European Large Scale Demonstration Projects: UK status

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& National Centre for CCS

The Geological Surveys of Europe

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

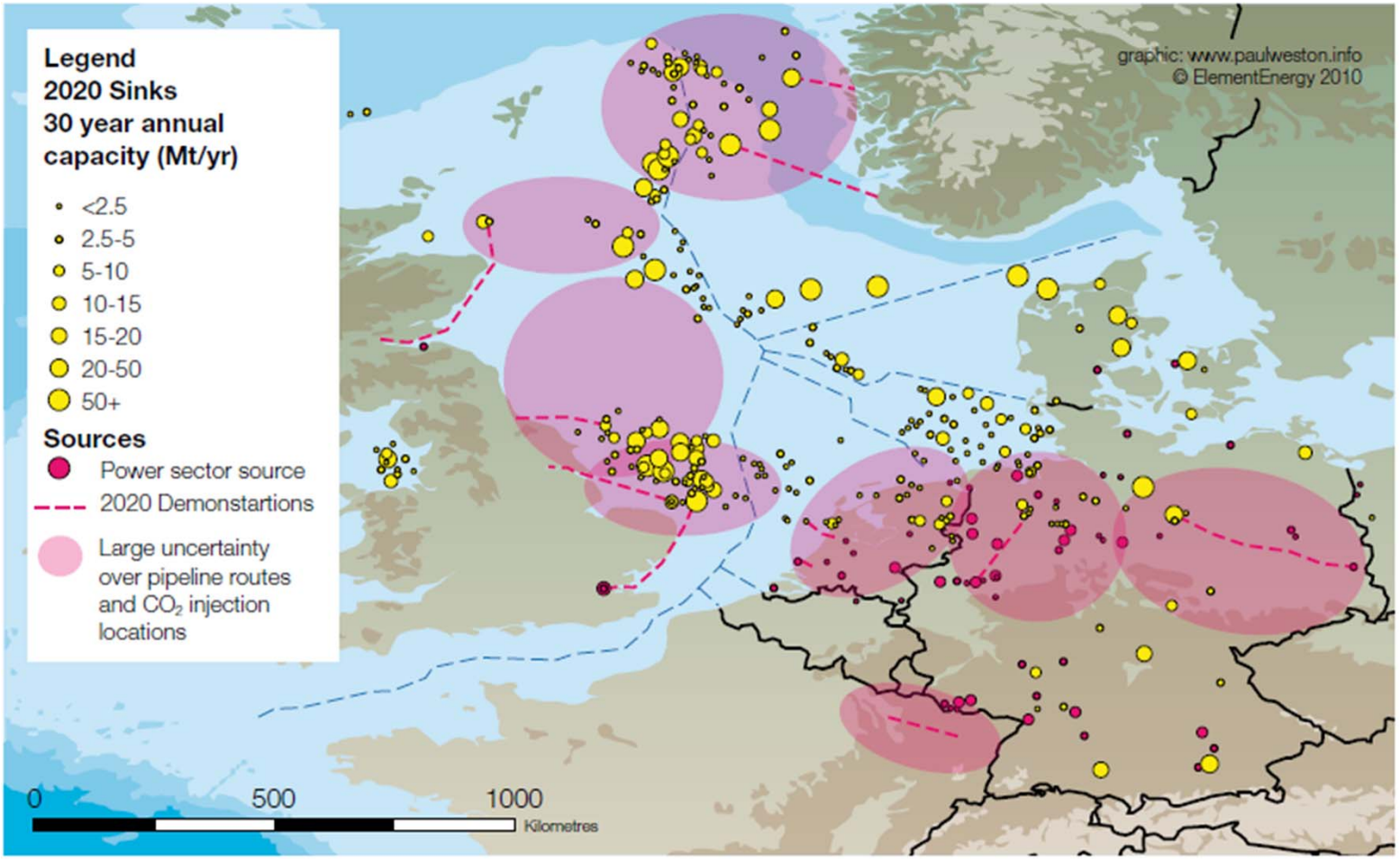
UK CCS Governance

Secretary of State for Energy & Climate Change

Department of Energy & Climate Change (DECC)

Office of Carbon Capture & Storage (OCCS)

