy to the capture plant	t
$C_{Plant,in}$	Portion of CO ₂ generated from providing energy to the capture plant that is subsequently fed to capture plant	t
$C_{Plant,out}$	Portion of CO ₂ generated from providing energy to the capture plant that is subsequently not fed to capture plant	t
C_{Res}	Residual “uncaptured” CO ₂	t
$C_{T\&S}$	Captured CO ₂ sent to T&S network	t
FA_A	Free allowances of sub-installation A	t

Figure 4: Schematic showing how the capture factor is determined in a fictitious capture plant



Reconciliation

Table 5: Additional symbols in reconciliation equations

Symbol	Description	Units
$A_{FA,f}$	Adjustment to Forfeited FAs through reconciliation in respect of calendar year f	t
A_f	Adjustment to payments through reconciliation in respect of calendar year f	£
$R_{B,f}$	Reference price for calendar year f	£/t

Payments for Forfeited FAs, $R_{B,i} \left(\frac{x_{e,f} T_{FA,f}}{dy_f} \right)$, and for Annual Compensation FAs, $R_{B,i} \left(\frac{N_{FA,f}}{dy_f} \right)$, are calculated using the expected annual capture factor. As this is an estimated figure, payments would require subsequent reconciliation using the actual annual capture factor once this is known. Reconciliation occurs after the end of each calendar year (or, if in the final year of the initial 10-year contract period, after the end of Contract Payment Term Year 10).

The reconciliation amount would be calculated for payments over a calendar year by:

$$\begin{aligned}
 A_f &= R_{B,f} AACF_f T_{FA,f} + R_{B,f} (H_{FA,f} Y_{FA,f} AACF_f - AACF_f T_{FA,f}) - R_{B,f} x_{e,f} T_{FA,f} \\
 &\quad + R_{B,f} (H_{FA,f} Y_{FA,f} x_{e,f} - x_{e,f} T_{FA,f}) \\
 A_f &= (AACF_f - x_{e,f}) R_{B,f} H_{FA,f} Y_{FA,f}
 \end{aligned}$$

This amount would be paid to the Emitter or paid back from the Emitter as a lump sum payment near to the start of calendar year $f+1$ (or, if in the final year of the initial 10-year contract period, after the end of Contract Payment Term Year 10).²²

Reconciliation of Forfeited FAs

As with payments, a reconciliation would be conducted for Forfeited FAs because of the difference between the expected and actual annual capture factors. This is the adjustment to FAs, $A_{FA,m}$, made on an annual basis:

$$A_{FA,f} = (AACF_f - x_{e,f})T_{FA,f}$$

The adjustment to FAs would be made either as a return of FAs to the Emitter (if the actual annual capture factor is lower than the expected annual capture factor) or as an additional forfeiture of UK ETS allowances by the Emitter (if the actual annual capture factor is higher than the expected capture factor, with the ICC Contract Counterparty paying the Emitter for such additional forfeited FAs based on the relevant calendar year's reference price), near the start of calendar year $f+1$ (or, if in the final year of the initial 10-year contract period, after the end of Contract Payment Term Year 10).

Activity level changes and other allocation changes

Emitters may receive a change in FA allocation, or notice of a change in FA allocation, mid-year because of activity level changes or other allocation changes. These changes would require reconciliation of Forfeited FAs and payments according to the new allocation. We are considering when and how this reconciliation should occur.

Free allowance forfeiture and reconciliation timing and handling

We are considering whether the forfeiture of FAs for the current calendar year and reconciliation of FAs for the previous calendar year could take place concurrently in order to reduce the number of times FAs are transferred to and from the Emitter. This process would occur between the date on which UK ETS FAs are allocated to an Emitter and the UK ETS surrender deadline (30 April) each year, with the precise time period to be determined (Figure 6). The reconciliation process (for payments and FAs) will be completed by 30 April of the current calendar year, so that the Emitter can surrender FAs as part of the UK ETS compliance regime.

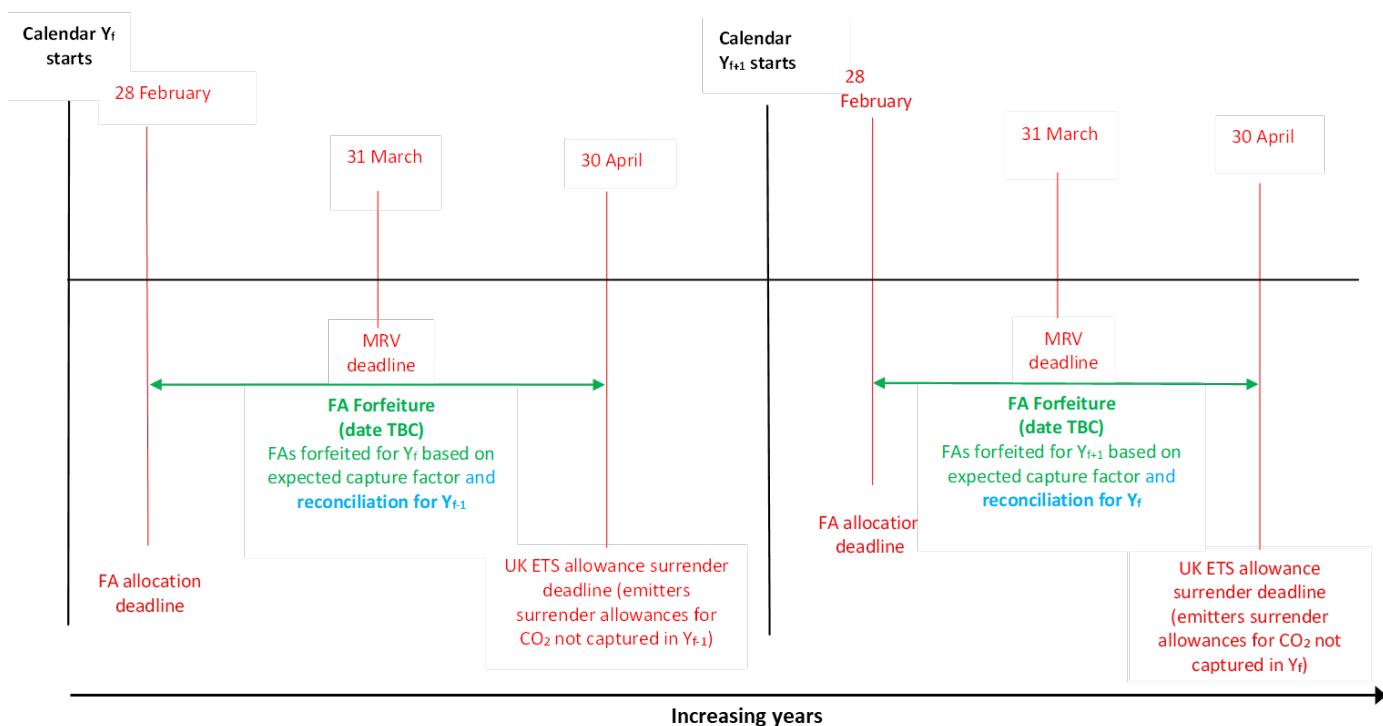
Forfeiture would occur in line with the expected annual capture factor, $x_{e,f}$. This expected annual capture factor value for the current calendar year will be the same as the actual annual

²² We are considering adjustments to the expected annual capture factor during the calendar year in which it is used if it appears that the actual annual capture factor would be significantly lower at the end of the year, e.g. because of a Minimum CO₂ Capture Rate Breach or a T&S capacity constraint or outage.

capture factor value for the previous calendar year, $AACF_{f-1}$, in calendar years 2 to 10, or, for payments in the first calendar year, will be the relevant value set out in the ICC Contract.²³

The reconciliation process would use both the expected and actual annual capture factors. We are considering the alignment between monitoring, reporting and verification for the UK ETS and reconciliation using the actual annual capture factor to determine the final number of FAs forfeited. This could be linked to our final position on the pre-capture monitoring requirement (see section below). More information on the alignment will be provided in due course.

Figure 6: Timeline for the forfeiture and reconciliation of FAs



The proposed process for FA reconciliation and forfeiture:

- The ICC Contract Counterparty conducts the reconciliation process for year $f-1$. It may request further information from the Emitter to enable it to do so.
- Once the ICC Contract Counterparty has calculated the actual annual capture factor for year $f-1$, it will inform the Emitter that either it needs to forfeit additional UK ETS allowances for that year or that FAs that have been forfeited in excess will be returned to it. Forfeiture of allowances or a return of excess FAs will occur via a transfer (either way, as appropriate) of FAs between the Emitter's UK ETS Registry account and another account set out in the ICC Contract.
- The ICC Contract Counterparty will also inform the Emitter either that it will receive additional compensation (when additional allowances have been forfeited) or that it

²³ We are considering the timings of the forfeiture and reconciliation processes to determine the availability of data for calendar year $f-1$ to apply to forfeiture for year f . Additionally, we are considering if this approach should hold in instances of long T&S outages or constraints.

needs to return a portion of payments already made (before excess FAs are returned to it). This will be a lump sum payment.

- During this process, the ICC Contract Counterparty will also inform the Emitter of the number of FAs that need to be forfeited for calendar year f , the expected annual capture factor and, if applicable, Theoretical FAs and FA trajectory, for that year.
- The Emitter must transfer the number of FAs that need to be forfeited for calendar year f from its account in the UK ETS Registry to another account (which will be indicated in the ICC Contract) by a date set by the ICC Contract Counterparty. To ensure that sufficient FAs are available for forfeiture, the Emitter may be prohibited by the ICC Contract from selling, trading or otherwise disposing of the FAs allocated to it for that year between the date of receipt and the date of forfeiture.
- This process will occur between the allocation of the Emitter's FAs (on/before 28 February) and the UK ETS allowance surrender deadline (30 April), with the precise time period to be determined.

We are considering the remedies that may be available to the ICC Contract Counterparty if the Emitter fails to comply with any part of this process.

Projects incorporating carbon capture & utilisation (CCU) with carbon capture & storage (CCS)

In the October 2021 ICC business model update, we confirmed that projects that incorporate CCU with CCS may be eligible for support via the ICC business model, but that support will only be provided in respect of the CO₂ captured and stored (i.e. directed to the T&S network). We also confirmed that CCU only projects are not eligible for support via the ICC business model, although this position will be kept under review for future rounds of allocation. We are considering how to adapt the model to account for hybrid CCU with CCS projects.

Capex payments through the model for hybrid CCU with CCS projects

Only capex required for CCS and capex required for both CCS and CCU will be eligible for business model support. Capex required for CCU only will not be eligible for support. For the capital grant, we are still considering how the level of the grant will be set for capex relating to CCS and capex relating to both CCS and CCU and the extent to which this should be adjusted to reflect the expected proportion of CO₂ stored versus the proportion which is utilised.

Capex payments made under the ICC Contract will only be paid on CO₂ captured and stored via the T&S network; capex payments will not be made on CO₂ directed for utilisation. However, similar to the capital grant, we are also considering how the level of capex that is subsidised through the ICC Contract will be set for hybrid CCU with CCS projects. We are considering how to determine the capex payment rate under the ICC Contract (i.e. the £/tCO₂ figure for CO₂ captured and stored). We are considering options, including:

- (i) Determining it from the expected amount of CO₂ captured (irrespective of subsequent storage or utilisation). This would mean taking the overall capex figure that is being subsidised

under the ICC Contract plus the allowed rate of return and dividing it by the total expected tonnes of CO₂ captured to give a £/tCO₂ figure.

(ii) Determining it from the expected amount of CO₂ captured and stored. This would mean taking the overall capex figure that is being subsidised under the ICC Contract plus the allowed rate of return, and dividing it by the total tonnes of CO₂ expected to be captured and stored in the T&S network to give a £/tCO₂ figure.

We are considering how the annual capex payment limit will be calculated under these options, and whether will be calculated based on the anticipated amount of CO₂ captured each year (regardless of whether the CO₂ is utilised or stored) or to the amount of CO₂ captured and stored.

Even when making ICC Contract payments on CO₂ captured and stored, there may still be a difference between the proportion of capex payments made (through both the capital grant and ICC Contract) and the actual proportion of CO₂ stored. We are continuing to consider how to treat this within the business model, including the extent to which any clawback of payments may be required if an Emitter captures and stores a different proportion of CO₂ than expected.

Opex payments for hybrid CCU with CCS projects

Only opex required for CCS and opex required for both CCS and CCU will be eligible for business model support. Opex required for CCU only will not be eligible for support. The strike price will be paid based on the amount of CO₂ stored. This means that opex payments made under the ICC Contract will only be paid on CO₂ captured and stored via the T&S network; opex payments will not be made on CO₂ directed for utilisation.

Free allowances for hybrid CCU with CCS projects

The forfeiture of FAs uses the capture factor, which considers the amount of CO₂ captured and subsequently stored (i.e. directed to a T&S network). Therefore, FAs will not be forfeited for the amount of CO₂ utilised.

Commercial Framework II: Other Aspects of Business Model Design

The following sections give further details on aspects of the business model, setting out our minded-to positions which are subject to change.

Carbon Intensity Reporting

Emitters will be required to report their carbon intensity annually to the ICC Contract Counterparty. The purpose of such reporting will be to provide assurance that the Emitter has not created excess CO₂ for the purpose of receiving additional subsidies pursuant to the ICC Contract. We consider that this strikes an appropriate balance between reducing the administrative burden for the Emitter and the ICC Contract Counterparty and providing protection for taxpayers from overcompensation.

Content of the report

We would like to place the onus on the Emitter on how best to show that all captured CO₂ has been produced legitimately, however as a minimum we would expect the report to include:

- A monthly breakdown of the figures contributing to the carbon intensity of their product(s) or service(s) for the last year, a historical comparison of annual carbon intensity covering at least the last 5 years, and any necessary qualitative data to provide narrative around variances between years and for fluctuations.
- A comparison against their original design basis, including heat and material balances, so that the actual plant performance can be compared against what was forecast/designed for.
- If the Emitter has fuel switched within the last year, they should provide analysis and rationale around this decision, showing they have not done this for purpose of receiving additional subsidies under to the ICC Contract.
- Certification of the information contained in the report by any director and a technical director (or equivalent).

The declaration by the director must include a certification that the project has not created excess CO₂ for the purpose of receiving additional subsidies through the business model, and that all of the information submitted is true, complete, accurate and not misleading to the best of their knowledge and belief.

Excess CO₂ creation will be defined as a material increase in CO₂ created relative to unit of product produced, materials treated or services provided which arises out of the Emitter operating and/or maintaining the Industrial Installation in a way which is inconsistent with the reasonable and prudent standard having regard to the way a similar industrial facility would

have been operated had it not had the benefit of an ICC Contract²⁴; the Emitter operating and/or maintaining the Industrial Installation in a way which is designed to or a main purpose of which is to increase CO₂ produced to maximise the ICC Contract payments; and/or the Emitter's breach of the Capture Plant Metering Obligation as outlined in the ICC Contract. This could include, but is not limited to, behaviours such as directing CO₂ to the capture plant that is unrelated to the industrial process, burning more fuel than reasonably needed to conduct the industrial process and directing the resulting excess CO₂ to the capture plant, using a more carbon intensive fuel/feedstock for no other purpose than to increase CO₂ directed to the capture plant.

We would expect the report to cover the period 1 January to 31 December for each calendar year of the ICC Contract (or the Start Date to 31 December in the first year of the Contract) and must be submitted before 31 March of the following calendar year. We also expect that the report would be reviewed and certified by an independent external auditor in advance of being submitted to the ICC Contract Counterparty.

