UK Carbon Capture & Storage

LATEST UPDATES FOR ENERGY FROM WASTE PROJECTS

11 November 2021

This week, the Department for Business, Energy & Industrial Strategy (**"BEIS"**) has issued the following two critical updates on the business model for Industrial Carbon Capture (**"ICC"**) facilities, which clarify how the UK Government will provide support for carbon capture and storage technology in the context of energy from waste (**"EfW"**) projects:

- **"November 2021: Updates on the industrial carbon capture and dispatchable power agreement business models"[1]; and**
- **"Cluster Sequencing for Carbon Capture Usage and Storage Deployment: Phase 2: Background and Guidance for Submissions"[2].**

These updates are a significant step towards incorporating carbon capture and storage (**"CCS"**) technology into energy from waste facilities, either by:

- retro-fitting CCS technology to **existing** energy from waste facilities; or
- incorporating CCS technology into **new** EfW facilities which are currently being developed or are yet to be developed.

Until this week, the general updates on the business model for ICC plants issued by BEIS had not distinguished between the various industrial sectors and had covered all forms of CO_2 emitters, including:

---

[1] Reference link here.
[2] Reference link here.

- mid-stream and downstream oil and gas;
- iron and steel;
- cement, lime and chemical facilities;
- other sectors such as food and drink, minerals, paper and pulp manufacture;
- hydrogen production;
- EfW; and
- combined heat and power facilities.

For EfW facilities, until now BEIS had indicated that it had not yet reached a final decision on whether waste management projects would be eligible for support under the ICC model.

However, we can now report that this latest BEIS update:

- demonstrates **clear support under the ICC model for EfW projects**;
- describes the **eligibility criteria for EfW and similar facilities**; and
- sets out the **submission structure and timetable** for eligible EfW projects.

RECAP: THE POSITION TO DATE

Over the past year, BEIS has issued useful updates[3] on its deliberations regarding its proposals for business models for Carbon Capture Usage and Storage (**"CCUS"**).

The BEIS updates have promoted three different business models:

- the **CO_2 Transport & Storage Regulatory Investment (TRI) business model**, applicable to the development, construction, financing, operation, maintenance, expansion and decommissioning of CO_2 Transport & Storage Networks;
- the **Dispatchable Power Agreement for Power (DPA) business model**, applicable to certain thermal power plants which operate in dispatchable mode and should be capable of displacing comparable, unabated generation; and
- the **Industrial Carbon Capture ("ICC") business model**, applicable to existing and new industrial facilities which emit CO_2. As the primary purpose of an EfW facility is waste management, with energy recovery being a secondary function, EfW plants are considered to be applicable for the ICC business model.

Many of the proposals to date have been indicative only and have not constituted definitive policy positions. BEIS has been very clear that, where their views are subject to ongoing review, they are only "minded to" adopt a certain stance.

Application to the Waste Sector

Until this week, it has not been clear how, and to what extent, EfW facilities in the UK would be eligible for financial support under the UK Government's proposals for CCUS.

In the May 2021 update, it was stated that:

> *"Our current minded-to position, subject to further work, is to support the application of CCUS at EfW facilities, including waste incineration facilities with readiness and/or plans to implement energy recovery, via the ICC business model. This will include existing EfW facilities where the majority of*

---

[3]The key documents for the purposes of this newsletter comprise "**An update on business models for Carbon Capture, Usage and Storage**", December 2020, "**An update on the business model for Industrial Carbon Capture**", May 2021 and "**An update on the business model for Industrial Carbon Capture**", October 2021 as well as the **ICC Contract Heads of Terms** and the "front-end" **ICC Contract**, dated October 2021.

energy output will be used by an eligible industrial facility and/or facilities where the energy output will be sold offsite to heat networks or the electricity grid."

This uncertainty prevailed in the recent October 2021 update, which indicated that BEIS was continuing with this workstream and had "*not yet reached a final decision on eligibility of waste management projects*".

BEIS recognised that there are a number of key commercial differences between the waste management sector and other industrial sectors which might prompt a specific business model being adopted for EfW projects.

It now appears that this approach has been adopted and we are therefore able to assess to what extent the UK Government's CCUS support will apply to energy from waste facilities.

