



Department for
Energy Security
& Net Zero

Carbon capture and storage (CCS) Network Code

Government response to consultation

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Introduction

Carbon Capture and Storage (CCS), a technology to capture and store harmful emissions away from the atmosphere, has been described by the Climate Change Committee as a necessity for maintaining our climate commitments. By enabling flexible, low carbon power, CCS will be vital to the government's mission for clean power, for strengthening energy security and reducing use of unabated fossil fuels. It will also enable deep decarbonisation of industries where other mitigation options are limited, such as the chemicals, refining, and cement sectors. The growth of the CCS sector will be important to the government's vision to create good jobs in Britain's industrial heartlands and ensure a just transition for industries based in the North Sea.

The consultation on the CCS Network Code Heads of Terms (HoTs) opened on 01 December 2023 and closed on 16 February 2024. The CCS Network Code ("the Code") will form a key component of the business model and regulatory regime being developed for carbon dioxide (CO₂) transport and storage, giving effect to various conditions under the transport and storage companies' (T&SCos) Carbon Dioxide Transport and Storage Licence ("the Licence"). It will set out the commercial, operational, and technical arrangements between Users and operators of Transport and Storage (T&S) Networks, together with governance arrangements.

Drafting of the Code is being guided by government and driven by industry. Through engagement with industry and advisors, including through the consultation on the Code, government officials have sought to integrate diverse viewpoints and expertise to develop a fit for purpose Code which meets the needs of potential network operators and Users, whilst supporting wider policy goals and value for public money.

The immediate intention is to produce a form of Code sufficient to support the deployment of the initial, "Track 1"¹ T&SCos and Users (the "Initial Code"). Accordingly, government and industry are targeting simplicity where possible in the development of the Initial Code, seeking to include those elements required by early networks and establish a framework that can be further developed to meet future needs.

Government consulted on a wide range of proposals on matters addressed through the Code, including those related to:

- the connection by Users to a T&S Network, or part of a T&S Network;
- the delivery of CO₂ by Users into the T&S Network at a Delivery Point;
- the transportation and storage of CO₂ delivered by Users at Delivery Points;
- the operation and maintenance of each T&S Network; and

¹ A cluster of CCS technologies includes a CO₂ T&S Network and network Users. The Track 1 CCS clusters have been selected by government through the cluster sequencing approach. The Track 1 clusters are HyNet in Liverpool Bay and East Coast Cluster in Teesside.

- the interface between T&SCo in relation to different T&S Networks or parts of a T&S Network.

The consultation received 28 written responses from a range of stakeholders, including potential future CO₂ network Users and operators, industry groups, and wider stakeholders. Verbal feedback was also received through a series of engagement sessions held during the consultation window.

Context

Overview of consultation proposals

The consultation posed 28 questions, seeking views on most sections of the Code. The consultation document outlined the content of all Code sections, including:

- **Section A: Introduction, Structure and Interpretation** – sets out the structure of the Code, how the Code is given legal effect and how the Parties² accede to the Code.
- **Section B: Governance** – presents a common set of modification and governance processes for the Code, including dispute mechanisms.
- **Section C: Connections** – sets out the process to connect to a T&S Network that is intended to apply until the government ceases to play an active role in the Selection Process for new connections and allocation of capacity, or until a new connection process is developed under the Code.
- **Section D: Network Structure and Planning** – describes the different parts of a T&S Network and obligations in respect of network planning.
- **Section E: Network Use and Capacity** – provides for the use of system procedures and for how Users access the network operated by the T&SCo. This section sets out Obligated Network Capacity (ONC), the nomination process, the process for managing capacity constraints, and maintenance procedures.
- **Section F: Network Design and Specification** – specifies the requirements that Users delivering CO₂ to the T&S Network must comply with, including provisions around CO₂ entry conditions, network design specifications, metering/measurement requirements and details of the CO₂ Re-Use Service.
- **Section G: Common Interface Procedures** – outlines the process for developing procedures which (i) impact both the T&SCo and User(s) across defined site boundaries, (ii) require coordinated action between T&SCo and User(s) and/or (iii) require T&SCo and User(s) to communication operational or emergency events, issues or actions that may impact one another.
- **Section H: Charges, Invoicing and Payment** – details the methodology for determining charges and the process for subsequent invoicing and payment.
- **Section I: Data** – sets out the different types of data that will be generated in operation of the T&S Network and various provisions relating to the processing, access to, and management of that data. This includes provisions related to the appointment of the Central Data Service Provider (CDS).
- **Section J: General** – contains general provisions intended to apply across all sections of the Code. This section covers areas such as notices and communications, governing

² For the purposes of the Code, a 'Party' means a T&SCo or a User who has acceded to the Code.

law, third party rights, default and termination, and specific provisions regarding security and liability.

- **Section K: Glossary** – sets out the defined terms used in the Code.
- **Exhibit A: Code Accession Agreement** – the first T&SCo(s) and User(s) to reach Final Investment Decision (FID) will sign the Code Agreement, giving legal effect to the Code and becoming bound by it. Subsequent T&SCos and Users will accede to the Code by signing a Code Accession Agreement (by which they will become a party to the Code Agreement).
- **Exhibit B: Construction Agreement** – a bilateral agreement that a User enters into with a T&SCo, governing the Works required to be carried out by both T&SCo and the User to connect the User Facility to the T&S Network.
- **Exhibit C: Connection Agreement** – a bilateral agreement that a User enters into with T&SCo, which includes all User-specific details relating to the User, the User Facility, and the User’s Delivery Point.
- **Exhibit D: CDS Accession Agreement** – the initial T&SCo(s) will enter into the CDS contract, appointing the CDS. Any subsequent T&SCo will accede to the CDS Contract by signing a CDS Accession Agreement.

In addition to commenting on the specific Code sections laid out above, several respondents also provided views on the future of CCS networks and the implications of this for the Code, including where networks may involve disaggregated onshore and offshore licences or Non-Pipeline Transport (NPT). These comments are summarised and responded to under ‘Other feedback’ below.

This government response outlines the feedback received and sets out the government’s policy response.

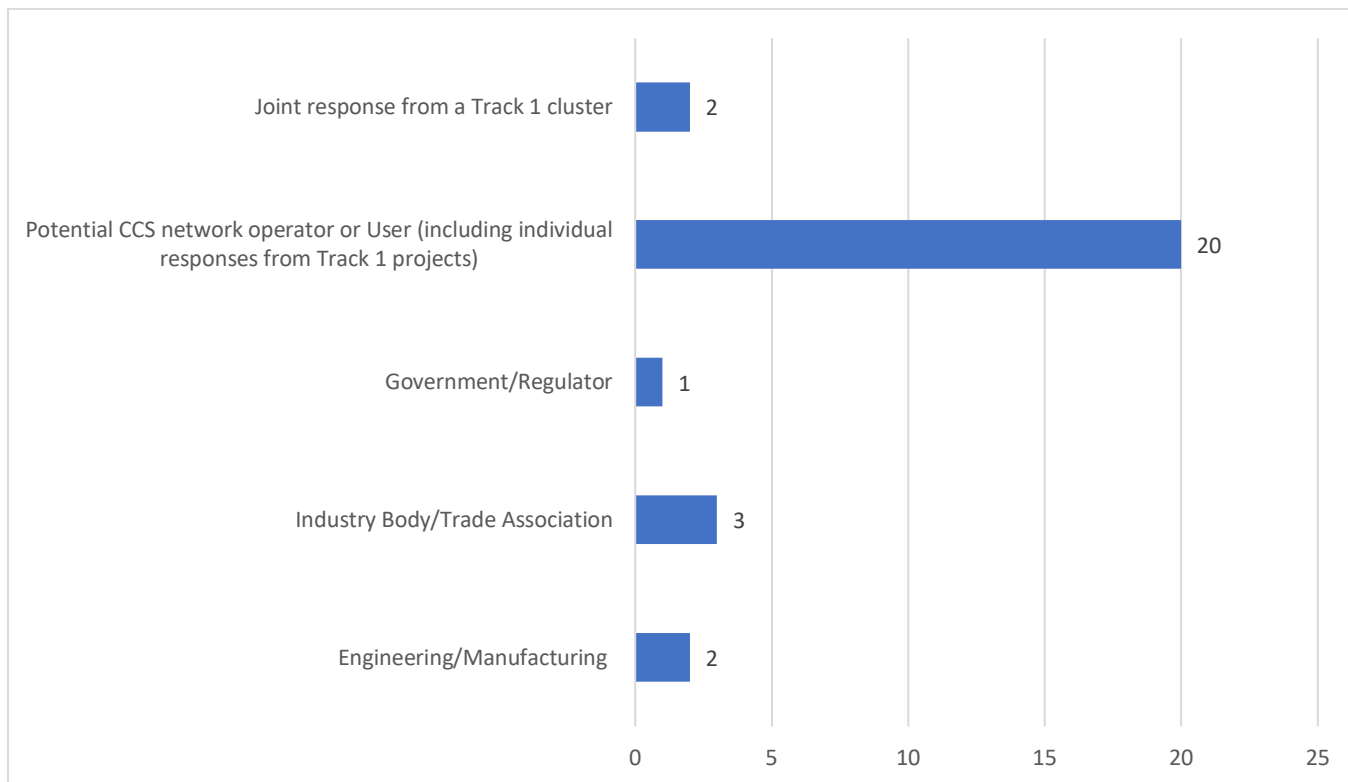
Engagement with consultation proposals

To support stakeholders’ understanding of the consultation proposals the Carbon Capture and Storage Association (CCSA) and government officials jointly hosted a consultation launch event. This was then followed by a series of six government-hosted webinars outlining the content in each section of the Code. These webinars were each attended by between approximately 50 and 100 participants.