Consequences of non-compliance

The ICC Contract Counterparty will have the right to (i) request further information from the Emitter in relation to the report and (ii) require that an independent auditor attend the relevant site to collect further information in relation to the report (and in such circumstances the Emitter will be expected to provide such access and cooperate fully with the auditor).

The ICC Contract Counterparty will have the right (but not obligation) to terminate the ICC Contract if it considers that the Emitter has provided a misleading declaration and/or data in their report. The ICC Contract Counterparty will also have the right (but not obligation) to terminate the contract if it considers that the data provided in the reports shows that the Emitter has been creating excess CO₂ for the purpose of receiving additional subsidies under the business model.

If a report is not submitted, the ICC Contract Counterparty will send a non-compliance notice to the Emitter, who will then have 30 business days from receipt of the notice to rectify the situation through the submission of a valid report. If a valid report is not received by the ICC Contract Counterparty by this time, payments under the ICC Contract may be suspended. The non-compliance notice may request supporting information, if this is not received within 30 business days payments may also be suspended. When the Emitter submits a valid report it will receive the suspended payments back without the interest and the suspension on payments will be lifted.

²⁴ We are continuing to consider how best to define material increase, including using carbon intensity estimates prior to ICC operations as a comparison. We are also considering how the reasonable and prudent standard will be defined.

Biogenic CO₂ and negative emissions

Some industrial processes using biogenic feedstocks (such as municipal solid waste in waste management processes or biomass fuel in cement plants) have the potential to produce “biogenic” CO₂. When captured and permanently stored via CCS, this biogenic CO₂ may be described as “CO₂ removal” or a “negative emission”. The Net Zero Strategy stated that Greenhouse Gas Removals (GGRs) will play a critical role in balancing residual emissions from the hardest to decarbonise sectors.

There is the potential for negative emissions to be monetised via international voluntary carbon markets. This may create an opportunity to help stimulate negative emissions markets and reduce support costs for government in the future. The UK government has committed to consulting on preferred business models to incentivise early investment in GGRs in spring 2022, which will consider the treatment of negative emissions resulting from engineering-based processes in the UK. We are also exploring the role of the UK ETS as a potential long-term market for GGRs and have published a call for evidence with the Devolved Administrations as part of the consultation²⁵ published in March 2022 on the UK ETS.

Given the ongoing development of the wider policy landscape on negative emissions in the UK and the need to ensure a coherent approach to how any negative emissions sales would be claimed/accounted for, we are considering the following approach to negative emissions within the ICC Contract and also within the Waste ICC Contract:

- We are considering the use of the same reference and strike prices to make payments for captured biogenic CO₂ and captured fossil CO₂, i.e. the cost of capture of biogenic CO₂ would be recovered under the business model in the same way as that of fossil CO₂.
- The sale of any ‘negative emissions’ associated with the biogenic CO₂ captured will be prohibited under the ICC contract.
- However, the contract will review this provision in light of an appropriate trigger defined in the contract.
- If, as a result of the review, it is decided that the sale of negative emissions or the creation of carbon market units associated with negative emissions is to be allowed (and subject to any applicable sustainability criteria requirements), an appropriate deduction will be made from the subsidy calculation to reduce the risk of over-subsidy.

When calculating any potential future deduction of negative emissions revenues in the payment calculation, we are considering the following but still developing our position:

- If a future regulated market (i.e. a market underpinned by a regulatory or compliance framework) for negative emissions were to be developed in the UK, there would likely be greater certainty over the price of the negative emissions sold within these

²⁵ UK Emissions Trading Scheme (UK ETS) Consultation:

<https://www.gov.uk/government/consultations/developing-the-uk-emissions-trading-scheme-uk-ets>

markets. The review will take into account how best to incorporate this into the payment mechanism.

- However, if there is no regulated market for negative emissions in the UK then any negative emissions sales permitted as a result of the review would likely take place using voluntary carbon market platforms or through bilateral agreements with buyers. In this case, it may be difficult to define a clear price of negative emissions that should be deducted from the payment. Therefore, we consider that it may be more appropriate to make a deduction of the revenue generated from these sales, which could be verified via an open book reporting procedure with the ICC Contract Counterparty. If 100% of the revenue generated were to be deducted from the subsidy payment, this may impact the incentive for the project to find revenue from negative emission sales in the voluntary market. Therefore, we are considering whether the percentage of revenue deducted should be set at less than 100%.
- We are also considering the interaction of the model for ‘generic’ ICC Contracts with any future business model that explicitly incentivises negative emissions including the capture and storage of biogenic emissions.

The treatment of biogenic emissions and any restrictions around negative emissions sales are planned to be included in the draft Waste ICC Contract and in the final ICC Contract.

Opex Reopener

In the October 2021 ICC business model update, we stated that for initial projects our intention is to have a reopener on some elements of the strike price one year after the start of operations. The purpose of the reopener is to align estimated values more closely to their actual values for some cost elements once the capture plant is operational.

The strike price is made up of several cost elements:

$$S_i = R_\alpha Q_{\alpha,C} + R_\beta Q_{\beta,C} + \dots$$

Those elements that are to be included in the opex reopener will be set out in the Front End Agreement, with their respective price and volume.

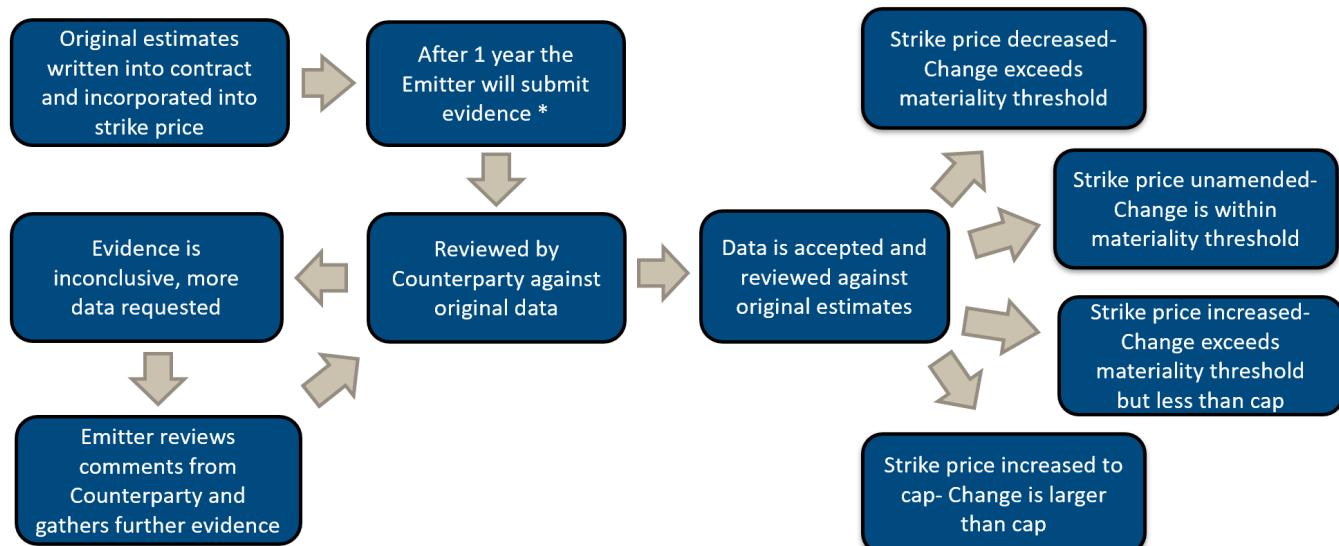
Table 6: Opex reopener symbols

Symbols	Description	Units
O_{Cap}	Opex reopener cap	%
O_{MT}	Opex reopener materiality threshold	%
Q_α	Volume of cost element α applied after opex reopener	Dependent on element
$Q_{\alpha,C}$	Volume of cost element α in contract (applied during Contract Payment Term Year 1)	Dependent on element

$Q_{\alpha,1}$	Volume of cost element α determined during operations in Contract Payment Term Year 1	Dependent on element
R_α	Price of cost element α in contract	£ per unit dependent on element
S_i	Strike price in settlement unit i	£/t

The main elements that are expected to be included in the opex reopeners are fuel and electricity volumes. The Emitter will need to make a submission of all of the requisite evidence for the first year of operations to the ICC Contract Counterparty, including a Directors' Certificate, a note from the Emitter's Technical Director (or equivalent) explaining why costs have increased or decreased, and an independent auditor's certificate to evidence and substantiate costs. The Emitter will have one month after the end of the first year of operations to submit the required documents. The ICC Contract Counterparty will then review the submission and request more evidence if necessary. Depending on how the evidence submitted differs to the Emitter's original estimates, an amendment to the strike price may occur. Figure 7 shows the possible outcomes from the opex reopeners process.

Figure 7: Flow diagram of opex reopeners process



*If evidence is not submitted within the required time period a non-compliance notice will be issued.

If the evidence and supporting documents are not submitted within the required time period, the ICC Contract Counterparty will send a non-compliance notice to the Emitter, who will then have 20 business days from receipt of the notice to rectify the situation through submission of the required information. If this is not received by the ICC Contract Counterparty by this time or is incomplete, payments under the ICC Contract may be suspended. If the Emitter provides evidence in response to the non-compliance notice, but upon review the ICC Contract

Counterparty deems it to be incomplete and requires further evidence, the Emitter will have a further 20 business days to rectify this before payments may be suspended. When the ICC Contract Counterparty is satisfied that the required information has been submitted, the Emitter will receive the suspended payments back without the interest and the suspension on payments will be lifted.

As explained in the October 2021 ICC business model update, there will be a cap on the amount by which the strike price can be amended. It will only apply to cost increases and there will be no cap on the amount by which costs can decrease.

There will be a materiality threshold included in the opex reopeners, applicable to both cost increases and decreases. This is a threshold that must be exceeded before amendments to the strike price will occur. Where there is an amendment to the strike price that is larger than the materiality threshold, for increases the threshold amount will be subtracted and for decreases the threshold amount will be added.

We anticipate that both the cap and materiality threshold would be set in advance of negotiations, and HMG may take into account factors including value for money, and IDHRS scheme and subsidy control considerations.

For example, cost element α is included in the reopeners and its volume after one year of operations is $Q_{\alpha,1}$. This would be applied in the following ways under each scenario in Table 7.

Table 7: The scenarios for opex reopeners

Scenario	Outcome	Description
$\frac{Q_{\alpha,1} - Q_{\alpha,C}}{Q_{\alpha,C}} < -O_{MT}$	$Q_{\alpha} = Q_{\alpha,1} + Q_{\alpha,C}O_{MT}$	<p><u>Strike price reduced</u></p> <p>The outturn cost of α is lower than in the contract and beyond the materiality threshold.</p> <p>S_i is reduced by the difference between outturn and contracted plus the size of the materiality threshold.</p> <p>Cost savings are shared between Emitter and ICC Contract Counterparty.</p>

$-O_{MT} \leq \frac{Q_{\alpha,1} - Q_{\alpha,C}}{Q_{\alpha,C}} \leq O_{MT}$	$Q_\alpha = Q_{\alpha,C}$	<p><u>Strike price unchanged</u></p> <p>The outturn cost of α is higher or lower than in the contract but within the materiality threshold.</p> <p>S_i is unchanged.</p> <p>Any cost savings are gained by Emitter or any cost increases are absorbed by Emitter.</p>
$O_{MT} < \frac{Q_{\alpha,1} - Q_{\alpha,C}}{Q_{\alpha,C}} \leq O_{Cap}$	$Q_\alpha = Q_{\alpha,1} - Q_{\alpha,C} O_{MT}$	<p><u>Strike price increased</u></p> <p>The outturn cost of α is higher than in the contract and beyond the materiality threshold but within the cap.</p> <p>S_i is increased by the difference between outturn and contracted minus the size of the materiality threshold.</p> <p>Cost increases are shared between Emitter and ICC Contract Counterparty.</p>
$\frac{Q_{\alpha,1} - Q_{\alpha,C}}{Q_{\alpha,C}} > O_{Cap}$	$Q_\alpha = Q_{\alpha,C} (1 + O_{Cap} - O_{MT})$	<p><u>Strike price increased</u></p> <p>The outturn cost of α is higher than in the contract and beyond the cap.</p> <p>S_i is increased up to the size of the cap minus the materiality threshold.</p> <p>Cost increases are shared between Emitter and ICC Contract Counterparty, up to the cap minus materiality threshold. Cost increases</p>

	beyond this are absorbed by the Emitter.
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An example is shown in Figure 8, where the materiality threshold, O_{MT} , has been set at a hypothetical value of 5% and the cap, O_{Cap} , has been set at 15%.

Figure 8: Example of actual costs being amended during the opex reopeners

	Unit written into contract		Amount														
Materiality threshold	5%																
Cap	15%																
Fuel per unit of CO2 captured (t/t)	0.4																
Fuel price (£/t)	150																
Actual fuel weight (Mt)	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.4	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	
Cost at agreed fuel price (£m)	49.5	51	52.5	54	55.5	57	58.5	60	61.5	63	64.5	66	67.5	69	70.5	72	
Adjustments to strike price (£/t)	-7.5	-6	-4.5	-3	-1.5	0	0	0	0	0	1.5	3	4.5	6	6	6	
	Materiality Threshold												Cap				

Extension Provisions

The ICC Contract will provide ongoing revenue support for 10 years, with an offer of support for up to 5 additional years (assessed on an annual basis) if certain conditions are met. Further information on these extension conditions (performance conditions, market condition, T&S access) is set out below. Our minded to position is that the support provided during the extension period will be different to the initial 10 years; in particular the reference price will be the prevailing market carbon price (rather than the fixed trajectory reference price), the forfeiture and price/volume assurance in respect of free allowances will be removed and payment asymmetry will end.

If an Emitter does want to request an extension, it would need to do so 12 to 18 months before the start of each extension year in question (e.g. to request an extension into Contract Payment Term Year 11, the Emitter would have to submit a request between halfway through Contract Payment Term Year 9 and the start of Contract Payment Term Year 10). This request would need to demonstrate that it remains connected to the T&S network when it makes its request for an extension to the term. The Emitter would also need to provide any information requested by the ICC Contract Counterparty to carry out an assessment as to whether the Emitter has met the extension conditions set out below. After the checks are complete, the ICC Contract Counterparty will notify the Emitter whether it has or has not met the extension conditions or has provided insufficient information to enable the ICC Contract Counterparty to

make this determination. If the Emitter is notified that it has met all the conditions, the term of the ICC Contract will be extended by one year. If the Emitter has not met all the conditions, the ICC Contract will expire at the end of Contract period already agreed on a no-liability basis.

The ICC Contract term will only be extended by one additional year at a time so during each year of the extension period, the Emitter can decide whether or not to request a further one-year extension. If it receives a request from the Emitter, the ICC Contract Counterparty will carry out the same assessment as described above and notify the Emitter in the same way and with the same results.

Performance Conditions

In the October 2021 ICC business model update, we stated our minded to position that the average CO₂ capture rate and quantity of CO₂ captured would be tested over the last 5 years of the initial 10-year period (see the October 2021 update for details on these conditions). We have refined this further to state that the testing period will cover the five-year period that is the start of six Contract Payment Term Years before and the end of two Contract Payment Term Years before the extension year in question. For example, when requesting an extension into Contract Payment Year 12, the performance conditions assessment period would be Contract Payment Term Years 6 to 10.

