Carbon Capture & Storage Association

Energy Policy Roundtable
UK and EU CCS Policy

Luke Warren

The Carbon Capture & Storage Association

Unite NUM Carbon Capture and Storage Seminar

28th Jan. 2014

Carbon Capture & Storage Association

EU / UK aspired to be global CCS leaders

- *"With China alone building an average of two coal-fired power stations every week, the development in the UK of technology to capture and safely store up to 90% of CO2 emissions is critically important. The launch of the competition today puts the UK on track to build within seven years one of the world's first commercial-scale CCS projects on a coal-fired power station"*

  Gordon Brown, 2007

- *"Aware of the huge possible global benefits of a sustainable use of fossil fuels, the European Council urges Member States and the Commission to work…to bring environmentally safe CCS to deployment…by 2020 [and] welcomes the intention to establish a mechanism to stimulate the operation by 2015 of up to 12 demonstration plants"*

  EU Council of Ministers, 2007

UK CCS Commercialisation programme

CCS Commercialisation programme launched April 2012

- Outcome: "*As a result of the intervention, private sector electricity companies can take investment decisions to build CCS equipped fossil fuel power stations, in the early 2020s, without Government capital subsidy, at an agreed CfD strike price that is competitive with the strike prices for other low carbon generation technologies*"

CCS Competition

- Support; £1 billion capital and Electricity Market Reform (EMR) revenues
- Two projects selected;
  - Peterhead: Gas, post-combustion CCGT, Peterhead, Scotland.
  - White Rose: Coal, oxyfuel, Drax, North Yorkshire.
    - » 'Yorkshire / Humber CCS Trunkline'

Second phase of projects (potentially developed alongside competition)

- Primary support from EMR
- At least three commercial scale CCS projects under development

Carbon Capture & Storage Association

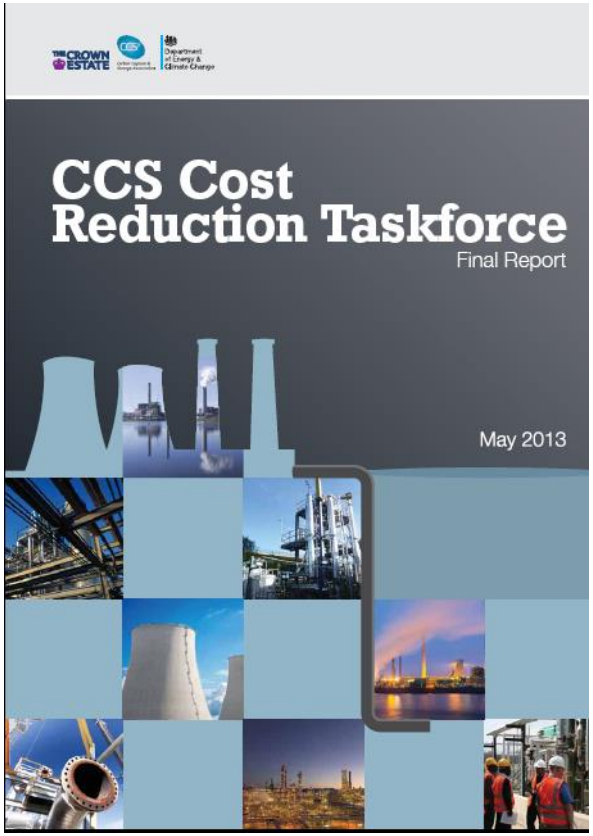
CCS Cost Reduction Task Force

- Established by UK Minister for Energy

- Advise on reducing the unit cost of CCS so that it can compete with other low carbon technologies in the electricity market by the early 2020s.

- Comprised; industry, Government, The Crown Estate, researchers

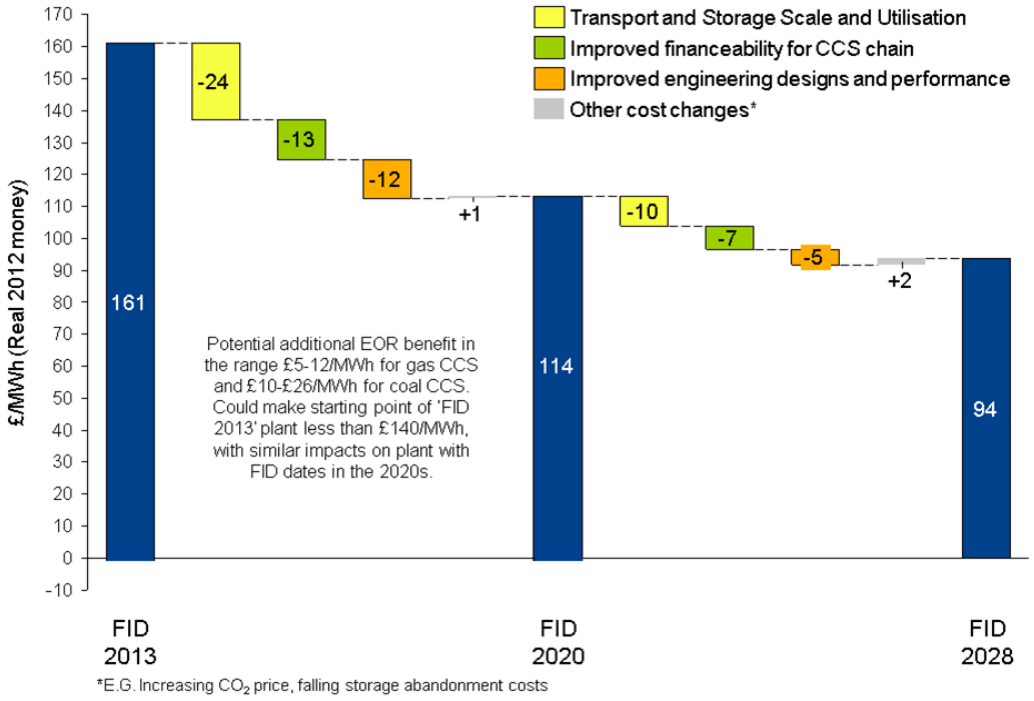
- Download: https://www.gov.uk/government/publications/ccs-cost-reduction-task-force-final-report



