

Annex E: Industrial Carbon Capture Indicative Heads of Terms

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Note: these draft commercial principles are subject to the "Disclaimer" section at the front of the update document to which they are annexed.

1. Introduction

BEIS commissioned the Low Carbon Contracts Company (LCCC) to develop a summary of indicative key commercial terms (Heads of Terms) derived from the Electricity Market Reform Contracts for Difference (CfD) Standard Terms and Conditions ('Power CfD') that could be applied to Industrial Carbon Capture.

This 'Industrial Carbon Capture Indicative Heads of Terms' has been produced by LCCC using its knowledge and experience of the existing Power CfD, which is the government's main mechanism for supporting low-carbon electricity generation. Further input has been received via the BEIS monthly Industrial Carbon Capture expert group discussions as well as policy guidance from BEIS officials and its technical, economic, and legal advisors. In many areas we have made assumptions and we have set these out in the document, wherever possible alongside the proposals.

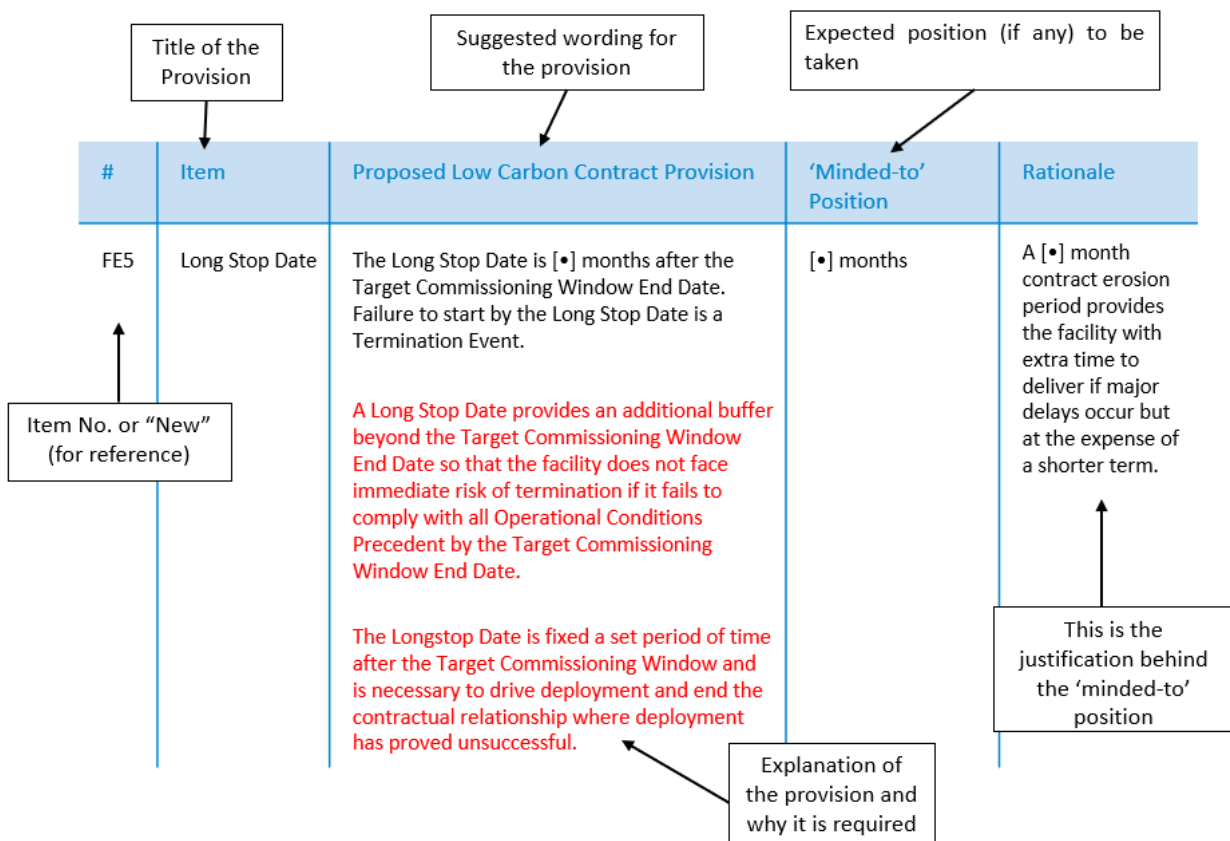
2. Approach

A Power CfD (the Contract) comprises two documents, a CfD Agreement (the Agreement) and a CfD Standard Terms and Conditions (the Terms and Conditions). The Agreement contains project specific information such as names of the parties, capacities of installations, technology types etc. The Agreement also outlines which elements (Provisions) of the Terms and Conditions do, and do not apply, for that facility.

The tables in the following sections outline detail surrounding each provision, the suggested wording of the provision alongside a simple explanation of the provision intent in red text (under 'Proposed Low Carbon Contract Provision') as shown in Figure 1 below. A suggested 'Minded-to' position has also been outlined where possible, based on instructions from BEIS. Where specific detail around provisions is required it is included as square brackets, [], for consideration where possible. Finally, the rationale explains the justification behind the minded-to position within the context of an Industrial Carbon Capture contract.

Figure 1: Format of Front-End Agreement & Standard Terms and Conditions tables

The tables focus on the key terms, however, further terms will be developed covering areas such as: Billing and Payment; Representations, Warranties and Undertakings; Credit Support;



Dispute Resolution; liabilities, remedies and waivers; Confidentiality, etc. Areas that have not been fully addressed in the key terms include some associated cross-chain risks, as they

