

The UK Government Carbon Capture & Storage Policy Briefing

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Ed Miliband's Statement to the House of Commons outlined the three main challenges to UK Energy Policy:

- To transform our energy to low carbon sources;
- To maintain security of supply;
- And to do so in a way that is right for the British economy and industry

- We must decarbonise our electricity supplies – to meet long term climate change goals.
- Many countries are reliant on coal – there is an urgent international imperative for us to make coal clean.
- Coal provides 1/3 of UK electricity and a third of our existing coal-fired power stations are due to close in the coming decade.
- CCS will play an important part – must demonstrate CCS at commercial scale.
- UK Committee on Climate Change states that CCS generation is an essential technology for reducing global emissions, needs to be developed rapidly.

UK approach to CCS

- UK approach to CCS has several strands which run in parallel:
 - Supporting R&D
 - **Regulatory Framework**
 - **Demonstration project**
 - **Moving from demonstration to deployment**
 - **International CCS**

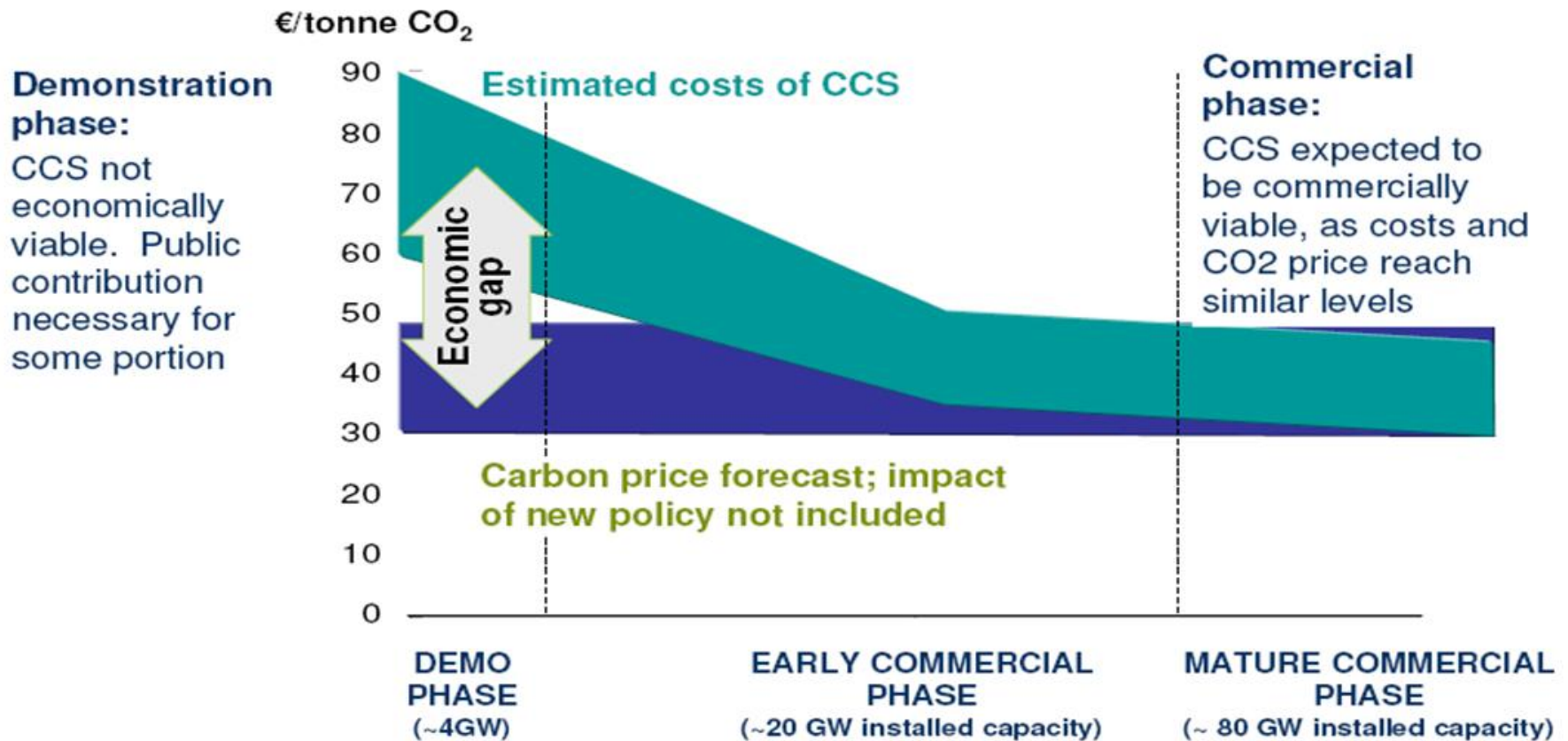
Regulatory Framework for CO₂ Storage



- UK has implemented national regulations for CO₂ storage, in the Energy Act 2008, which enter in force in April 2009
- Framework for storing CO₂ in UK offshore sites:
 - Requires lease for volume of subsurface
 - Requires licence for exploration and storage
 - Requires decommissioning
 - Provides for transfer of liabilities to state
 - Extendable to EOR
 - Includes penalties for non-compliance
 - Complies with EU Directive

- Reasonable to demand new build power stations to be built to allow retrofit of CCS.
- 4 key elements required –
 - Clearly identified strategy by which a credible capture technology can be retrofitted during plant lifetime (including technical and economic feasibility study)
 - Space available both within and around the plant to permit capture technology to be fitted
 - Credible route for CO₂ to be removed and transported to storage
 - Availability of suitable storage

Demonstration phase brings down CCS costs over time



Consultation



Policy proposals are set out in a consultation published on 17 June 2009

Consultation document can be viewed at