Responses to the consultation

The consultation was published online and ran from 01 December 2023 to 16 February 2024. The consultation received 28 written responses, submitted via email. Figure 1 provides a breakdown of respondents by type. The government is grateful to each and every respondent to the consultation for taking the time to submit their views.

Figure 1: Breakdown of consultation respondents by type



All responses were carefully analysed by government officials. When considering the summary of responses below, please note that:

- This summary does not seek to exhaustively capture all views expressed, but rather to summarise the prevalent themes and particularly notable points of feedback within responses.
- Respondents used either a downloaded response form, customised templates, or sent in their responses using their own formatting.
- Not all responses answered every question, or addressed specific questions, and the number of responses each question received varied significantly. We have noted the number of written responses each question received in brackets; this number excludes those who stated they had no opinion or comment to give on the question.

Next steps

This government response summarises the view of respondents and sets out the government’s policy response, informed by the consultation. The government intends to publish the full form text of the Code in early 2025, to provide respondents and other interested stakeholders with the details of the policy responses stated. It is our intention to also publish further explanatory materials in due course, setting out more detail of policy rationale on a subset of topics.

Summary of responses and policy response

Section A: Introduction, Structure and Interpretation

The consultation did not include any questions regarding Section A. However, (1) response was received in relation to this section.

- Respondent agreed with the approach set out in Section A and stated it would be helpful to update a schedule naming all the Parties to the Code once an accession has been executed, so this information is publicly available.

Policy response

Government has addressed this feedback and there are provisions included in Section B whereby a CCS Network Code Website must be developed. The intention is that the CCS Network Code Website will maintain a list of all Parties to the Code and the date upon which such Parties acceded to the Code. The T&SCos are under an obligation (pursuant to Section A) to notify the Secretary of any new Code Parties, at which point the list on the CCS Network Code Website must be updated to include any new Code Parties.

Section B: Governance

Question 1 (19 responses) sought views on the approach to Code governance as set out in the HoTs.

- Many respondents broadly agreed with the governance arrangements subject to certain clarifications or amendments of various degrees. This included providing clarity on how User Types would be defined and further detail on the Secretary arrangements.
- Responses varied with respect to the proposed arrangements to allow Third Party Participants, designated by Ofgem, to be able to propose Code Modifications. This included those who wanted more control around who could be designated a Third Party Participant and conversely those who wanted the arrangements to go further, such as allowing them to be a voting member of the Modification Panel or allowing a wider set of Non-Code Parties to input into the Modification Procedure.
- Respondents were supportive of the role for Ofgem being able to initiate Significant Code Reviews as is the case in other industry codes in the gas and electricity sectors.
- Respondents also noted that they would like to have the ability to appeal Ofgem decisions with respect to Code Modifications to the Competition and Markets Authority (CMA), as is the case with some of other gas and electricity industry codes.

Through their responses to Question 1, 13 respondents directly commented on the Secretary of State's (SoS) role in the Code Modification Procedure.

- Respondents were broadly supportive of the proposed role for the SoS as a non-voting Member on the Modification Panel and of the requirement for the SoS to be consulted on Modifications.
- Responses varied with respect to the proposed right for the SoS to direct Modifications during the Interim Period³. Several respondents were strongly supportive of this role, recognising that existing Code Parties may not have a direct interest in Modifications aimed at future network diversification and that it may be beneficial for the development of structural modifications to be centrally managed. Other respondents accepted the SoS's role in principle but sought clarification around aspects such as: the (i) route through which industry can input into this process, (ii) basis on which the SoS will decide whether to implement a Modification, (iii) circumstances in which this Modification route will be used, (iv) rationale for this role, and (v) protections available to compensate for any costs incurred as a result of Code Modifications. A number of Track 1 respondents suggested that investability in the CCS sector may be compromised without further clarification of the aspects listed above.
- Some respondents commented on the length of the Interim Period, with most noting that it is as yet undefined and requesting clarity. It was also suggested that the period during which the SoS can implement Modifications should be kept under review as it may be necessary throughout the market creation and transition phases of the CCS sector, and the timeframe for this does not necessarily align with the Interim Period.
- Feedback suggested the SoS's right to direct Modifications should be time-bound to provide a more structured framework and ensure that excessive delays in implementing Modifications do not slow future CCS deployment.

Policy response

Following analysis of consultation responses, the government has addressed some of the gaps and issues identified by stakeholders, including defining User Types and building out the Secretary arrangements.

Government has also carefully considered the feedback from stakeholders on who can participate in the Modification Procedure. Government has decided to maintain the policy position with respect to Third Party Participants (as designated by Ofgem) being able to make Modification Proposals. In addition to this, in order to allow for a wide range of views to be represented during the Code Modification Procedure, government has introduced the concept of Designated Non-Code Parties (designated by Ofgem). A Designated Non-Code Party will be given sight of various documents produced through

³ The "Interim Period", as per Schedule 1 of the Energy Act 2023, is the period during which the SoS has the power to grant economic licences to T&S Network operators. The Interim Period will begin when Schedule 1 comes into force and end with whatever day the SoS specifies by regulations.

the Modification Procedure and will be invited to make representations with respect to Modification Proposals.

Government acknowledges the feedback regarding whether appeals against Ofgem decisions with respect to Code Modifications can be made to the CMA. However, as this would need to be addressed by new legislation, rather than via the Code, it will not be addressed in response to this consultation. In any event, to the extent that Ofgem has determined a Code Modification in its role as Regulator, such decisions could still be subject to challenge via judicial review.

Government has retained provisions related to the SoS role in the Modification Procedure to ensure that government can act, if needed, to facilitate the expansion and diversification of networks. As noted in the consultation, the department continues to consider whether it would be appropriate to introduce a power in future primary legislation for the SoS to direct Modifications to the Code. This includes consideration of whether any such power would be time-bound or enduring.

Section C: Connections

Question 2 (18 responses) sought views on whether the approach to new connections provides an appropriate pathway for Users and prospective Users to obtain a new or modified connection, either with or without UK government support being sought⁴.

- Respondents were broadly in agreement with the proposed approach, however many respondents requested further clarification and detail.
- Multiple respondents commented that further details are needed around the process for prospective Users to connect. These comments included concerns on the current timeframes and cost considerations, such as the feasibility to undertake required appraisal studies and either reject or issue an Initial Offer to an Eligible Applicant⁵ within three months. These responses stated there is a lack of clarity on plans for selecting T&SCos and Users beyond initial clusters.
- Multiple respondents commented that details on how 'merchant' Users can gain T&S Network access are required, and that overall details are required for a self-sustaining CCS market and it is critical to outline the process that does not involve government in selection.
- Several respondents commented that NPT interests were not represented, and the lack of provisions related to NPT and/or to disaggregated onshore and offshore networks meant uncertainty for non-Track 1 projects.

⁴ The consultation document noted that future UK government led selection programmes could be open to users 'not requiring UK government financial support'. Some responses referred to such self-financing users as 'merchant' users, whilst recent government publications have referred to them as 'Projects Unsupported by CCUS Business Models'.

⁵ "Eligible Applicant" is a prospective User which has been selected under a government led Selection Process and has not subsequently been deselected.

- Several respondents commented it would be useful to understand how the capacity requirement of a project approved through a Selection Process is accounted for in the network build or expansion. Specifically, does the ONC that T&SCOs must make available to Users incorporate new approved projects with immediate effect or in the next price control period. Respondents commented that further detail is required in relation to the allocation window process for a new connection, and this determination must be made in a flexible, transparent and cost-effective process.
- Few respondents requested detail on what the government-led selection process (the “Selection Process”) will entail.
- Several respondents stated further clarity on modifying the connection is needed before this can be meaningfully assessed.
- Several respondents requested details on the scope and consequences of any required T&SCo due diligence as part of the Selection Process, in particular if it risks delaying the connection.
- Few respondents stated 10 business days was insufficient for resolving disputes which arise between a User or a prospective User and T&SCo in relation to a connection application, before moving to mediation.
- One respondent raised concerns that a T&SCo could reject an Eligible Applicant and requested indication on the likelihood of this to reduce risk surrounding FEED (Front End Engineering Design) investment.
- One respondent commented that the definition of User should exclude other T&SCOs or Transport Companies (where onshore and offshore networks are disaggregated) from seeking capacity to use another T&S Network’s infrastructure.

Policy response

The immediate intention of this Initial Code is to produce a form of Code sufficient to support the deployment of Track 1 T&SCOs and Users, as well as other T&SCOs and Users in the short-term. Accordingly, policy development is still ongoing with regards to the detailed process for connections in the longer term, particularly where the government plays a less active role in selecting T&SCOs and Users and/or there are other policy developments that impact the current process.