require additional consideration. For example, an area such as stranded asset risk could be treated similarly to Grid Delay under the Power CfD, but would likely require significant new contractual drafting relating to the facility's interface with the CO₂ network. In many instances, however, we have suggested how risks might be addressed in the contract, and in some circumstances suggested how this might best be done.

3. Front End Agreement

#	Item	Proposed Low Carbon Contract Provision	'Minded-to' Position	Rationale
FE1a	OPEX Term	<p>The expiry date of the OPEX Term will be the [•] anniversary of the earlier of the Start Date or the last day of the Target Commissioning Window.</p> <p>The OPEX term sets the maximum contract term over which OPEX subsidy payments can be made.</p> <p>The Start Date is when payments can commence.</p> <p>It is anticipated that there will be an operating expenditure reopener early in the contract.</p> <p>The composition of operational return during this overall [15]-year contract term is still under development. It is anticipated that the OPEX term would follow either:</p> <ul style="list-style-type: none"> (i) a [10]-year initial term, followed by the option of a bilaterally agreed extension for [5] further years; or (ii) a [15]-year term, in which there is a reopener of the strike price on the [10th] anniversary. <p>More detail of possible options can be found in the main policy document.</p>	[15th] anniversary	
FE1 b	CAPEX Term	<p>The expiry date of the CAPEX Term will be the [•] anniversary of the Start Date.</p> <p>The CAPEX Term is separate from the OPEX repayment term to enable faster repayment of the CAPEX.</p>	[10th] anniversary	

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FE1c	CAPEX Amount	<p>The CAPEX Amount is £ [•]. See Payment Calculations Definitions (ref 5A.9) for further details on how this is used to calculate the monthly CAPEX repayment.</p> <p>The CAPEX Amount will be set to cover a fixed proportion of the upfront development costs borne by the Capture Facility. The value is to be agreed prior to contract award and will consider any capital grant amounts already provided.</p>		
FE2	Technology Type	<p>Key features of the technology are:</p> <ul style="list-style-type: none"> • [List of Capture Facility components] • We anticipate a carbon capture rate (efficiency) of at least [90%] of the total flue gas stream being captured <p>Technology definitions establish the industrial process and capture methods that will be deployed at the facility. These are required to make certain the expected solution is deployed. Technical engineering advice may be required to define and properly understand these specifics.</p> <p>Carbon capture technology could include Post combustion, pre combustion, oxyfuel, calcium looping, membrane separation technology, modular carbon capture and others. The full list will be developed.</p>	[List to be developed]	