Market Condition

In the October 2021 ICC business model update, we stated our minded to position that for the Emitter to be eligible for an extension to the ICC Contract, the average²⁶ carbon market reference price would have to be less than the subsidy rate (meaning the strike price plus T&S fees, calculated on a £ per tonne of CO₂ basis)²⁷ over a one-year period. This one-year period will be two Contract Payment Term Years before the extension year in question, subject to the Emitter requesting an extension, e.g. the defined period of time is Contract Payment Term Year 9 for an extension to Contract Payment Term Year 11. Testing this over a 12-month period will allow for short-term market volatility to be averaged out while still enabling the contract extension assessment to take into account the latest pervasive market conditions.

Access to suitable T&S network

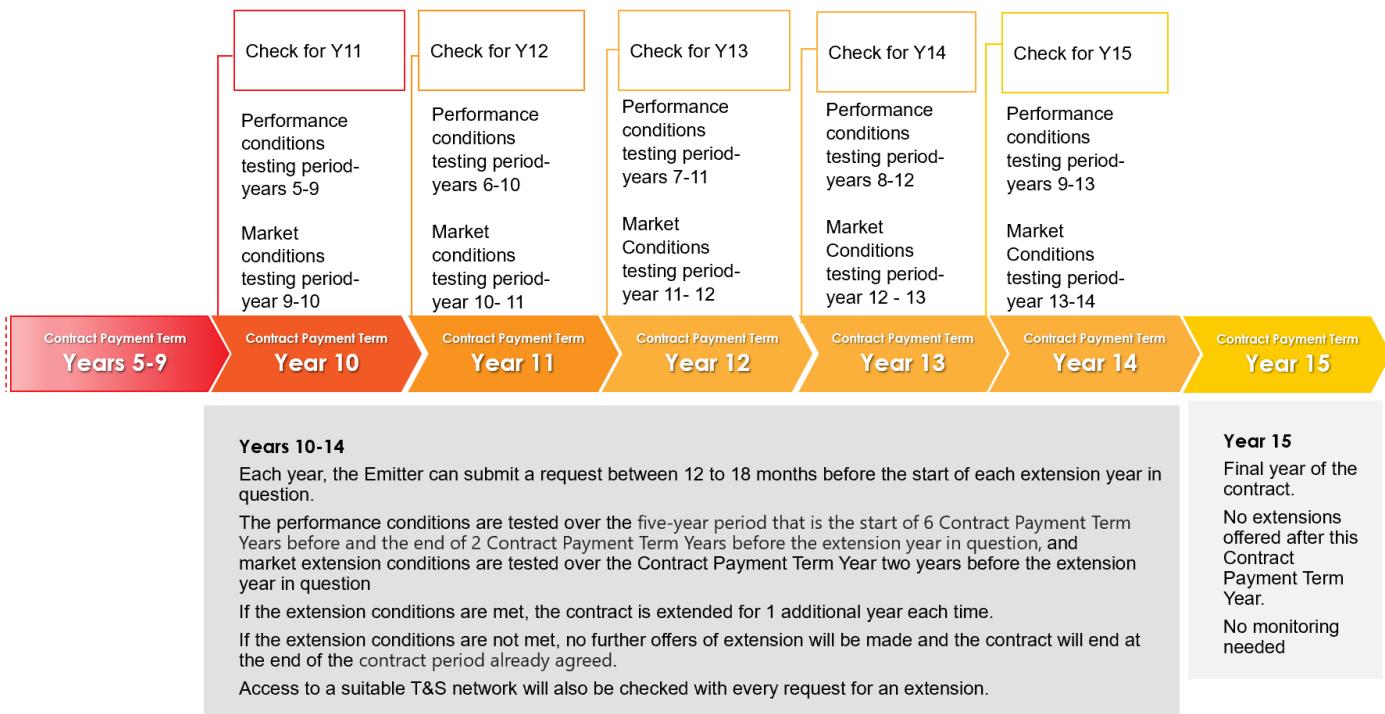
The Emitter will need to demonstrate that it remains connected to the T&S network when it makes its request for an extension to the term.²⁸

Figure 9: Timeline of extension condition checks

²⁶ The methodology for calculating this average will be defined in the next update.

²⁷ We are considering how negative emissions credit revenue will be factored into these calculations.

²⁸ We are considering if any additional information will be required from Emitters regarding access to a suitable T&S network for the extension period being applied for.



Biogenic and negative emissions

There is uncertainty over whether negative emissions sales will still be restricted by the time of the extension period, or whether this initial restriction will have been lifted. We are considering how to apply a market reference price in the extension period and whether a market carbon price should be applied to all emissions, given that emissions arising from biogenic fuels are zero rated under the UK ETS (subject to sustainability criteria). Therefore, we are considering an alternative approach to the extension period such that when the reference price switches from a fixed price trajectory to a market reference price and two-way payments, ICC Contract payments would be calculated with respect to the applicable carbon price exposure of the emissions. For biogenic emissions, this could mean using a reference price of zero, rather than the market reference price used for fossil emissions. If the sale of negative emissions credits is permitted (either on a voluntary market or a regulated market), then an appropriate adjustment to the payment mechanism will be made to account for this (e.g. by using a market reference price for biogenic emissions or by making an additional deduction for negative emissions revenue). Both of these approaches may be subject to any applicable sustainability criteria. We are considering whether negative emissions revenues should be taken into account within the market condition described above.

Risk Allocation

Cross chain risks

In the October 2021 ICC business model update, we stated an updated position on risk allocation and potential mitigating actions. Based on further work conducted since that update, a more detailed minded-to position on cross chain risks is provided below.

These risks have interdependencies with the T&S network, and we recognise that projects are unlikely to be in the position to wholly bear the impact of these risks which arise due to the failure or derating of the T&S network. Therefore, to support the successful deployment of CCUS with a T&S network, government recognises the need to develop these contracts in a way which targets the current market failure and is looking for ways to share these risks with projects. We have considered the compensation available to projects in these scenarios, and it must be i) proportionate to the specific policy objective, which is to incentivise the deployment of CCUS technology by providing sufficient protections that private sector investment is stimulated and investor confidence in CCUS increases, which will in turn lead to rapid deployment of CCUS such that government can achieve its net zero target, and ii) limited to what is necessary to achieve it. The proposed compensation, that may be available, considers the extent to which Emitters can themselves partially mitigate some of these risks, just as they would have to in a situation, at a future point, where government subsidy will not be required because the market appropriately prices in the cost of CO₂ emissions and CCUS deployment is sufficiently de-risked. In all instances government must consider VfM and the Emitter must demonstrate to the ICC Contract Counterparty that costs incurred have been minimised.

Table 8: Cross chain risks

Risk	October 2021 position	Current minded-to position
User stranded asset	<p>Further work in 2021 has refined our position and support will include:</p> <ul style="list-style-type: none"> • Qualifying costs; • Free allowances forfeited will be returned. <p>We are considering what costs would be included within qualifying costs, based on the consequences of this risk arising.</p> <p>The industrial facility must justify incurred costs to the satisfaction of the ICC Contract Counterparty.</p> <p>We are considering how alternative T&S options could mitigate this risk.</p>	<p>If the T&S network is discontinued, and no alternative T&S option is deemed feasible, then the project will be considered to be stranded.</p> <p>If this scenario occurs after the Start Date (when contractual payments have begun) then we are minded to provide compensation for costs which are wholly attributable to the post-Agreement Date development, construction, testing, completion, commissioning or decommissioning of the Capture plant; and break costs associated with the Emitter's contractual arrangements (excluding financing); up to the balance of the Total Capex Payment (excluding the return on capex)²⁹.</p> <p>If this scenario were to occur before the Start Date, and contractual payments had therefore not commenced, we are</p>

²⁹ Note that the payment profile of this proposed compensation is still under consideration.

		<p>still developing our position and are minded to provide compensation which is proportionate to the costs incurred by the Emitter. This compensation would not exceed the Total Capex Payment and be subject to expert assessment³⁰.</p> <p>In both scenarios, compensation will be reduced to reflect any savings which have been, will be or are reasonably likely to be made by or received in respect of the project by the Emitter, which may include:</p> <ul style="list-style-type: none"> • avoided out-of-pocket costs; • tax reliefs or reductions; • insurance proceeds; and • other compensation (including any net recoverable value from the capture plant)³¹. <p>Additionally, our intention to return some forfeited FAs (in respect of emissions that were expected to be captured but which were not) is unchanged.</p>
T&S timing mismatch	<p>If the T&SCo is not able to accept captured CO₂ then the Target Commissioning Window (TCW) and Longstop Period (LSP) (see next chapter for further details of TCW and LSP) of the ICC Contract (and therefore capex and variable opex payments) would be extended to match the T&S timelines.</p> <p>We understand that some costs might be incurred during this period, and we are considering our position on providing compensation for these costs.</p>	<p>In the event that the TCW and LSP of the ICC Contract are extended to match the T&S timelines, we are minded to provide compensation for costs which are reasonably incurred by the project as a direct result of the TCW and LSP being extended.</p> <p>These costs could include the following, but note that the list is indicative, not exhaustive, and all costs must be justified to the satisfaction of the ICC Contract Counterparty:</p> <ul style="list-style-type: none"> • Costs relating to staff required to maintain the capture plant;

³⁰ Note that we are exploring all scenarios, and so there may be instances where providing no compensation is appropriate.

³¹ Note that we are still determining how the net recoverable value from the capture plant would be calculated.

		<ul style="list-style-type: none"> Costs related to preserving the capture plant. These could relate to energy, heat, light, power, water and chemicals required to prevent degradation³². <p>These costs will not include the following, but note that the list is indicative, not exhaustive:</p> <ul style="list-style-type: none"> The return on capex, which will be delayed, along with the capex and opex payments until the Start Date of the ICC Contract; Advisory fees; Staff bonuses; Lost product revenue as a result of the timing mismatch. For example, product(s) not being certified as low carbon due to the timing mismatch and this resulting in lower market value of the product(s).
T&S unplanned outage	<p>Further work in 2021 has refined our position and support will include:</p> <ul style="list-style-type: none"> Qualifying costs; The return of forfeited FAs if the outage results in a reduction of sequestered CO₂ (i.e. less CO₂ is captured and stored per tonne of CO₂ entering the capture plant) because the additional CO₂ 	<p>If the T&S is experiencing an outage (CO₂ cannot be injected to the network), and the Emitter is not at fault for this outage event, then we are minded to apply the following treatment to ICC Contract payments.</p> <p>Capex payments and the return on capex will be based on the previous 12 months' performance³³, in terms of the average CO₂ storage rate achieved</p>

³² Note that we are still developing the process by which these costs could be agreed with and verified by the ICC Contract Counterparty.

³³ Note that when considering the previous 12 months of operation, we will not include periods where there has been (i) a T&S outage or capacity constraint (provided the T&S outage or capacity constraint does not arise out of or in connection with any act, omission, breach or default by the Emitter and provided the capture plant is not experiencing a simultaneous full capture outage event for non-T&S reasons), or (ii) a full industrial facility outage (which does not occur as a direct result of the T&S outage or capacity constraint) and there was therefore no CO₂ being produced.

	<p>released would be exposed to UK ETS.</p> <p>We are considering what costs will be included within qualifying costs, based on the consequences of this risk arising, and how our approach will differ depending on the length of the T&S outage.</p>	<p>during the previous 12 months of operation.³⁴</p> <p>We would expect Emitters to minimise their opex costs where possible, depending on the CCUS technology type being used. For example, turning off the capture plant if post-combustion capture technology is being used or bypassing the CO₂ conditioning and compression units if pre-combustion capture technology (or any other technology type or process which would require the industrial process to be halted in order for capture to be halted) is being used³⁵.</p> <p>Compensation will not be provided for lost product revenue as a result of the T&S outage. For example, product(s) not being certified as low carbon due to the T&S outage and this resulting in lower market value of the product(s).</p> <p>If, during the T&S outage, the industrial facility is online, but the capture plant is experiencing a full outage due to a (continuing) non-T&S event (whether arising before or after the T&S outage event), then this treatment will not be applied, as no CO₂ would have been stored if the T&S network had been available³⁶.</p> <p>Additionally, our intention to return some forfeited FAs (in respect of emissions</p>
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³⁴ In the event that the T&S outage occurs within the first 12 months of the Emitter's Start Date, we are minded-to base capex payments on the Emitter's previous operating performance during the months prior to the T&S outage (i.e. if the outage occurs in month 8 then we will consider the Emitter's performance up to that point). If the outage were to occur immediately after the Start Date, then we are minded-to use the emitter's OCP performance data to determine capex payments.

³⁵ We propose that the extent to which an Emitter can mitigate against a T&S unplanned outage is agreed on a project-by-project basis and effected via an adjusted strike price as set out in Annex 3 of the Front-End Agreement.

³⁶ We are considering the process by which an Emitter could demonstrate that they were able to recommence operation of the capture plant, but the continued outage of the T&S was preventing them from doing so.

		that were expected to be captured but which were not), is unchanged.
T&S capacity constraint	<p>If the industrial facility is constrained by a fault in the T&S network, then support will include:</p> <ul style="list-style-type: none"> • Qualifying costs; • The return of forfeited FAs if the capacity constraint results in a reduction of sequestered CO₂ (i.e. less CO₂ is captured and stored per tonne of CO₂ entering the capture plant) because the additional CO₂ released would be exposed to UK ETS. <p>We are considering what costs will be included within qualifying costs, based on the consequences of this risk arising, and how our approach will differ depending on the length of the capacity constraint.</p>	<p>If the T&S is not able to accept the agreed quantities of CO₂, and the Emitter is not at fault for this constraint in the T&S, then we are minded to apply the following treatment to the ICC Contract payments.</p> <p>Capex payments and the return on capex will be based on the previous 12 months' performance³⁷, in terms of the average CO₂ storage rate achieved during the previous 12 months of operation³⁸.</p> <p>We would expect Emitters to minimise their opex costs where possible, for example by turning down their capture plant operations to match the (reduced) T&S capacity as far as possible³⁹.</p> <p>If, during the T&S capacity constraint, the industrial facility is online, but the capture plant is experiencing a full outage event due to a (continuing) non-T&S event (whether arising before or after the T&S outage event) then this treatment will not be applied, as no CO₂</p>

³⁷ Similar to the T&S outage scenario, when considering the previous 12 months of operation, we will exclude periods where there has been (i) a T&S outage or capacity constraint (provided the T&S outage or capacity constraint does not arise out of or in connection with any act, omission, breach or default by the Emitter and provided the capture plant is not experiencing a simultaneous full capture outage event for non-T&S reasons), or (ii) a full industrial facility outage (which does not occur as a direct result of the T&S outage or capacity constraint) and there was therefore no CO₂ being produced.

³⁸ In the event that the T&S constraint occurs within the first 12 months of the Emitter's Start Date, we are minded-to base capex payments on the Emitter's previous operating performance during the months prior to the T&S outage (i.e. if the constraint occurs in month 8 then we will consider the Emitter's performance up to that point). If the constraint were to occur immediately after the Start Date, then we are minded-to use the Emitter's OCP performance data to determine capex payments.

³⁹ We propose that the extent to which an Emitter can mitigate against a T&S capacity constraint is agreed on a project-by-project basis and effected via an adjusted strike price as set out in Annex 3 of the Front-End Agreement.

