

## **Supplementary written evidence submitted by Carbon Capture and Storage Association (CGE0079)**

### **Positive aspects of the Action Plan:**

1. An important element arising from the Action Plan is Government's recognition of the need to develop the first project by the mid-2020s as an enabler towards having the ability to deploy CCUS at scale in the 2030s. Deploying CCUS at scale in the 2030s requires urgent action and this view is consistent with industry's view.
2. The Action Plan gives a line-by-line response to the Cost Challenge Task Force's (CCFT) recommendations and includes milestones on important enabling steps for the deployment of CCUS.

The following key recommendations from the CCTF have been taken up by Government:

- Assess the potential for re-use of infrastructure and set out policy directions in 2019<sup>1</sup>;
  - Collaborate and consult with industry on the Delivery and Investment Frameworks Review, which will identify investable commercial models and establish market-based frameworks for bringing forward CCUS. The CCUS Advisory Group (CAG), a new partnership between industry and Government has been formed to that effect.
3. The Action Plan recognises the cross-sector value of CCUS technology by highlighting opportunities for CCUS to help decarbonise industry, heat, transport, power, as well as the potential for unlocking negative emission technologies.

### **Limitations and missing aspects from the Action Plan:**

4. At present, a key shortfall is the absence of a clear framework, which would help industry to understand how and on what terms it can invest in CCUS.
5. Evidence shows that CCUS is both an essential and cost effective way for the UK to reach its decarbonisation goals<sup>23</sup>, whereas Government's ambition is to have *the option* to deploy CCUS at scale during the 2030s, subject to costs coming down sufficiently.
6. Regarding the level of CCUS deployment, there is an inconsistency between the level of ambition outlined in the Action Plan and latest evidence from the Committee on Climate Change (CCC)<sup>4</sup>, industry (CCTF) and the BEIS Select Committee<sup>5</sup>.

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<sup>1</sup>CCUS Cost Challenge Taskforce Report, 2018

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/727040/CCUS\\_Cost\\_Challenge\\_Taskforce\\_Report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/727040/CCUS_Cost_Challenge_Taskforce_Report.pdf)

<sup>2</sup> National Grid (2018). Future Energy Scenarios.

<sup>3</sup> <https://www.theccc.org.uk/wp-content/uploads/2018/01/CCC-Independent-Assessment-of-UKs-Clean-Growth-Strategy-2018.pdf>

<sup>4</sup> <https://www.theccc.org.uk/wp-content/uploads/2018/06/CCC-2018-Progress-Report-to-Parliament.pdf>

<sup>5</sup> BEIS Select Committee, 2019. Carbon capture usage and storage: third time lucky?  
<https://publications.parliament.uk/pa/cm201719/cmselect/cmbeis/1094/1094.pdf>

The Action Plan was designed to enable the development of the first CCUS facility in the UK, commissioning from the mid-2020s. In addition to advice from the CCC<sup>6</sup>, the CCTF highlighted that the UK should have at least two clusters operating by the mid-2020s. Likewise, the BEIS Select Committee report published on 25<sup>th</sup> April 2019 urges Government to raise its ambition to target the development of first CCUS projects in at least three clusters by 2025, highlighting that the Action Plan “*lacks specificity in its ambition*” and “*does not indicate a commitment commensable with the importance of the technology*”<sup>7</sup>.

7. The Action Plan flagged the recommendation from the CCTF to deploy in ‘clusters’ or ‘industrial centres’ for further investigation only: “*We will examine and report, during 2019, on the opportunity of maximising economies of scale by developing shared carbon dioxide infrastructure network in an industrial centre, and the potential for cost effective deployment that provides value for money*”. The development of clusters and associated Clean Growth Regeneration (CGR) Zones is critical as it can help drive lower costs, unlock value for local economies and foster continuous technical innovation and learning.
8. Further commitments and early actions from both Government and industry are required to ensure the progression of a pipeline of multiple projects in the near-term, which will enable Government to have the option to deploy CCUS at scale in the 2030s. This pipeline of projects and the initial volumes of CO<sub>2</sub> they capture will provide a firm foundation that provides confidence upon which to deliver on the CCC recommendation for 10 MtCO<sub>2</sub> to be stored annually by 2030<sup>8</sup>.
9. Several aspects of the Action Plan remain undefined:
  - The Action Plan mentions modelling from the CCC<sup>9</sup> and the Energy System Catapult<sup>10</sup>, however, the document does not provide clarification on the meaning of deploying CCUS ‘*at scale*’ in the 2030s;
  - The Action Plan continues to focus on the cost element of the first projects but metrics and definition of cost-effectiveness/cost-reduction for a first project are not defined.
  - The way in which costs will be shared between Government and industry also remains unclear.