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FE4	Target Commissioning Window	<p>The Target Commissioning Window is [•] months.</p> <p>The Target Commissioning Window runs from the Target Commissioning Window Start Date. The last day of the Target Commissioning Window being the Target Commissioning Window End Date.</p> <p>The OPEX Term will begin to erode after the Target Commissioning Window End Date, shortening the maximum period under which the Capture Facility may claim OPEX Difference Amount payments.</p> <p>A Target Commissioning Window is the window in which the Capture Facility may start receiving Difference Payments. The window provides the Capture Facility with scope for moving its commissioning date forwards or backwards within the window. This mechanism is designed to help mitigate uncertainty that the capture facility may face when estimating a date for commencing commercial operations.</p> <p>The length of the Target Commissioning Window, in conjunction with the Target Commissioning Window Start Date, gives rise to the Target Commissioning Window End Date. This is necessary to create a cut-off date that will incentivise deployment within an appropriate timeframe.</p> <p>Start Dates later than the Target Commissioning Window End Date may be permitted but the OPEX Term will begin to erode at this</p>	[•] months	A [•] month widow is considered flexible enough to allow for unexpected delays whilst ensuring Government has a reasonable expectation of when the technology will commence operations.

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		point, creating a monetary incentive to deploy before this happens.		
FE5	Long Stop Date	<p>The Long Stop Date is [•] months after the Target Commissioning Window End Date. Failure to start by the Long Stop Date is a Termination Event.</p> <p>A Long Stop Date provides an additional buffer beyond the Target Commissioning Window End Date so that the facility does not face immediate risk of termination if it fails to comply with all Operational Conditions Precedent by the Target Commissioning Window End Date.</p> <p>The Longstop Date is fixed period of time after the Target Commissioning Window and is necessary to drive deployment and end the contractual relationship where deployment has proved unsuccessful.</p>	[•] months	A [•] month contract erosion period provides the facility with extra time to deliver if major delays occur but at the expense of a shorter term.
FE8	Reference Price	<p>The Reference Price will start at £ [•]/tonneCO₂ in the base year and will increase every [•] months by the amount set out in the CO₂ Reference Price Schedule.</p> <p>The Reference Price is a key input into the OPEX Difference Amount payment calculation and will affect the overall amount of OPEX subsidy payments. This provision will define what the Reference Price is, how frequently it increases, and by how much.</p> <p>The CO₂ Reference Price Schedule will be agreed prior to contract award. It will be appended to the contract and will run from the base</p>	<p>The reference price will start £ [•]/tonneCO₂.</p> <p>The reference price will increase every [•] months.</p>	<p>Having a fixed reference price at the start of the contract and a fixed trajectory provides certainty for industry in terms of revenues but also certainty for government with regards to budgeting.</p> <p>Reference prices could</p>

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		<p>year to the [15]th anniversary of the end of the Target Commissioning Window.</p>		<p>still be subject to review, reflecting future developments in carbon pricing and a low carbon products market.</p>
FE9	Payment Calculations: Strike Price	<p>The Strike Price is £ [•] per [tonnesCO₂] unit.</p> <p>The Strike Price is a key input into the OPEX Difference Amount payment calculation and determines the overall level of OPEX subsidy payments. This value may be agreed bilaterally through negotiation or as the result of a competitive process (e.g. auction process/sealed bids etc.)</p>	[Set by agreement with the facility.]	<p>Bilaterally agreed Strike Prices will be used to enable FOAK facilities, moving to competitive process of allocation for NOAK facilities to ensure value for money.</p>
FE10	Payment Calculations: Strike Price Adjustment	<p>The Strike Price will be linked with [CPI] and will be recalculated once per year.</p> <p>The Strike Price will be linked to a suitable index to mitigate depreciation of future cash flows.</p>	Linked to [CPI]	<p>[CPI] is considered an appropriate index on which the market can rely upon.</p>
FE12	Payment Calculations: Transport and Storage Adjustment	<p>If required a reference to transport and storage adjustments can be made here.</p> <p>Some form of adjustment/protection may be needed to be made if the Carbon Capture facility is subject to fluctuating Transport & Storage fees</p>	[•]	[•]