Applicable criteria for EfW facilities

Under the October 2021 update, it was confirmed that applicants would only be considered eligible for support under the ICC model if they met the following criteria:

- the project must be **located in the UK**;
- the project must have **access to a carbon transport solution and storage site** (the intention is that all facilities across the UK, regardless of geographic location, would be eligible, provided that they have a viable carbon transport solution and carbon store);
- the project must be **operational no later than 31 December 2027**;
- the project must have **commenced preliminary FEED studies or be ready to commence pre-FEED no later than 31 December 2022**;
- the project must be an **industrial facility** (EfW facilities now fall into in this category, following this week's update);
- the project must deploy **eligible CCUS technology** (essentially this requires the permanent abatement of CO_2:-carbon capture and usage technology which does not result in a permanent abatement of CO_2 and other similar technologies which do not result in the permanent abatement of CO_2 are not currently within scope for the ICC business model); and
- the project must be able to **meet CO_2. capture rates of at least 85%.**

Under the October 2021 Update, where a facility meets the criteria above, the ICC business model was deemed to apply.

Forms of financial support for eligible projects

For those projects falling within the eligibility criteria, two forms of support were set out in some detail in the October 2021 update:

- **capital grant support**: it is intended that capital grants will be available to co-fund capital investment for initial ICC projects, but only on a "last spend" basis, once all private sector funding sources have been exhausted. This support would only be available for up to (but not including) 50% of all capital expenditure, subject to value for money, affordability and subsidiary control considerations; and
- **ongoing revenue support**: the principal form of long term revenue support, which will be calculated by reference to the expected costs of carbon capture for the project.

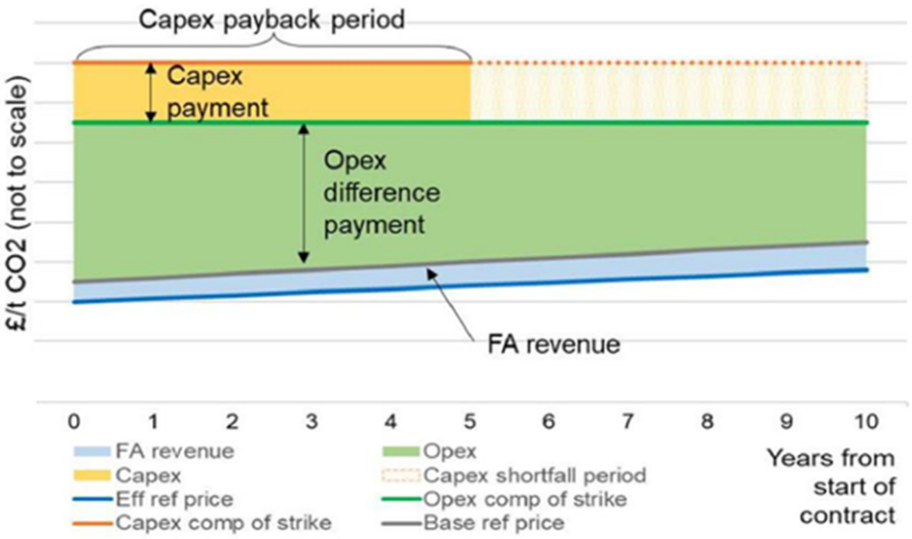
For the **capital grant support**, the terms on which this support will be provided and the conditions attached to such support is still under development.

As illustrated in **figure 1** below, the **ongoing revenue support** will be in the form of:

- a **capex payment** applying from the start of operations until the date when the capex has been repaid (calculated as a payment of £ per tonne of CO_2 captured). If the capex (and a rate of return on the capex) has not been repaid in the first five years, then there will be mechanisms to extend this capex payment support.

- an **opex difference payment** applying from the start of operations until the expiry or termination of the ICC Contract, calculated (in the form of a CfD payment) on the difference between the opex strike price to be negotiated and the base reference price, less revenue generated from forfeited free UK ETS allowances (**"FA revenue"**).

Figure 1: Graph showing the ICC Contract payment components[4]



It is also anticipated that the ICC Contract will contain the requirement, one year after the start of operations, to reopen and recalibrate some elements of the opex payment support. This will allow the parties to align elements of the opex difference payment (which were only able to be estimated prior to signing the ICC Contract) to their actual values.

Contractual Framework

The October 2021 update contains details of the legal and contractual framework underpinning the ICC Contract.

It is currently anticipated that the ICC Contract will be a private law contract between the "Emitter" (i.e. the EfW project vehicle) and the ICC Contract Counterparty. It is also expected that the ICC Contract Counterparty will be Low Carbon Contracts Company Limited, which is the existing counterparty for all renewable energy CfDs implemented within the UK.