		<p>would have been stored if the T&S network had been fully available⁴⁰.</p> <p>Additionally, our intention to return some forfeited FAs (in respect of emissions that were expected to be captured but which were not), is unchanged.</p>
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⁴⁰ We are considering the process by which an Emitter could demonstrate that they were able to recommence operation of the capture plant, but the continued capacity constraint of the T&S was preventing them from doing so.

Section 3: Legal Contractual Framework

The October 2021 ICC business model update was published alongside draft Heads of Terms (HoTs) and a draft Front End Agreement (FEA) for the ICC Contract which contained a range of indicative provisions that would be required to implement the ICC business model. We have further developed these indicative provisions into a full form draft ICC Contract which has been published alongside this update. The draft ICC Contract comprises a standard set of terms and conditions (T&Cs) and an ICC Agreement (the equivalent of the FEA), which sets out project-specific information and certain amendments to the T&Cs.

In the following sections of this update, we outline our developed minded-to positions on the Milestone Requirement; conditions precedent; termination events and compensation; Qualifying Change in Law (QCiL) events and compensation; metering; and reporting requirements.

Milestone Requirement

The Milestone Requirement in the ICC Contract is designed to demonstrate the Emitter's (and/or CaaS Co's) commitment to, and progress in respect of, the Project.

Once the ICC Contract has been entered into, the Emitter must fulfil the Milestone Requirement by the Milestone Delivery Date (MDD) (which occurs 18 months after the ICC Contract has been entered into), which we propose can be done in one of two ways. The Emitter can either provide evidence that (i) it and its direct shareholders have in aggregate spent ten per cent or more of the project's pre-commissioning costs (which will be an amount agreed within negotiations) on the project, or (ii) specified project commitments (for example, delivery to the ICC Contract Counterparty of evidence that the Emitter has, or will have, sufficient financial resources to meet the total financial commitments required to commission the project) have been complied with or fulfilled.

In the situation where there is a CaaS Group, the Milestone Requirement can similarly be fulfilled in one of two ways. The CaaS Co can either provide evidence that (i) it and its direct shareholders and (if applicable) the Emitter and its direct shareholders have in aggregate spent ten percent or more of the project's pre-commissioning costs, or (ii) specified project commitments have been complied with or fulfilled.

Project commitments

As part of the project commitments route to fulfilling the Milestone Requirement, Emitters are required to provide supporting information to show that they have entered into a commercially binding agreement(s) to acquire or obtain the necessary 'Material Equipment' to deliver the project on time. A valid agreement such as an engineering, procurement, and construction

(EPC) contract, direct supply agreement, or framework agreement with a binding purchase order would be acceptable supporting evidence.

We propose that to meet the definition of 'Material Equipment', an agreed list of equipment must meet the following requirements:

- key items on the construction programme's critical path must be included;
- any long lead items that should reasonably be expected to be procured by the MDD so that the Capture Plant can be commissioned by the start of the TCW must be included; and
- Emitter to demonstrate that contracts, agreements and purchase orders relating to Material Equipment constitute significant financial commitments that are real, genuine and made in good faith.

For example, it is expected that for an industrial installation with post combustion capture, the list of equipment will include at a minimum:

- Absorber column;
- Stripper column;
- CO₂ Compressors.

For pre-combustion capture, the list of Material Equipment is likely to be more restricted i.e. it would include CO₂ compressors.

The relevant list of Material Equipment for other CO₂ capture technologies may specify different items of equipment.

Operational Conditions Precedent

In the October 2021 ICC business model update, we outlined that the proposed durations for each of the TCW and LSP would be 12 months. In addition, to align with our eligibility criterion that the project must be operational no later than the end of December 2027, an Emitter's TCW must end on or before 31 December 2027 (unless it is extended for a Force Majeure or T&S commissioning delay).

In case of a Force Majeure or T&S commissioning delay impacting an Emitter's commissioning process, the Emitter's MDD, TCW and/or LSP will be extended (provided the Emitter satisfies certain requirements/conditions).

An Emitter will need to satisfy the OCPs (one or more of which may be waived by the ICC Contract Counterparty) by the end of the TCW for payments in respect of captured and stored CO₂ under the ICC Contract to commence at the start of Contract Payment Term Year 1 (see above).

If the OCPs (and other conditions) are satisfied after the end of the TCW but before the Longstop Date (i.e. during the LSP), Capex Payment Year 1 will commence on the Start Date

whilst Contract Payment Term Year 1 will have started at the end of the TCW (see Section 2). Therefore, the period of time during which the Emitter can receive payments (before the extension period) will be less than 10 years.

The proposed OCPs include the following⁴¹:

- CO₂ capture rate is equal to or greater than the higher of i) 85% and ii) 5 percentage points lower than the CO₂ capture rate included in the project's Phase-2 application,
- The sum of CO₂ flowrate directed to the T&S plus flowrate directed to CCU meets the design CO₂ flowrate from the Capture Plant, as agreed in the ICC Contract,
- The Emitter is complying with Capture Plant Metering Obligations⁴² (which include the captured CO₂ complying with specified standards (i.e. compositional, pressure and temperature limits at entry to the T&S network)), and the Emitter has provided metering schematic diagrams,
- Installation has connected to the T&S network⁴³,
- For CHP projects:
 - (i) for CHP-only⁴⁴ and CHP-included projects⁴⁵, a valid full or partial CHPQA certificate
 - (ii) for CHP-only projects proof of supplying energy (heat and/or electricity) to at least one industrial facility⁴⁶

CO₂ Capture Rate

The 85% minimum CO₂ capture rate which must be demonstrated as part of the OCPs has been included to ensure we focus initial support on ambitious and innovative projects which deploy CCUS efficiently.

The CO₂ capture rate refers to the technology efficiency of the capture plant and is defined as the percentage of CO₂ emissions captured from the specific emissions stream(s) (upstream of any bypass) that the capture technology is applied to. It does not:

⁴¹ Please see the draft ICC Contract, published in parallel to this update, for a full list of proposed OCPs.

⁴² Please note that detailed metering requirements and obligations are still being developed and will be set out in due course

⁴³ The evidence we require from the project to demonstrate this could include installation drawings, equipment data sheets, factory acceptance test reports, commissioning test reports, site photographs of the relevant equipment, certification from T&S co to confirm that the project has completed all necessary work.

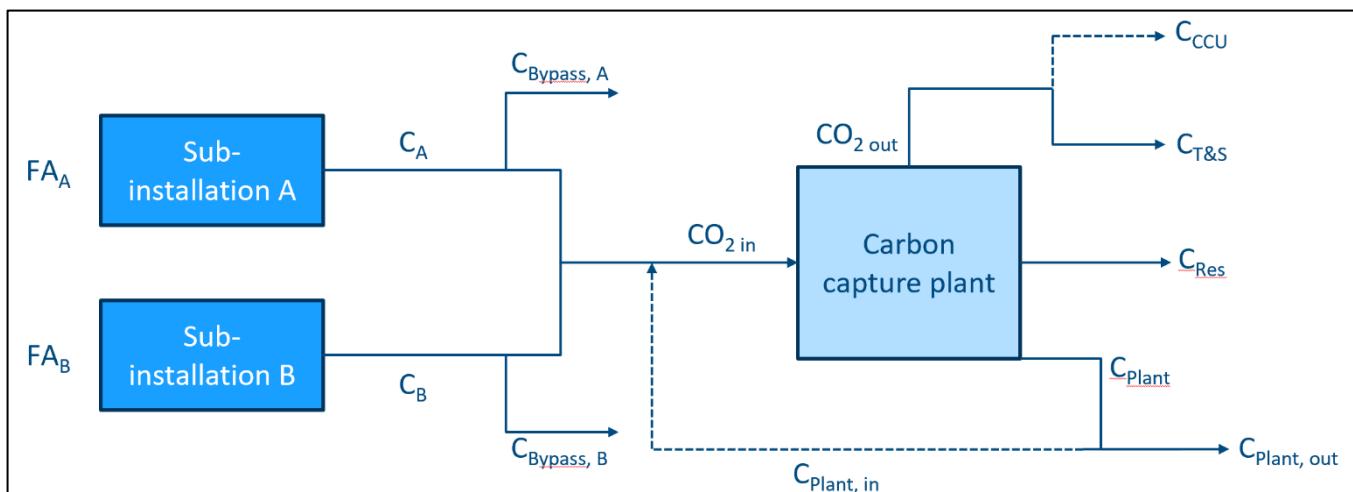
⁴⁴ ICC projects that are deploying CCUS and capturing emissions from a CHP facility only and not combining flue gas streams with other industrial process(es). Please note that this does not refer to the combination of multiple emitters' flue gas streams in a CaaS Group, but the combination of flue gas streams within the wider industrial facility.

⁴⁵ ICC projects that are deploying CCUS to a CHP facility and an industrial process(es) whereby the CHP facility's flue gas stream is combined with other industrial process(es)' streams. Please note that this does not refer to the combination of multiple emitters' flue gas streams in a CaaS Group, but the combination of flue gas streams within the wider industrial facility.

⁴⁶ For the purpose of CHP only, we define an 'industrial facility' as a facility or part of a facility that is classified under SIC codes 5 to 33 (excluding 24.46). Capture plants that are solely capturing emissions from the CHP facility are also an eligible end-use of the energy output, but only where energy output from the CHP is also provided to other eligible industrial facilities.

- refer to the percentage of capture emissions from the whole site, otherwise known as the application rate; or
- refer to the additional emissions associated with providing heat and power to the capture plant, unless the emissions produced by providing heat and power to the capture plant are directed to the capture plant; or
- distinguish between captured CO₂ injected into the T&S network and captured CO₂ used for other purposes e.g. legal obligations to supply the food and drink industry.

Figure 10: Diagram of CO₂ Capture Rate



Key

$C_{A/B}$: CO ₂ emissions from process A/B	$C_{Plant,in}$: CO ₂ generated from heating and powering capture plant and subsequently directed to capture plant	C_{Res} : Residual “uncaptured” CO ₂
$FA_{A/B}$: Free allowances of process A/B	$C_{T\&S}$: Captured CO ₂ sent to T&S network	
$C_{Bypass, A/B}$: Emissions from process A/B bypassing the capture plant	C_{CCU} : Captured CO ₂ used for CCU (if relevant)	
C_{Plant} : CO ₂ generated from heating and powering capture plant	CO_2_{out} : Captured CO ₂	
	CO_2_{in} : CO ₂ directed to capture plant	

We are proposing to use the following equation to calculate the CO₂ capture rate (for non-contractual purposes):

$$CO_2 \text{ Capture rate} = \frac{CO_2 \text{ output}}{CO_2 \text{ input}} = \frac{C_{CCU} + C_{T\&S}}{C_A + C_B + C_{Plant,in}}$$

Whilst we encourage that as many emissions streams as possible are directed to the capture plant, we do not require that the emissions created by providing heat and power to the capture plant are directed to the capture plant, as we recognise that these emissions may not be suitable for the capture plant due to the quality of those emissions and where they are produced, therefore $C_{Plant,in}$ could be zero.

For the purposes of the capture rate calculation, for post-combustion, the capture rate will be calculated taking into consideration the stream going from the upstream industrial installation and intended to be routed into the capture plant⁴⁷. For pre-combustion and similar, where CO₂ separation is intrinsic⁴⁸ to the industrial installation, the capture rate will be calculated taking into consideration the stream going out of the CO₂ separation plant (intrinsic to the industrial installation) and into the capture plant (i.e., the compressors and conditioning system). Where the pre-combustion CO₂ separation is not intrinsic to the industrial installation, then the capture rate will be calculated based on the stream going into the CO₂ separation plant.

Termination

It is standard for a contract of this type to include termination events/rights. This section includes further information on the minded to ICC Contract termination provisions.

Pre-Start Date Termination

The ICC Contract will contain various rights for the ICC Contract Counterparty to terminate the ICC Contract prior to the occurrence of the Start Date including where any of the conditions precedent are not fulfilled (or waived) by specified deadlines, for example due to a failure to commission the Capture Plant by the Longstop Date. Such rights are included to ensure that funding which has been committed to support the deployment of industrial CCUS plants is not tied up indefinitely in a project that has no realistic prospect of being commissioned. The ICC Contract will therefore include a right (but not an obligation) for the ICC Contract Counterparty to terminate the ICC Contract where:

- a) Initial Conditions Precedent (ICP): The Emitter fails to fulfil any of the ICPs⁴⁹ within 20 business days of the Agreement Date (subject to any waiver by the ICC Contract Counterparty); or
- b) Milestone Requirement: The Emitter fails to fulfil a Milestone Requirement⁵⁰ by the MDD; or
- c) OCPs: The Emitter fails to fulfil any of the OCPs, which are set out in more detail above, by the Longstop Date (subject to any waiver by the ICC Contract Counterparty).

⁴⁷ Please refer to the ICC Contract documentation for the definition of capture plant.

⁴⁸ Intrinsic refers to essential equipment that is required for the Industrial Installation to meet its design intent, and manufacture the relevant products, treat the relevant materials and/or provide the relevant services in each case to the required specification, while meeting all necessary health, safety and environmental standards. If the Industrial Installation can achieve these outcomes without the provision or operation of certain equipment, then that equipment is not essential and intrinsic. If that non-essential equipment is installed and/or operated to achieve carbon capture, then it is considered to be part of the carbon capture facilities.

⁴⁹ To fulfil the ICPs, the Emitter must provide the following: a legal opinion from the emitter's legal advisors (as to the Emitter's capacity and authority); evidence of compliance with KYC checks (or similar); a description of each of the industrial installation and the capture plant including an aerial view showing the location/proposed location (and the location/proposed location of the metering equipment and delivery points) and a process flow diagram; corporate, subsidy control and supply chain information; and evidence of key project documents.

⁵⁰ See the Milestone Requirement section above for further detail

As outlined above, the MDD, TCW and LSP will be adjusted day-for-day for each day of delay to the project which occurs due to a Force Majeure and/or the commissioning of the T&S network being delayed.

In addition, if at any time prior to the Start Date, a Termination Event (see Termination section below) has occurred and is continuing, the ICC Contract Counterparty will have the right (but not the obligation) to terminate the ICC Contract.

A Pre-Start Date termination will take place on a no-liability basis, so no termination payment will be payable to the Emitter or the ICC Contract Counterparty.

Termination for Prolonged Force Majeure

The ICC Contract Counterparty will have the right (but not the obligation) to terminate the ICC Contract where the Emitter is delayed in developing, constructing, completing, testing and/or commissioning the Capture Plant for a continuous period of 18 months due to a continuing, unresolved event of Force Majeure that first occurs between the Agreement Date and Milestone Satisfaction Date (which is the date the ICC Contract Counterparty has notified the Emitter that it has complied with and fulfilled a Milestone Requirement). This is to ensure that committed ICC funding is not tied up indefinitely in a project that has no realistic prospect of being built and/or commissioned.

In the event that there are multiple Force Majeure events prior to the Emitter satisfying a Milestone Requirement, the termination right will only arise where an individual Force Majeure event delays the development, construction, completion, testing and/or commissioning of the Capture Plant for a continuous period of at least 18 months.

In the event that the Milestone Requirement is waived by the ICC Contract Counterparty, the right to terminate due to a Prolonged Force Majeure event will not apply.

Termination for Prolonged Force Majeure will take place on a no-liability basis given the non-fault nature of the event.

