



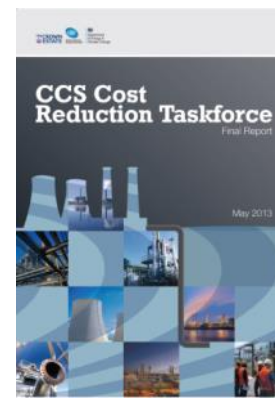
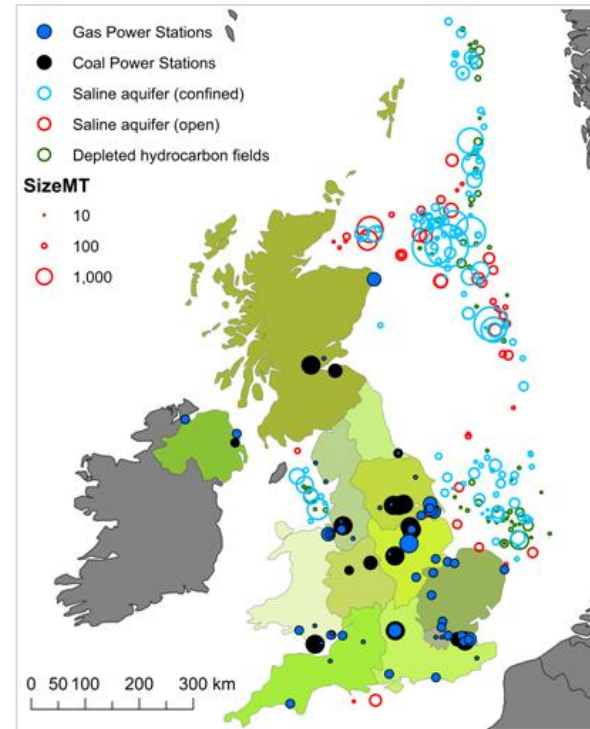
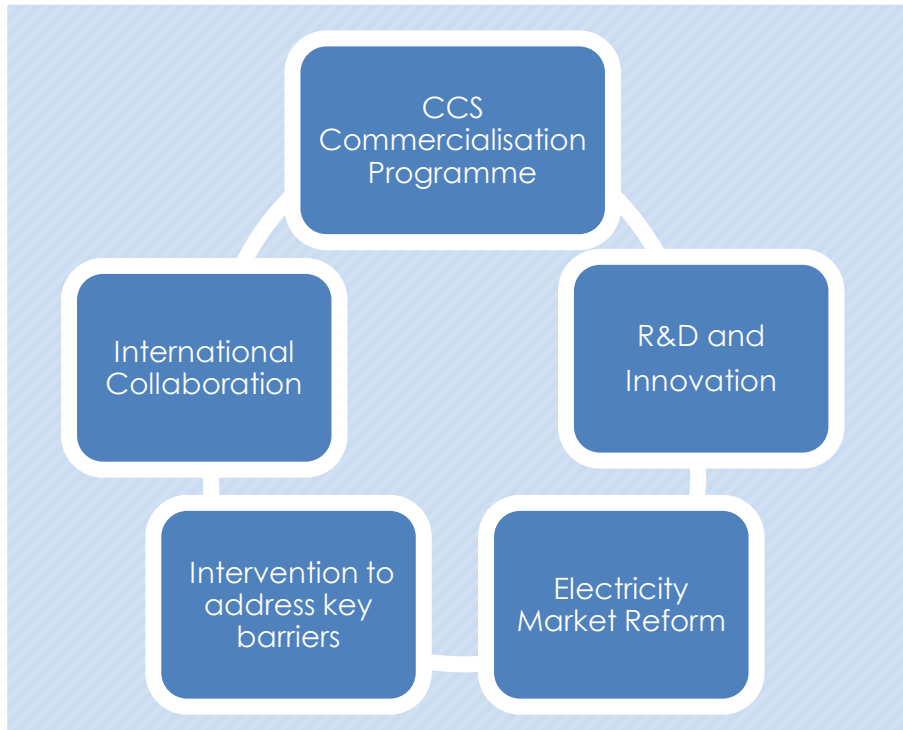
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UK CCS Programme