The ICC Contract Heads of Terms, which have been published, are based very closely on the renewable energy contracts for difference (incorporating the generic agreement and the standard terms and conditions) for Allocation Round Three (which opened in May 2019). Therefore, many of the concepts that developers will be familiar with from the renewables CfD documents, are also included within the Heads of Terms for the ICC Contract.

The ICC Heads of Terms contain the usual provisions which we would typically expect to be found in such an agreement, including provisions relating to payments, billing, metering, changes in law, conditions precedent and milestones, term, termination, force majeure and other related provisions.

EfW developers and owners will need to be especially aware of the provisions relating to the **key milestones around commissioning and operation**, since these mechanisms have the ability to reduce the financial support available for EfW Projects or, in extremis, to result in the termination of the ICC Contract. The timeline illustrated in **figure 2** below shows how these milestones and time periods operate in practice.

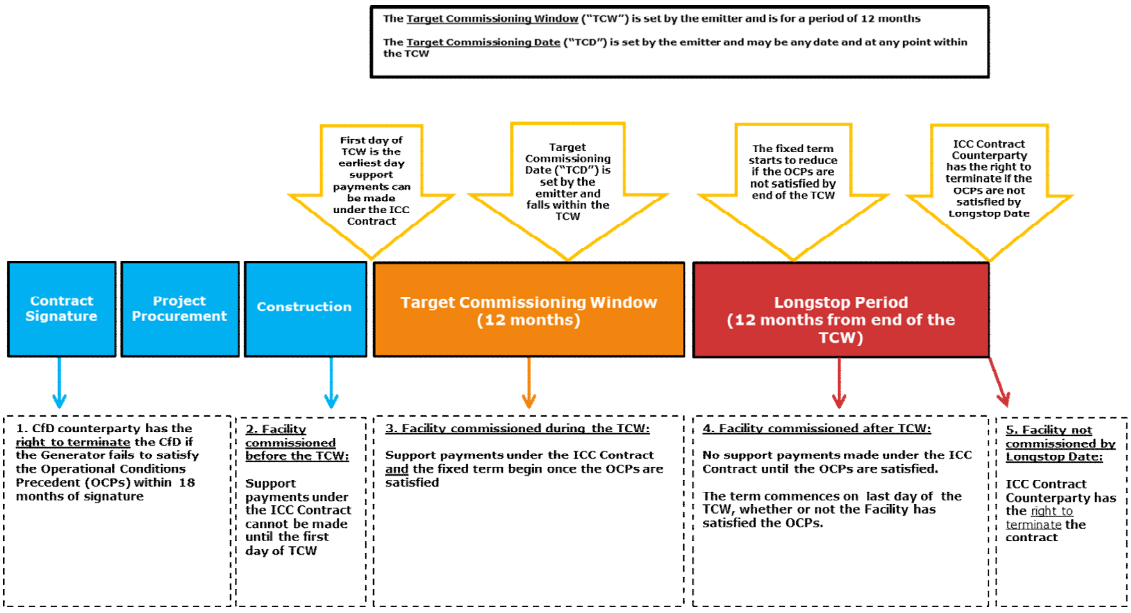
---

[4]Taken from "Carbon Capture, Usage and Storage: An update on the business model for Industrial Carbon Capture", October 2021 issued by BEIS.

In particular:

- once the ICC Contract is entered into (which may occur significantly well in advance of Financial Close of new EfW developments), the emitter/developer will have 18 months to fulfil the milestone requirements. These requirements require:
  - the emitter and its shareholders to spend 10% or more of the project's pre-commissioning costs on the project; or
  - specific project commitments (i.e. delivery of evidence of sufficient financial resources) to have been complied with or fulfilled within the 18 month period;
- the failure to satisfy the initial development milestones may result in termination of the ICC Contract;
- the ICC Contract will also contain a Target Commissioning Date as well as a 12 month Target Commissioning Window (**"TCW"**);
- there will be a series of Operational Conditions Precedent (**"OCPs"**) which will need to be satisfied before payments are made under the ICC Contract. The OCPs include:
  - demonstration that the capture plant has been commissioned and is working to the agreed specifications;
  - satisfaction of a minimum CO_2 capture rate (equal to the higher of 85% and five percentage points less than the CO_2 capture rate included in the project's original application);
  - the emitter's compliance with metering obligations;
  - the captured CO_2 complying with specified standards; and
  - connection to the transport and storage network.
- once the OCPs have been satisfied, this will trigger the start of payments under the ICC Contract;
- if there is delay in commissioning of the project and/or the satisfaction of the OCPs beyond the Target Commissioning Window, the duration of the revenue support will be reduced accordingly;
- the Target Commissioning Window can be extended in certain circumstances (e.g. force majeure), in order to preserve the length of the revenue support commitments; and
- if the OCPs have not been satisfied by the longstop date (being 12 months after the expiry of the TCW, as extended), then the ICC Contract Counterparty will have the right to terminate the ICC Contract.