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		that will not have been considered within the Strike Price.		

4. Standard Terms and Conditions

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3.3a	Initial Conditions Precedent (ICP)	<p>ICPs are required to ensure the following obligations are fulfilled [•] business days after the agreement has been signed:</p> <ul style="list-style-type: none"> • required declarations are made such as legal opinion confirming the counterparty is duly formed. • Anti-Money Laundering (AML) and Know Your Customer (KYC) checks are performed. • a Capture Facility Description is documented to a level of detail necessary to establish the Capture Facility's location, its technology type and processes being used, and how any eligibility criteria will be met. • the relevant planning permissions have been obtained • subsidy control requirements are satisfied; and • [•]... <p>Failure to satisfy any ICP by the ICP deadline would constitute a termination right for the counterparty.</p> <p>The conditions serve as a baseline, in the case of capture facility description and other technical conditions, for later OCP work to reference.</p> <p>The capture facility description would need to comply with the technology type and eligibility requirements set</p>	ICPs should be fulfilled within [•] business days of the agreement date.	<p>Key project information needs to be captured at the outset.</p> <p>A termination right is necessary to ensure this obligation is fulfilled.</p>

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		<p>out in the front-end agreement. Before the start date is approved, the capture facility description would be checked to ensure its continued compliance.</p> <p>ICPs for compliance with Planning Permissions, permitting and consents etc to be considered.</p>		
3.3b	Operational Conditions Precedent (OCP)	<p>A framework of OCPs will be necessary to trigger payments once the capture facility is ready to commence operations. The specific conditions will need policy consideration and some tailoring from the generic CFD and may require different OCPs depending upon capture technology and Industrial plant. Examples of suitable OCPs may include:</p> <ul style="list-style-type: none"> • Metering and settlement arrangements are in place. • A metering schematic diagram has been provided. • All communications equipment is in place. • A CO₂ capture rate of [•] has been proven. • CO₂ content/specification proven. • [•] % of the estimated capacity has been commissioned. • CO₂ Sampling and reporting methodologies are agreed. • Methodology for estimating any unmetered quantities of fuel and CO₂ etc; and • [•]... <p>Failure to satisfy any OCP by the OCP deadline would constitute a</p>	<p>OCP minimum capacity requirement should be [•] % of the capacity estimate.</p> <p>CO₂ capture rate of [90%]</p>	<p>A [•] % minimum capacity threshold provides a reasonable degree of flexibility to the developer whilst ensuring BEIS has certainty of delivery.</p> <p>The capture rate threshold ensures technology meets the appropriate eligibility requirements.</p> <p>A termination right is necessary to ensure these obligations are fulfilled before eligible payments are made.</p>

