



DEBATE PACK

Number CDP-2017-0188, 18 October 2017

Carbon capture and storage

Summary

This pack has been prepared ahead of the debate to be held in Westminster Hall on 19 October 2017 at 1.30pm on carbon capture and storage. The debate will be opened by Simon Clarke MP.

The House of Commons Library prepares a briefing in hard copy and/or online for most non-legislative debates in the Chamber and Westminster Hall other than half-hour debates. Debate Packs are produced quickly after the announcement of parliamentary business. They are intended to provide a summary or overview of the issue being debated and identify relevant briefings and useful documents, including press and parliamentary material. More detailed briefing can be prepared for Members on request to the Library.

David Hirst and
Alison Pratt

Contents

1. Summary	2
1.1 What is carbon capture and storage (CCS)?	2
1.2 The role of CCS in meeting carbon targets	2
UK carbon targets	3
Clean Growth Strategy	4
1.3 The second carbon capture and storage competition	5
1.4 What next for CCS in the UK?	6
1.5 CCS Research	7
2. Press Articles	9
3. Press releases	11
4. Parliamentary material	13
4.1 Debates	13
4.2 PQs	13
5. Useful links and further reading	19

1. Summary

1.1 What is carbon capture and storage (CCS)?

Carbon capture and storage (CCS) is a way of 'decarbonising' fossil fuel power generation, through capturing and storing the carbon dioxide (CO₂) produced. CCS involves three steps;

- Capturing carbon dioxide (CO₂) from power plants or industry, and compressing it to a liquid state
- Transporting the CO₂ (usually via pipelines) to deep geological storage points such as depleted oil and gas fields or deep saline aquifers; and
- Storing the CO₂ in these sites.

CO₂ can be captured pre- or post-combustion;

- Post-combustion removes CO₂ from flue gases. **This can be retro-fitted.**
- Pre-combustion reacts the fuel with oxygen, air, or steam, and after a further catalytic process removes the CO₂ and uses the hydrogen left over as fuel in a combined cycle gas turbine generating station. **Only new fossil fuel power plants can be equipped with this.**
- Oxyfuel technology burns fossil fuels with nearly pure oxygen producing a flue gas of CO₂ and steam; the water condenses leaving flue gas of almost pure CO₂. **This can be applied to new and existing fossil fuel stations.**¹

The ideal site for CCS generation is therefore close to a storage reservoir like depleted oil and gas fields and saline aquifers. A network of onshore and offshore pipelines to transport the captured CO₂ is also required.² This could perhaps even be on a scale equivalent to the North Sea oil and gas industry.³

CCS is regulated through a licensing regime laid out in the *Energy Act 2008* (section 1(5)). The Secretary of State for Business, Energy and Industrial Strategy (BEIS) is the licensing authority for offshore storage except within the territorial sea adjacent to Scotland.⁴

1.2 The role of CCS in meeting carbon targets

Internationally, it is widely argued that the world has little chance of meeting the Paris Agreement's 2°C target and avoiding dangerous climate change without wider use of CCS. For instance, the

¹ A description of CCS technology is available on the archived Office of Carbon Capture and Storage (OCCS) [website](#).

² [Overarching National Policy Statement for Energy \(EN-1\)](#), DECC, July 2011 p.54

³ Royal Academy of Engineering, [Generating the Future: UK energy systems fit for 2050](#), 18 March 2010, p.14

⁴ Oil and Gas Authority, [Licensing and consents – UK carbon capture and storage](#)

International Energy Agency (IEA) in their [assessment of CCS in 2016 explained that](#):

“Following the ratification of the Paris Agreement, the ability of CCS to reduce emissions from fossil fuel use in power generation and industrial processes – including from existing facilities – will be crucial to limiting future temperature increases to “well below 2°C,” as laid out in the Agreement. CCS technology will also be needed to deliver “negative emissions” in the second half of the century if these ambitious goals are to be achieved.”⁵

In addition, in 2017 the [IEA called for](#) “a renewed emphasis on CCS in long-term climate strategies” and for Governments to provide “targeted support for project deployment”.⁶ However, CCS generation is not yet proven on a large scale in the UK.