In terms of acquisition of capacity, Section E provides that Users obtain capacity through the government-led Selection Process – this is the case for both capacity allocated when a User first applies for a connection, as well as any additional capacity that a User may apply for. Once again, the process will be different in the future where the government plays a less active role in selecting Users.

It is envisaged that this Section C will be expanded in the future, as policy is developed, through formal modification of the Code (as provided for in Section B). In time, this is likely to include details on the process for storage expansion, matching selection of additional storage capacity and ONC uplift. In addition, it is envisaged that in the future, provisions for NPT, disaggregation of onshore and offshore licences, and the

consequences of seeking capacity would be addressed via formal Code Modification. Hence the definition of User reflects the nature and User-base of Track 1 T&S Networks, and details of steps beyond those applicable to connection of Track 1 Users are intentionally left out of this initial version of the Code.

Section C contemplates that applications for modifications of existing connections will also be subject to a government led Selection Process (in the same way as new connections).

Section C intentionally refers to a UK government-led Selection Process, as distinct from just referring to the current UK Cluster Sequencing Process. This affords the possibility of Users which do not need a revenue support contract seeking a connection through a future government-led Selection Process. This could be either on a self-financing basis or whilst in receipt of other forms of UK government support. It is considered appropriate for the government to play a role in awarding connections for so long as storage availability is a limiting factor to sector expansion, and/or T&S requires government revenue or risk sharing support. It is contemplated that beyond this, the future connection application process will more closely resemble the connection process that exists in the context of connections to gas and electricity networks – that is, a connection process without a government-led Selection Process being the first step, and instead involving a direct approach to a T&SCo. Any such new connection process will be implemented by way of a formal Code Modification. In the future the approach to connection applications in Section C may also be impacted by legislation if government exercises its powers under the Energy Act 2023 to amend or replace the existing regulations dealing with access to carbon capture and storage infrastructure.

The number of days for resolving any dispute which arises between a User or prospective User and a T&SCo in relation to a Connection Application has been increased to 30 business days, following the feedback received.

T&SCo due diligence as part of the Selection Process has been removed, as this is not applicable for Track 1.

Having considered how the process for connecting to a T&S Network will work in practice, some further changes have been made. To reflect the role of government in selecting Users, Users will now receive a Final Confirmation Notice via the Selection Process and following provision of this notice, where a User has accepted an initial connection offer, the T&SCo will have an obligation to issue a final connection offer. The circumstances in which a User may not be able to be offered a connection have also been clarified – in particular, in limited circumstances such as where the T&SCo's "change in scope" application under its Licence (to allow it to proceed with an expansion) has not been approved by the regulator, Ofgem.

Section D: Network Structure and Planning

Question 3 (11 responses) sought views on the proposals set out in Section D of the HoTs.

- All respondents were broadly in agreement with the approach set out in Section D of the HoTs.
- Respondents were in agreement that there could be a future scenario where the onshore and offshore networks are separately licensed and under separate ownership and control, and therefore respondents support the proposal to include a placeholder for provisions dealing with the interface between the onshore and offshore systems.
- One respondent requested that a pragmatic approach be taken to align the needs of the onshore and offshore system as far as practical within the regulatory framework, in order to keep the operation of the CCS network as a whole as straightforward as possible.
- One respondent commented that the interface between the onshore and offshore systems should be expanded to include reference to infrastructure owned by others such as CO₂ terminal owners, CO₂ ships, storage complexes and future unregulated infrastructure. They commented the Code should allow for NPT Users and cluster-specific shipping intermediaries to connect to the T&S Network either within the onshore or offshore systems.
- One respondent commented that the definition of “Offshore Transportation and Storage System” lacked wording to define the User boundary points and requested appropriate wording to clarify the concept of a “Boundary Point” or “Custody Transfer Point”.
- Respondents were in agreement that a long-term forecast is required. One respondent queried the duration of the forecast.
- One respondent commented it would be useful to understand how network sizing and obligated capacity planning will be determined.

Policy response

Section D recognises the future possibility that onshore and offshore components of the T&S Network may be separately licenced and under separate ownership and control, and that there may be T&S Networks involving NPT. However, the Initial Code will not detail these provisions. These would be introduced after the Code Implementation Date, as and when required, via formal Code Modification under Section B. The current distinction between onshore and offshore, and the associated definitions, is considered sufficient for the Initial Code.

Delivery Point is defined in the Code as the point of connection between a User Facility and the T&S Network at which point a User will deliver CO₂ into the T&S Network, and the title and risk of relating to the CO₂ delivered transfers from the User to the T&SCo.

A long-term forecast of 20 years is required from Users, beyond the anticipated 15-year User revenue support contracts, for longer-term planning purposes in order to signal future needs and to assist the T&SCo in planning the future development and expansion of the T&S Network.

Section E: Network Use and Capacity

Registered Capacity

Question 4 (19 responses) and **5** (18 responses) sought views on the proposed approach to Registered Capacity (RC), as well as whether an approach which allowed aggregate RC to be greater than ONC would be beneficial, and whether the associated risk would be manageable for early projects

- A majority of respondents agreed with the approach to RC set out in the Code HoTs. Respondents agreed with the right, but not obligation, for Users to flow up to their RC and welcomed that all Users would be able to do so concurrently. They noted that this approach minimised risk for Users and reduced the likelihood that T&SCo would need to call a constraint.
- Respondents agreed with the simplicity of the approach for RC, and the appropriate nature of this for the Initial Code. They were cognisant of the risk that this approach could lead to store underutilisation. A number of those responses highlighted that future Code modifications to enable interruptible capacity products on networks could be a route to addressing this. The SoS modification powers were noted as a potential avenue for this.
- The feedback demonstrated a lack of clarity over a number of processes associated with RC. Some sought to understand the process for acquiring and extending RC, and several responses questioned whether a mechanism would be in place to allow existing Users priority to extend their RC after their initial term had ended. Similarly, there were also several responses seeking to clarify a User's ability to surrender or amend their RC.
- Feedback on the allocation of aggregate RC greater than ONC was varied. Many respondents noted the trade-offs, these being the risk of overbooking that leads to regular constraints, versus the benefit of maximising CO₂ stored and reducing network charges to individual Users.
- Responses were divided into two main groups.
 - Group A generally opposed the allocation of aggregate RC over ONC. This group highlighted the importance of a guaranteed right to flow and concern over loss of income, from both CO₂ capture and their primary industry, if overbooking led to an increased number of constraints being called on the T&S Network. In general, they noted that this approach could be suitable once networks had matured, and

be delivered through future Code modifications, but that it was not appropriate for initial networks.

- Group B noted that allocating aggregate RC over ONC was a more complex approach but illustrated the benefits that this could have for T&S Networks, specifically the increased storage utilisation. They noted that to deliver such an approach T&SCo should have the power to constrain users where peaks coincide, and that in such a scenario Users should be compensated under constraint protection.
- Two of the respondents suggested that T&SCo should be able to reallocate RC following consultation and agreement from Users.
- Various respondents suggested minor clarifications and amendments to proposed drafting.

Policy response

Government will continue to set a User's RC to match their revenue support contract as part of the government-led Selection Process. The simplicity of the approach to RC will be retained, and RC will remain firm with Users given a right, but not an obligation, to flow CO₂ up to their RC.

In the Code HoTs there is no provision requiring RC to be equal in value to ONC, although this appears to have been assumed by respondents. The Code enables some flexibility for government to allocate aggregate RC to Users above a T&S Network's ONC, however this has the associated risks that Users raised within their consultation responses. With this considered, government will allocate RC in a manner that considers each T&S Network's ONC, and ONC in turn will be set in the Licence with reference to the store permit limits (this being the store permit issued by the NSTA for each store). Each T&S Network's ONC will set a Maximum Instantaneous Flow Rate, a Maximum Annual Cumulative Flow Rate, and a Total Store Capacity over 25 years that T&SCo is obliged to make available to Users under their Licence. For Users, RC will be allocated by government through the Selection Process and will be expressed in tCO₂/hour. (A User's RC will be set in the Key User Connection Details within the User's Connection Agreement) and reflect the allocated Network Capacity set out in the Final Confirmation Notice issued by the Secretary of State to the User as part of the connection application process. A User's peak maximum instantaneous flow rate of CO₂ must not exceed the instantaneous flow rate that can be accommodated by a User's allocated RC. For 'Initial Users' this RC will be allocated for a term of between 1 and 15 Charging Years, as determined through the Selection Process.

To manage the risks of the above principle, government has included a right in the Code for T&SCo to constrain flows where cumulative flows into a store are, or are expected to be, in excess of those permitted in the relevant store permit. This will be calculated on a rolling annual basis. Where a T&SCo calls a 'Maximum Annual Cumulative Flow Constraint' due to this risk, Users will be eligible to claim relief under their User revenue support contracts, providing relevant conditions are met, as is the case for claiming relief

during other constraint events. Government views this right as prudent and beneficial for the future evolution of T&S Networks, as well as to ensure T&SCos can adhere to the conditions of their Licence and storage permit.

Government recognises the role that interruptible capacity products may have for future T&S Networks as a route to maximise utilisation of stores. These were deemed out of scope for the 'Initial Code'; however, government expects more complex capacity products to develop and relevant modifications to the Code to be implemented as it matures.