Office of Carbon Capture and Storage

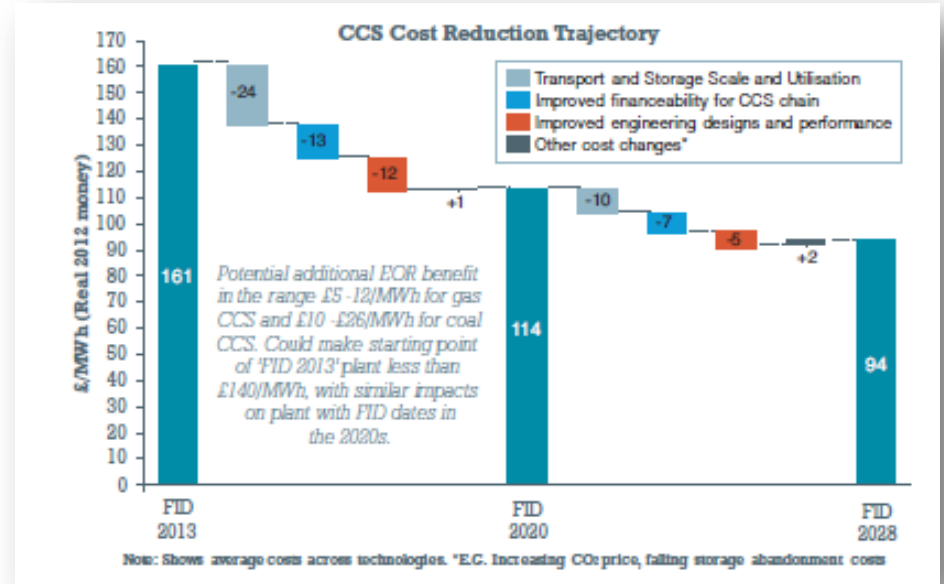
UK CCS Programme



CCS Cost Reduction Task Force

CCS Cost Reduction Task Force

- Established Cost Reduction Task Force to advise Government and Industry on reducing the cost of CCS.
- Their analysis found that UK gas and coal power stations equipped with CCS have **clear potential to be cost competitive with other forms of low-carbon power generation.**
- Final report published May 2013 recommending actions for Government and Industry and the creation of new groups to drive forward action.

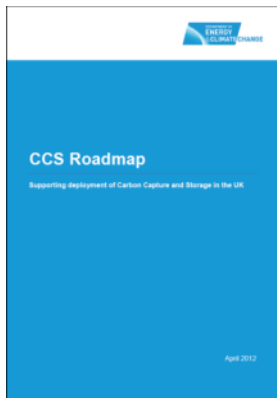


<https://www.gov.uk/government/policy-advisory-groups/ccs-cost-reduction-task-force>