UK carbon targets

Through the [Climate Change Act 2008](#) the Government is committed to reduce emissions by at least 80% of 1990 levels by 2050, and to contribute to global emission reductions to limit global temperature rise to as little as possible above 2°C. To meet these targets, the Government must set five-yearly carbon budgets which currently run until 2032. Each carbon budget restricts the amount of greenhouse gas the UK can legally emit in a five year period and is set with advice from, and progress monitored by, the Committee on Climate Change (CCC), an independent statutory advisory body established by the 2008 Act. The UK is currently in the second carbon budget period (2013 to 2017).

The [first three budgets](#) were approved in 2009 by the Government following the advice of the CCC. The fourth budget, agreed in 2011 and covering 2023-27, set an emissions reduction target in the UK of 50% by 2025 compared to 1990 levels. In November 2015, the CCC provided their advice on the fifth budget, [in which it](#) proposed the budget should be set at 1,765 MtCO₂e for 2028-2032, which would equate to a 57% reduction in emissions compared to 1990 levels.⁷ This included the following recommendation on the carbon intensity (amount of carbon dioxide emitted per unit of power) for the power sector and the role of CCS:

The Government should develop policy approaches consistent with reducing carbon intensity of the power sector to below 100 gCO₂/kWh in 2030 (compared to 450 gCO₂/kWh in 2014 and 200-250 gCO₂/kWh expected by 2020).

This reduction could be delivered by a range of different mixes of low-carbon generation (i.e. renewables, nuclear and plants fitted with carbon capture and storage – CCS) to reach a total share of around 75% of generation by 2030.

⁵ [20 years of carbon capture and storage - Accelerating future deployment](#), IEA, 2016

⁶ [Tracking Clean Energy Progress 2017](#), IEA, 6 June 2017, p. 34

⁷ The fifth carbon budget: The next step towards a low-carbon economy, CCC, November 2015

It is important that the low-carbon portfolio includes roll-out in the 2020s of offshore wind and CCS given their long-term importance and the role of UK deployment in driving down costs.⁸

In 2015, the then Secretary of State for Energy and Climate Change Amber Rudd [pledged](#) ahead of the Paris UN Climate Change conference to phase out unabated coal – that is coal that cannot be captured and stored through [carbon capture storage](#) – by 2025. A report by Aurora Energy Research published on 16 October 2017 however has warned that coal power could be revived in the UK if the Treasury fails to increase the government's carbon price floor.⁹

To decarbonise to the extent that the CCC has recommended would require CCS to also be applied to gas electricity generation. The CCC's view is that "the period to 2032 will be vital to the development of carbon capture and storage, which has the potential to almost halve the cost of meeting the UK's 2050 target".¹⁰ The CCC warn that as CCS is not yet a "fully mature" technology a strategic approach bringing the technology to commercialisation will be required for it to be able to play a full part in a "least-cost emissions reduction strategy".¹¹

The Government accepted the advice of the CCC for the fifth carbon budget and in June 2016 Lord Deben, Chair of the CCC welcomed the decision:

The Government's commitment to reduce UK emissions by 57% by 2030 will open up opportunities for UK businesses both at home and abroad. It also demonstrates the continued broad political consensus to tackle the serious risks posed by climate change.¹²

Clean Growth Strategy

The Climate Change Act requires the Government to publish plans "as soon as is reasonably practicable" after each carbon budget is set. The [delayed](#)¹³ Clean Growth Strategy – which sets out the Government's proposals for decarbonising all sectors of the UK economy through the 2020s – was published on 12 October 2017. The strategy as a whole has been cautiously welcomed, but many noted that the strategy falls short of meeting the fifth carbon budget's 57% target.¹⁴

The Strategy however, does provide support for CCS, promising investments of up to £100 million in leading edge CCS and industrial innovation and plans to set up a CCS Council in partnership with industry to help develop the option of deploying the technology at scale

⁸ Committee on Climate Change, [The Fifth Carbon Budget: The next step towards a low-carbon economy](#), November 2015

⁹ [The carbon price thaw: Post-freeze future of the GB carbon price](#), Aurora Energy Research, 16 October 2017

¹⁰ Committee on Climate Change, [The Fifth Carbon Budget: The next step towards a low-carbon economy](#), November 2015, p.28