A number of responses demonstrated User uncertainty on how RC beyond 15 years can be obtained. Currently all capacity allocation is via a government-led Selection Process, including for any capacity beyond a User's initial capacity allocation.

In due course the approach to capacity allocation is expected to be modified to enable the market-based transition of CCS, at which point further detail on how RC can be extended and applied for beyond initial periods will be introduced through Code Modifications.

Finally, a number of responses also sought clarity on the process for amending RC. Under the Network Code, Users can only surrender RC where another User seeks to take this additional RC and has been awarded this via a Selection Process. There is no mechanism for Users to surrender RC to T&SCo, or to another User unless this is via a government-led Selection Process. This approach has been retained and is intended to reflect the current government-led allocation of RC and the cost implications to government if Users and a T&S Co agreed unilaterally to reallocate RC. Therefore, at this stage it is appropriate that a change to RC could only occur if agreed with government. However, it is recognised as an area where the Code will need to evolve in the future to enable market-based management of networks.

Nominations

Question 6 (19 responses) sought views on whether the proposed approach to nominations and renominations would support the efficient and responsive operation of a cluster, balancing the needs of both Users and T&SCo.

- The general approach to nominations, including the funnel-based forecasting approach and User obligation to seek to achieve their daily nominations, was accepted in responses. In particular, the ability for Users to renominate was welcomed.
- The HoTs set out a 30-minute responsiveness requirement on T&SCos, which requires T&SCo to accept renominations submitted 30 minutes ahead of the hour to which they relate. This aspect of the HoTs was raised by most respondents and feedback can be characterised into different groups.
 - Group A viewed the requirement of 30-minutes as unfeasibly onerous on T&SCo, with response times of between two and three hours favoured.

- Group B noted that whilst compliance with the 30-minute requirement would be possible, it would preclude participation in key primary activities for certain Users, such as participation in the electricity Balancing Mechanism for power Users. For these Users, a response time closer to 2-minutes is required to enable participation.
- Group C were largely agreeable to the existing proposals and did not raise any concerns.
- Under the Code HoTs, for any hour a User fails to provide a nomination a User's nomination shall be deemed zero. A few respondents queried the rationale for this and viewed it as overly punitive.

Policy response

Renominations

Following feedback from the consultation, government has updated the approach to renominations in the Code. This has been done with consideration of the competing priorities in this space. The final approach decided on by government and set out here aims to amalgamate the best aspects of the various suggestions provided by industry through the consultation.

Government will reduce the existing 1-hour delivery period to a 30-minute delivery period (The Delivery Period). This means that Users will be required to nominate and renominate flows for 30-minute periods. This will ensure a more representative picture of Users intended flow profile is available to T&SCo, as well as providing greater alignment with the periods used in the power market.

Government has also implemented a two-tiered service for renomination response time. Under the 'Standard Response Service' T&SCo must implement renominations submitted 3-hours ahead of the Delivery Period. Under the 'Enhanced Response Service' T&SCo must implement renominations submitted 30-minutes ahead of the Delivery Period. Users must request the Enhanced Response Service from T&SCo 2.5 hours before intending to use it and will need to specify the periods in the day and the amount of RC for which they require the Enhanced Response Service to be available. There will be no targeted cost for this service, but instead the cost to T&SCo for delivering the service will be socialised across Users. Under both services T&SCo has a firm obligation to deliver any valid renominations.

The Code has also been updated to allow Users to submit Flow Tolerance Requests to T&SCo, this allows Users to request to vary the quantity of CO₂ to be flowed in a Delivery Period inside the notice period for under both response services. T&SCo must use reasonable endeavours to accept these requests. This provision is intended to respond to consultation feedback and recognise the need of users who require shorter notice response time, including those wishing to participate in the electricity Balancing Mechanism.

The updates to renominations in the Code should ensure a quicker response time for Users who require it, through the reduced Delivery Period length and Enhanced Response Service, whilst avoiding obligations and costs on T&SCo when these response times are not required.

Noting the nascency of the industry, government has included a review mechanism that requires T&SCo and Users to consider operational data after a period of initial T&S Network operation (no later than 36 months) with a view to reviewing the response time and/or the Delivery Period length based on observed behaviour, User need and impacts of delivering the service.

Deemed Zero Nominations

Several responses queried the value of deeming any period in which a User fails to nominate as a '0' nomination. This position was taken to incentivise active User participation in the nominations process, rather than assuming values from previous nominations will be used. Users can renominate should they fail to nominate in the first instance.

Question 7 (18 responses) asked for any information or evidence that would support calibration of the 'material' and 'persistent' thresholds used to assess deviation between actual flows and Nominations.

- Respondents recognised the importance of incentivising good User nomination behaviour, and how deviation thresholds intended to do this. A few respondents provided specific evidence to support calibration of the "material" and "persistent" thresholds and, in general, responses opposed the current values of 3% and 5% and viewed these values as inappropriate for such a nascent industry.
- It was noted that whilst margins for flow deviation should be set with consideration given to the nascency of the industry, there could be a route to reviewing these values as networks mature.
- A majority of respondents raised concerns with the ability of T&SCo to serve a 'Non-Delivery Notice' to Users, requiring them to cease delivery of CO₂ within 24 hours. This was labelled a shut-out right and seen as overly punitive, particularly given the nascency of the industry, and the variable nature of fuels for some Users. In general, a charge associated with deviation was seen as preferable.
- In response to both Question 6 and Question 7, network-specific approaches to thresholds and response time were suggested.
- Various respondents suggested minor clarifications and amendments to proposed drafting.

Policy response

Government welcomes the information provided to support calibration of the deviation thresholds. Following consultation feedback, the threshold for deviation will be a upside and downside value, and this will be initially set at +/- 15%. The deviation threshold will be applied to each Delivery Period, rather than taken as an average across the day. This value is intended to recognise the variation that may naturally occur as a result of some Users processes, whilst also ensuring T&SCo has sufficient confidence in flows to enable them to manage the T&S Network effectively. The deviation thresholds will also be subject to the Section E review provisions, which are a review mechanism that requires T&SCo and Users to consider operational data after a period of initial T&S Network running (no later than 36 months) to ensure the thresholds are reviewed following a suitable window to allow consideration of operational experience. Whilst the upside and downside value are calibrated equally in the first instances, they will not necessarily remain equal into the future.

Noting the considerable feedback objecting to the use of Non-Delivery Notices, government has removed this concept. Government has replaced this with a process setting out the required communication between T&SCo and a non-conforming User. Only where a User refuses to comply with updated instructions from T&SCo to cease or reduce flows, and the T&S Network is at risk of emergency or other Users' ability to use the T&S Network will be impacted, will T&SCo have a right to isolate or shut out a User. An obligation on Users to pre-emptively take action to flow in-line with nominations has been clarified/strengthened. Taken together, a User is only at risk of being isolated where it has failed to pre-emptively identify and control out of tolerance flows, failed to respond to T&SCo request and subsequent instruction to control the flow, and where as a result of the User's failure to comply, the operation of the T&S Network or another User is demonstrably put at risk. In addition to the flexibility of the deviation thresholds, the User can also rely on the Flow Tolerance Requests (see question 6) to seek to vary their flow inside the notice period for a formal renomination.

Capacity Constraints

Question 8 (19 responses) sought views on whether the pro rata approach is a fair and equitable default mechanism to manage constraints within the network.

- In general, respondents agreed with the pro-rata approach as the most simplistic and appropriate for managing constraints.
- Several respondents suggested that a User's capacity, if unutilised during a constraint, should be made available to other Users.
- A number of respondents sought to understand the requirements on T&SCos to provide a certain level of service.
- Several respondents highlighted the need for the values in the HoTs to be confirmed, most notably the value for days after which constrained Users are only liable to pay

Capacity and Network Charges (12.18 (b)). The government position on this is set out below.

Policy response

Government has retained the pro-rata approach to dealing with constraints. As noted in responses this is deemed to be the most fair and straight forward approach to managing constraints, particularly considering the nascency of the T&S Networks. In specific circumstances (e.g. in response to an Emergency or where application of the pro-rata approach is likely to jeopardise the safety, integrity or operability of the T&S Network), T&SCo may instead apply the Constrained Capacity Optimisation Principles set out in the Code. These principles may also be applied following a pro-rata allocation of capacity, where there is a "surplus" to be allocated.

Several respondents sought to understand why the Code does not impose on T&SCo a requirement to comply with a certain level of service. These requirements are set out in the Licence rather than the Code. In particular, the Availability Incentive under the Licence incentivises the T&SCo to maintain a high level of availability and avoid unnecessary constraints.

Lastly, government notes the need for an updated value for the number of days after which constrained Users liability to pay Capacity Charges and Network Charges is reduced to the extent covered by the T&SCo's business interruption insurance (12.18 (b)). This has been updated and is included in provision 45.2 (b) which now refers to the waiting period under the relevant T&SCo's Insurances instead of a defined number of days.

Maintenance

Question 9 (16 responses) sought views on the process and timelines proposed for maintenance planning.