http://www.decc.gov.uk/en/content/cms/consultations/clean_coal/clean_coal.aspx

Consultation will determine policy

An ambitious programme



Proceeding with CCS demonstration project launched 2007.

April 2009 Budget announcements announced plans to fund up to three further CCS demonstration projects via a new financial incentive

- Detailed proposals are in consultation
- The new financial mechanism will require primary legislation, which the Government will seek to introduce at the earliest opportunity.

Aims

As part of the wider international effort;

- To reduce the costs and risks of deploying CCS.
- To prove the commercial scale viability of integrating the full CCS chain.
- To explore different capture technologies and types of storage site.

Proposals

1. Require any new coal-fired power station to demonstrate CCS on at least a portion of its capacity
2. Subsidize up to 3 additional demonstrations to be operational by 2020

Aims

To provide certainty that CCS will be deployed as soon as technically and economically feasible.

Proposals

1. New coal power stations should retrofit CCS to their full capacity within 5 years of CCS being independently judged technically and economically proven. (We will plan on the basis this will occur by 2020)
2. We envisage the judgement being made based on independent technical and economic advice.

Funding Demonstration: CCS Competition



- 300MW post-combustion capture project on a coal-fired power station, with CO₂ stored offshore
- Intention to be operational by 2014
- Handled via competitive process
- Project is proceeding with three remaining short listed Bidders:
 - a) Scottish Power (Iberdrola)
 - b) E.on
 - c) Peel/RWE/Dong Energy

Funding Demonstration: CCS Competition



- Budget 2009 confirmed the Government's commitment to the demonstration project:
- Up to £90 million allocated to fund the process for current competition Bidders to undertake detailed CCS preparatory studies
- Preparatory studies will be designed to provide Bidders with an opportunity to further develop their solutions and identify / mitigate project risk whilst retaining competitive tension
- Information from the studies may be available for dissemination to the wider CCS community as part of the UK Government's Knowledge Transfer commitment.