¹¹ Committee on Climate Change, [The Fifth Carbon Budget: The next step towards a low-carbon economy](#), November 2015, p.28

¹² The CCC, [CCC welcomes Government backing for fifth carbon budget and continued ambition to meet 2050 target](#), 30 June 2016

¹³ [Climate Change Minister: Clean Growth Plan coming this autumn](#), *Business Green*, 27 June 2017

¹⁴ [In-depth: How the 'Clean Growth Strategy' hopes to deliver UK climate goals](#), *Carbon Brief*, 12 October 2017; [HC Deb 12 Oct 2017 v626](#)

in the UK. Business Green (a renewable energy news source) did note that this “is still a downgrade to the £1bn worth of CCS funding which was unexpectedly pulled by the government in 2015.”¹⁵ (See section 1.3 below)

1.3 The second carbon capture and storage competition

The UK has ambitions to be at the forefront of CCS development¹⁶ and that “carbon capture and storage (CCS) has a potential role in the long-term decarbonisation of the UK’s economy, but its costs must come down.”¹⁷

However, CCS generation is not yet proven on a large scale in the UK, and nor is long-term storage, despite a series of UK Government and EU initiatives aimed at incentivising its development. It has been argued that CCS technology is too expensive to be commercially viable for private developers without government support in the shape of a strike price.¹⁸ However, a review commissioned by the Government and chaired by Lord Oxburgh argued that good design could make CCS affordable.¹⁹

In March 2013 Peterhead (Aberdeenshire)²⁰ and the White Rose Project (Yorkshire)²¹ were named as the two preferred bidders in the second UK [CCS Commercialisation Competition](#). Both these projects were subsequently called off when one of the bidders (Drax) [pulled out](#) of the project and when the Government [cancelled](#) the £1 billion CCS Competition in the 2015 Spending Review.²²

This was the second CCS competition to be cancelled following the first one running 2007-2011. In a report published on 20 January 2017, the National Audit Office calculated that £168 million (in 2015-16 prices) were spent by BEIS on these two CCS competitions.²³

¹⁵ [Government unveils sweeping strategy for deep emissions cuts across UK economy](#), *Business Green*, 12 October 2017

¹⁶ Department for Energy and Climate Change, [Clean coal: an industrial strategy for the development of carbon capture and storage across the UK](#), March 2010, p16

¹⁷ [PO 2101](#) [Carbon Capture and Storage] 10 July 2017

¹⁸ See for instance Carbon Capture and Storage Association, [Lessons Learned – Lessons and evidence derived from UK CCS programmes, 2008-2015](#), 29 June 2016

¹⁹ “There is a widespread view that CCS has to be expensive. On the contrary, the high costs revealed by the earlier UK approaches reflected the design of these competitions, rather than the underlying costs of CCS itself”, [Lowest Cost Decarbonisation for the UK: The Critical Role of CCS](#), Report of the Parliamentary Advisory Group on CCS, September 2016, p.5

²⁰ The Peterhead CCS Project involved capturing around 85% of the CO₂ from the gas-fired power plant at Peterhead, before transporting and storing it offshore in a depleted gas field beneath the North Sea. (See BEIS, [Guidance: UK carbon capture and storage: government funding and support](#))

²¹ The White Rose CCS Project in North Yorkshire proposed to capture around 90% of the CO₂ from a new coal-fired power plant at Drax before transporting and storing it offshore in a saline rock formation beneath the North Sea. (See BEIS, [Guidance: UK carbon capture and storage: government funding and support](#))

²² DECC, [HM Government Statement Re Carbon Capture, Storage](#), RNS Number: 9664G, 25 November 2015

²³ National Audit Office, [Carbon Capture and Storage: the second competition for government support](#), 20 January 2017

Planning permission for the Yorkshire Humber CCS Trunkline – a 75-kilometre pipeline between Drax in North Yorkshire and Barmston in the East Riding of Yorkshire that was linked to the White Rose Project – was also formally [rejected](#) by the Secretary of State Greg Clark on 12 January 2017.

1.4 What next for CCS in the UK?

The [Oxburgh Review](#), commissioned by the Government, and [the Committee on Climate Change](#), both came out in 2016 in favour of reviving CCS in the UK:

Oxburgh Review: The group agrees carbon capture and storage is an essential component in delivering lowest cost decarbonisation across the whole UK economy. [...]