- In general, comments received were supportive of the proposed approach to maintenance planning, however, a number of respondents provided similar feedback as outlined below.
- Multiple respondents stated that the proposed 20 business days notification for changes to the Maintenance Programme is insufficient.
- A few respondents stated that the planning of T&SCo outages needs to take a view on grid constraints, and that T&S maintenance periods will impact revenue projections of power CCS projects if they do not align with existing outage regimes.
- One respondent commented that Combined Cycle Gas Turbine (CCGT) plants target summer months for outage periods to align with a less constrained grid network and preferable market conditions.

Policy response

Government will continue with the proposed approach to maintenance planning. With respect to the comments received relating to the 20 business days' notice for changes to the planned Maintenance Programme being insufficient, it is expected that changes to the planned Maintenance Programme requiring only 20 business days' notice will either be due to such maintenance becoming Reactive Maintenance due to an urgent requirement and therefore removed from the planned Maintenance Programme, or due to unforeseen circumstances meaning planned dates need to be changed. The Code requires T&SCo to use reasonable endeavours to avoid making changes to the Programmed Maintenance. Government have added an ability for maintenance to be rescheduled with less than 20 day's notice, where all impacted Parties agree to this.

With respect to comments received relating to aligning with existing outage regimes, the general principles that T&SCos are required to adhere to are to coordinate the timing of such maintenance to maximise the quantity of CO₂ that can be transported and stored. There are provisions whereby in preparing their draft Maintenance Programme, the T&SCos of different T&S Networks must consult each other with a view to seeking to minimise any adverse impacts on the T&SCos and Users (collectively) of maintenance activities.

With respect to comments received relating to CCGTs targeting summer months for outage periods to align with a less constrained grid network and preferable market conditions, a summer maintenance window has been previously considered during the development of Section E. However this has been discounted by government on the basis that other than CCGT users, the principle of lower use of the T&S Network during the summer months would not necessarily apply to all User types.

Section F: Network Design and Specification

Carbon dioxide metering

Question 10 (17 responses) sought feedback on the proposed approach to CO₂ metering.

- A common theme amongst respondents was that the specified maximum uncertainty requirement that the measurement of CO₂ must be no greater than 1% of the measured value was challenging to achieve and without industry precedent, across the range of flow rates possible. Coupled with this was some confusion regarding the definition of "carbon dioxide" specified in the HoTs and separately respondents noted a lack of certified Flow Meter CO₂ calibration facilities for the Flow Meter instruments.
- A small number of respondents proposed alternative approaches fiscally metering CO₂ delivery on to networks, namely an apportionment basis to all Users on a network.
- Several respondents queried the practicability of metering the flow of CO₂ should it need to be vented to atmosphere.

- Clarifications were sought by several respondents regarding the responsibility of T&SCos to specify the Carbon Dioxide Specifications and impurity monitoring requirements on a network specific basis and the responsibilities and liabilities for Users complying with these requirements.
- A respondent proposed that Users delivering off specification CO₂ should remain liable for it after the point of custody transfer on to a different entity, namely a T&SCo.
- Various respondents suggested minor clarifications and amendments to the proposed drafting.

Question 11 (19 responses) asked whether the proposed CO₂ specifications and measurement requirements are appropriate.

- There was some cross over with themes raised in response to question 10 regarding metering uncertainty.
- Several of these responses questioned the cost recovery process if measurement or CO₂ specifications evolve necessitating changes to measurement equipment to comply.
- A general theme from respondents was how evolving CO₂ specifications and measurement instrument specifications would be implemented. It was suggested that specific international standards should be utilised where possible.
- Several respondents sought greater clarity regarding the impurity monitoring requirements set within the Code whilst a handful of other respondents contended that the impurity monitoring requirements were overly prescriptive and onerous.
- Two responses requested clarity regarding data acquisition and handling from the Flow Meter.

Policy response

Government has clarified the definition of “carbon dioxide” as being a stream “consisting overwhelmingly of carbon dioxide (CO₂) molecules, and other components”. This is equivalent to the definition of CO₂ Rich Stream that is referred to in the User revenue support contracts.

Government has satisfied itself that it is reasonable to require the measurement of the mass quantity of CO₂ entering a T&S Network to have a maximum uncertainty tolerance of equal to or less than 1% of the measured value over the specified flow range at a 95% confidence interval. It is noted that evidence to support this position is limited to the flow of gas phase CO₂ only and consequently this position may need to be reviewed should liquid or dense phase CO₂ transport networks arise. However, given the same CO₂ measurement uncertainty requirements are specified in User revenue support contracts, the duplication of this requirement in the Code is superfluous and has been removed. Instead, the link to a User’s requirements arising from its revenue support contract is made through an acknowledgement by T&SCo that Users are required to comply with User Requirements and T&SCo’s must adapt the Local Requirements (which are additional requirements to the Measurement Requirements and Carbon Dioxide

Specification to be specified in a User's Connection Agreement) to accommodate these User Requirements.

Section F does not specify how quantities of CO₂ that are not exported on to a T&S Network shall be measured, in venting to atmosphere scenarios for example, as this is governed by other regulatory regimes, namely UK Emissions Trading Scheme.

Government agrees that it is the responsibility of T&SCos to specify the Entry Provisions necessary for Users to access the respective T&S Networks. This is because they are the competent entity as asset owners and operators. Each T&SCo must set a minimum Carbon Dioxide Specification across all Users of its T&S Network and the Measurement Requirements that will apply to all Users of its T&S Network (detailing the impurity thresholds to be met in order for any exceedance of a CO₂ component limit to constitute a non-compliance with the T&S Network's requirements and CO₂ monitoring requirements), which shall be included in the Code as T&S Network specific Annexures. The Code has been updated to provide Users with an opportunity to input on these requirements. Hence the Code's uniform provisions on Entry Provisions use non-prescriptive language (e.g. 'This may include' or 'frequency to be agreed with the T&SCo') whilst signposting to T&S Network specific Annexures. Where a User's operating process necessitates a change to the Measurement Requirements in order for that User to participate in the T&S Network, specific derogations may be agreed with a T&SCo in that User's Connection Agreement by way of agreement on additional or adjusted Local Requirements.

In the event that a User's monitoring determines that its CO₂ stream contains components that are not in compliance with the Carbon Dioxide Specifications or Measurement Requirements (Non-Compliant CO₂) for the relevant T&S Network, then it is obliged to immediately commence the steps to cease delivery of CO₂ as set out in the agreed Isolation Procedure (one of the Common Interface Procedures described in Section G). The Terms of Reference (ToRs) for the Isolation Procedure and CO₂ Quality Monitoring Procedure (which sets out CO₂ monitoring requirements and forms part of the Measurement Requirements) have been updated to ensure that it includes for early warnings, timeframes, and circumstances where a User may continue to flow, and where it must complete the isolation to prevent damage to the T&S Network. A T&SCo has the ability to knowingly accept or reject Non-Compliant CO₂ in whole or part. Where, following request by a User, a T&SCo knowingly takes custody of Non-Compliant CO₂, the T&SCo will assume the liability for it, as set out in Section J. T&SCo will also assume liability, above the liability cap set out in the Code, in the scenario where a User has flowed Non-Compliant CO₂ onto the network without the knowledge of either that User nor the T&SCo; it is proposed that each T&SCo insures against this risk. If insurance is demonstrated to be unfeasible, Economic Regulatory Regime responses will be considered.

Section F has been updated to include reference to and reflect the principles of the CO₂ Quality Monitoring Procedure, which will be a Network specific Annexure to the Code. More detail on this procedure is provided under the Section G response.

The Section F drafting includes clarification that for all components, a User is 'aware' of Non-compliant CO₂ on and from the time the results of the monitoring are received, unless the User is otherwise in breach of the Entry Provisions.

A common theme commented upon by prospective Users was the potential for evolution of Carbon Dioxide Specifications or Measurement Requirements post revenue support contract agreement dates. Following the Code Implementation Date⁶ any change to Carbon Dioxide Specifications or Measurement Requirements will be subject to the Code Modification process set out in Section B. User revenue support contracts class the Code as an Industry Document⁷. Where a Code modification is made to an Industry Document (and certain other conditions are met) this could trigger Qualifying Change in Law provisions within the revenue support contracts for those supported Users, to cover any out-of-pocket costs associated with compliance to updated Industry Document requirements. Clarification that any Code Modification is within scope of the Qualifying Change in Law provisions has been added to User revenue support contracts.

The acquisition and handling of Flow Meter data and how this is used to produce the Processed Flow Meter Statement is set out in Section I which sets out how the CDS will function and Section H (charges, invoicing and payment).

Government agrees that where possible, specific international and national standards should be used to inform the Measurement Requirements and Carbon Dioxide Specifications. This is reflected in the drafting of Section F, by reference to Applicable Standards.

A number of proposed clarifications and drafting improvements suggested by respondents have been adopted. This includes clarifying that a User must comply with any T&SCo changes to Entry Provisions should this be required to secure compliance with Regulatory Requirements once these have been implemented through a Code Modification. We have clarified the definition of Measurement Equipment in relation to measurement of critical impurities and language in relation to continuous monitoring of such impurities, leaving such technical detail to be determined by each T&SCo with their Users. Details of components to be monitored continuously or non-continuously is to be set out in the Measurement Requirements, which Users will provide input into through development of the CO₂ Quality Monitoring Procedure. A further clarification relates to Users seeking consent from a T&SCo to make a change to installed Measurement Equipment before implementing such a change, unless that change is a like for like swap. A requirement in the Code to continuously monitor CO₂ concentration within the CO₂ stream to an accuracy consistent with fiscal requirements in the revenue support contracts has been removed because this is superfluous for T&S charges calculation purposes.