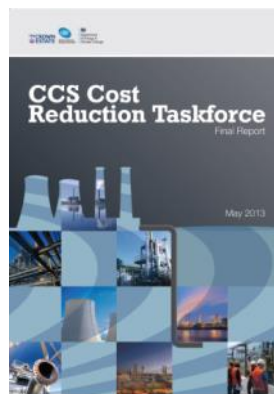
or

<http://tinyurl.com/crtf2013>

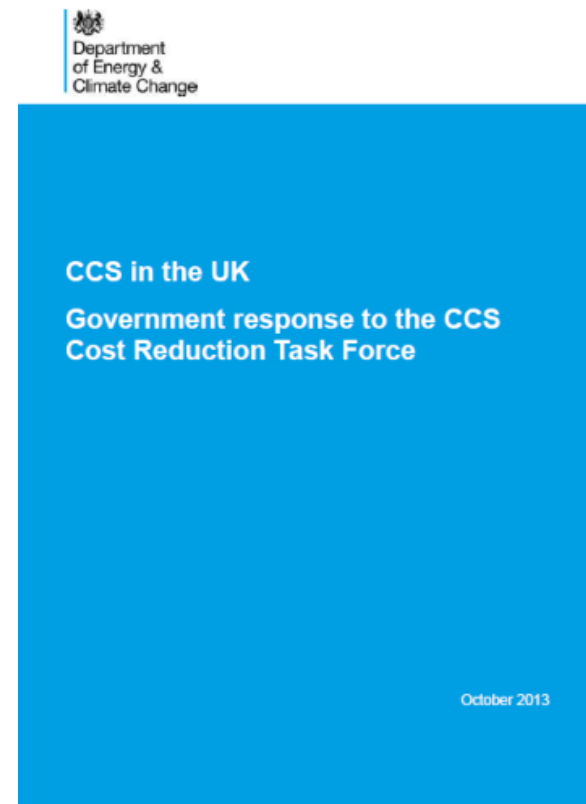




**Apr 2012
CCS Roadmap**



**May 2013
Cost Reduction Task Force**



**Oct 2013
Government Response
and update**

- Mike Gibbons as co-chair
- Smaller, more focussed
- Different membership to previous Development Forum
- Membership will be discussed with Mike and the CCSA
- Leadership groups recommended by the Cost Reduction Task Force will report to the Forum
- First meeting late 2013 / early 2014; to be decided in consultation with Mike



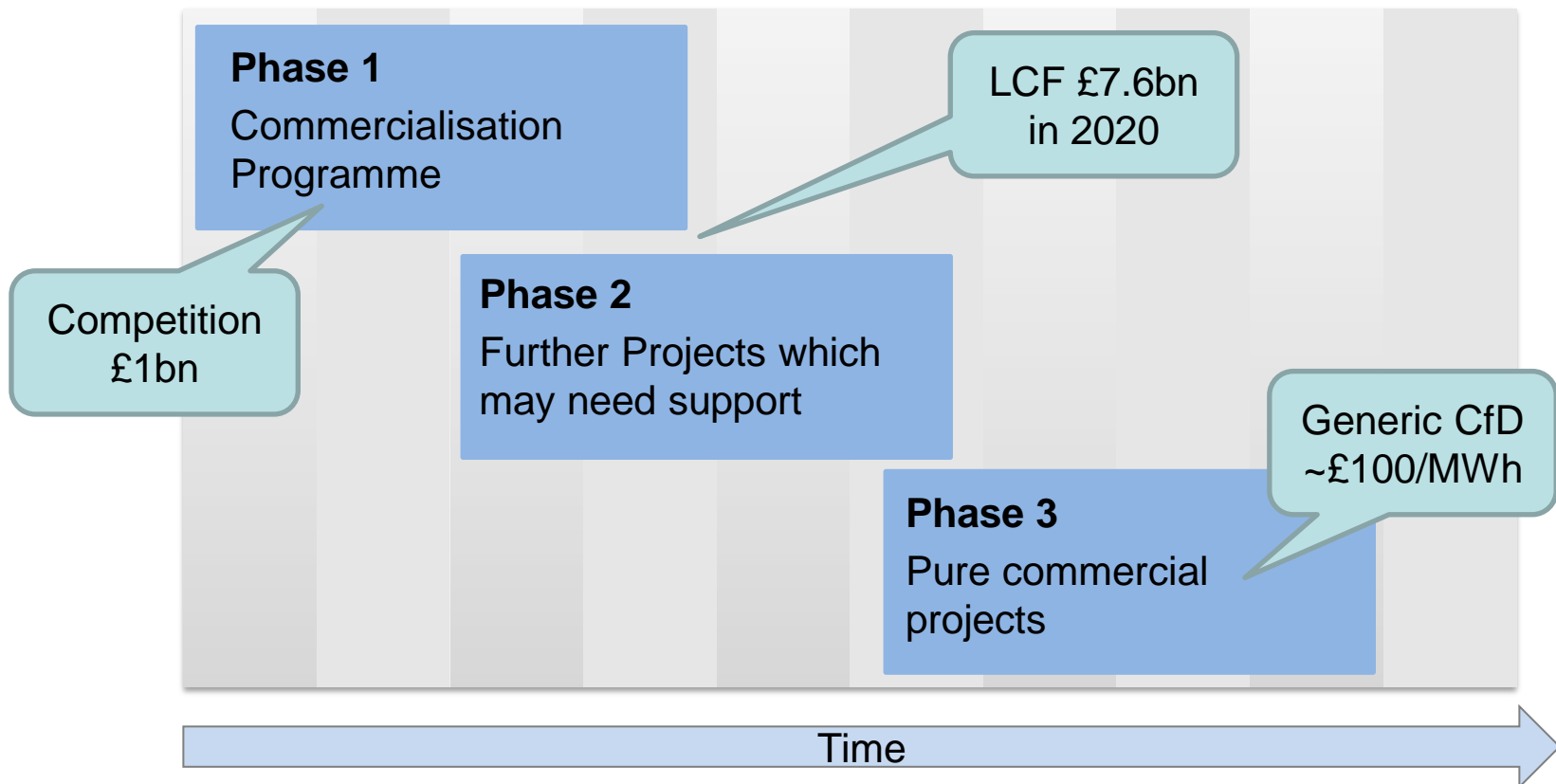
- CRTF highlights importance – and economic benefit – that oversized infrastructure could have for future CCS projects
- As part of the White Rose CCS project we are exploring the option for a FEED study into a large capacity 'Yorkshire / Humber CCS Trunkline' to support the work National Grid is already undertaking as part of its EEPR funded activities.