UK action on CCS now will deliver lowest cost to the consumer. There is no justification for delay. Heavy costs will be imposed on current and future UK consumers by a continued failure to enact an effective CCS policy²⁴

Committee on Climate Change: Carbon capture and storage is of critical importance to meet the UK's carbon targets at least cost and to fulfil the ambition of the Paris Agreement.²⁵The Government confirmed in a written answer that it was studying the recommendations from the Oxburgh review and that it would 'set out its approach to CCS in due course.'²⁶

While there are currently no CCS projects left open for consideration in the UK, the Government has identified CCS as an area of strategic importance in its recently published [Clean Growth Strategy](#).²⁷ In their Clean Growth Strategy, the Government notes that:

[whilst] they have explored ways to deploy CCUS at scale in the UK since 2007, the lack of a technological breakthrough to reduce the cost of CCUS and the cost structures and risk sharing that potential large-scale projects have demanded has been too high a price for consumers and taxpayers. It is clear from the relative lack of deployment of the technology that other governments have reached a similar conclusion.²⁸

On CCS, the strategy made two clear commitments, to:

5) Demonstrate international leadership in carbon capture usage and storage (CCUS), by collaborating with our global partners and investing up to £100 million in leading edge CCUS and industrial innovation to drive down costs

6) Work in partnership with industry, through a new CCUS Council, to put us on a path to meet our ambition of having the option of deploying CCUS at scale in the UK, and to maximise its industrial opportunity²⁹

²⁴ 'Oxburgh Review': [Lowest Cost Decarbonisation for the UK: The Critical Role of CCS](#), Report of the Parliamentary Advisory Group on CCS, September 2016, p.4

²⁵ Committee on Climate Change, [Letter to Rt Hon Amber Rudd: A strategic approach to Carbon Capture and Storage](#), 6 July 2016

²⁶ [PWQ 58702](#) [Carbon Emissions] 13 January 2017

²⁷ [The Clean Growth Strategy](#), DBEIS, 12 October 2017

²⁸ [The Clean Growth Strategy](#), DBEIS, 12 October 2017, p. 69

²⁹ [Clean Growth Strategy: executive summary](#), DBEIS, 12 Oct 2017

The Carbon Capture and Storage Association (CCSA) welcomed these announcements, and their Chief Executive Luke Warren said:

“The CCSA welcomes the release of the Clean Growth Strategy and the recognition of both the critical role of CCS to reducing CO2 emissions and the clean growth opportunity this offers to the UK industrial strategy.

However, delivering a strategy requires action and there is a lack of detail on how these ambitions will be delivered. Government and industry must now work together to define the steps required to deliver CCS and make meaningful progress on these this parliament if the UK is to be a leader in this field.

We have recently seen impressive drops in the cost of other low-carbon technologies. This shows the power of Government and industry collaboration to drive large-scale deployment and cost-reduction. We now need Government to get behind CCS in the same way and the CCSA looks forward to working with the Government to support delivery of this transformational technology.”³⁰

1.5 CCS Research

The EU supports CCS research and demonstration projects through the research framework programmes [Framework Programme 7](#) and [Horizon 2020](#), the [NER 300](#) scheme and the [European Energy Programme for Recovery](#) (EEPR).

As set out by the Government in 2015, the UK benefitted from some of these programmes for two CCS projects:

“In 2009 the Don Valley Project was awarded a €180m European Energy Programme for Recovery grant which contributes towards the feasibility and design phase of the project's development. The award is still in place and ~€125m has so far been claimed. In 2013 the White Rose CCS project was awarded up to €300m in potential NER300 funding. This award, which remains available, is subject to the project being able to successfully store carbon dioxide before the end of June 2020”.³¹

Since the UK voted to leave the EU, questions have been asked regarding the future of these funding allocations:

Diana Johnson (Kingston upon Hull North): To ask the Secretary of State for Business, Energy and Industrial Strategy, what assessment he has made of when the UK will lose EU funding previously allocated to the UK for carbon capture and storage programmes.