Figure 2: diagram showing the contractual framework



The ICC Contract will also contain a detailed change in caw mechanism to provide protection to emitters from certain unforeseeable changes in law, to ensure that the business model is bankable and investable. Readers will be familiar with this type of Qualifying Change in Law mechanism. It includes the concepts of Discriminatory Changes in Law, Specific Changes in Law and Other Changes in Law which might either affect the construction or the operation of the capture plant and/or the emitter's ability to comply with its obligations.

Capture as a Service ("CaaS")

It has been anticipated that some project structures may instead engage **a third party to capture the emissions from a facility and transport/store these CO_2 emissions on behalf of the original emitter**. This might arise in circumstances where decarbonisation of smaller facilities may not been technically or commercially feasible or where there are greater economies of scale in aggregating capture and storage efforts across multiple facilities.

BEIS has therefore also proposed a variation to the basic ICC structure, termed Capture as a Service (**"CaaS"**). **Figure 3** below illustrates the contractual arrangements, payments and emissions likely to arise where a CaaS structure is preferable.

Where this structure is adopted, each emitter will still enter into an ICC Contract with the ICC Contract Counterparty, but will also enter into a separate CaaS subcontract with the company providing CaaS (referred to as the **"CaaSCo"**).

In a contractual sense, the ICC Contract will be adapted to recognise and accommodate the CaaS structure, but will otherwise be on largely the same terms as the more generic ICC Contract used for all other industrial emitters.

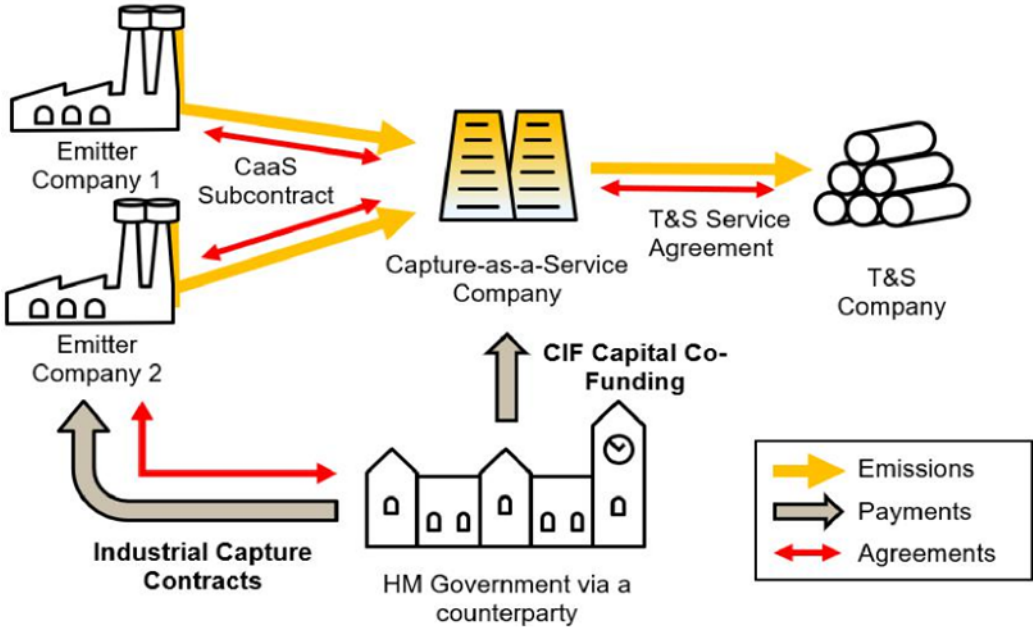
Although BEIS does not intend to provide "required drafting" for the CaaS subcontract or participate in any negotiations between the emitter and its CaaS subcontractor, BEIS will publish a subcontract checklist which sets out the requirements it anticipates being reflected in the CaaS subcontract.