Carbon Capture & Storage Association

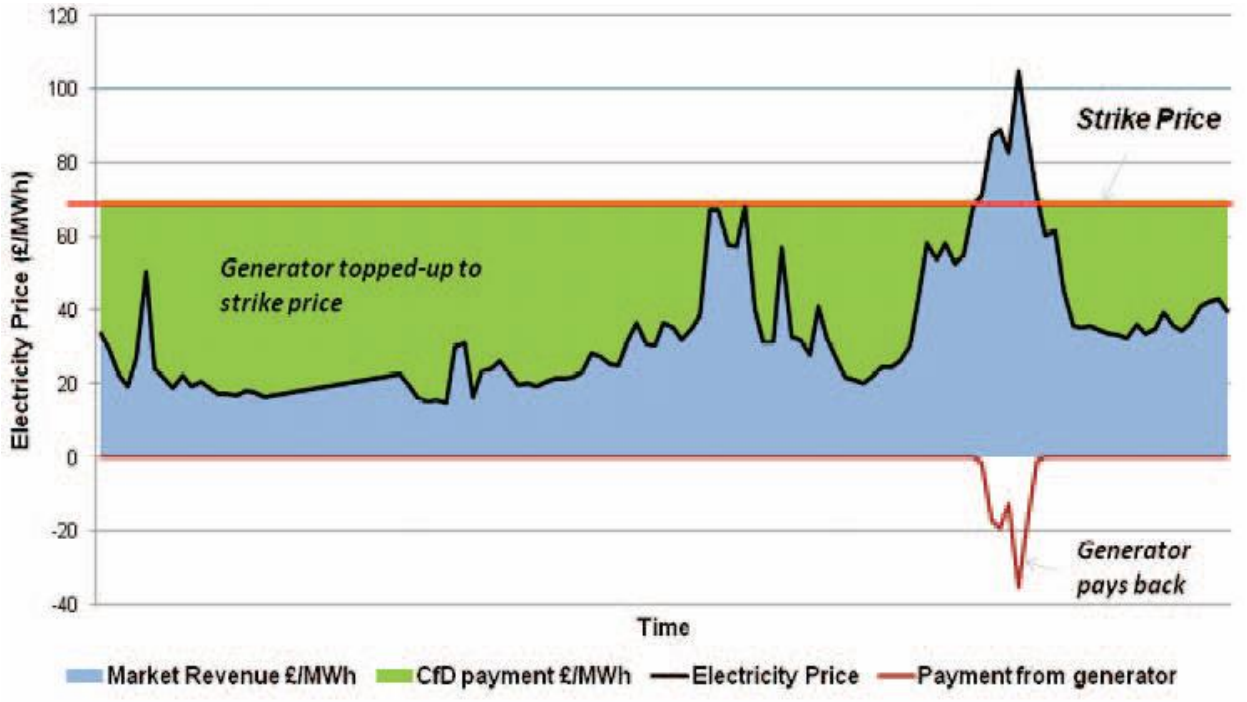
Key finding

"UK gas and coal power stations equipped with CCS have clear potential to be cost competitive with other forms of low-carbon power generation, delivering electricity at a levelised cost approaching £100/MWh by the early 2020s, and at a cost significantly below £100/MWh soon thereafter"



Carbon Capture & Storage Association

Electricity Market Reform (EMR)