Jesse Norman: Two UK carbon capture and storage (CCS) projects have been allocated funding by the European Commission (Don Valley and White Rose); the status of this funding is subject to further discussions with the European Commission. The UK is also participating in a European Research Area Network (ERA-NET) on CCS under the Horizon 2020 programme. On 13 August 2016, the Secretary of State for Business, Energy and Industrial Strategy (BEIS) confirmed that the Government will underwrite certain EU funding, including

³⁰ [Press Release: UK Government sets out a new approach to CCS](#), CCSA, 12 October 2017

³¹ [PWQ 18630](#), Carbon Sequestration: EU Grants and Loans, 14 December 2015

approved Horizon 2020 research and development and innovation projects, regardless of the UK's relationship with the EU.³²

The Government also restated that it was still supporting research and development projects into CCS and was committed to continue to do so.³³

³² [PWQ 43539](#), Carbon Sequestration: EU Grants and Loans, 5 September 2016

³³ See for instance [PWQ 54710](#)

2. Press Articles

Telegraph

Carbon capture in doubt after Norway buries 90pc of budget

15 October 2017

<http://www.telegraph.co.uk/business/2017/10/14/carbon-capture-doubt-norway-buries-90pc-budget/>

Daily Telegraph

The Government finally switches on to a clean growth strategy

13 October 2017

<http://www.telegraph.co.uk/business/2017/10/12/government-finally-switches-clean-growth-strategy/>

The Independent

UK Government pledges £2.5bn to tackle climate change

13 October 2017

<http://www.independent.co.uk/news/business/news/uk-government-climate-change-pledge-billions-global-warming-renewable-energy-emissions-targets-a7997301.html>

Financial Times

What to expect in the UK's Clean Growth energy strategy

11 October 2017

<https://www.ft.com/content/7d0f7824-ad04-11e7-aab9-abaa44b1e130>

Financial Times

Clean growth plan aims for step change in home energy efficiency

12 October 2017

<https://www.ft.com/content/d2248fec-af35-11e7-aab9-abaa44b1e130>

BBC News

Funding for North Sea carbon capture study announced by Nicola Sturgeon

5 September 2017

<http://www.bbc.co.uk/news/uk-scotland-north-east-orkney-shetland-41167176>

The Times

Tackling climate change is a moral obligation and an opportunity

11 July 2017

<https://www.thetimes.co.uk/article/tackling-climate-change-is-a-moral-obligation-and-an-opportunity-nj&r20gxb>

3. Press releases

Carbon Capture and Storage Association

UK Government sets out a new approach to CCS

12 October 2017

The Carbon Capture and Storage Association (CCSA) welcomes today's publication of the UK Government's Clean Growth Strategy, which sets out the Government's position on how it intends to meet the Climate Change Act. As part of this Plan, the Government has re-affirmed its commitment to developing CCS.

Luke Warren, Chief Executive of the CCSA, commented:

"The CCSA welcomes the release of the Clean Growth Strategy and the recognition of both the critical role of CCS to reducing CO₂ emissions and the clean growth opportunity this offers to the UK industrial strategy.

However, delivering a strategy requires action and there is a lack of detail on how these ambitions will be delivered. Government and industry must now work together to define the steps required to deliver CCS and make meaningful progress on these this parliament if the UK is to be a leader in this field.

We have recently seen impressive drops in the cost of other low-carbon technologies. This shows the power of Government and industry collaboration to drive large-scale deployment and cost-reduction. We now need Government to get behind CCS in the same way and the 2

CCSA looks forward to working with the Government to support delivery of this transformational technology."

ENDS

Notes to Editors:

1. On Thursday 12th October 2017, the UK Government published its Clean Growth Strategy. This Strategy represents the Government's formal position on how it intends to meet the fifth carbon budget, following the recommendations of the Committee on Climate Change, which was published in November 2015. The Clean Growth Strategy can be found [here](#).
2. The last CCS Competition, which was launched in 2012, was cancelled in November 2015. The statement can be found [here](#).
3. CCS has a vital role to play in meeting the UK's climate change targets at least cost. The Committee on Climate Change has concluded that CCS "*could almost halve the cost of meeting the 2050 target in the Climate Change Act*". CCS is the only technology available that allows deep decarbonisation in energy intensive industries, and is therefore crucial in enabling a long-term sustainable future for these important industries. When fitted to fossil fuel power stations, CCS

enables the provision of a flexible source of low-carbon electricity. The combination of Steam Methane Reforming (SMR) of natural gas with CCS is currently the best option for producing large-scale, low-cost hydrogen, which can then be used to decarbonise heating and transport.