Termination for T&S Prolonged Unavailability Event

This termination right is intended to account for circumstances where an issue with a T&S Network causes that T&S Network to be taken offline permanently or prevents a Project from sequestering its CO₂ to the T&S Network for a prolonged period of time. The right seeks to ensure that the subsidy supports industrial decarbonisation whilst allowing an appropriate period for the fault in the relevant T&S Network to be rectified, or, if that's not possible, for an Alternative T&S Network Solution Plan to be put in place.

Where a T&S Prolonged Unavailability Event occurs, such as:

-
- a Full T&S Outage Event which lasts for at least [6 months]⁵¹;
 - a T&S Commissioning Delay which lasts for at least [6 months]; or
 - a T&S Cessation Event, which means the occurrence of any one of the following:
 - A notice of discontinuation is issued by the Secretary of State to the T&S Operator pursuant to the discontinuation agreement entered into between the T&S Operator and Secretary of State;
 - The licence of the T&S Operator to operate the T&S network is (i) revoked; and (ii) is not transferred to a substitute T&S Operator, such that the T&S Network ceases to operate or the Emitter is no longer able to connect to the T&S Network; or
 - A determination is made by the relevant Competent Authority that the Emitter's connection to the T&S Network is no longer viable;

the ICC Contract Counterparty can give a T&S Prolonged Unavailability Event Notice to the Emitter which shall specify the date on and from which the ICC Contract Counterparty has a right (but not obligation) to terminate the ICC Contract, which is the T&S Prolonged Unavailability Remediation Deadline ([30 months] after the T&S Prolonged Unavailability Event Notice). Information about compensation for this termination event is set out below.

We have set out a process that must be followed if a T&S Prolonged Unavailability Event has occurred and the ICC Contract Counterparty has notified the Emitter of the same (as described above) and summarise it below. We recognise that there are multiple interdependencies that could impact decision-making in the future and a clear framework for sharing information across interdependent organisations will be set out to enable effective and coordinated decision-making.

Within [6 months] of the T&S Prolonged Unavailability Event Notice the Emitter must provide the ICC Contract Counterparty with a T&S Prolonged Unavailability Response Notice, along with supporting information and evidence⁵², specifying that:

- (i) The T&S Prolonged Unavailability Event is no longer continuing;
- (ii) The Emitter considers that the T&S Prolonged Unavailability Event will be remedied by the T&S Prolonged Unavailability Remediation Deadline ([30 months] after the T&S Prolonged Unavailability Event Notice), and attaching supporting evidence (we anticipate this will include evidence from the relevant T&S Operator) to demonstrate this; or
- (iii) The Emitter intends to provide the ICC Contract Counterparty with an Alternative T&S Network Solution Plan by [18 months] after the T&S Prolonged Unavailability Event Notice; or

⁵¹ BEIS are still considering the appropriate timelines so we have marked these timescales with square brackets to signal they could change.

⁵² If, when the Emitter delivers a T&S Prolonged Unavailability Response Notice, the ICC Contract Counterparty determines that the Emitter has not delivered satisfactory accompanying evidence, then the Emitter must provide a T&S Prolonged Unavailability Further Response Notice to the ICC Contract Counterparty, accompanied by sufficient supporting evidence.

(iv) The Emitter considers that the T&S Prolonged Unavailability Event will not be remedied by the T&S Prolonged Unavailability Remediation Deadline and that the Emitter cannot provide a feasible Alternative T&S Network Solution Plan for one or more of the following reasons (each a ‘No Alternative T&S Solution Reason’):

- It is not technically feasible for the Emitter, acting in accordance with a Reasonable and Prudent Standard, to connect the Installation to an alternative CO₂ Delivery Point and T&S Network or permanent storage of CO₂ from the Installation;
- The implementation of an Alternative T&S Network Solution Plan would be illegal;
- It is not economically feasible for the Emitter, acting in accordance with a Reasonable and Prudent Standard, to connect the Installation to an alternative CO₂ Delivery Point and T&S Network or permanent storage of CO₂ from the Installation;
- There are no feasible alternative T&S Networks which can permanently store the CO₂ from the Installation; and/or
- Any other reason which will or is reasonably likely to justify the decision not to provide an Alternative T&S Network Solution Plan.

If the Emitter becomes aware of something which will, or is likely to, significantly affect the accuracy of any T&S Prolonged Unavailability Response Notice or T&S Prolonged Unavailability Further Response Notice, including any accompanying supporting information, then the Emitter must provide a notice to the ICC Contract Counterparty.

It is our minded to position that if an Emitter fails to comply with a T&S Prolonged Unavailability Procedure Obligation, such as:

- An Emitter fails to give a T&S Prolonged Unavailability Response Notice by [6 months] after a T&S Prolonged Unavailability Event Notice;
- If applicable, an Emitter fails to give a T&S Prolonged Unavailability Further Response Notice;
- An Emitter gives a notice pursuant to (iii) specifying that it intends to provide the ICC Contract Counterparty with an Alternative T&S Network Solution Plan, and then does not provide such a plan by [18 months] after the T&S Prolonged Unavailability Event Notice; or
- If the ICC Contract Counterparty asks for additional supporting information via an Alternative T&S Network Review Notice and the Emitter fails to provide this within [twenty business days]; or
- If the Emitter fails to provide an amended Alternative T&S Network Solution Plan which includes amendments specified by the ICC Contract Counterparty in an Alternative T&S Network Review Notice within [twenty business days];

then the ICC Contract Counterparty will have the right (but not obligation) to suspend any payments to the Emitter (on notice to the Emitter). If the Emitter subsequently cures by complying with the relevant T&S Prolonged Unavailability Procedure Obligation, then any payments which were suspended will be paid, without interest, to the Emitter.

If an Emitter submits a T&S Prolonged Unavailability Response Notice pursuant to (iv) above specifying that it considers that the T&S Prolonged Unavailability Event will not be remedied by the T&S Prolonged Unavailability Remediation Deadline and that it cannot provide a feasible Alternative T&S Network Solution Plan because of a No Alternative T&S Solution Reason, along with sufficient supporting information to verify this, then it is our minded to position that the ICC Contract Counterparty will have the right (but not obligation) to give a notice specifying the date on which termination of the ICC Contract is designated to take effect. This right would ensure that ICC Contracts do not continue when there is no realistic prospect of the Emitter resuming capture and permanent storage of CO₂.

In addition, if the T&S Prolonged Unavailability Event is continuing after the T&S Prolonged Unavailability Remediation Deadline, no Alternative T&S Network Solution Plan has been agreed, or an Alternative T&S Network Solution Plan has been agreed but the Emitter has failed to implement such a plan in accordance with its terms (in order to remedy the T&S Prolonged Unavailability Event) the ICC Contract Counterparty will have the right (but not obligation) to issue a notice specifying the date on which termination of the ICC Contract is designated to take effect.

Alternative T&S Network Solution Plan

We recognise that when faced by a T&S Prolonged Unavailability Event it may be possible for an Emitter to find a practical alternate route to permanent storage for its captured CO₂, and that if the Emitter can do so, it should not face termination.

An Emitter can give a T&S Prolonged Unavailability Response Notice specifying, pursuant to (iii) above, that it will provide an 'Alternative T&S Network Solution Plan' within [18 months] of the T&S Prolonged Unavailability Event Notice.

Such a plan must set out the required milestones and actions in order to connect the Emitter to an alternative CO₂ Delivery Point and T&S Network [or alternative permanent storage] (either directly by pipeline, or indirectly by other means of transportation) in order to remedy a T&S Prolonged Unavailability Event.

Upon receipt of an Alternative T&S Network Solution Plan, the ICC Contract Counterparty will have [6 months] to assess this plan to consider the deliverability of the plan, while also assessing the impact the plan would have on the Project's original T&S network as well as information from the T&S Operator and the relevant authorities on the progress towards returning the T&S network the Emitter is currently using to service.

The ICC Contract Counterparty will confirm whether it (i) approves the plan (without amendment), (ii) requires more information, (iii) requires amendments to, or (iv) in its sole and absolute discretion, rejects the plan (along with such supporting information it considers necessary to evidence the reasons for such rejection). If the response is (ii), (iii) or (iv), the Emitter can then, within [twenty Business Days], submit additional supporting information or an amended draft plan and the review process will be repeated.

If the ICC Contract Counterparty approves such a plan, and the Emitter implements or is implementing the Approved Alternative T&S Network Solution Plan in accordance with its terms (which includes meeting specified milestones and carrying out certain actions) in order to remedy the T&S Prolonged Unavailability Event, then the ICC Contract will not be terminated.

We recognise that this termination event is beyond the control of the Emitter, and therefore we have considered the compensation available in each scenario. It must be i) proportionate to the specific policy objective, which is to incentivise the deployment of CCUS technology by providing sufficient protections that private sector investment is stimulated and investor confidence in CCUS increases, which will in turn lead to rapid deployment of CCUS such that government can achieve its net zero target, and ii) limited to what is necessary to achieve that objective. The proposed compensation, that may be available, considers the extent to which Emitters can themselves partially mitigate some of these risks, just as they would have to in a situation, at a future point, where government subsidy is not required because the market appropriately prices in the cost of CO₂ emissions and CCUS deployment is sufficiently de-risked. In all instances government must consider maximum VfM and the Emitter must demonstrate to the ICC Contract Counterparty that costs incurred have been minimised.

In the scenario where the ICC Contract is terminated as a result of a T&S Prolonged Unavailability Event after the Start Date (when contractual payments have begun) then we are minded to provide compensation for irrecoverable and unavoidable out-of-pocket costs that arise directly as a result from a T&S Prolonged Unavailability Event occurring, if and to the extent that such costs have been incurred by the Emitter following the Agreement Date and constitute:

- costs which are wholly attributable to the post-Agreement Date development, construction, testing, completion, commissioning or decommissioning of the Capture plant; and break costs associated with the Emitter's contractual arrangements (excluding financing); up to the balance of the Total Capex Payment (excluding the return on capex)⁵³.

Additionally, our intention to return some forfeited FAs (in respect of emissions that were expected to be captured but which were not) is unchanged.

In the scenario where the ICC Contract is terminated as a result of a T&S Prolonged Unavailability Event before the Start Date, and contractual payments had not commenced, we are still developing our position and are minded to provide compensation which is proportionate to the costs incurred by the Emitter. This compensation would not exceed the Total Capex Payment (excluding the return on capex) and be subject to expert assessment⁵⁴.

⁵³ Note that the payment profile of this proposed compensation is still under consideration.

⁵⁴ Note that we are exploring all scenarios, and so there may be instances where providing no compensation is appropriate.

In both scenarios, compensation will be reduced to reflect any savings which have been, will be or are reasonably likely to be made or received by the Emitter in respect of the project, which may include:

- avoided out-of-pocket costs;
- tax reliefs or reductions;
- insurance proceeds; and
- other compensation (including any net recoverable value from the capture plant⁵⁵).

Prolonged Minimum CO₂ Capture Rate Breach: Termination

This is a post Start Date termination right for the ICC Contract Counterparty, which arises where the Emitter's CO₂ capture rate is less than the Minimum CO₂ Capture Rate for either three consecutive Billing Periods⁵⁶ or three non-consecutive Billing Periods within six consecutive Billing Periods, resulting in a Minimum CO₂ Capture Rate Breach. For this purpose, the Minimum CO₂ Capture Rate is a CO₂ capture rate which is equal to or greater than the higher of (i) 10 percentage points lower than the CO₂ capture rate demonstrated during the OCP acceptance tests⁵⁷ and (ii) 80%.

Once a Minimum CO₂ Capture Rate Breach has occurred, the ICC Contract Counterparty can give an initial notice to the Emitter. This notice will specify the date on and from which the ICC Contract Counterparty can give the Emitter a termination notice in respect of the Minimum CO₂ Capture Rate Breach, which is the date which falls 18 months after the date of this notice (the Capture Rate Breach Deadline⁵⁸).

Once it has given this notice, the ICC Contract Counterparty will have the right (but not the obligation) to terminate the ICC Contract on and from the Capture Rate Breach Deadline if:

- the Emitter fails to achieve the Minimum CO₂ Capture Rate for 3 consecutive Billing Periods by the Capture Rate Breach Deadline; or
- the Emitter fails to achieve the Minimum CO₂ Capture Rate for 3 consecutive Billing Periods by the date agreed by the ICC Contract Counterparty, which is later than the Capture Rate Breach Deadline, in a rectification plan that has been expressly approved by the ICC Contract Counterparty; or
- the Emitter fails to implement a rectification plan that has been expressly approved by the ICC Contract Counterparty in accordance with its terms (i.e. where rectification is anticipated to take longer than the Capture Rate Breach Deadline and the Emitter has failed to satisfy specified milestones/take certain actions in accordance with the deadlines in its rectification plan).

The Emitter must respond to the initial notice within 1 month, specifying that either (a) it intends to rectify the Minimum CO₂ Capture Rate Breach by achieving the Minimum CO₂ Capture Rate

⁵⁵ Note that we are still determining how the net recoverable value from the capture plant would be calculated.

⁵⁶ A Billing Period is every settlement unit in a calendar month.

⁵⁷ Noting that this must be equal to or greater than the higher of (i) 5 percentage points lower than the CO₂ capture rate estimated in the project's Phase-2 application, and (ii) 85%.

⁵⁸ Note that this date may be extended for each day of delay caused by an FM event or a T&S Outage Event.

for 3 consecutive Billing Periods by the Capture Rate Breach Deadline, or (b) it considers that it will not be able to rectify the Minimum CO₂ Capture Rate Breach by achieving the Minimum CO₂ Capture Rate for 3 consecutive Billing Periods by the Capture Rate Breach Deadline and specifying an alternative date by which it considers it can do so. If the Emitter fails to respond to the initial notice, it will be deemed to have notified the ICC Contract Counterparty of (a) above (which is the default position).

Unless the Emitter has rectified the Minimum CO₂ Capture Rate Breach by achieving the Minimum CO₂ Capture Rate for 3 consecutive Billing Periods within 6 months of the date of the initial notice, the Emitter must provide a capture rate breach rectification plan which demonstrates how the Emitter will rectify the breach and achieve the Minimum CO₂ Capture Rate for 3 consecutive Billing Periods. The Emitter's capture rate breach rectification plan can specify that the Emitter intends to rectify the breach before or after the Capture Rate Breach Deadline but, in the latter case, the plan will need to be expressly approved by the ICC Contract Counterparty (see below).

The ICC Contract Counterparty will then have [3 months] to assess this plan. If the capture rate breach rectification plan does not include the following as a minimum then it will be invalid (unless and until a dispute resolution process determines otherwise) and deemed not to have been submitted to the ICC Contract Counterparty:

- the key steps that the Emitter proposes to take to cure the breach;
- the key dates/milestones by which such steps will be commenced/completed; and
- the date by which the Emitter considers it will cure the breach.

If the capture rate breach rectification plan includes these minimum requirements and the Emitter states that it intends to rectify the breach by the Capture Rate Breach Deadline, then the plan will be deemed to have been approved by the ICC Contract Counterparty. If the capture rate breach rectification plan includes these minimum requirements but the Emitter states in the plan that it will take longer than the Capture Rate Breach Deadline to rectify the breach then the ICC Contract Counterparty must expressly approve or reject the plan. Any decision to approve or reject the plan is at the ICC Contract Counterparty's sole discretion and cannot be referred to the dispute resolution process.

If a right for the ICC Contract Counterparty to terminate the ICC Contract arises (see above) and is exercised, this will be a default termination (see below).

The Emitter will be relieved from liability and deemed to not be in breach of the Minimum CO₂ Capture Rate obligation if the failure is directly attributable to a Force Majeure or T&S Outage Event.