- Recognise that CO₂ EOR could play a role in the development of some CCS projects
- DECC has already completed a mapping exercise on a field-by-field basis to develop an estimate of the remaining EOR potential in the North Sea
- DECC held an EOR workshop in early October with 40 invited experts
- Will use outputs from that to shape a joint industry-Government work programme to evaluate these opportunities in more detail
- Wood Review interim report published

3 phases of CCS



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Encouraging Phase 2 of CCS projects



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- LCF set at £7.6bn in 2020
- Draft delivery plan recognises scope for CCS projects outside the competition going forward alongside competition projects
 - Workshop held in Oct with wider industry to discuss allocation process
 - “FIDe” process. Set out in Dec 2011 EMR documents; DECC in active discussions with qualifying projects on terms needed to bring their projects forward
 - Open to discussions with other, less mature projects in order to encourage new projects to come forward for investment

Flexible CCS

- Have asked IEA GHG to undertake a study in this area

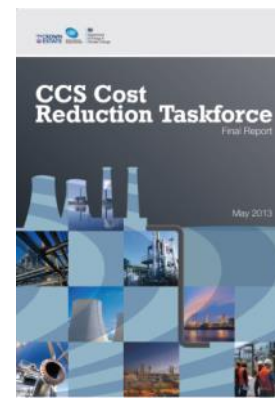
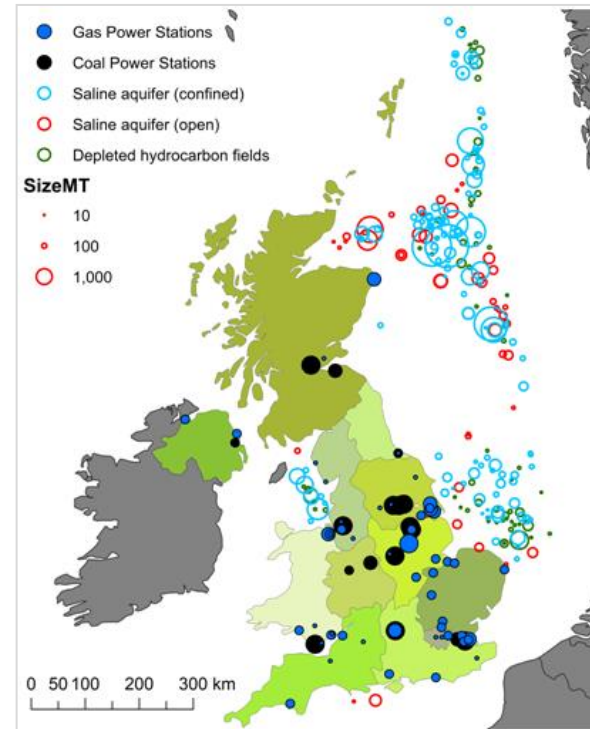
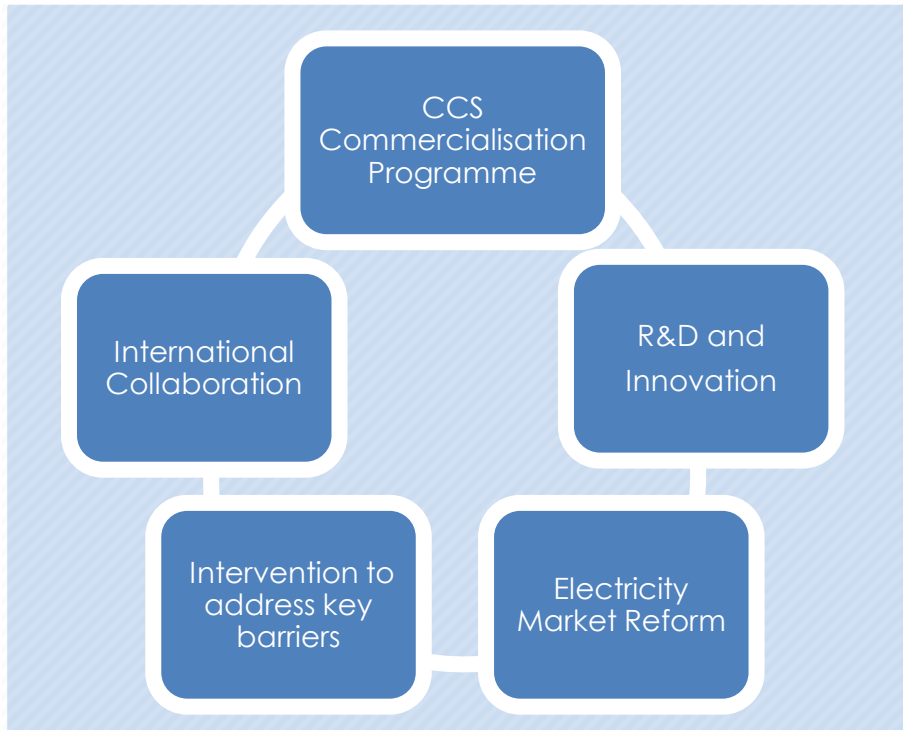
Industrial CCS