⁶ The Code will 'go live' and be given legal effect at the Code Implementation Date, when the initial T&SCo(s) and User(s) accede to it.

⁷ 'Industry Documents' is defined in the relevant revenue support contracts.

Carbon dioxide Re-use Service

Question 12 (18 responses) asked whether the proposed approach to the carbon dioxide Re-use Service is appropriate.

- Seventeen responses were supportive of the proposal that the Code should contemplate the provision of a CO₂ Re-use Service to network Users.
- Various clarifications were sought in relation to the charging, metering and data handling that will be required by Users wishing to utilise such a service.
- Clarification as to the cost recovery mechanism associated with the service provision was requested.
- Several respondents queried the circumstances under which a T&SCo could decline the provision of such service.
- A small number of respondents raised technical queries regarding purging and de-minimis clarifications for example.

Policy response

The Code contemplates the ability of a T&SCo to provide a CO₂ Re-use Service to Users that shall utilise it for the defined Re-use Purpose only. No other importing of CO₂ from a T&S Network on to a User's site for any other purpose is contemplated.

Clarification has been provided in Section K and Section F as to the rights of Users to request the Re-use Service and the circumstances where a T&SCo shall offer the Re-use Service to a requesting User. Section F clarifies that the User shall be responsible for the costs of the re-use infrastructure and infrastructure works.

Any CO₂ imported on to a User's facility from a T&S Network expressly for the Re-use Purpose shall be via a Re-use Delivery Point, which shall be metered with an additional Flow Meter, of the same standard as used to measure the mass flow rate of CO₂ delivered to a T&S Network by a User. The Code is agnostic as to the minimum service provision of the Re-use Service – this will be for a User and its respective T&SCo to define in the Connection Agreement, along with any other technical parameters governing the provision of the Re-use Service.

The utilisation of the Re-use Service shall be on the use of system charge basis. Where an onshore User is being provided with the Re-use Service then the User will pay the operational costs for delivery of such CO₂ from a network and be subject to the reconciliation of any over or under recovery of Re-use Service costs as determined by the regulator. The re-use charging rate calculation is set out in Section H.

Section G: Common Interface Procedures

Questions 13 (15 responses) and **14** (14 responses) sought feedback on whether the proposed approach on Common Interface Procedures (including the list of proposed Common Interface Procedures and the ToRs for each) was adequate, as well as feedback on how the proposed ToRs for each listed Common Interface Procedures should be developed ahead of the Code being implemented, to ensure sufficient and relevant detail.

- Feedback on Common Interface Procedures was varied. Several respondents viewed the proposed approach to Common Interface Procedures as adequate, and that the inclusion of only the proposed Common Interface Procedures and the ToRs for each was reasonable.
- Numerous respondents raised concern over lack of User participation and input in developing the final Common Interface Procedures, as well as concern that the impact on Users would not be considered during development.
- Multiple respondents stated the Common Interface Procedures should be fully drafted prior to cluster FID, as this would remove any uncertainty. Suggestions were made that T&SCo should develop a joint forum or schedule for drafting Common Interface Procedures, working collaboratively with the initial Users of the network so as much detail as possible is available prior to the Code being implemented.
- Multiple respondents suggested that changes to Common Interface Procedures between signing up to the Code and start of operations should be viewed as a Qualifying Change in Law, with the associated User revenue support contracts protection accompanying this.
- With regards to Common Interface Procedures developed post-FID, several respondents requested a right to refuse any procedures that impose significant investment requirements onto the User unless it is for safety purposes and stated that the User should be able to recover any incurred expense through their respective User revenue support contract.
- Several respondents expressed concern regarding the timeline for developing the Procedures, most notably that additional procedures could be imposed on Users anytime 6 months before their implementation.
- A number of respondents queried the link between Common Interface Procedures and the self-governance modification procedure within Section B. They stated the lack of clarity on this link made it difficult to adequately assess the suitability of the proposed approach. Responses noted that, as the Common Interface Procedures were not included in the Code directly, it was not clear what the route for modification was. Several respondents stated it would be prudent to include Common Interface Procedures within the Code governance framework, to ensure that Users can input to these arrangements and their changes, and Ofgem can act as a decision-making body that is required to approve these documents to ensure fair arrangements between T&SCOs and Users. Including in the governance framework was also seen as a way to

stop the Common Interface Procedures cutting across or otherwise undermining Code requirements.

- Several respondents suggested the inclusion of additional Common Interface Procedures; such as for the management of Non-compliant CO₂, CO₂ fiscal meter calibration procedure, and procedures relating to Start Up and Shut Down.
- One respondent requested that government consider the potential for duplication of requirements under the Code and under the respective Competent Authority (such as the Health and Safety Executive (HSE)), and proposed HSE approves the Common Interface Procedures prior to operation.

Policy response

Government has worked in close collaboration with Track 1 T&SCos and Users to address the feedback received regarding concern over the lack of detail in the Common Interface Procedure ToRs, clarifying the name and definition of these Procedures within the Code drafting and establishing ToRs which the initial T&SCos and Users are content with.

Government has addressed the feedback received regarding the link between Common Interface Procedures and the self-governance modification procedure within Section B. Revisions or additions to the list of Common Interface Procedures and any associated ToRs (as distinct from revisions to the text of the Common Interface Procedures (excluding the CO₂ Quality Monitoring Procedure) themselves) shall be raised as a modification proposal pursuant to the Modification Procedures set out in Section B.

Matters relating to initial User cost recovery and Qualifying Change in Law are intended to be managed with appropriate government negotiation teams and will not be addressed in the Code. These are to be addressed within the User revenue support contracts for those supported, initial Users of T&S Networks.

There are revisions to the drafting principles and review procedures for the Common Interface Procedures, which addresses the feedback received regarding the timing for T&SCo to deliver Common Interface Procedures to Users and the Regulator.

With regard to comments received on the list of Common Interface Procedures, this list has been updated to include Emergency Procedure, Start-up and Shut-down Procedure, Isolation Procedure, and a CO₂ Quality Monitoring Procedure. Commissioning, which was previously listed as a Common Interface Procedure under Section G, will be dealt with via User specific provisions in the Construction Agreement. As noted above, should T&SCos and Users deem it necessary to add to the listed Common Interface Procedures in future, this list can be amended in accordance with the Modification Procedures in Section B. Additionally, third party rights have been extended to prospective Users who have been selected through the Government led Selection Process for the T&S network to ensure their equal participation in development of Common Interface Procedures ahead of their accession to the Code.

A network's Measurement Requirements Annexure is intended to clearly define details on key areas, such as CO₂ impurity monitoring testing frequencies, sampling approaches, what constitutes non-compliance, and demonstration of compliance for re-connection following any out-of-spec events. DESNZ's preference is that these details are captured in the Measurement Requirement Annexure when a new T&S Co accedes to the Code. However, the CO₂ Quality Monitoring Procedure CIP has been included to allow the option of later expediently embedding details into a Measurement Requirements Annexure, where it was not possible or pragmatic to agree them ahead of the T&SCo's accession e.g. where the first User's design schedule precludes it.

The CO₂ Quality Monitoring Procedure is to be developed by the T&SCo and Users on its T&S Network and finalised within 3 months of T&SCo's accession to the Code, unless all Network parties agree to extend this period. The full CO₂ Quality Monitoring Procedure is to be developed using the same framework adopted for the other CIP, but with one key addition: the final Procedure will only be implemented following a Code Modification (and shall not be subject to the Modification Rules), which formally includes the finalised CO₂ Quality Monitoring Procedure into the pre-existing Measurement Requirements Annexure for that network. As Measurement Requirements, they will not be able to be changed unilaterally by the T&SCo and disputed under Section G as per the other Common Interface Procedures, therefore, any subsequent updates will be subject to the Modification Rules and must follow the Code Modification Procedures set out in Section B.

Section H: Charges, Invoicing and Payment

Charging structure and charges

Question 15 (17 responses) sought views on the proposed charging structure, charges and associated definitions.

- Many respondents agreed overall with the proposed charging structure, charges and associated definitions.
- A number of respondents suggested that a unified T&S Charge, covering both the Onshore and Offshore T&S Network, should be applied to all Users in the early years of the operation of the T&S Network for simplification.
- Some respondents did not agree that a User's Network Charge in the T&S Charge should be based on the User's Delivery Point Size (DPS) as Users may have a larger DPS than they initially require in order to provide flexibility to increase their injection of CO₂ into the T&S Network in future years.
- Some responses questioned how the Flow Charge would be applied to T&S Networks in the future that had different designs to the T&S Networks in the Track 1 CCS clusters, e.g. if T&SCo is providing different compression services for different Users, or there is no need for compression.

Policy response

Government has not changed its position on separate Onshore and Offshore T&S Charges being applied to Users. The approach adopted provides flexibility in the charging regime for Users that may only use the Offshore T&S Network in the future.