Prolonged Minimum CO₂ Capture Rate Breach: Suspension of payments

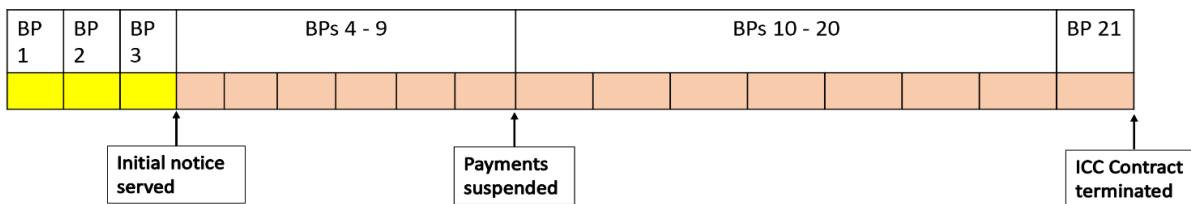
There is a separate, but related, right for the ICC Contract Counterparty to suspend payments following a Minimum CO₂ Capture Rate Breach (as described above). This right arises where the Emitter has not rectified the Minimum CO₂ Capture Rate Breach by achieving the Minimum CO₂ Capture Rate for 3 consecutive Billing Periods within 6 months of the date of the initial

notice, such that it is required to provide a capture rate breach rectification plan (as above) and then either fails to submit a plan within 6 months of the initial notice or submits a plan but the plan is invalid because it does not include the minimum requirements (as set out above).

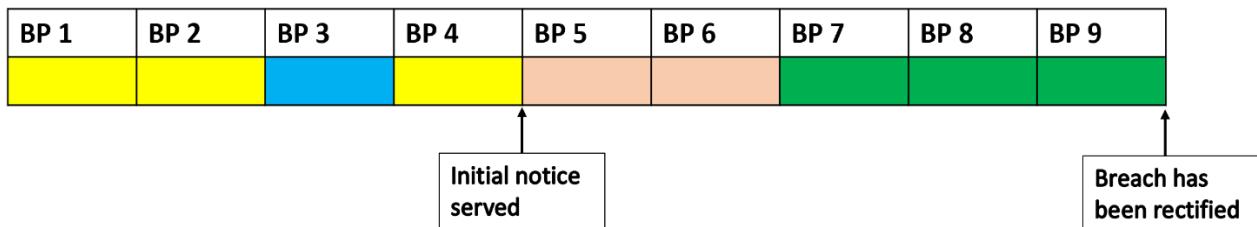
In either case, after the 6 month deadline has passed, the ICC Contract Counterparty can elect to suspend any payments which would otherwise be payable to the Emitter. In order to exercise this right, the ICC Contract Counterparty must first notify the Emitter and specify the date from which the suspension will apply.

If, following the issue of a suspension notice by the ICC Contract Counterparty, the Emitter either: (i) achieves the Minimum CO₂ Capture Rate for 3 consecutive Billing Periods by the Capture Rate Breach Deadline (see above); or (ii) submits a valid capture rate breach rectification plan which is either deemed to be or expressly approved by the ICC Contract Counterparty (see above), the ICC Contract Counterparty shall pay any amounts to the Emitter which would have been payable but for the operation of this right to suspend payments.

Figure 11: Diagram of two examples where the Minimum CO₂ Capture Rate provisions apply



Example 1: an Emitter's CO₂ capture rate is less than the Minimum CO₂ Capture Rate for three consecutive Billing Periods (BP1, BP2, BP3), resulting in a Minimum CO₂ Capture Rate Breach, and the Emitter is issued with an initial notice by the ICC Contract Counterparty. The Emitter fails to rectify the Minimum CO₂ Capture Rate Breach for the next 6 Billing Periods (BPs 4-9) and fails to submit a capture rate breach rectification plan to the ICC Contract Counterparty by the end of BP 9. The ICC Contract Counterparty elects to suspend all payments by issuing a suspension notice to the Emitter. Within the following 12 months (BPs 10 – 21), the Emitter fails to submit a rectification plan or rectify the Minimum CO₂ Capture Rate Breach. Therefore, the ICC Contract Counterparty makes the decision to terminate the ICC Contract.



Example 2: an Emitter's CO₂ capture rate is less than the Minimum CO₂ Capture Rate for three non-consecutive Billing Periods within six consecutive Billing Periods (BP1, 2 and 4),

resulting in a Minimum CO₂ Capture Rate Breach, and the Emitter is issued with an initial notice by the ICC Contract Counterparty. The Emitter fails to rectify the Minimum CO₂ Capture Rate Breach for the next 2 Billing Periods (BPs 5 and 6). However, the Emitter achieves the Minimum CO₂ Capture Rate for three consecutive Billing Periods (BPs 7-9), so a termination right does not arise.

Key:

	Emitter is in breach of the Minimum CO ₂ Capture Rate, normal billing period
	Emitter is in breach of the minimum CO ₂ Capture Rate, billing period within the 18-month cure period following initial notice being served
	Emitter achieves equal to or above the Minimum CO ₂ Capture Rate, normal billing period
	Emitter achieves equal to or above the Minimum CO ₂ Capture Rate, billing period within the 18-month cure period following initial notice being served

Default Termination

This is a post Start Date termination right (but not obligation) for the ICC Contract Counterparty, which arises where one of the following⁵⁹ has occurred and is continuing:

- the Emitter is insolvent (or similar);
- there has been a non-payment by the Emitter which is not remedied within a specific cure period;
- the Emitter has breached key obligations, for example relating to ownership of the Installation (including the Capture Plant), transfers of rights/benefits or obligations under the ICC Contract or fraud;
- the Emitter has breached the CO₂ and/or capture plant metering obligations;
- the Emitter has breached the minimum CO₂ capture rate obligation and a capture rate termination event occurs (see above); and
- the Grant Funding Agreement is terminated due to the Emitter's breach or default.

⁵⁹ BEIS is considering potential termination rights related to the FA forfeiture and reconciliation process.

Termination Fees

If the ICC Contract Counterparty terminates the ICC Contract as a result of the occurrence of a Default Termination Event which has arisen on or after the Start Date, then the Emitter will be required to pay a Default Termination Payment. This payment will be calculated as follows:

$$\text{Default Termination Payment} = f(t) \times \text{Maximum Annual CO}_2 \text{ Capture Quantity (tn/pa)} \times \text{Termination Fee Rate (£/tCO}_2\text{)}$$

where $f(t)$ refers to the stage of the ICC Contract, with the Default Termination Payment being profiled depending on what Contract Payment Term Year of the ICC contract the project is in (the ICC Contract duration is 10 years with a possible extension of up to 5 years awarded depending on certain conditions being met – for the extension years, the $f(t)$ value will be fixed). For years 1-8, $f(t)$ will be a fixed value of 1. For year 9, this will reduce to 2/3 and for the remaining years (10, 11, 12, 13, 14, 15) to 1/3 (Table 9).

Table 9: Value of $f(t)$ for Contract Payment Term years

Year	$f(t)$
1-8	1
9	2/3
10-15	1/3

The Termination Fee Rate is a nominal figure and we are proposing using a value of £5/tCO₂. The £5/tCO₂ figure has been proposed to strike a balance such that it would not risk severe economic impact to company that may have defaulted in distressed circumstances but would offer an opportunity for the contract to claw back a portion of support that was predicated on persistent decarbonisation.

An Emitter will not be required to pay more than one Default Termination Payment under a single ICC Contract. In the event that more than one Termination Event has arisen on or after the Start Date, and the ICC Contract Counterparty has exercised its right to terminate the ICC Contract, a single fee will apply based on the above calculation appropriate to the relevant termination cause.

If the ICC Contract Counterparty suspends payments to the emitter for an event that subsequently results in termination and a Default Termination Payment being payable (e.g. for a failure to remedy a prolonged minimum CO₂ capture rate breach (see above)), the Default Termination Payment will be reduced by any Payments which the ICC Contract Counterparty has suspended and not subsequently paid to the Emitter (see above).

Reconciliations in a termination scenario

We are currently developing our position on timings for FA forfeiture and reconciliation, and any potential adjustment mechanism required to address hybrid CCU and CCS projects. As part of this, we are considering how these processes may need to vary if a termination event occurs.

Qualifying Change in Law

The ICC Contract sets out categories of Qualifying Change in Law (QCIL) and compensation that may be payable to the Emitter or the ICC Contract Counterparty if a QCIL occurs.

A QCIL is a Discriminatory Change in Law, a Specific Change in Law, or an Other Change in Law which, in each case, is not a Foreseeable Change in Law. In summary:

- a Discriminatory Change in Law is a Change in Law the terms of which specifically apply to the particular Project, Capture Plant or Emitter and not to any other project, capture plant or person;
- a Specific Change in Law is a Change in Law the terms of which specifically apply to industrial installations which deploy CO₂ Capture Technology (or their holding companies) (or the CO₂ Capture Technology forming part of such installations) and not to other industrial installations;
- an Other Change in Law is a Change in Law which does not specifically apply to industrial installations which deploy CO₂ Capture Technology but has an undue, discriminatory effect on the Emitter/project's out-of-pocket costs or savings when compared with those of specified comparator groups.

Compensation will be payable where the Emitter can provide evidence that a QCIL:

- permanently prevents the construction, testing, completion or commissioning of the Capture Plant (QCIL Construction Event Payment);
- affects a Project's capex (QCIL Capex Payment) / opex (QCIL Opex Payment)
- affects an Installation's Metered CO₂ Output to T&S); or,
- permanently prevents a Capture Plant from operating (QCIL Operations Cessation Event Payment).

We recognise that these QCILs are beyond the control of the Emitter, and therefore we have considered the compensation available in each scenario. It must be i) proportionate to the specific policy objective, which is to incentivise the deployment of CCUS technology by providing sufficient protections that private sector investment is stimulated and investor confidence in CCUS increases, which will in turn lead to rapid deployment of CCUS such that government can achieve its net zero target and ii) limited to what is necessary to achieve that objective. The proposed compensation that may be available considers the extent to which Emitters can themselves partially mitigate some of these risks, just as they would have to in a situation, at a future point, where government subsidy is not required because the market

appropriately prices in the cost of CO₂ emissions and CCUS deployment is sufficiently de-risked. In all instances, government must consider maximum VfM and the Emitter must demonstrate to the ICC Contract Counterparty that costs incurred have been minimised.

QCiL Construction Event Payment

If a QCiL is implemented, occurs or becomes effective and gives rise to or results in a QCiL Construction Event, the ICC Contract Counterparty must give notice to the Emitter terminating the ICC Contract. A QCiL Construction Event Payment will be payable by the ICC Contract Counterparty to the Emitter, either as a lump sum payment or staged payments (at the ICC Contract Counterparty's discretion, after consultation with the Emitter).

We have further considered the compensation that will be available to the Emitter and are minded to provide compensation for all irrecoverable and unavoidable out-of-pocket costs which have been, will be or are reasonably likely to be incurred by the Emitter in respect of the Project arising directly from the QCiL Construction Event occurring, if and to the extent that such costs constitute:

- Costs which are wholly attributable to post-Agreement Date development, construction, testing, completion, commissioning and decommissioning of the Capture Plant, and break costs associated with the Emitter's contractual arrangements (excluding financing)⁶⁰,
- But excluding all other costs which have been, will be or are reasonably likely to be payable by the Emitter in connection with the QCiL Construction Event and all costs associated with the Emitter's financing arrangements in respect of the Project.

The amount of compensation that will be available to the Emitter will be reduced by all savings which have been, will be or are reasonably likely to be made by or received in respect of the Project by the Emitter arising directly from the QCiL Construction Event occurring, which may include:

- avoided out-of-pocket costs;
- tax reliefs or reductions;
- insurance proceeds; and
- other compensation (including the net recoverable value of the capture plant⁶¹).

QCiL Operations Cessation Event Payment

If a QCiL is implemented, occurs or becomes effective and gives rise to or results in a QCiL Operations Cessation Event, the ICC Contract Counterparty must give notice to the Emitter terminating the ICC Contract. A QCiL Operations Cessation Event Payment will be payable by the ICC Contract Counterparty to the Emitter, either as a lump sum payment or staged payments (at the ICC Contract Counterparty's discretion, after consultation with the Emitter).

⁶⁰ BEIS is considering whether to include controls or limits on some or all of the elements of compensation outlined above.

⁶¹ Note that we are still determining how the net recoverable value from the capture plant would be calculated.

We have further considered the compensation that will be available to the Emitter and are minded to provide compensation for:

- the remaining Capex Payments (but excluding the return on capex) that the Emitter would have received if the QCiL Operations Cessation Event had not occurred; and
- all irrecoverable and unavoidable out-of-pocket costs which have been, will be or are reasonably likely to be incurred in respect of the Project by the Emitter arising directly from the relevant QCiL Operations Cessation Event occurring, but excluding financing, hedging, decommissioning and environmental clean-up costs.

The amount of compensation that will be available to the Emitter will be reduced by all savings which have been, will be or are reasonably likely to be made or received in respect of the Project by the Emitter arising directly from the QCiL Operations Cessation Event occurring, which may include:

- avoided out-of-pocket costs;
- tax reliefs or reductions;
- insurance proceeds; and
- other compensation (including the net recoverable value of the capture plant⁶²).

We are currently developing our position on timings for FA forfeiture and reconciliation, and any adjustment mechanism required to address hybrid CCU and CCS projects. As part of this, we are considering how these processes may need to vary if a QCiL Construction Event or QCiL Operations Cessation Event occurs.

QCiL Capex Payment

If there are QCiL Capital Costs/Savings, a QCiL Capex Payment will be payable to the Emitter or the ICC Contract Counterparty. QCiL Capital Costs are QCiL Costs⁶³ that relate to the acquisition, disposal, modification or construction of any asset in respect of the project. QCiL Capital Savings are QCiL Savings⁶⁴ that relate to the acquisition, disposal, modification or construction of any asset in respect of the project.

A QCiL Capex Payment will be payable:

⁶² Note that we are still determining how the net recoverable value from the capture plant would be calculated.

⁶³ "QCiL Costs" means, in relation to a Qualifying Change in Law, all out-of-pocket costs (including QCiL Tax Liabilities) which have been, will be or are reasonably likely to be incurred in respect of the Project by the Emitter arising directly as a result or in anticipation of such Qualifying Change in Law being implemented, occurring or becoming effective, but excluding: (i) any Termination Payment; (ii) all costs incurred in respect of the agreement or determination of the amount of the Termination Payment; and (iii) all costs associated with the Emitter's financing arrangements in respect of the Project (including interest incurred in respect of such financing arrangements and all associated break costs).

⁶⁴ "QCiL Savings" means, in relation to a Qualifying Change in Law, all savings (including avoided out-of-pocket costs, reliefs from or reductions in a QCiL Tax Liability, insurance proceeds and other compensation) which have been, will be or are reasonably likely to be made or received in respect of the Project by the Emitter arising directly as a result or in anticipation of such Qualifying Change in Law being implemented, occurring or becoming effective.

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- By the ICC Contract Counterparty to the Emitter if there are QCiL Net Capital Costs, or
 - By the Emitter to the ICC Contract Counterparty if there are QCiL Net Capital Savings, and
 - In either case as a lump sum payment and/or staged payments (at the ICC Contract Counterparty's discretion, after consultation with the Emitter).