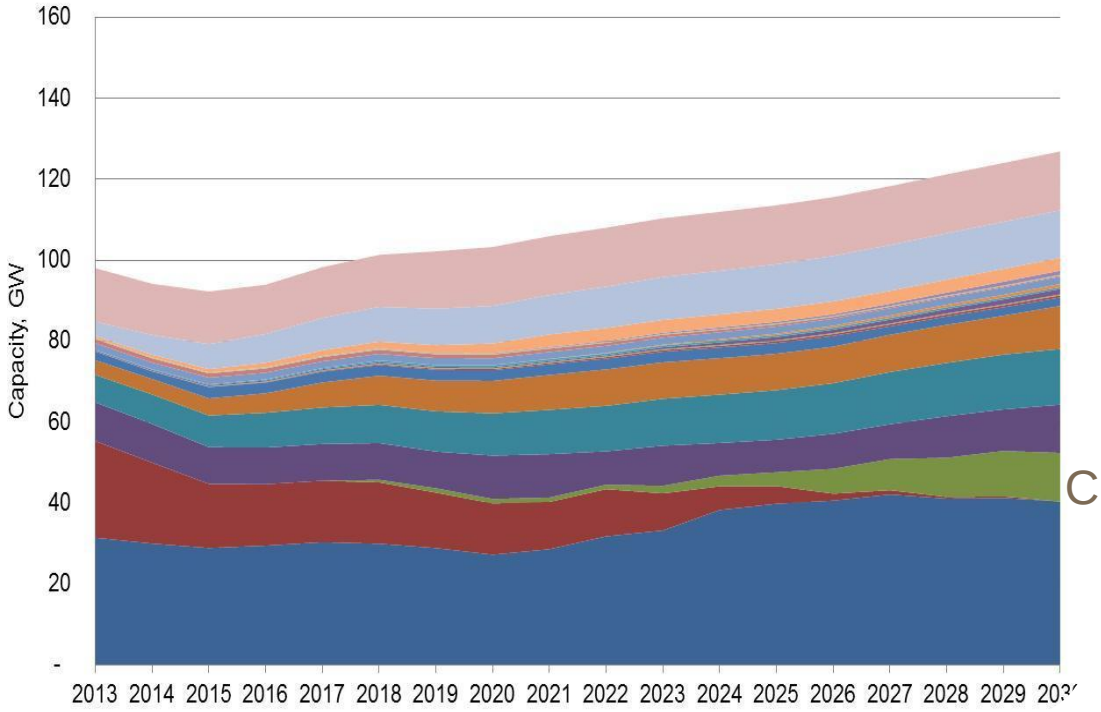
Feed-in Tariff Contracts for Difference (FiT CfD)

- Level playing field for all low-carbon technologies (CCS, nuclear, renewables)
- World's first mechanism to incentivise CCS beyond demonstrations

Carbon Capture & Storage Association

Potential CCS market

- Domestic legally binding 80% CO_2 reduction target by 2050
- Electricity sector emissions 50 – 200 gCO_2/kWh in 2030
- Government analysis; up to 13 GW CCS capacity 2030
- Other analyses indicates that higher levels CCS could be necessary



Carbon Capture & Storage Association

EMR and CCS

- CCSA strongly support the principles laid out in EMR package

- FiT CfD will drive all UK CCS investment at all stages of its development
  - Support first competition projects
  - Potential support CCS deployment

What must EMR deliver to support investment in CCS?

1. Are CfDs investable for CCS projects?
2. Is there a market for low-carbon power from CCS?
3. How does a developer access that market?

Carbon Capture & Storage Association

Where are we today

CCS Competition

- Progressing although slower than hoped
- White Rose entered FEED, Peterhead follow shortly
- Ultimate outcome still uncertain (0,1 or 2 projects?)

Non-Competition projects

- EMR key support investment
- Will Govt. allow projects access CfDs?
- Timing for next phase; parallel to competition?

Industrial CCS

- Increasing Govt. interest
- DECC / BIS industrial CCS techno-economic study
- Tees Valley – pre-FEED on industrial CCS cluster

Carbon Capture & Storage Association

Europe

- European Commission been active on CCS…
  - CCS Directive,
  - Energy Infrastructure Package,
  - European Industrial Initiatives,
  - EEPR,
  - NER300

    …..but CCS not taken off in Europe
- 2020 Climate and Energy Package discriminated against CCS

- EU 2030 climate and energy framework:
  - 40% CO2 reduction target
  - 27% EU legally binding renewable target
  - No energy efficiency target
  - Recognition of the importance of CCS

- European Parliament
  - Recent report on CCS recognised importance of CCS

Carbon Capture & Storage Association

Looking forward…

- CCSA position;
  - Ambition on climate key for CCS
  - Fully integrate CCS in 2030 climate and energy framework
  - 2030 package must treat CCS on a more equitable footing with other low-C technologies, therefore;
    - » Drop 2030 Renewable target, or
    - » Extend into 'Sustainable Energy' target

- UK negotiating position
  - Ambitious CO_2-reduction targets
  - ETS reform
  - No sub-targets (i.e. renewables or energy efficiency)

Carbon Capture & Storage Association

CCSA advocacy focus

- Must retain cross-party consensus on importance of CCS

- Next Parliament (2015 – 2020) critical decisions for CCS;
  - Investment decisions on CCS competition projects
  - Access CfDs for non-competition projects
  - Ambition to support industrial CCS?

- Europe 2030 package must not discriminate against CCS
  - Push UK Govt. retain technology neutral policies
  - Increase Brussels advocacy on CCS