4. The Carbon Capture and Storage Association exists to represent the interests of its members in promoting the Business of Carbon Capture and Storage (CCS). The Association works to raise awareness, both in the UK and internationally, of the benefits of CCS as a viable climate change mitigation option, and the role of CCS in moving towards a low-carbon global economy.

<http://www.ccsassociation.org/>

4. Parliamentary material

4.1 Debates

Commons Chamber

[Clean Growth Strategy](#)

12 October 2017 | Vol 629

Westminster Hall

[UK Decarbonisation and Carbon Capture and Storage](#)

24 January 2017 | Vol 620

Lords Chamber

[Electricity Market \(EAC Report\)](#)

17 July 2017 | Vol 783

4.2 PQs

[Carbon Capture and Storage](#)

Asked by: Cunningham, Alex

To ask the Secretary of State for Business, Energy and Industrial Strategy, what the Government's policy is for carbon capture and storage.

Answering member: Claire Perry, Department for Business, Energy and Industrial Strategy

The Government will set out further detail on its policy for carbon capture and storage (CCS) in the Clean Growth Strategy, which will be published shortly.

07 Sep 2017 | Written questions | House of Commons | 7071

[Carbon Capture and Storage](#)

Asked by: Cunningham, Alex

To ask the Secretary of State for Business, Energy and Industrial Strategy, if he will provide an update on the Government's Carbon Capture and Storage roll-out strategy for (a) oil, (b) natural gas and (c) coal burning processes.

Answering member: Richard Harrington, Department for Business, Energy and Industrial Strategy

The Government's view is that carbon capture and storage (CCS) has a potential role in the long-term decarbonisation of the UK's economy, but its costs must come down.

We will set our plans for CCS in due course, taking into account the findings and recommendations made in the report 'Lowest Cost Decarbonisation for the UK: the critical role of carbon capture and storage', published by the Lord Oxburgh-led Parliamentary Advisory Group on CCS.

10 Jul 2017 | Written questions | House of Commons | 2101

[North Sea Oil and Gas](#)

Asked by: Drew Hendry

The fact is that the UK Government have been slow to realise the potential of decommissioning, pulled funding from vital carbon capture and storage pipeline projects, failed adequately to address the drop in renewable energy investment and plunged public funds into risky and poor-value nuclear power projects against the advice of experts. When will this Government wake up and take our energy opportunities seriously?

Answered by: Richard Harrington, Department for Business, Energy and Industrial Strategy

I am afraid that I must completely disagree with the hon. Gentleman's view of things. We are committed to supporting the development of a decommissioning industry. I think that there are significant opportunities. We are currently considering options for the delivery of a port and yard, and we will continue to engage closely with all relevant stakeholders as we develop our options.

27 Jun 2017 | Oral questions - Supplementary | House of Commons | 626 c440

[Carbon Reduction Plan](#)

Asked by: Paul Blomfield

The publication date that the Minister mentions is almost a year after the date originally intended by the Government. Does not this reflect a lack of commitment to tackling climate change? What is she doing to engage with other Departments to ensure that they carry out emissions impact assessments so that we can see a real commitment to tackling climate change across the whole of the Government?

Oral questions - 1st Supplementary

Answering member: Claire Perry, Department for Business, Energy and Industrial Strategy

May I gently say to the hon. Gentleman that, as the proud MP for the constituency that has Britain's leading carbon capture and storage research facility, he ought to welcome the progress that successive Governments have made on this agenda? We were the first country in the world to set binding carbon budgets, and we have over-achieved on

the first and second ones. Our full intention is to engage the whole of Government and industry in delivering on the upcoming budgets.

27 Jun 2017 | Oral answers to questions | House of Commons | 626 c454

[Energy Intensive Industries: Carbon Capture and Storage](#)

Asked by: Whitehead, Dr Alan

To ask the Secretary of State for Business, Energy and Industrial Strategy, what assessment his Department has made of the efficacy of carbon capture and utilisation technologies in providing carbon capture support for energy intensive industries.