### **How urgent any aspects of the Plan are and how the Government has started acting on the Plan:**

10. The 2019 Spending Review will set the strategic direction for Government’s spending for the next three years. Therefore, the outcomes of the Spending Review will have critical implications for CCUS cluster development in the early 2020s and the period when the early actions are required to enable Government to realise its ambition of deploying CCUS at scale in the 2030s.

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<sup>6</sup>The CCC has advised the Government that the UK needs 10 MtCO<sub>2</sub> to be stored annually by 2030, rising to at least 20 MtCO<sub>2</sub> by 2035. This led to the recommendation of having one or more clusters operational by 2026.

<sup>7</sup> BEIS Select Committee, 2019. Carbon capture usage and storage: third time lucky?

<https://publications.parliament.uk/pa/cm201719/cmselect/cmbeis/1094/1094.pdf>

<sup>8</sup> <https://www.theccc.org.uk/wp-content/uploads/2018/06/CCC-2018-Progress-Report-to-Parliament.pdf>

<sup>9</sup> The CCC state that the scale of CCUS required by 2050 may be between 60-180 MtCO<sub>2</sub> / year.

<sup>10</sup> ESC modelling shows capacity of ~80 MtCO<sub>2</sub> / year by 2045.

11. Funding decisions for the Final Investment Decision (FID) of first projects will have to be prepared in the early 2020s, during the period covered by the next Spending Review. To reach their FID, projects will complete their Pre-Front End Engineering and Design (pre-FEED) and Front End Engineering and Design (FEED), which will require development funding to be secured. Funding for pre-FEED is expected around £7-12m per project and the FEED, and associated permitting, legal & commercial activities are estimated to cost in the region of £50-100 million per project through to FID.
12. Government is currently progressing the delivery of the near-term actions included in the Action Plan. For instance, since its release in November 2018 Government has:
- Established the CCUS Advisory Group (CAG) which includes industry, finance and policy experts to help deliver the CCUS Action Plan<sup>11</sup>. Within the CAG, work focuses on cost structures, risk sharing arrangements and the necessary market mechanisms that will create the stable investment framework necessary to deliver the first CCUS projects by the mid-2020s. The work began in March and is expected to run for an initial period of seven months.
  - Progressed its review of delivery and investment frameworks, which will be published by the end of 2019. As part of this review, Government:
    - Contracted consultants to carry out detailed studies on business models and revenue streams for power and transport and infrastructure, and will consult on both studies' emerging findings in 2019;
    - Is currently reviewing barriers to the deployment of industrial carbon capture and will consult on emerging findings, including on a market-based framework for bringing forward industrial carbon capture, and a consideration of the potential for hydrogen, by mid-2019;
    - Is reviewing, through joint work with industry (CCUS Advisory Group), the role of power CCUS and examines how it could provide the greatest value to the electricity system and support wider decarbonisation. Government will consult on emerging findings, including potential market based frameworks for power CCUS in 2019.
  - Published a number of public consultations in response to several actions from the Action Plan:
    - In the Action Plan, Government committed to: 1) identify existing infrastructure that has the potential for re-use to support the deployment of CCUS in the UK; and 2) develop a policy on re-use of infrastructure for CCUS in 2019. As a first step, Government opened a [consultation to identify what more should be done to further strengthen Scotland and the UK's position as a global hub for decommissioning](#). A report is expected to be available by end 2019.
    - In the deployment pathway, Government sees potential funding for CCUS through the Industrial Energy Transformation Fund, worth up to £315million. BEIS opened an [informal consultation on Designing the Industrial Energy Transformation Fund](#).
  - Contracted consultants to assess policy options for Greenhouse Gas Removal deployment. Their work is expected to be published in 2019.
  - Started a process with the Oil and Gas Authority, industry and The Crown Estate Scotland to identify existing oil and gas infrastructure that has the potential for re-use which can support the deployment of CCUS.

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<sup>11</sup> CCUS Advisory Group, 2019. Terms of Reference.  
[http://www.ccsassociation.org/index.php/download\\_file/view/1142/98/](http://www.ccsassociation.org/index.php/download_file/view/1142/98/)

- Started a review of infrastructure delivery organisations to understand the skill and capability required for successful delivery of CCUS projects during the 2020s, and will publish a report on this in autumn 2019.

**Any critical metrics that could be used to assess progress on the plan in due course:**

13. Tracking the delivery of timelines included in the Action Plan will be essential to assess progress on the Action Plan. To this end, quarterly updates from Government on their progress and timeline would be valuable.
14. The creation of a Project Deployment Pathway will be needed to assess progress and set clear milestones for the deployment of first projects in the mid-2020s.
15. A Deployment Pathway for the next phase of projects in the late 2020s would also help ensure that Government's ambition to have the option to deploy CCUS at scale is achievable.

*April 2019*