Government has not changed its position on calculating a User's Network Charge based on a User's DPS. We also confirm that we do not envisage any changes in compression capacity as justifying an alteration in the DPS. The concept of the DPS exists, distinct from RC, to provide a relatively fixed basis for Network Charges, i.e. it cannot easily be changed and that is why it is considered an appropriate basis for the Network Charge, which recovers costs that are not influenced by a User's operational behaviour. This provides an equitable approach to allocating Network Charges, reflecting the impact that each User's individual physical connection has had on the sizing and construction costs of the T&S Network. Recognising that the actual installed size (capacity) of the delivery point is likely to be determined by the T&S Co rather than the User, and the possibility that the delivery point may be oversized relative the User's actual need, the Code will continue to define DPS with respect to the maximum throughput of carbon dioxide for which the T&S Co's installed Delivery Point assets were designed.

We have made minor changes to the formulae used to calculate Capacity Charge Rates and the Proportionate Network Charge Rates. These changes facilitate allocation of aggregate RC above ONC (as discussed in Section E), ensuring charge setting formulae operate as intended, but are relevant also in response to comments received in respect of the Delivery Point.

The proposed arrangements are designed to facilitate the development of Track 1 CCS clusters. However, they have also considered the need to permit future modifications where necessary, such as changes to accommodate variations in compression services.

Mutualisation

Question 16 (18 responses) sought views on the use of a Mutualisation Cap to limit Users' exposure to mutualisation.

- Respondents agreed with the use of a Mutualisation Cap to limit Users' exposure to mutualisation.

Question 17 (18 responses) sought views on the proposed calculation of the Mutualisation Cap.

- Some respondents agreed with the calculation of the Mutualisation Cap.
- Many respondents who did not agree with the proposed calculation of the Mutualisation Cap, suggested that the cap should be set below the estimated CO₂ price to take account of the variable costs of Users' capture plants and incentivise use of the T&S Network.

- Some respondents proposed that there should be a true-up of the Mutualisation Cap to take account of the actual carbon price after the Charging Year.
- Some respondents requested further detail to be provided on when the Mutualisation Cap would be set in advance of the Charging Year, as well as more detail on the iterative process to determine the Mutualisation Cap for each User of a T&S Network.

Policy response

Noting the feedback on setting the Mutualisation Cap below the estimated carbon price, government maintains the current approach as the first Users will be supported via Revenue Support Contracts.

Government has not changed its position on setting the Mutualisation Cap based on the estimated carbon price in advance of the Charging Year, with no true-up. This approach provides certainty to Users on their Mutualisation Cap.

Government has addressed the feedback to provide further detail on the iterative process used to determine the Mutualisation Cap for each User.

Please refer to the transport and storage charging formula example calculation spreadsheet which is published alongside this government response for illustration.

Invoicing and payment

Question 18 (15 responses) sought views on whether the proposals on invoicing and payment are appropriate.

- Some respondents agreed with the proposals on invoicing and payment.
- Many respondents highlighted the need to align when Users are required to submit their Invoice Document for T&S charges under their Revenue Support Contract and when they receive it in accordance with the Code to enable compliance with the revenue support contracts, as well as the need to align when Users receive funds under their revenue support contract and the Users' date for payment under the Code in order to avoid a negative impact on working capital. Some respondents highlighted inconsistencies between the requirements under the Low Carbon Hydrogen Agreement and the timings set out in the draft Code HoTs on these two points.
- Some respondents proposed that T&SCos should be required to send invoices to Users 10 Business Days after the last Day of the Billing Period as opposed to 10 Days, and that the Invoice Due Date falling 25 Business Days after the invoice has been submitted rather than 35 Days after the last Day of the Billing Period.
- A very small number of responses questioned the requirement for 2 months' required security on the basis costs are passed through and costs of doing business are increased whilst one respondent queried the process and timing for its provision stating it ought to be posted upon booking RC and there should be immediate recourse.

Policy response

Government has addressed the feedback to align timings of invoicing and payment in the Code and the requirements under the User revenue support contracts.

Government has retained the required security thresholds given the fundamental nature of invoicing and the current timings which are linked to issuance of the Use of System Charging Statement for the relevant year.

Section I: Data

General

Question 19 (16 responses) sought views on how far in advance of the Commercial Operations Date the Draft Data Annexures should be developed.

- Most responses indicated a preference for early and clear development of the Draft Data Annexures as this was believed to benefit all Parties and enable system design, development and testing and the recruitment of staff.
- Whilst some respondents agreed with the existing timeframes for the development of the Draft Data Annexures, many responses suggested that a more appropriate timeframe would be 18-24 months prior to the first Commercial Operations Date (COD).
- Some respondents indicated that there was a lack of clarity regarding governance and asked whether the Data Annexures would be subject to Code governance procedures set out in Section B.
- One respondent specifically disagreed with the preparation of the Data Annexures being a joint exercise between T&SCos and suggested that this should be network and T&SCo specific.

Question 20 (10 responses) sought views on whether the wider data provisions are appropriate.

- Responses were mixed, with some respondents considering the wider data provisions to be broadly appropriate whilst others felt they were not in a position to comment.
- Some respondents invited government to consider whether data provision in general should be brought under the Code Modification framework with others suggesting that the process for revisions to the ToRs for the CDS, Independent Verifier and Network Portal could be made clearer.
- One respondent queried whether the Data Transfer Procedures would impose any additional costs on Users and whether these would be capped.
- One respondent noted that the proposed data gathering and sharing approach does not appear to include any data shared by the T&SCo regarding the total CO₂ volumes injected into the storage facility which is crucial for some users to be able to access the

Carbon Dioxide Removal (CDR) market, whilst another noted a general theme that the data provisions appear to be designed for a much larger network.

- Some queries were also raised around why it is the T&SCo that is required to procure the services of the Independent Verifier.

Policy response

Government notes the need to provide for the maximum time available to allow T&SCo and commissioning Users to discuss and agree what is to happen to ensure data systems are designed appropriately. For this reason, government have amended the timing for development of the Data Annexures so that they will need to be made available no later than 24 months prior to the first COD, rather than 12 months as was proposed previously.

The position with respect to governance of data provision more broadly has been considered and designed to strike a balance between providing a level of uniformity and predictability across T&S Networks with regard to generation and sharing of particular datasets, as well as providing for operational flexibility and for the need for processes and procedures regarding data provision to be tailored to meet the needs of specific T&S Networks and stakeholders such as the LCCC. Although detailed, the wider data provisions have been designed with network expansion in mind, and with an aim to facilitate and streamline this process. For this reason, government has amended the approach to governance of data such that (i) the Data Annexures will be developed via the process set out in Section I and once codified, will be subject to formal Code Modification and (ii) the data transfer procedures will be developed on a T&S Network specific basis with a separate and more truncated governance framework applying to the finalisation of such procedures.

With regards to the response received on data required to access the CDR market, the scope is currently limited to Delivery Point data and does not consider T&S Network emissions or storage injectivity. Data will be available for Users to report on as appropriate, however the scope will not be expanded at this time. It is contemplated that the scope could evolve in future (if shown to be necessary/warranted) with Modifications made in line with the Code governance provisions on Modification provided under Section B.

The position with respect to the procurement of the Independent Verifier by T&SCos has been arrived at in order to minimise duplication of engagements across T&S Networks and streamline the assurance and verification process regarding Measurement Equipment and Measurement Equipment Errors.

Central Data Service

Question 21 (16 responses) sought views on whether the proposed CDS is proportionate to meeting the minimum requirements of managing the delivery of public funding.

- A general acceptance of the CDS if it is mandated by government for the effective management of public funding, however some concerns raised on additional costs and unnecessary system complexity.
- Clarity requested as to how data is transferred to the CDS from User systems, what data will be submitted to LCCC through the CDS, and what will be issued directly to LCCC under the User revenue support contracts.
- The scope of the CDS relative to the T&S Network Portal are to be made clear, and the synergies between the procurement of these functionalities to be considered.
- Consideration for ongoing CDS development expenditure under a CDS development fund managed by T&SCos and Users.
- Suggestion for the CDS to be used beyond boundary Flow Meter to act as a central repository and source of network data including storage injection, network leakage and emission CO₂ volumes for both CDR market, and government transparency purposes.

Policy response

Government notes the clarity requested. The CDS has a specific focus to provide the single source of truth for User boundary meter fiscal data shared between LCCC and T&SCos. This is to provide the required assurance for the management of data which underpins the delivery of public money. The CDS therefore has a separate role to the T&S Network Portal which is operationally focussed. It is expected that data transfer between Users, the CDS and LCCC will be automated.

The development of the CDS to account for expansion of the T&S Network will likely be considered as Opex under the Licence. Any new T&SCos (that form new T&S Networks) will, in acceding to the Code, be required to also accede to the CDS Agreement (via the CDS Accession Agreement), and take on an equal share of the CDS costs. All CDS costs are recoverable under the respective business models.

With regards to the suggestion for the CDS to be used for CDR market purposes, as previously stated the scope is limited to Delivery Point data. Data will be available for Users to report on as appropriate, however the CDS scope will not be expanded.

Section J: General

Liabilities

Questions 22 (17 responses), **23** (14 responses) and **24** (15 responses) sought views on the proposed liability regime between Users and T&SCos respectively asking respondents whether they agree with its scope, limiting liability to Counterparty property damage and third-party liability in law (in lieu of direct agreement between the Parties) and the liability caps themselves.