- Undertaking techno-economic study to better understand challenges
- First steering group meeting held in Sept 2013

Storage

- Agree with the Task Force's main conclusion in this area - that investment in the characterisation of sites is necessary well in anticipation of its use
- Look forward to receiving detailed recommendations in this area from Storage Development Group

UK CCS Programme



£1bn Competition – Preferred Bidders



ALSTOM

Drax

nationalgrid

BOC
A Member of The Linde Group

Peterhead

- A 340MW Post-combustion capture retrofitted to part of an existing Combined Cycle Gas Turbine power station at Peterhead, Scotland.
- Storage offshore in Goldeneye depleted gas field.
- Led by Shell and SSE.

White Rose

- An Oxyfuel capture project at a proposed new 304MW fully abated supercritical coal-fired power station on the Drax site in North Yorkshire.
- Led by Alstom and involving Drax, BOC and National Grid Carbon.



DRAFT

UK CCS R&D Programme £125m, 2011 - 2015

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RESEARCH
COUNCILS UK

UKCCS
RESEARCH CENTRE

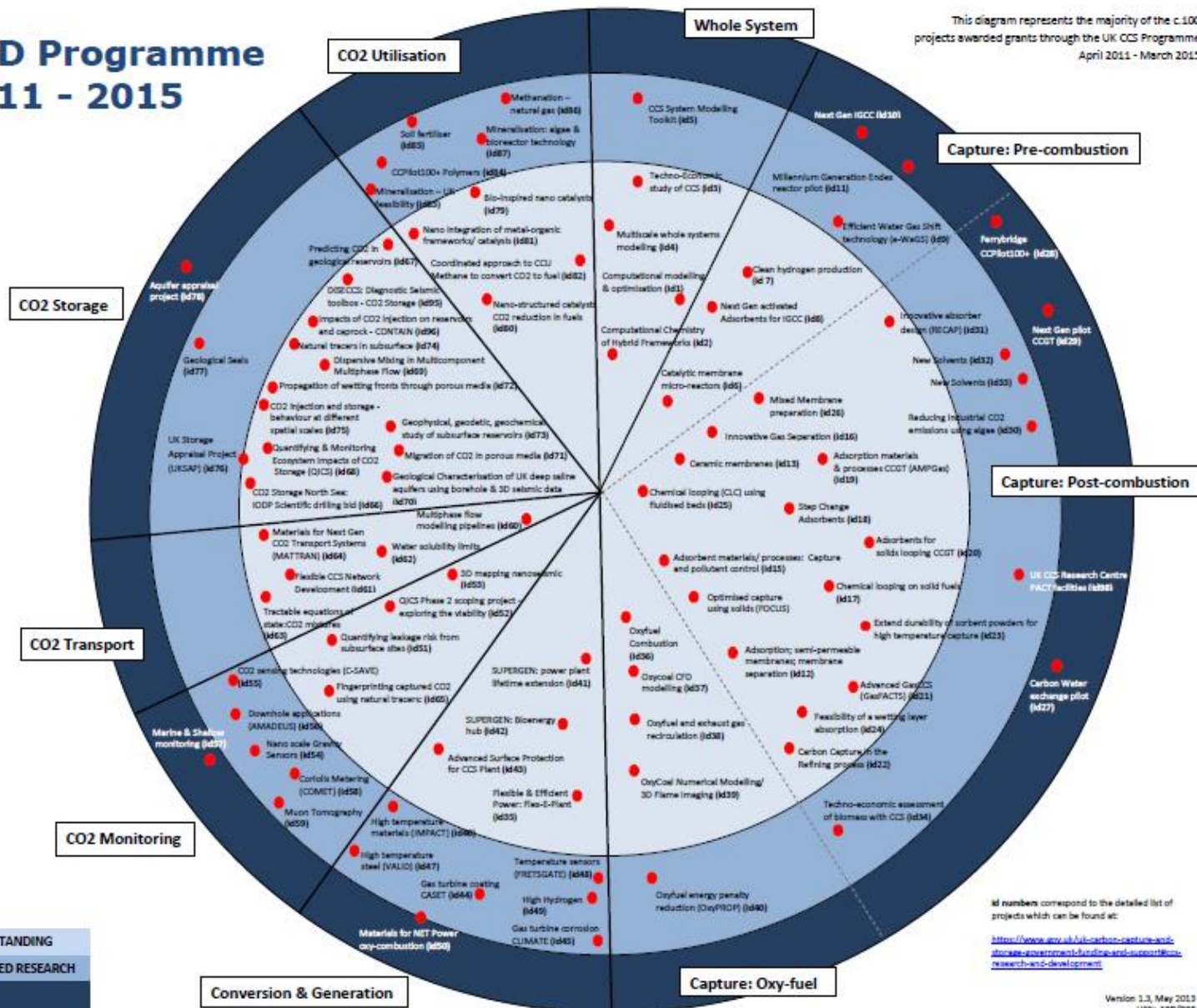
UKCCSRC
PACT FACILITIES

Technology Strategy Board
Driving Innovation

energy
technologies
institute

LCICG
Low Carbon Innovation
Co-ordination Group

FUNDAMENTAL RESEARCH & UNDERSTANDING
COMPONENT DEVELOPMENT & APPLIED RESEARCH
PILOT SCALE



UK CCS Research Centre and PACT Facilities



- Launched April 2012 to:
 - Promote and coordinate UK CCS research capability
 - Bring together UK's leading academic CCS institutions
 - Increase academic collaboration with industry
- Supported by Research Councils UK Energy Programme