North Sea Basin Task Force (2010)



North Sea Basin Task Force (2010)

Table 6: Modelled Mt CO_2 storage capacity in depleted hydrocarbon fields in the GIS database with 30Mt filter

Country	2030 storage (Mt)	2050 storage (Mt)	Reference
Denmark	753		GeoCapacity
Germany	1816		GeoCapacity
Netherlands	1532		GeoCapacity
Norway	4283	6302	NPD
UK	7141	7910	GeoCapacity
TOTAL	**15525**	**18313**	

Table 7: Modelled Mt CO_2 storage capacity in saline aquifers in the GIS database

Country	2030 storage (Mt)	2050 storage (Mt)	Reference
Denmark	16672		GeoCapacity
Germany	27120		GeoCapacity
Netherlands	428		GeoCapacity
Norway[20]	48488	97059	NPD
United Kingdom	60971		GeoCapacity and SCCS (2% efficiency)
TOTAL	**153689**	**202260**	

UK CCS Demonstration Competition

Essential Configuration of the first project:

- Has to be post-combustion capture from coal-fired power plant.
- Storage site has to be offshore

Government will only consider providing funding for the capture/transport and storage components of the demonstration.

Maximum government funding available is £1bn

Only 1 entrant remains of the 2 shortlisted proposals

Final decision expected Autumn 2011.

UK CCS Demonstration Competition

Scottish Power, Longannet plant

- Capacity 2.4 GW
- 2nd largest coal-fired power station in the UK & 3rd largest in Europe.
- In March 2010 it was selected by (DECC) as one of the 2 final bids in the competition.
- A detailed 12 month Front End Engineering Design (FEED) study is currently being carried out.

UK CCS Demonstration Competition

The Scottish Power Longannet CCS proposal includes a consortium of companies. Responsibilities include:

National Grid (Transport), Shell (Storage) and Aker Clean Carbon (Capture)

Scottish Power launched a pilot carbon dioxide capture plant at Longannet in September 2008, which will provide vital information for scaling up to the full-size CCS plant.

NER300

- Of the 14 applications received, nine were for CCS projects and five for innovative renewables. Of the nine CCS applications: three are based in Scotland, six in England – with four in the Humber and two in the Teeside regions; seven are to capture CO2 from coal-fired power stations and two are to capture the emissions from gas-fired plants; two are retrofits to existing power stations, and the other seven are new power plants providing vital additional energy supply capacity; and five are for pre-combustion technology, three for post-combustion and one is for Oxyfuel. The Government has until 9 May this year to assess the applications against the NER and UK criteria and decide which to put forward to the European Investment Bank for further consideration.

(UK Department of Energy & Climate Change, 17 Feb 2011)

NER300

- Not all the CCS applications under NER300 have been publically disclosed. Those that have include;

- Scottish & Southern Energy's Peterhead proposal for a gas-fired, post-combustion CCS configuration.

  Shell & CO2 DeepStore will provide offshore transport and storage elements as part of this proposal, with storage anticipated in a disused gas field in the North Sea, operated by Shell.

NER 300

- Powerfuel, has announced 2 proposals at its Hatfield site (Yorkshire).

- 900 MW IGCC plant in a consortium with National Grid, which was awarded €180m funds from the EU's EEPR competition.

- 450MW gas fired Endex NGCC plant in a joint venture with Calix.

- Powerfuel is currently under Administration: KPMG, announced in February 2011 that it had received 10 "expressions of interest“

NER 300

- Hunterston, Scotland: Ayrshire Power Ltd (Peel Energy & Dong Energy Joint Venture)

- The submission, by Peel Energy Carbon Capture and Storage Ltd (PECCS), is aimed at securing funding for the CCS aspects of the proposed facility which would burn both coal and biomass and use highly efficient modern technology with strict emissions control".

NER 300

- Selby, North Yorkshire:
  (Alstom UK, Drax Power, National Grid)

- 426 MW oxy-fired CCS demo project based at the Drax site in Selby, North Yorkshire.

- National Grid will provide the transportation element of the chain with an experienced offshore partner, for CO2 storage under the Southern North Sea.