- Responses showed broad support for the general principle of ruling out commercial liability between Parties subject to specific carve-in and caps as well as the level of the caps themselves.
- A few respondents sought clarity and shared concerns on the interaction between the single User and multiple User caps and how the latter may need to flexibly adapt as networks expand as well as their apportionment in circumstances should they arise.
- A very limited set of respondents considered a fixed identical regime to be inappropriate for nascent networks given technological and operational uncertainty and favoured a bilaterally negotiated bespoke regime between each User and its T&SCo.
- One respondent was concerned the User liability cap placed an unrealistic burden on smaller participants which could discourage participation.
- A group of respondents each raised similar objections with the proposed User liability cap considered insufficient and unrealistic to cover network damage in the event of off-specification deliveries with one believing further modelling being necessary whilst others recognise a relevant insurance product could suffice to recover costs more than the User cap as a way of ensuring risk is appropriately managed.
- Another respondent sought specific confirmation the liability regime applied to User property damage caused by T&SCo pipeline on User land.
- One respondent stated its support for liability caps is conditional upon confirmation and clarification limiting a Counterparty's third-party liability in law to property damage of a third-party.

Policy response

Government notes there were some common questions around the functioning of the cap on liability of a T&SCo to multiple Users and the interaction of the single User cap with the cap for multiple Users. Government has not made changes since liability apportionment across multiple Users will be determined by the nature of any incident at the time and the multiple User cap may in future be capable of modification as T&S Networks may grow.

Government has retained the current provisions on the fixed liability position instead of bilateral User-T&SCo arrangements and has clarified limiting a Counterparty's third-party liability to property damage of a third party.

Government considers that the existing governance arrangements are sufficient to allow flexibility should revision of the liability caps be required in future, for example if the total number of users on a T&S Network grows significantly over time, as expected.

Government views the proposed level of User liability cap is sufficient to incentivise prudent behaviour on the part of Users and that a higher cap would be excessively punitive such that T&SCos will need to arrange requisite insurance during operations to respond to elevated off-specification damage scenarios beyond User caps.

Section K: Glossary

The consultation did not include any questions regarding Section K.

Exhibit A: Code Accession Agreement

Question 25 (13 responses) sought views on whether the proposed Code Accession Agreement is adequate.

The responses were broadly supportive of the content and approach proposed for the Code Accession Agreement. Some of the feedback included the following:

- a request for further clarity in relation to the mechanics of the Code accession process;
- some respondents queried whether the template Code Accession Agreement can be amended for individual Users by agreement;
- one respondent considered that the Code Accession Agreement should only become effective on commissioning of a connection; and
- one respondent considered that the Secretary (under Section B) should also become a party to the Code.

Policy response

The Code Agreement (referred to in the Code Accession Agreement) is the document which gives contractual effect to the Code. The Code Agreement will be signed by the "Original Parties" – that is, any T&SCo and User that are first to reach FID. Therefore, the Code Accession Agreement is the document pursuant to which any subsequent T&SCos or Users also become Parties to the Code Agreement and are therefore contractually bound by the Code. It is important to note that all Parties will be on an equal footing, irrespective of when they signed the Code Agreement or the Code Accession Agreement.

In terms of timing, it is important for any User to become bound by the Code once they commit to the connection process. If, for some reason, their Construction Agreement is terminated and the connection does not proceed, then they will also discontinue being a party to the Code, in accordance with Section J.

Given that the Code Accession Agreement only deals with the legal process of a party becoming contractually bound by the Code, it is not necessary or appropriate for the template Code Accession Agreement to be amended for individual parties.

The Secretary role, under Section B, is intended to be an administrative role. It is therefore not appropriate for the Secretary to become a party to the Code.

Exhibit B: Construction Agreement

Question 26 (13 responses) sought views on whether the proposed structure and content of the Construction Agreement is appropriate.

- There was broad agreement from Respondents with the structure and content of the Construction Agreement.
- Further clarity was requested on whether T&SCos and Users will be able to amend the template form of the Construction Agreement.
- One respondent indicated that for projects not under government support, liquidated damages would need to be considered.
- One respondent provided detailed feedback on a number of issues, including that the Construction Agreement should be for the benefit of multiple Users to mitigate the risk of stranded assets, that the Construction Agreement should include security requirements, comments around term and termination rights and aligning with certain industry precedents on issues such as connection and commissioning.

Policy response

As is the case in the electricity sector (under the Connection and Use of System Code), the government considers that it is important for the Construction Agreement for all Users to be based on the template, to protect the interests of Users. However, the Schedules to the Agreement provide for User-specific information to be included.

In relation to liquidated damages for those projects not under government support, as set out in the consultation document, the immediate intention is to produce a Code sufficient to support the deployment of the Track 1 T&SCo and Users (the Initial Code), where all such Users are currently supported Users. This means government has targeted simplicity and developing the elements required by early T&S Networks.

In relation to specific and detailed feedback raised by one respondent on various issues, government notes that a number of these issues are addressed via the other agreements

which are in place as part of the economic regulatory model, and as such, will not be relevant during the initial phases of CCS T&S Network establishment. Other detailed points are already covered as part of the full form of the Code.

Exhibit C: Connection Agreement

Question 27 (14 responses) sought views on whether the proposed structure and content of the Connection Agreement is appropriate.

The responses were broadly supportive of the content and approach proposed for the Connection Agreement. Some of the feedback included the following:

- some respondents queried whether the template Connection Agreement can be amended for individual Users by agreement;
- one respondent suggested that the Connection Agreement needs to contemplate future NPT of CO₂;
- one respondent suggest that the Connection Agreement needs to include an overarching duty on Users to not perform acts or omissions which cause harm to the T&S Network; and
- one respondent suggested that the Code and Connection Agreement should deal with any minimum and maximum flow restrictions that will apply to the operation of the T&S Network.

Policy response

As is the case in the electricity sector (under the Connection and Use of System Code), the government considers that it is important for the Connection Agreement for all Users to be based on the template, to protect the interests of Users. However, the Schedules to the Agreement provide for User-specific information to be included, including, where relevant, any Local Requirements. It is intended that the Connection Agreement also includes some additional User-specific information, to reflect evolved thinking on some aspects, such as the "Metering Point, which is the location of the User's Measurement Equipment.

It should be noted that issues relating to the maximum and minimum flow of the T&S Network are addressed in Section E.

Under Section E, the T&SCo has the right to reject nominations/flows of CO₂ where it is prevented from doing so because the Minimum Flow has not been achieved, or because the Maximum Annual Cumulative Flow will be exceeded. These provisions apply alongside the other provisions in Section E dealing with constraint management, and subject to overarching obligations of the T&SCo to minimise impact on Users. The value

of the Minimum Flow for a T&S Network (or part of the T&S Network) is published in a "Technical Parameters" annexure to the Code, while the Maximum Annual Cumulative Flow that applies to any Storage Site (as may be updated by the NSTA, the regulator overseeing compliance with the storage permit) is published on the T&S Co's T&S Network Portal. There is therefore no need for individual Connection Agreements to address this.

In terms of NPT, it is intended that if the Code is modified in the future to provide for NPT Users who may be delivering CO₂ into the T&S Network, then the Connection Agreement template will also be modified at that time.

We note that the Code already imposes various obligations on Users, including an obligation to act as Reasonable and Prudent Operator, and so it is not necessary for the Connection Agreement to impose further obligations on Users.

Exhibit D: CDS Accession Agreement

Question 28 (11 responses) sought views on whether the proposed CDS Accession Agreement is adequate.

The responses were broadly supportive of the content and approach proposed for the CDS Accession Agreement. Some of the feedback included the following:

- one respondent queried whether the template CDS Accession Agreement can be amended; and
- one respondent suggested that Users are party to the CDS Accession Agreement.

Policy response

Government retains the current provisions.

Other feedback

Non-pipeline transport and disaggregation of networks

Whilst no questions related to NPT or disaggregation of networks were asked, we received (8) responses related to these topics.

- Generally, the responses sought to highlight the breadth of Code Modifications needed for the Code to enable NPT and disaggregated networks. Responses noted the infancy of the Code, but highlighted how critical these Modifications would be for the future evolution of networks.
- The Secretary of State Code Modification route was seen as a welcome addition that would enable SoS led Modifications required to deliver NPT and disaggregated networks.
- Respondents were seeking confirmation of the route and timetable government will be using to deliver these changes.

Policy response

As set out in the consultation document, the immediate intention is to produce a Code sufficient to support the deployment of the Track 1 T&SCo and Users. This means government has targeted simplicity and developing the elements required by early networks.

Government would also like to highlight the call for evidence on NPT and cross-border CO₂ networks⁸ that was launched on 7th May 2024 and ran for 10 weeks and closed on 16th July 2024. Government will assess the responses received and use this to inform policy development. Following the policy development, we intend to consult on government's proposals for NPT deployment.

⁸ [Government call for evidence](#) on NPT and cross-border CO₂ networks

This publication is available from: www.gov.uk/government/consultations/carbon-capture-and-storage-ccs-network-code-updated-heads-of-terms

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