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		<p>termination right for the counterparty.</p> <p>The conditions must be fulfilled before the start date becomes effective and ensure no difference payments are made before the capture facility has delivered on its obligations to build and commission the plant to specifications set out in the contract and that it will operate the plant in continued compliance with these conditions.</p> <p>Various specifications that would be checked may include that the capture facility is compliant with the:</p> <ul style="list-style-type: none"> • technology type definitions and eligibility requirements set out in the front-end agreement. • facility description submitted post contract award as part of the ICP process. • various industry standards, relevant authorisations (including codes etc) and metering conditions detailed in the terms and conditions; and <p>that it has developed the necessary reporting processes that are required to be agreed at the OCP stage.</p>		
5A.9	Payment Calculation Definitions	<p>A list of terms related to payment calculations for Industrial Carbon Capture facilities will be set out here, including key terms and calculations, such as [Permanently Stored CO₂ Output] – the amount of CO₂ that is eligible for support payments, and [Strike Price] - the contracted price to be used in support calculations.</p> <p>The OPEX Difference Payment calculation is:</p>	<p>[Permanently Stored CO₂ Output]: the amount of CO₂ that is eligible for support payments.</p> <p>[Strike Price]: the contracted price to be used in</p>	

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		<p>[Equation TBC]</p> <p>The OPEX Difference Payment is paid per settlement [period] for each whole settlement [period] up to the OPEX Term expiry date.</p> <p>The CAPEX Repayment calculation is:</p> <p>[Equation TBC]</p> <p>The CAPEX Repayment is paid per [settlement month] for each whole settlement month up to the CAPEX Term expiry date.</p>	support calculations.	
5A.10	Metered Output	<p>The Metered Output of the Capture Facility will be the metered quantity of CO₂ that is delivered to the Transport & Storage system (i.e. at the custody transfer point).</p> <p>This would be determined by the flow metering system and gas composition analysis.</p> <p>This section also outlines procedures should there be a need for estimating or recalculating data, for example because of loss of the T&S system, giving rise to an Adjusted Metered Output.</p> <p>The Adjusted Metered Output is critical to ensuring all difference payments are accurate and applied correctly, and it is important to ensure that the delivered output is of sufficient quality and that the facility is only paid for the proportion of their Metered Output that has been evidenced as permanently stored.</p>	[tonnes] of CO ₂ as determined by the relevant metering of CO ₂ standards <i>and</i> Contaminant levels of [•] need to be within [•] %.	<p>Payments will be determined by tonnes of CO₂ captured and delivered to the T&S network. Measuring quantities in tonnages (either directly or derived) and limiting contaminants ensures adequate carbon accounting is in place.</p> <p>There may be a CO₂ metering standard in place that can be referenced by the time any Industrial</p>

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				<p>Carbon Capture support mechanism is established – international standards for Carbon Dioxide capture, transportation, and geological storage are being developed (under ISO/TC 265), in the meantime, similar requirements to that of the gas network could be adopted as a minded to position.</p>
5A.14	Strike Price Adjustments	<p>Strike Price Adjustments (SPAs) can offer protection for the Capture Facility by providing protection against certain factors such as inflation and could also be used to protect against fluctuations in Transport & Storage fees.</p> <p>This clause will outline how the Counterparty is responsible for calculating any adjustments and specify the frequency in which they are revised.</p>	<p>Protection may be offered to account for inflation – A suitable index such as [CPI] will be used to adjust Strike Prices on an annual basis.</p> <p>Protection could also be offered against variations in T&S charges from the outset, as this</p>	<p>Protecting the Industrial CCS Facility from inflation, means that it will not need to factor an estimate of inflation into its Strike Price, reducing uncertainty and therefore the cost of financing the project.</p> <p>Similarly, as long-term T&S costs are</p>