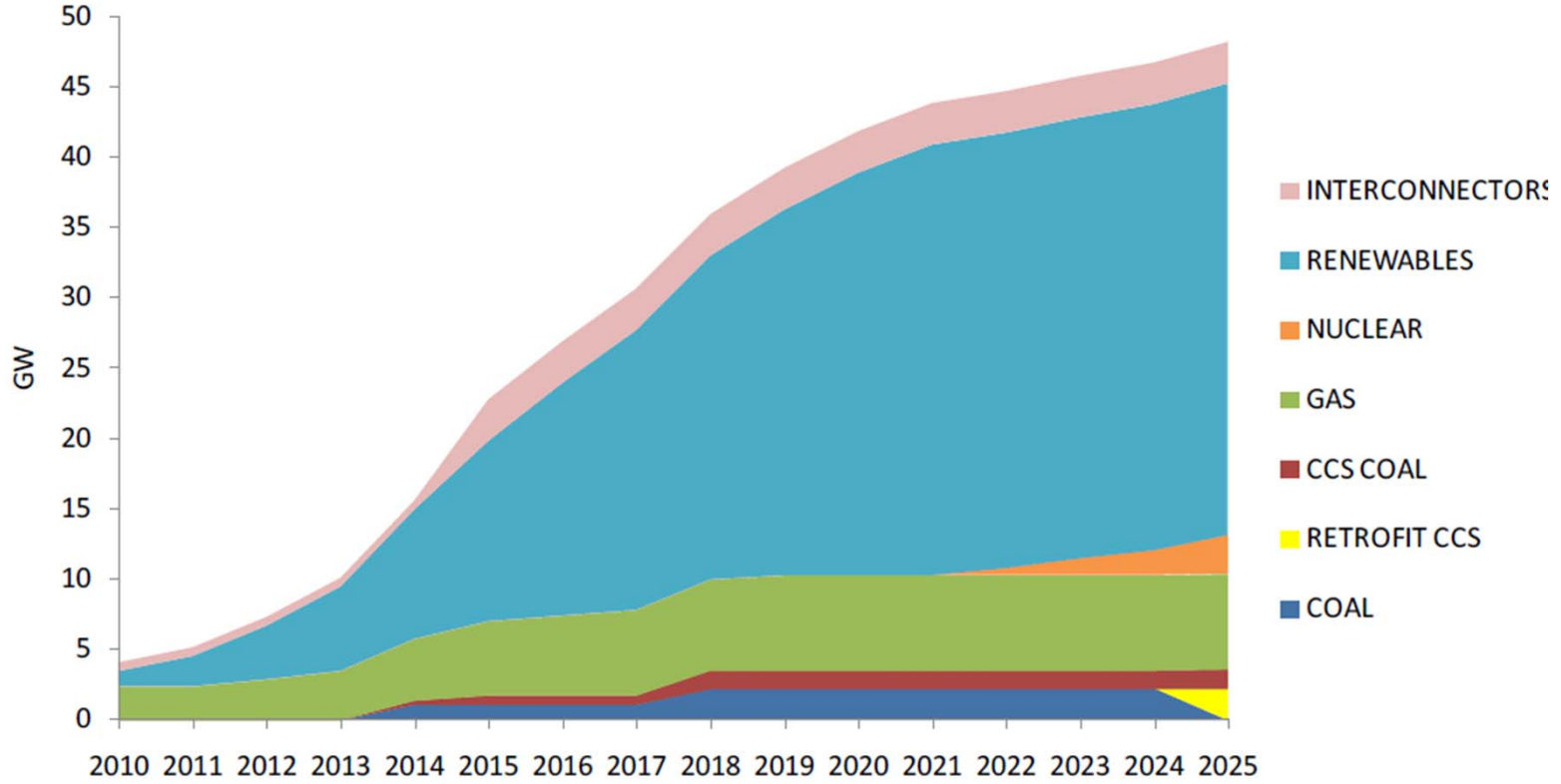
UK CCS roadmap

- Given the significant progress expected on CCS in 2011 the Government has decided to publish the CCS Roadmap in the Autumn rather than the Spring as originally planned. This is to ensure that we capture all the lessons learnt from: the Electricity Market Reform consultation, completing the Front End Engineering Design studies for the first demonstration project, finalising our approach to three further demonstrations, as well as assessing the nine projects applying for NER funding.