Answering member: Jesse Norman, Department for Business, Energy and Industrial Strategy

The Government recognises the potential of carbon capture and utilisation' technologies, including for energy intensive industries, although many are at any early stage of development. The Department for Business, Energy and Industrial Strategy has commissioned further analysis that will be reporting back mid-year to help assess the commercially exploitable technologies and the associated carbon abatement opportunities for the UK.

24 Apr 2017 | Written questions | House of Commons | 70100

[Carbon Capture and Storage](#)

Asked by: Whitehead, Dr Alan

To ask the Secretary of State for Business, Energy and Industrial Strategy, which current projects related to carbon capture and storage are supported by funding from his Department; and what the value is of those contracts.

Answering member: Jesse Norman, Department for Business, Energy and Industrial Strategy

Carbon Capture and Storage (CCS) issues are the responsibility of the Clean Electricity Directorate in the Department.

Since 2015, the Government has allocated up to approximately £11 million on a range of carbon capture projects supporting research and development in CO₂ storage, carbon capture technologies and CCS feasibility studies.

The following current projects will be completed in 2017:

- 1 Assessing the potential of CO₂ utilisation in the UK. Contract value: £75,000;
- 2 CO₂ transport and storage: review of business models (Phase 1). Contract value: £20,000;
- 3 Assessing the cost reduction potential and competitiveness of novel (next generation) UK carbon capture technology. Contract Value: £225,000.

Additionally, the Government Energy Entrepreneurs Fund has funded approximately £1.6 million in support to innovative carbon capture technologies. Phase 5 of this Fund opened on 30 October 2016 with a budget of up to £9 million, which CCS projects were able to apply for. Phase 5 is currently going through the project selection process and the winners will be announced in due course. Further information can be found at: <https://www.gov.uk/government/publications/energy-entrepreneurs-fund-phase-5>

The UK has also contracted with the EU to provide €5.5m to the ACT (Accelerating CCS Technologies) Co-fund project. Full details can be found at <http://www.act-ccs.eu/>.

24 Apr 2017 | Written questions | House of Commons | 70889

[Carbon Capture and Storage](#)

Asked by: Cunningham, Mr Jim

To ask the Secretary of State for Business, Energy and Industrial Strategy, what assessment he has made of the reasons for the differences in (a) future carbon and capture and storage projections detailed in his Department's publications, Energy and emissions projections 2015 and (b) Energy and emissions projections 2016; and if he will make a statement.

Answering member: Jesse Norman, Department for Business, Energy and Industrial Strategy

The Energy and Emissions Projections 2015 assumed carbon capture and storage (CCS) generation from 2025.

The Energy and Emissions Projections 2016 take into account the ending of the CCS Competition in November 2015, and assumes that CCS will not come on in any significant capacity over the period of this modelling to 2035.

29 Mar 2017 | Written questions | House of Commons | 68858

[Carbon Capture and Storage](#)

Asked by: Johnson, Gareth

To ask the Secretary of State for Business, Energy and Industrial Strategy, what assessment his Department has made of the commercial viability of the methods proposed by recent research and development on reducing the costs of carbon capture technology by up to two-thirds in the (a) UK and (b) rest of the world.

Answering member: Jesse Norman, Department for Business, Energy and Industrial Strategy

The Department has commissioned a study, "Assessing the cost reduction potential and competitiveness of novel (next generation) UK carbon capture technology," to determine how the Department can support next generation carbon capture technology in future innovation

programme funding and support cost reduction in carbon capture. The study will complete in autumn 2017.

In addition, the UK is a member of Mission Innovation, and participating in the Carbon Capture Innovation Challenge [1] which seeks to identify breakthrough technologies and research and development opportunities in carbon capture technology with the aim of lowering costs and facilitating global carbon capture and storage deployment.

[1] <http://mission-innovation.net/our-work/innovation-challenges/carbon-capture-challenge/>

08 Feb 2017 | Written questions | House of Commons | 62425

[Carbon Capture and Storage](#)

Asked by: Blenkinsop, Tom

To ask the Secretary of State for Business, Energy and Industrial Strategy, what assessment his Department has made of the potential use of deep offshore saline aquifers in developing a viable business model for carbon capture and storage technology.