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			is very difficult for the Industrial CCS Facility to forecast. An alternative option would be that the T&S fee is a pass-through cost from LCCC to the T&S System Operator.	unknown at this stage, protection against variations in the initial known charge (once the T&S operator publishes them) could be offered.
8.37	Qualifying Shutdown Event: Procedure	<p>A Qualifying Shutdown Event is a situation where it has been determined that a change in law has forced a Carbon Capture Facility to stop operating for an extended period of time.</p> <p>This condition provides a mechanism for both parties to agree to a Qualifying Shutdown Event (QSE) and agree compensation and payment terms because of the QSE. If a Qualifying Shutdown Event (QSE) has occurred due to the Qualifying Change in Law (QCIL) the Capture Facility provides the Counterparty with a QSE Notice outlining the details, dates and cessation costs of the qualifying shut down event.</p>	Minimal Changes anticipated.	QSE Shutdown Event Procedure is independent of specific scheme or technology as shutdown risk due to QCIL is also pertinent to capture facilities.
NEW	Qualifying Transport & Storage Event: Procedure	<p>A Curtailment is the prevention or restriction by, or on the instruction of the T&S Operator, of the export from the Facility of CO₂ to the T&S Network (to below any contractually agreed amounts), which Industrial Facilities are compensated for to varying degrees.</p> <p>Information outlining the amount of CO₂ capture foregone will be used by</p>	Protection could be offered should the loss of the T&S system [for a specified period], prevent an Industrial Facility exporting to	Refer to Industrial Carbon Capture chapter for further detail on approach and rationale regarding cross chain risks.

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		<p>the parties to understand levels of compensation payable.</p> <p>Through no fault of an Industrial Facility, the Transport & Storage Operator may curtail an Industrial Facility's operation. This may result in an unforeseen pause in support payments for the period of curtailment which would adversely affect the Industrial Facility, so this clause is ensuring protection from these kinds of events where there is a financial impact.</p>	<p>the T&S Network.</p> <p>More certainty is required on the allocation of risk to and from the T&S System at the interaction points between industrial Carbon Capture Facilities and the T&S System.</p> <p>An alternative to the Industrial Facility filing a report (which is highly administrative) could be that the Industrial Facility is automatically compensated through the metering system.</p>	
NEW	Qualifying Transport & Storage Event:	<p>In the event of a Transport and Storage outage or curtailment then the Counterparty may make payments to the capture facility to cover legitimate costs incurred.</p> <p>For example, this may include compensation for carbon captured and ETS costs if the Industrial Carbon Capture Facility is forced to vent CO₂</p>	Minimal Changes anticipated.	Refer to Industrial Carbon Capture chapter for further detail on approach and rationale regarding cross chain risks.

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		<p>in the event that the T&S network is not available.</p> <p>This clause outlines how and when payments in relation to a Curtailment should be made. The aim of this provision is to compensate the Industrial Facility for costs/loss of revenue related to the Capture Facility that is not covered by compensation (if any) offered by the T&S network operator.</p>		
NEW	T&S Curtailment: General Provisions	<p>The clause here outlines that a claim may not be made regarding Curtailment under more than one Part of the contract (in theory this relief may be claimed under general Changes in Law as opposed to this part).</p> <p>These provisions are in place to prevent Industrial Facilities making multiple claims in relation to Curtailment.</p>	Minimal Changes anticipated.	Refer to Industrial Carbon Capture chapter for further detail on approach and rationale regarding cross chain risks.
12.51	Termination	<p>Policy considerations required as to whether the counterparty has the right, but not the obligation, to terminate the agreement in the following predefined pre-start date breach scenarios:</p> <ul style="list-style-type: none"> • failure to satisfy any Initial Conditions Precedent by [•]. • failure to satisfy the Milestone Requirement by [•]. • failure to satisfy any of the Operational Conditions Precedent by [•]. • if any Directors Certificate is found to be untrue or misleading; and • the operational phase termination for persistent 		

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		capture rate and/or spec breaches [•]		
12.52	Consequences of termination	<p>This condition details each parties' rights following termination. Some scenarios such as an antecedent breach preserve both parties' accrued rights and liabilities, while others like a pre-start date breach end all rights and obligations. Compensation relating to Qualifying Change in Law may also be covered.</p> <p>The condition provides details regarding the continuing or ending of rights, obligations, payments and claims etc depending on the reason for termination.</p> <p>The Milestone Requirement will be an obligation on the Facility to demonstrate sufficient project progress (either minimum spend or other forms of evidence) at a period of [12] months after the ICPs.</p>		