(UK Department of Energy & Climate Change, 17 Feb 2011)

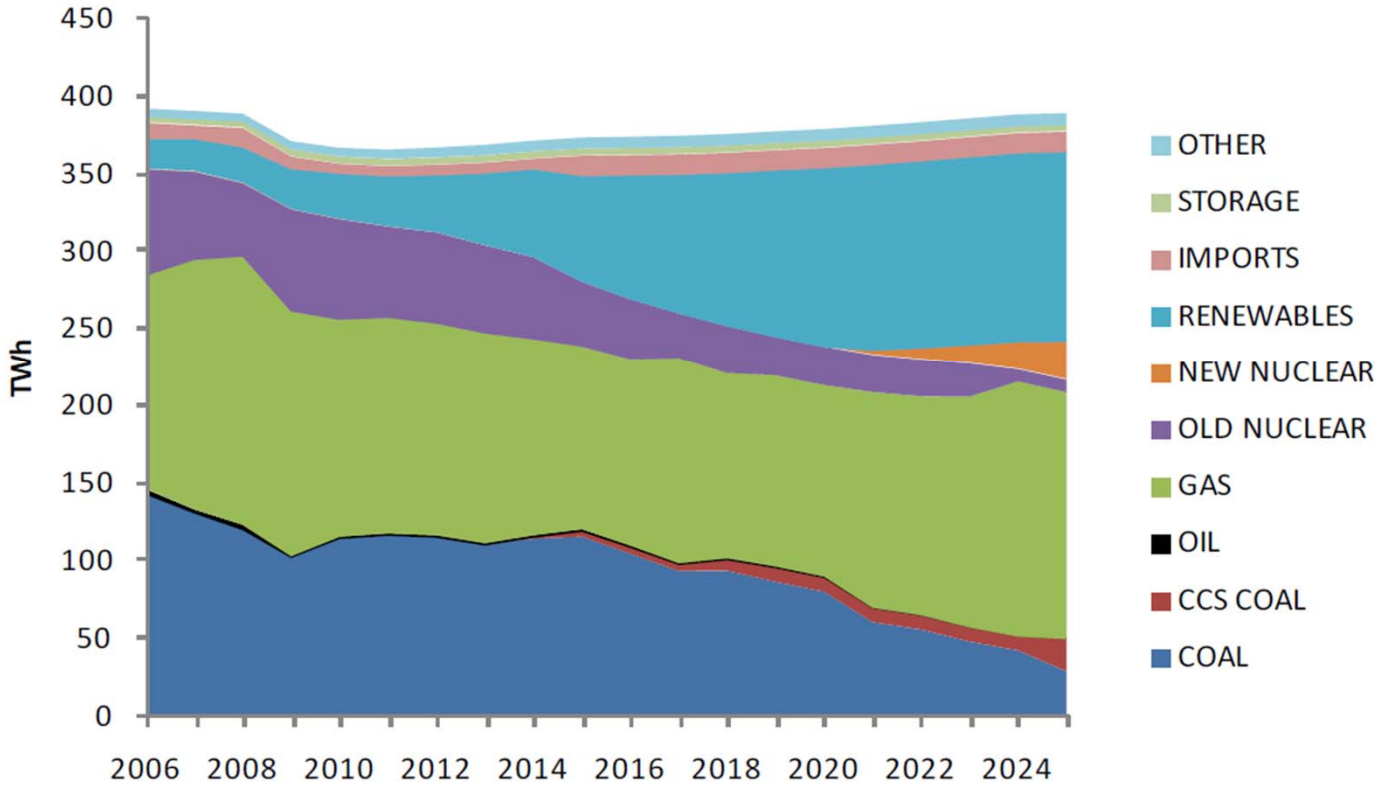
DECC Projections (as of June 2010)

Chart 6.1 Projected cumulative new build by plant type for MPPs, 2010 to 2025.



DECC Projections (as of June 2010)

Chart 6.3: Electricity supply[35] by fuel for all generators.



Acknowledgements

- All information given in this presentation is public domain & is derived from press releases/reports, the Carbon Capture & Storage Association public website and released DECC & North Sea Basin Task Force publications.