Answering member: Jesse Norman, Department for Business, Energy and Industrial Strategy

The Department funded a twelve month £2.5 million project, led by the Energy Technologies Institute, to progress the appraisal of five selected carbon dioxide storage sites in the North and Irish Seas; three of these sites were offshore saline formations. The report, "[Progressing Development of the UK's Strategic Carbon Dioxide Storage Resource](#)", was published by the Energy Technologies Institute in May 2016 and is available at: <http://www.eti.co.uk/project/strategic-uk-ccs-storage-appraisal/>.

06 Feb 2017 | Written questions | House of Commons | 62416

[Carbon Capture and Storage: Exports](#)

Asked by: Johnson, Gareth

To ask the Secretary of State for International Trade, what assessment he has made of the export potential of new carbon capture technology developed at UK universities.

Answering member: Greg Hands, Department for International Trade

Export potential for this – and all other technologies in which the UK has a comparative advantage – are assessed annually as part of the Department's planning processes.

02 Feb 2017 | Written questions | House of Commons | 61773

[Developing Countries: Carbon Capture and Storage](#)

Asked by: Sharma, Mr Virendra

To ask the Secretary of State for Business, Energy and Industrial Strategy, what plans he has to provide support for the use of carbon capture technology in the developing world additional to the £60 million committed to the International Climate Fund in 2012.

Answering member: Jesse Norman Department for Business, Energy and Industrial Strategy

The CCS Capacity Building Programme to which the Government committed £60 million from the International Climate Fund in 2012 is a multi-year programme currently underway, providing support for the development of carbon capture and storage (CCS) technology in emerging economies, through developing the technical and institutional knowledge required for CCS deployment.

In addition, the UK is a member of Mission Innovation, an international initiative which aims to reinvigorate and accelerate global clean energy innovation with the objective to make clean energy widely affordable. Under Mission Innovation, the UK is participating in the Carbon Capture Innovation Challenge, which includes emerging economies with an interest in CCS technology. [1]

[1] <http://mission-innovation.net/our-work/innovation-challenges/carbon-capture-challenge/>

30 Jan 2017 | Written questions | House of Commons | 61008

5. Useful links and further reading

Department for Business, Energy & Industrial Strategy, Speech: *Launch of the Clean Growth Strategy* 12 October 2017

<https://www.gov.uk/government/speeches/launch-of-the-clean-growth-strategy>

Carbon Capture & Storage Association, *Clean Air, Clean Industry, Clean Growth: How Carbon Capture Will Boost the UK Economy* 5 October 2017

<http://www.ccsassociation.org/news-and-events/reports-and-publications/clean-air-clean-industry-clean-growth/>

Committee on Climate Change, *Reducing emissions and preparing for climate change: 2017 Report to Parliament*, June 2017

<https://www.theccc.org.uk/wp-content/uploads/2017/06/Reducing-emissions-and-preparing-for-climate-change-2017-Report-to-Parliament-Summary-and-recommendations.pdf>

Public Accounts Committee, *Carbon Capture and Storage*, 24 April 2017, HC 1036 2016-17

<https://publications.parliament.uk/pa/cm201617/cmselect/cmpubacc/1036/1036.pdf>

About the Library

The House of Commons Library research service provides MPs and their staff with the impartial briefing and evidence base they need to do their work in scrutinising Government, proposing legislation, and supporting constituents.

As well as providing MPs with a confidential service we publish open briefing papers, which are available on the Parliament website.

Every effort is made to ensure that the information contained in these publically available research briefings is correct at the time of publication. Readers should be aware however that briefings are not necessarily updated or otherwise amended to reflect subsequent changes.

If you have any comments on our briefings please email papers@parliament.uk. Authors are available to discuss the content of this briefing only with Members and their staff.

If you have any general questions about the work of the House of Commons you can email hcinfo@parliament.uk.

Disclaimer

This information is provided to Members of Parliament in support of their parliamentary duties. It is a general briefing only and should not be relied on as a substitute for specific advice. The House of Commons or the author(s) shall not be liable for any errors or omissions, or for any loss or damage of any kind arising from its use, and may remove, vary or amend any information at any time without prior notice.

The House of Commons accepts no responsibility for any references or links to, or the content of, information maintained by third parties. This information is provided subject to the [conditions of the Open Parliament Licence](#).