Funding Demonstration: CCS Programme



Scope

- Source of funding
- Disbursement of funding
- Selection and administration of projects
- Supporting clusters
- Need to be considered within the overall regulatory and financial framework

Source of funding

We have considered options including:

- Levy on licensed suppliers
- CCS Obligation
- Have decided to adopt the levy approach

Disbursement of funding (1)

Options:

- Contract for differences on carbon abated (CfD)
- Additional Payment (AP) for CCS electricity
- Feed-in tariff (FIT)

Consulting on the merits of a CfD vs an AP

Disbursement of funding (2)

- **Contract for differences on carbon abated (CfD)**
 - Removes carbon price uncertainty
 - Fuel price uncertainty reduced to roughly that of conventional plant (remnant of uncertainty associated with CCS because of increased fuel burn)
 - CfD to be two sided
 - Least risk of excessive profits or losses
- **Additional Payment (AP) for CCS electricity**
 - Doesn't fully remove carbon price uncertainty
 - Fuel price uncertainty reduced to roughly that of conventional plant (remnant of uncertainty associated with CCS because of increased fuel burn)
 - Greater risk of excessive profits or losses

Selection and administration of project support (1)



Projects first short-listed against a set of criteria along the lines:

- Avoid unnecessary duplication with other projects being supported in the UK and elsewhere.
- Provide the UK with experience of a range of alternative CCS technologies
- Are coordinated with other projects
- Relevant to new coal capacity
- Minimise the risk of “project blocking”
- The projects are affordable and represent value for money.
- The projects are big enough to deliver full-scale demonstration of CCS
- The projects meet DECC’s requirements for knowledge sharing and participation in international CCS demonstration networks

With final selection based on price

Selection and administration of project support (2)



- Projects likely to be 300-500MW net capacity.
- Financial support provided for up to 15 years.
- No projects on un-refurbished plant.
- Exclusively for coal power generation.
- Government will specify capture and possibly storage methods for each project
- Project calls will be phased
- Supervised by a managing agency

Using the demonstration programme to facilitate CCS “clusters” has been advocated for a range of reasons:

- Sharing infrastructure will reduce demonstration costs
- Projects should be sited in regions with a high density of CO₂ sources to act as nuclei for further CCS development and/or deployment
- Projects should have over-sized infrastructure to enable other facilities to link in at a later date.

- EU ambition for up to 12 demonstration projects by 2015
- December 2008 EU made available up to 300m EUA's to support up to 12 projects
- European energy package for recovery made available €1.05 billion for CCS of which €180 million is allocated to UK
- National government support is vital:
 - To provide certainty in implementing national regulations
 - To ensure EU processes are simple and well-defined
 - To provide additional funding for demonstration to combine with private sector and EU contributions where necessary

- Aim for UK demonstration to be part of EU Programme
 - **International** element of EU programme and knowledge dissemination are key to its success

- Infrastructure development and regulation
 - For transport and storage
- Supply chain development
 - Skills
 - Industry capacity
- Technology development
 - Continued R&D
 - Knowledge transfer for early demonstrations

In 2009 want to see:

- More demonstration projects (Independent + collaborative) – to ensure that G8 20 can be launched in 2010
- New fossil fuel power stations built “CCS ready”
- Agreement on a comprehensive, global and long-term framework for addressing climate change (UNFCCC COP15)
- Support for the development of CCS in developing countries

UK working bilaterally and with key multinational institutions:

- G8, Major Economies Forum, IEA, CSLF (2009 Ministerial in London)
- Global CCS Institute
- North Sea Basin Task Force, 4 Kingdoms initiative

- UK is co-hosting with Norway the 2009 CSLF Ministerial:
 - Focus on commercialisation of CCS, including:
 - Demonstrations
 - Financing and funding gap
 - Knowledge transfer
 - CCS readiness and capacity building
 - CEO-Ministerial Roundtable

- UK wants to see demonstration of CCS plants included in the CDM pre – 2012 (small-scale and gas processing most likely)
- UK wants to see CCS included in any new post-2012 sectoral mechanisms and/or CDM
- UK considers that CCS will be an important feature of some developing countries Low Carbon Development Strategies (LCDS) which will need to be considered for international support
- Need action taking place outside the convention to be recognised within it

Conclusions

- UK fully seized of importance of CCS domestically and globally
- UK proposals are an ambitious approach to demonstration and eventual deployment
- UK aims to maximise sharing of knowledge with governments and Energy sectors globally.