Furthermore, the ICC Contract will contain a number of specific amendments in order to accommodate the CaaS structure, which are currently set out in the draft Front End Agreement which accompanies the ICC Contract terms.

The principal changes to the generic ICC Contract required to accommodate a CaaS structure will include:

- an obligation to enter into the CaaS subcontract;
- an obligation on the emitter to perform its obligations under the CaaS subcontract and procure compliance by the CaaSCo of its obligations under the CaaS subcontract;
- amendments will be required to the termination provisions in order to reflect the involvement of CaaSCo in the structure and the additional CaaSCo capture plant;
- additional termination events, in order to capture cross default by CaaSCo;
- Operational Conditions Precedent and initial milestone requirements, which will be tailored to reflect the involvement of CaaS Co in the structure;
- the ICC Contract will need to adapt the requirements to meet minimum CO_2 capture rates, in order to reflect the way in which CO_2 is captured under such a structure;
- the provisions dealing with metering will also need to reflect the CaaS structure;
- payment arrangements will need to be adapted, particularly those relating to the proposed opex reopener, in order to capture the operational costs incurred by CaaSCo;
- the protective provisions in the ICC Contract relating to, for example, force majeure and qualifying changes in law will need to be adapted to reflect the alternative structure; and
- provisions regarding confidentiality, announcements, freedom of information and intellectual property will also need to be adapted to reflect the involvement of CaaSCo in the structure.

Figure 3: CaaS structure: payment flows, direction of emissions and agreements between various parties[5]



Other aspects of the October 2021 update

The October 2021 update also touched upon other aspects of the support mechanism, such as:

- the capital grants incorporating a degree of risk sharing with respect to construction cost overruns;
- the management of construction and operating risks, particularly those relating to the interfaces with the transport and storage network;
- how the transport and storage fee would be payable, either by the "emitter" (e.g. the EfW facility) or directly by the ICC contract counterparty; and
- performance conditions imposed upon the emitter and the impact of these conditions on the ICC revenue support payments.

Most relevantly, the October 2021 update was accompanied by a provisional set of Heads of Terms for the Industrial Capture Contract and a "front end" ICC Contract.

[5]Taken from "Carbon Capture, Usage and Storage: An update on the business model for Industrial Carbon Capture", October 2021 issued by BEIS.

LATEST DEVELOPMENTS

Earlier this week, two important updates were released by BEIS which are of particular relevance to waste management/EfW Projects. These are:

- **"November 2021: Updates on the industrial carbon capture and dispatchable power agreement business models"[6]**; and
- **"Cluster Sequencing for Carbon Capture Usage and Storage Deployment: Phase 2: Background and Guidance for Submissions"[7].**

The updates contain critical information for developers, owners and operators of waste management/EfW facilities seeking to deploy CCS technology. They also build on the previous updates above and provide far more sector-specific guidance.

First update: The ICC and DPA business models

This very brief update builds on the guidance set out in the October 2021 update and provides future information on the application of the ICC business model to the waste management sector.

More generally, the update makes it clear that applicants will be expected to provide a significant amount of background information on jobs, skills, community regeneration and their supply chain, in relation to the relevant carbon capture project.

BEIS is requiring applicants to provide this information as part of their applications and to provide further information, particularly on the economic benefits of their project, at regular intervals following contract signature. A failure to provide this information after signing of the ICC contract will lead to financial penalties under the ICC Contract.

More importantly, BEIS has now confirmed that "a decision has been taken to enable waste management CCS projects to be **eligible for support through the ICC business model** for phase 2 of the cluster sequencing process".

However, despite this clear statement, the update does indicate that work is still being carried out to assess whether modifications to the ICC business model will be necessary for waste management CCS projects.

The key messages coming out of this latest update are:

- waste management projects will need to **satisfy specific detailed eligibility criteria**, over and above the general eligibility requirements for other industrial carbon capture facilities;
- it is likely that a **cap will be placed on the number of projects which may be shortlisted for negotiations from each sector**, so the number of EfW/waste management projects entitled to ICC Contracts may be limited;
- the **ICC Contract may need to be adapted for use in the waste sector**, largely to avoid the risk of over-compensation and to avoid market distortions which may undermine the achievement of recycling targets;
- as the waste management process is not currently subject to the UK Emissions Trading Scheme (the **"UK ETS"**) or other forms of carbon pricing, the **UK Government is currently exploring options for expanding the UK ETS**. Any such future developments may need to be accommodated within the ICC Contract;
- where the ICC Contract is used for waste management projects, a fixed reference price may be more appropriate than a market-based carbon price, although this is still being considered by BEIS; and

[6] Reference link here.
[7] Reference link here.