- Co-ordinated from University of Edinburgh with separate UK based pilot capture testing facilities (**PACT**)
- Over 150 members and growing
- **Funding**
 - £10 Million funding over 5 years from Research Councils UK (EPSRC*)
 - £3 Million from DECC
 - £2.5 Million from participants

Pilot-scale Advanced Capture Technology facilities

- Funded jointly by Research Councils and DECC as part of the UK CCS Research Centre; operated by university partners

Scope

- Specialist carbon capture, fossil-fuel energy and bioenergy pilot-scale facilities based in the UK
- Leading academic expertise

Aim

- To support industrial and academic research to accelerate the development and commercialisation of novel technologies

Objectives

- To bridge the gap between bench-scale R&D and industrial pilot trials
- Shared access for industry and academia

Three Facility Sites

- **PACT Core facilities:** pilot scale combustion research facility at the Low Carbon Combustion Centre (LCCC) near Sheffield
- **Edinburgh:** remotely operated / monitored mini-lab which can be transported and connected to a test site i.e. a power station
- **Cranfield:** testing facilities for combustion/ gasification carbon capture and transport research



International engagement

Carbon Sequestration leadership forum



Nov 2013

- SoS Ed Davey attended CSLF, chaired by US DoE Secretary Moniz
- 23 countries including the European Commission



Nov 2013

UK-Korea joint statement on climate change:

“We will explore various ways to promote carbon capture and storage”

<https://www.gov.uk/government/news/united-kingdom-republic-of-korea-joint-statement-on-climate-change>

Sept 2013

UK pledges low carbon co-operation with China
Guandong province
MoU with UK CCS Research Centre