QCiL Net Capital Costs means, if QCiL Capital Costs exceed QCiL Capital Savings in respect of a QCiL, the QCiL Capital Costs less the QCiL Capital Savings. QCiL Net Capital Savings means the opposite, i.e. if QCiL Capital Savings exceed QCiL Capital Costs in respect of a QCiL, the QCiL Capital Savings less the QCiL Capital Costs.

To reflect the progression towards the end of the ICC Contract, QCiL Capex Payments will taper in the final years of the initial contract term for a given QCiL event. In year 9, any QCiL Capex Payments will be paid at two thirds (2/3rd) of the QCiL Net Capital Costs. In year 10, the final year of the initial period, any QCiL Capex Payments due will be paid at one third (1/3) of the QCiL Net Capital Costs. As any ICC Contract extension(s) will be on a one-year basis, each year of the extension will act as the functional final year of the contract and so will also be eligible only for one third (1/3) of the QCiL Net Capital Costs. The QCiL Capex Payments in this tapering period will be made in a single defined period and after which will be ineligible for repeat claims (e.g. in year 10, if a QCiL event were to occur, which results in QCiL Capital Costs or Savings, the Emitter will only be eligible for 1/3 of the QCiL Net Capital Costs and cannot make further claims of additional QCiL Capex Payment on the same QCiL event in the case of extension(s) into year 11 or beyond).

QCiL Opex Payment

If there are QCiL Operating Costs/Savings, a QCiL Opex Payment will be payable to the Emitter or the ICC Contract Counterparty. QCiL Operating Costs are all QCiL Costs other than QCiL Capital Costs (see above). Similarly, QCiL Operating Savings are all QCiL Savings other than QCiL Capital Savings (see above).

A QCiL Opex Payment will be effected, at the ICC Contract Counterparty's election (after consultation with the Emitter), either:

- As an adjustment to the Strike Price (if there are QCiL Net Operating Costs, the Strike Price will be increased and if there are QCiL Net Operating Savings, the Strike Price will be reduced); or
- As staged payments, which will be payable (i) by the ICC Contract Counterparty to the Emitter if there are QCiL Net Operating Costs, or (ii) by the Emitter to the ICC Contract Counterparty if there are QCiL Net Operating Savings).

QCiL Net Operating Costs means, if QCiL Operating Costs exceed QCiL Operating Savings in respect of a QCiL, the QCiL Operating Costs less the QCiL Operating Savings. QCiL Net Operating Savings means the opposite, i.e. if QCiL Operating Savings exceed QCiL Operating Costs in respect of a QCiL, the QCiL Operating Savings less the QCiL Operating Costs.

QCiL Adjusted Capture Payment

If there is an Adjusted Capture Period, a QCiL Adjusted Capture Payment will be payable. An Adjusted Capture Period is a period during the term of the ICC Contract in which the Expected Annual Capture Factor, and the Metered CO₂ Output to T&S (including for the purposes of calculating the Achieved CO₂ Capture Rate and/or Achieved CO₂ Capture Quantity of the Installation) is reduced or increased as a direct result of a QCiL.

A QCiL Adjusted Capture Payment will be effected, at the ICC Contract Counterparty's election (after consultation with the Emitter), as a lump sum payment or staged payments (on a backward-looking basis), and/or an adjustment to the CO₂ Capture Rate and/or Metered CO₂ Output to T&S either on an Ex-Post or Ex-Ante basis.

It will be payable:

- By the ICC Contract Counterparty to the Emitter if the amount calculated under the relevant formula is positive or;
- By the Emitter to the ICC Contract Counterparty if the amount calculated under the relevant formula is negative.

Cap on QCiL compensation

If a QCiL occurs which gives rise to or results in: i) QCiL Operating Costs, ii) QCiL Capital Costs, iii) a QCiL Adjusted Capture Payment, or iv) any combination of i) – iii), the total QCiL compensation due to the Emitter will be capped by reference to:

- Pre-Start Date: the amount of the QCiL Construction Event Payment that would have been payable to the Emitter had a QCiL Construction Event occurred; or
- Post-Start Date: the amount of the QCiL Operations Cessation Event Payment that would have been payable to the Emitter had a QCiL Operations Cessation Event occurred.

Monitoring, Reporting and Verification

Effective monitoring, reporting and verification using accurate methods such as metering or calculation is important for determining the CO₂ capture rate, CO₂ quality and quantity of CO₂ captured from the industrial installation and sent for permanent storage. It is also important for ensuring accurate payments are made across the CCUS value chain.

To determine the quantity of CO₂ captured from the industrial installation and sent for permanent storage, the quantity (mass flowrate) and composition of CO₂ will need to be effectively monitored and determined at these points:

- Pre-capture monitoring: at the interface between the industrial installation and the capture plant (for post-combustion capture and for pre-combustion capture where CO₂ is not intrinsic to the industrial process) or at the interface between the

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- separation plant and the CO₂ conditioning and compression if the CO₂ separation plant is intrinsic to the industrial process (for pre-combustion capture); and
 - Post-capture monitoring: at the interface between the capture plant and the T&S network.

This update will focus on our minded to position on pre-capture monitoring.

Pre-capture monitoring requirement

In the December 2020 ICC business model update, we noted that a pre-capture meter located upstream of the capture plant may be required to determine the CO₂ flow rate and composition, a meter would be required between the capture plant and T&S network, and that further work would be undertaken to determine the metering requirements under the ICC business model.

We have since undertaken further detailed work including rigorous analysis by technical advisors and thorough engagement with stakeholders to investigate two options:

- Calculation based methodology (either stoichiometric calculation or using existing sub-metering), and
- Measurement based methodology (pre-capture meter).

There are reasons why pre-capture metering may be preferred over calculation methods, including assessing capture rate and plant performance over the required timescales, availability of data, accuracy of data, and auditing over the contract lifetime.

For industrial facilities that are not part of a CaaS group, use of a pre-capture meter via direct measurement (incorporating both flow measurement and compositional analysis, so as to determine the mass flow rate of CO₂) will be the default measuring method. However, we are continuing to consider whether Emitters should be allowed to make a case to use the UK ETS calculation methodology if they can demonstrate that metering would not be suitable for their project e.g. if there would be an undue cost burden, or technical difficulties associated with installing pre-capture metering. In addition, Emitters would have to evidence the calculation methodology and prove that it meets additional BEIS criteria that will be defined and developed in due course.

Further work would need to be undertaken to define the additional BEIS criteria, which could include, as a minimum, the following:

- **Access to continuous and real time information:** The ICC Contract settlement period is expected to be daily, so it is important to have access to continuous and real time information at least daily, but ideally hourly to enable performance monitoring, ensure precise payments are made and enable verification of payments, as well as the CO₂ capture rate, quality, and flowrate.
- **Accuracy:** Emitters would be required to provide the uncertainty of the determined mass flow rate of CO₂ and evidence how the uncertainty was assessed with proof from an independent verification body. This uncertainty should be calculated in

accordance with BEIS requirements which would be developed and finalised in due course.

If either of these criteria, or any other criteria that BEIS developed, could not be met, then projects would need to utilise a meter/direct measurement method.

In order to assist with verification of these criteria (and any further criteria to be developed by BEIS) having been met, the onus would be on the Emitter to demonstrate compliance with all of these relevant criteria. The Emitter would also have to provide the ICC Contract Counterparty with access to relevant data and audit rights.

The work required to develop and finalise these criteria and requisite compliance and verification procedures could be significant, and it is possible that, during the course of undertaking this work, barriers are identified which mean that adopting this approach is inconsistent with delivering the ICC business model. Therefore, at this stage, it cannot be ruled out that pre-capture meters for all Emitters could be required.

For CaaSCo projects, our minded to position is to require meters for each Emitter's stream entering the aggregated stream, and not to permit, the calculation methodology. Instead, meters will be required for each Emitter in order to determine individual flowrates for the aggregated stream going into the capture plant and ensure auditability, replicability and accessibility of the data, given the interdependency of emitter projects within a CaaS group and this data's role in payment calculations. Additionally, monitoring is required because there will be transfer of ownership of, and responsibility for, the CO₂ from the Emitters to the CaaSCo at the relevant boundary.

Economic benefits and supply chain reporting

In November we provided an update on the DPA and ICC business models⁶⁵ clarifying our intention to include a requirement for participants in the Cluster Sequencing Phase-2 process to report on the economic benefits (i.e. jobs, skills, community regeneration) and CCUS supply chains associated with the development of their CCS capture plant projects. One purpose of this is to provide BEIS with key economic, technical, and commercial data around the relevant supply chain and the value drivers that underpin it.

Here, we provide an update on the submission process and fees associated with non-compliance. Ahead of the start of Phase-2 negotiations, we plan to provide a template for the report, which would be completed at each of the reporting milestones, and further guidance around the report.

Submission of report

⁶⁵ <https://www.gov.uk/government/publications/carbon-capture-usage-and-storage-ccus-business-models/november-2021-updates-on-the-industrial-carbon-capture-and-dispatchable-power-agreement-business-models>

The first report will have to be submitted to the ICC Contract Counterparty by the deadline of the Milestone Delivery Date (if there is a delay to the Milestone Delivery Date, the first report would also be delayed), the second report by the third anniversary of the Start Date, and the third and final report by the seventh anniversary of the Start Date. In each case, reports will be accepted within the preceding 6 months; for example, the first report can be submitted between 12 and 18 months after contract signature. All reports will need to be accompanied by a Directors' Certificate to provide the ICC Contract Counterparty with comfort that the information submitted is accurate and complete.

The ICC Contract Counterparty must respond to the Emitter within 20 business days of the deadline to confirm receipt of a satisfactory report or to notify the Emitter of its non-compliance. A non-compliance notice will be issued if the report is not submitted before the relevant reporting deadline. Additionally, a non-compliance notice can be issued if the report has been submitted but is not valid, for example if any fields in the template are blank or, completed with information that is not relevant to the question asked, or completed with information that does not adhere to restrictions on the type of data that can be entered/number of words. BEIS will consider further exactly what constitutes an invalid report.

The ICC Contract Counterparty will then pass this information to BEIS, who may look to publish extracts from these reports in order to share information with wider industry and to support the implementation of a CCUS supply chain. Before doing so, any information that BEIS considered to be commercially sensitive would be removed.

Nominal fees for non-compliance

Our minded-to position is that if the ICC Contract Counterparty has issued a non-compliance notice, the Emitter will be required to pay the nominal fees set out in Table 10.

Table 10: Fees for non-compliance

Months of non-compliance	Maximum monthly fee per month of non-compliance
1	£1,000
2	£1,000
3	£1,000
4	£2,500
5 or more	£5,000

The ICC Contract Counterparty will have the right to set-off any fees due to it against any payments due to the Emitter under the ICC Contract.

Any supply chain fees that accrue prior to the Start Date will not become payable unless and until the Start Date has occurred, except to the extent that any amounts become due and payable by the ICC Counterparty to the Emitter prior to the Start Date (including any QCiL Compensation amounts), in which case the ICC Counterparty may set off the accrued fees against such amount. If payments under the ICC Contract never commence, and the ICC Contract Counterparty elects to terminate the ICC Contract, then the Emitter will not be required to pay any non-compliance fees that have accrued.

We have set out below some worked examples of non-compliance fees that could apply under the ICC Contract:

- After 3 months of non-compliance, the Emitter will have incurred fines totalling £3,000 (which, assuming that payments have not been suspended for any other reason, will be deducted from payments due to the Emitter).
- After 6 months of non-compliance, the Emitter will have incurred fines totalling £15,500 (which, assuming that payments have not been suspended for any other reason, will be deducted from payments due to the Emitter).

For the non-compliance procedure to end, and for the Emitter to stop incurring the non-compliance fees, the Emitter would need to submit a valid report to the ICC Contract Counterparty (see above).

Combined Heat and Power

In the CCUS Cluster Sequencing Phase 2 guidance document, we set out additional eligibility requirements for Combined Heat and Power projects. A CHP-only⁶⁶ projects needs to supply a minimum of 70% of its energy output to one or more industrial facility⁶⁷ to be eligible for support. CHPQA certification was not an eligibility requirement for Phase 2, but we noted that we would require valid full or partial CHPQA certification to be demonstrated by the time of CCUS operations.

We have set out below our approach to energy output and CHPQA certification for payments to start and for the duration of the contract.

⁶⁶ ICC projects that are deploying CCUS and capturing emissions from a CHP facility only and not combining flue gas streams with other industrial process(es). Please note that this does not refer to the combination of multiple Emitters' flue gas streams in a CaaS Group, but the combination of flue gas streams within the wider industrial facility.

⁶⁷ For the purpose of CHP only, we define an 'industrial facility' as a facility or part of a facility that is classified under SIC codes 5 to 33 (excluding 24.46). Capture plants that are solely capturing emissions from the CHP facility are also an eligible end-use of the energy output, but only where energy output from the CHP is also provided to other eligible industrial facilities

Energy output to industrial facilities

A CHP-only project will need to provide proof of supplying energy (heat and/or electricity) to at least one industrial facility as an OCP in order for payments to start.

A CHP-only project will be required to report annually the proportion of its energy output (i.e., heat and/or electricity) that has been provided to one or more industrial facility in the previous year. For CHP output only, we define an 'industrial facility' as a facility or part of a facility that is classified under SIC codes 5 to 33 (excluding 24.46). In addition, a capture plant that is solely capturing emissions from the CHP facility will be an eligible end-use of the energy output (i.e., an 'industrial facility' for these purposes) but only where energy output from the CHP is also provided to other industrial facilities. We are considering what, if any, impact there should be on ICC Contract payments if no energy output directed to industrial facilities is reported. Our minded to position is that the report would be for monitoring purposes only and the energy output reported as directed to industrial facilities would not impact on ICC Contract payments, although we are continuing to keep this under review.

CHPQA Certification

Once a copy of a valid CHPQA certificate has been provided as an OCP, all CHP projects (both CHP-only and CHP-included) will be required to maintain their CHPQA certification by continuing to participate in the CHPQA scheme for the remainder of the ICC Contract. The Emitter will be required to provide a copy of a valid CHPQA certificate as an OCP and then as soon as reasonably practicable after the Start Date and at annual intervals thereafter.

CCUS enabled Hydrogen and the UK Low Carbon Hydrogen Standard

In the CCUS Cluster Sequencing Phase 2 guidance document we said that projects retrofitting CCUS in existing 'grey' hydrogen facilities⁶⁸ (i.e., retrofit CCUS enabled hydrogen projects) were within the scope of the ICC business model support, whilst new build CCUS enabled hydrogen production facilities were out of scope of the ICC business model support and would be covered by the hydrogen business model, which is currently being developed. We also said that projects with industrial processes that produce hydrogen as a by-product or intermediate product will be considered eligible for ICC business model support if they meet the wider eligibility criteria and (if applicable) sector-specific criteria set out in the Phase-2 guidance document. We noted that hydrogen projects, including retrofit CCUS enabled hydrogen projects and industrial processes that produce hydrogen as a by-product, may need to meet the future UK Low Carbon Hydrogen Standard in order to receive ICC business model support and that a position on this would depend on the outcome of the consultation (which will be published in due course) and future decisions on compliance requirements with a final UK Low

⁶⁸ The production of hydrogen from the reformation of natural gas, this does not include any processes that produce hydrogen as a by-product or intermediate product.

Carbon Hydrogen Standard for retrofit CCUS enabled projects and projects with industrial processes that produce hydrogen as a by-product.