- the UK Government is still finalising its position on how the contract will take into account potential future markets for negative emissions, particularly as a large proportion of waste contains biogenic content.

Second update: Cluster sequencing for CCUS deployment

This second update contains significant information on the submission process for ICC Contracts as well as the **structure of submissions**, **entry processes**, **evaluation criteria** and the **eligibility criteria**.

The update recognises that the first two Track-1 Clusters have now been announced (being the Hynet and the East Coast Clusters). Projects wishing to apply for support as part of Phase-2 must be able to connect to one of these Phase-1 Track-1 Clusters.

The Phase-2 timetable which has now been updated extends several of the previously notified deadlines and sets out a clear application and engagement process leading to final decisions for support under the CCUS mechanism. The key dates for this process are outlined below:

Milestone	Date
Phase-2 launch – Expressions of Interest and call for carbon capture projects capable of connecting to the Track-1 T&S networks	w/c 8 November 2021 (already occurred)
Phase-2 – Expression of Interest window closes	3 December 2021
Phase-2 engagement sessions	w/c 6 December 2021 w/c 10 January 2022
Phase-2 submission deadline	21 January 2022
Phase-2 submission evaluation period	24 January – May 2022
Phase-2 decision – shortlisted applicants invited to participate in negotiation/due diligence	From May 2022
Decision in relation to allocation of support and project offers allowing for investment decisions to take place	From Q2 2023

Eligibility of EfW Projects

Projects will only need to submit one submission for phase-2 selection for both capex co-funding as well as business model revenue support under a ICC Contract.

The update reiterates the **eligibility criteria** (which are listed above and were re-stated in the October update), although there is further detail in relation to several of these eligibility requirements.

It had previously been indicated that each applicant must have access to a transport and storage solution. It has now been made clear that the applicants must have access to a CO_2 transport solution and Track-1 (or reserve cluster) CO_2 storage site. Therefore, facilities which are geographically located far from the Hynet and East Coast clusters (or the reserve Scottish Cluster) will face higher transportation costs.

Furthermore, for waste management projects, the project must meet **specific additional eligibility criteria**:

- the facility must have a minimum **20 years remaining operational life** from the date on which the CCS technology becomes operational (which must be documented but may include evidence that the design life can be extended through refurbishments already made or planned);
- the technology must be classed as an **eligible waste management technology**, being:
  - incineration or combustion with energy recovery;

- advanced thermal treatment or advanced conversion technology (e.g. gasification or pyrolysis) conversion of waste into energy, chemicals or fuel; and
- hazardous waste incineration (which need not have energy recovery to be eligible).

  It is notable that waste technology which is **not eligible** includes incineration or combustion without energy recovery and advanced biological treatment (i.e. anaerobic digestion).

- the facility must have a **high efficiency rating** which, in most circumstances requires an R1 efficiency rating – although this does not apply for pyrolysis or where gasification is used to create chemicals or fuels.

NEXT STEPS

Owners, operators and developers of EfW facilities need to:

- be aware of the multiple CCUS Updates by BEIS and how they might impact upon their business;
- determine whether their facilities fall within the eligibility criteria for CCUS support;
- determine if the facilities are appropriately located for access to a CO_2 transport solution and Track-1 (or reserve cluster) CO_2 storage site;
- understand the implications of not adopting CCUS technology for their facilities, in light of potential exposure to the UK ETS; and
- be aware of the submission requirements and timetable currently being proposed by BEIS.

If owners, operators and developers of EfW facilities are thinking of adopting CCUS technology and applying for support , they will need to:

- engage with all necessary stakeholders (which may include existing funders, operators and shareholders) in order to ensure the deliverability of any carbon capture and storage technology; and
- engage experienced legal, technical and financial advisers who are already involved in the Government's CCUS program.

KEY CONTACTS

Cameron Smith
Partner

T +44 20 7859 1125
M +44 7909 925 161
cameron.smith@ashurst.com

Nick Stalbow
Partner

T +44 20 7859 1802
M +44 7887 558 590
nick.stalbow@ashurst.com

ashurst

www.ashurst.com