Further to this, we have decided that for retrofit CCUS enabled projects and projects with industrial processes that produce hydrogen as a by-product, ICC business model support awarded through cluster sequencing Phase-2 will not be conditional on compliance with the future UK Low Carbon Hydrogen Standard if it were to apply to such projects. This is because the purpose of the ICC business model is to support the deployment of carbon capture at industrial facilities and not the production of low carbon hydrogen, which will be supported via the hydrogen business model. In addition, the minimum capture rate requirements set out in the ICC business model provide protection to ensure that all carbon capture, including relating to hydrogen production, fulfils minimum technical efficiency requirements and reduces residual emissions.

For the avoidance of doubt, the scope of the Low Carbon Hydrogen Standard, including any potential compliance requirements for retrofit CCUS enabled hydrogen projects and industrial processes that produce hydrogen as a by-product, is not the subject of this publication and will be set out in a future government response in due course.

Section 4: ICC Business Model adaptations for waste management CCS projects

Waste ICC Contract

In November 2021, it was confirmed that initial waste management CCS projects would be in scope to apply for ICC business model support for Phase-2 of the CCUS cluster sequencing process, provided they meet the specific eligibility criteria. Given the differences between the waste management sector and other industrial sectors supported under the ICC business model, it was also set out that we would be exploring adaptations to the business model to ensure it was appropriate for the waste management sector. Any adaptations to the ‘generic’ ICC business model would lead to a variation of the ‘generic’ ICC Contract being offered to successful waste management CCS projects, referred to throughout this section as the “Waste ICC Contract”. Many of the provisions contained in the ‘generic’ ICC Contract would be retained in the Waste ICC Contract. However, the sections below set out the main areas in which alternative provisions are being considered. It is important to note that decisions around these key potential adaptations may lead to other consequential deviations from the ‘generic’ ICC Contract being required for the Waste ICC Contract. We are also considering interactions between the Waste ICC Contract and other forms of government support. The accompanying consultation considers potential interactions of the Waste ICC Contract and business model with the waste hierarchy.

Why adapt the model?

The key reasons for developing a Waste ICC Contract are because of the differences around carbon pricing for the waste management sector compared to other industrial sectors. Whilst landfill tax applies to waste being sent to landfill, there is no carbon price that applies to those waste management processes that are in scope for ICC business model support for Phase-2 of the CCUS cluster sequencing process: Energy from Waste (EfW), Advanced Thermal Treatment (ATT), Advanced Conversion Technologies (ACT), and Hazardous Waste Incinerators (HWI).

Core contract provisions

Payment calculation and reference price

A payment per tonne of CO₂ captured and stored will be made under the Waste ICC contract, in line with what has been set out for the ‘generic’ ICC contract. However, the application of the fixed trajectory reference price used for the first 10 years under the ‘generic’ ICC Contract may not be appropriate for the Waste ICC Contract, due to the different carbon pricing

circumstances in the waste sector and the characteristics of the sector. The majority of industries eligible for support under the ICC business model are subject to the UK ETS. However, the waste management processes in scope for ICC business model for Phase-2 of the CCUS cluster sequencing process are not currently subject to carbon pricing in the form of the UK ETS or any other carbon pricing mechanism. On 25 March 2022, government published proposals on the development of the UK Emissions Trading scheme, including a call for evidence on expanding the UK ETS to waste incineration and energy from waste by the mid to late 2020s⁶⁹.

Given the long-term nature of ICC Contracts, it is important that the Waste ICC Contract is flexible enough to be appropriate if any form of carbon pricing were to be applied to an Emitter in the waste management sector in the future.

If an Emitter within the waste management sector becomes subject to a form of carbon pricing in the future, it is expected that a significant proportion of carbon costs could be recovered from its suppliers. We consider that the payment calculation needs to reflect this. Therefore, we consider that if an Emitter within the waste management sector is to be exposed to any form of carbon pricing in the future, it may be appropriate for the payment calculation to be linked to the waste management plant's carbon price exposure. This should ensure an efficient subsidy and avoid any potential market distortions within the sector, including potential impacts on the waste hierarchy.

Under current UK ETS carbon pricing rules, biogenic CO₂, which is generated by the combustion of biomass and bioliquids, is not subject to carbon pricing (subject to the application of certain sustainability criteria in some circumstances). Given our current thinking on the treatment of negative emissions sales under the ICC Contract and Waste ICC Contract and the current absence of a regulated market for negative emissions, a waste management CCS project may not be able to generate cost savings for the capture of biogenic CO₂. Therefore, further consideration is needed on how to apply the reference price options to biogenic CO₂ captured under the options set out below.

Currently, the key options being considered for the Waste ICC Contract reference price are:

- **Option 1:** A fixed reference price trajectory is applied to all captured and stored CO₂. This is because the business model is intended to cover the costs of CCS deployment, which remain the same regardless of whether any future carbon price applies to an Emitter within the waste management sector. However, supported projects may have a competitive advantage relative to unabated plants if carbon pricing were to be applied to the sector in future, depending on a plant's potential ability to recover CCS costs in line with carbon pricing costs.
- **Option 2:** A fixed reference price trajectory is applied to all captured and stored CO₂, in alignment with the 'generic' ICC Contract. In addition, if the waste management CCS project becomes subject to any future carbon pricing, a further deduction to

⁶⁹ UK Emissions Trading Scheme (UK ETS) Consultation:

<https://www.gov.uk/government/consultations/developing-the-uk-emissions-trading-scheme-uk-ets>

payments in line with any future carbon price exposure would be applied to the payment calculation.

- **Option 3:** The reference price will be explicitly linked to the waste management plant's carbon price exposure.

Options 2 and 3 above would link payments under the Waste ICC Contract to the actual carbon price, if the sector is exposed to any form of carbon pricing in the future, to protect against the risk of over-subsidy and mitigate the risk of distortions within the sector and the impact on the waste hierarchy (see section below). We are further considering the risks and potential challenges of this approach.

After 10 years of support, the Waste ICC Contract may be extended (see section below on the 'Extension Period'). We are considering how a market-based approach can apply within the extension period.

Capex repayment period

A decision on the length of the capex repayment period will need to balance investment risk and demand risk for emitters with stranded asset risk and overall costs to government. Given the different commercial structures present in the waste sector, and the lower exposure to international competition compared to other industrial sectors, we consider that the investment risk and demand risk faced by parts of the waste management sector may be lower than the investment risk and demand risk faced by other industrial sectors, though we need to balance this with costs to government of a longer capex repayment period. Given that the sector is not currently subject to any form of carbon pricing, a shorter capex payback period could also increase the likelihood that the plant ceases to operate the capture plant if there is no clear economic incentive for the waste management plant to continue abating CO₂.

Therefore, we are considering the following key options for a capex repayment period:

- **Option 1:** 10-year capex repayment period, with annual capex payments capped at 1/10th of the total capex plus Return on Investment.
- **Option 2:** 5-year capex repayment period, with annual capex payments capped at 1/5th of the total capex plus Return on Investment. This would be the same capex repayment period as the generic ICC Contract.

Further work is needed to assess these options and assess how to achieve an appropriate balance between costs to government and risks for industry.

Symmetric payments

Under the generic ICC Contract, asymmetrical or "one-way" payments are in place for the initial 10-year contractual payment term. In the extension period under the generic ICC Contract, the reference price transitions from the fixed reference price trajectory to a market carbon price, and symmetrical or "two-way" payments will commence under the contract.

However, as outlined above, it may be appropriate for the payment calculation under the Waste ICC Contract to be linked to actual carbon price exposure (as discussed under Options 2 and 3 in the ‘Payment calculation and reference price’ section) within the initial 10-year contractual payment term of the contract. Therefore, if it is decided that the payment calculation for the Waste ICC Contract should be market-based, then it may be appropriate for symmetrical payments to occur to ensure effective risk-sharing and value for money for government.

Contract Length

We consider that the Waste ICC Contract should be comprised of a 10-year contractual payment term with the option for one-year extensions, up to a total of 5 additional years (with the conditions for such extensions set out below). This would follow the same broad structure as the generic ICC Contract.

R1 efficiency status

In the Phase 2 cluster sequencing guidance, we outlined that government intends to provide support only to the most efficient waste management technologies to ensure we are supporting facilities that maximise the energy value of waste, aligning with the government’s Resources and Waste Strategy for England. Therefore, an R1 efficiency rating was required as a condition of eligibility for specific waste management technologies. For those waste management technologies where an R1 efficiency rating was a condition of eligibility, we consider that these plants should continue to hold an R1 efficiency rating throughout the Waste ICC Contract, to ensure we are continuing to support only efficient plants. We consider that a plant that required R1 efficiency rating as a condition of eligibility that loses its R1 efficiency rating should have payments suspended under the Waste ICC Contract until the R1 efficiency rating is regained.

Extension Period

Under both the ‘generic’ ICC Contract and Waste ICC Contract, the contract may be extended from 10 years up to 15 years, subject to the Emitter satisfying performance and market conditions, and demonstrating T&S access for the extension period.

Performance conditions

We are of the view that the performance conditions that must be satisfied for an Emitter to be eligible for an extension under the ‘generic’ ICC Contract, must also be satisfied for an Emitter to be eligible for an extension under the Waste ICC Contract. In addition, we are considering whether R1 efficiency certification should also form part of the performance conditions for an extension to a Waste ICC Contract, for those technologies where R1 efficiency certification was a condition of eligibility for ICC business model support.

Market conditions

The purpose of offering an extension to ICC projects is to cover the costs of operating and maintaining the CCS equipment (including T&S fees) if the market is insufficiently mature to support these costs. In the case of waste management CCS projects, this would be if the additional costs of operating CCS (including T&S fees) are still greater than any future applicable carbon price plus any future negative emissions revenues. If this is the case, then there may be grounds to offer an extension. The details of how this market condition would be applied is dependent on a decision around the specific reference price and payment mechanics for the Waste ICC Contract, therefore we are still considering our approach to the specific market condition.

As we are still developing our approach to the core payment mechanics which will apply during the initial 10 year contractual payment term of the Waste ICC Contract, and we will need to consider how these translate into the payment mechanics which will apply during any extension period.

Interactions with other forms of government support

We are aware that waste management CCS projects may be eligible (now or in the future) to receive other forms of support which may interact with the Waste ICC Contract. We are working with colleagues across government to ensure that the support provided through the Waste ICC Contract aligns with, and takes into account, any other forms of government support received by or available to the project. This includes potential interactions between renewable transport fuels created through ACT and ATT technology, and their potential future eligibility for the Renewable Transport Fuel Obligation and the sustainable aviation fuels (SAF) mandate.

Section 5: Negotiations Approach

The approach to contract negotiations is to achieve our ambition of putting us on a path to capture and store 6 Mt CO₂/year of industrial emissions by 2030 and supporting the development of initial industrial CCUS projects from a range of sectors across industry, while delivering value for money.

Following successful shortlisting via the ongoing Phase-2 Cluster Sequencing process and negotiations/due diligence, the capital grant and ICC Contract will be offered to eligible projects connecting to Track 1 CCUS clusters as part of a single package of support. The exact timetable for negotiations is to be confirmed, with the first projects expected to be awarded contracts from mid-2023.

The majority of provisions of the ICC Contract will not be negotiable on a per-project basis, with a standard set of terms applying. This is intended to provide a fair, transparent foundation for negotiations that is grounded in the successful precedents of the CfD models. These fixed components of the contract will reflect the fundamental tenets of the business model that have been described in this and previous publications and have been discussed extensively with stakeholders through expert groups and workshops during the development of the business model.

The primary items that will be open for negotiation during this phase, to reflect the circumstances of individual projects, will be the capex payment rate, the strike price, the size of and cap on the capital grant, and elements of the opex reopeners, and we anticipate that these project-specific terms will be included in the FEA. HMG retains the right to draw additional aspects of the business model into negotiations on a discretionary basis.

The terms offered during negotiations will consider the wider impacts of final project selection on the risk profile and resilience of the Track-1 Cluster Plans. This includes taking into account the subsequent plans for the clusters and other additional emitters and ensuring the cost of extending the T&S network to each project remains satisfactory. Any decision to award support at any stage of this process will only be made subject to government being comfortable with: the application of subsidy control requirements, any balance sheet implications, the status of any relevant statutory consents and that the project represents value for money for the consumer and the taxpayer and is deliverable. It should also be noted that any decision to award support may be contingent on wider factors including finalisation of agreements with relevant T&S networks as well as the development and Parliamentary approval of any necessary legislation.

The scope of negotiations will be communicated in the invitation to participate in the negotiation/due diligence stage following the outcome of the Phase-2 evaluation process. Please see the Phase-2 guidance document for further details.⁷⁰

HMG may set bespoke timetables for carrying out these negotiations as a result of anticipated variation between each Track-1 T&SCo's timetable and maturity of projects. Following successful negotiations, the capital grant and ICC Contract will be offered to eligible projects as part of a single package of support.

⁷⁰ See footnote 52.

Section 6: Next Steps

This document reflects the work we have undertaken to date to progress the ICC business model design following publication of the October and November 2021 publications.

We welcome responses to the consultation published alongside this document. We will use the responses to identify if we have overlooked any aspects that may inhibit the application of the business model and address any relevant points in the final form of the ICC Contract to ensure it can fully achieve the policy aims.

We are seeking to publish the final generic ICC Contract later in the year, to align with meaningful negotiations commencing with shortlisted projects. The Waste ICC Contract will follow a different timeline. We are seeking to publish a draft Waste ICC Contract by the summer, after which we will look to engage with the waste sector before a final Waste ICC Contract is published to align with meaningful negotiations with shortlisted projects in the waste management sector.

The exact timetable for negotiations is to be confirmed, with the first projects expected to be awarded contracts from mid-2023.

Glossary

Term	Description
BEIS	Department for Business, Energy and Industrial Strategy
CaaS	Capture-as-a-Service
CaaSCo	Capture-as-a-Service Company
Capex	Capital expenditure
CCS	Carbon Capture and Storage
CCU	Carbon Capture and Usage
CCUS	Carbon Capture, Usage and Storage
CfD	Contract for Difference
CHP	Combined Heat and Power
CHPQA	Combined Heat and Power Quality Assurance
CIF	CCS Infrastructure Fund
CiL	Change in Law
CO ₂	Carbon Dioxide
CPI	Consumer Price Index
DPA	Dispatchable Power Agreement
EfW	Energy from Waste

Term	Description
EPC	Engineering, Procurement, and Construction
FAs	Free Allowances
FEA	Front End Agreement
FEED	Front End Engineering Design
FOAK	First-Of-A-Kind
GGRs	Greenhouse Gas Removals
HoTs	Heads of Terms
HMG	Her Majesty's Government
ICC	Industrial Carbon Capture
ICE	Intercontinental Exchange
ICP	Initial Conditions Precedent
IDHRS	Industrial Decarbonisation and Hydrogen Revenue Support
LCCC	Low Carbon Contracts Company Ltd
LSP	Longstop Period
MDD	Milestone Delivery Date
MtCO ₂	Megatonnes of carbon dioxide
OCPs	Operational Conditions Precedent
Opex	Operating expenditure

Term	Description
Pre-FEED	Preliminary-Front End Engineering Design
QCIL	Qualifying Change in Law
SIC	Standard Industry Classification
T&S	Transport and Storage
T&SCo	Transport and Storage Company
TCW	Target Commissioning Window
UK ETS	UK Emissions Trading Scheme
VfM	Value for Money

This publication is available from: <https://www.gov.uk/government/publications/carbon-capture-usage-and-storage-ccus-business-models>

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