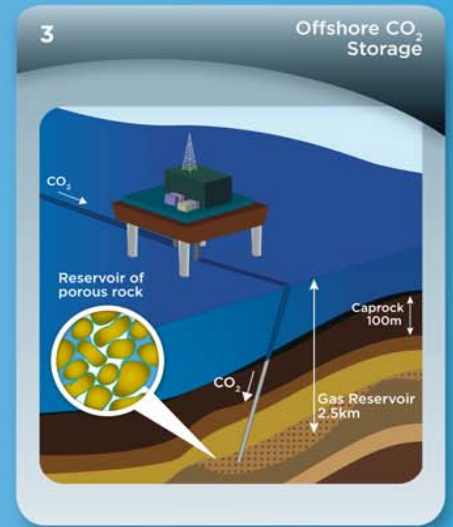
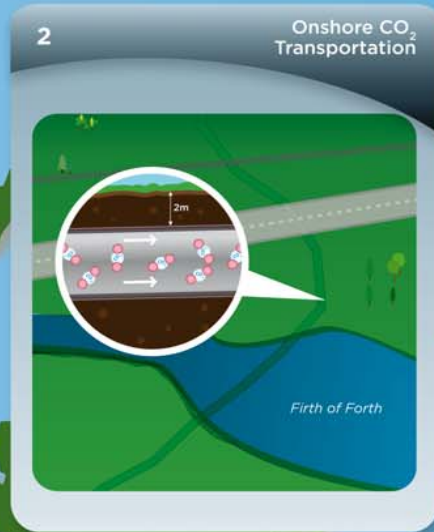
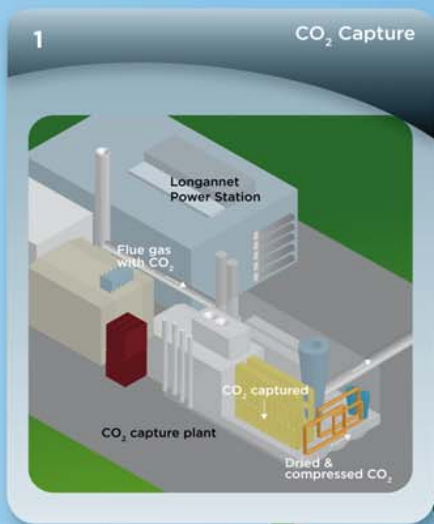


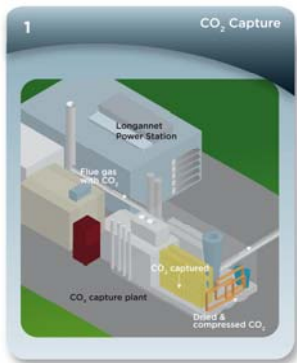
Taking CCS Design to demonstration: The ScottishPower Consortium Project

Steven Marshall
Head of CCS Development
ScottishPower

14th March 2011



ScottishPower Consortium Project



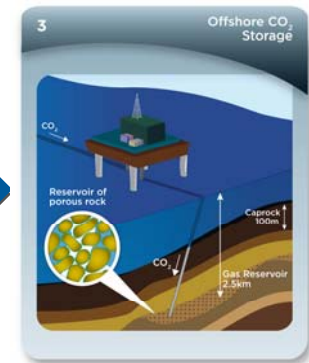
ScottishPower

- Management of the overall project
- Construction and operation of the carbon capture plant (CCP)
- Supported by Aker Clean Carbon as providers of the carbon capture technology



National Grid

- Onshore transportation of the CO₂ along new and existing pipelines
- Utilising compression facilities that drive the CO₂ to the offshore storage site



Shell

- Transport of the CO₂ offshore
- Storing it in an existing depleted gas reservoir under the Central North Sea that will have ceased production

UK CCS Demo Competition



November 2007

9 organisations submit initial proposals for CCS demonstrations

Jul-Nov 2009

National Grid and Shell join consortium

Outline solution submitted to UK Government (Nov 2009)

SPC selected to progress into FEED stage of UK Competition

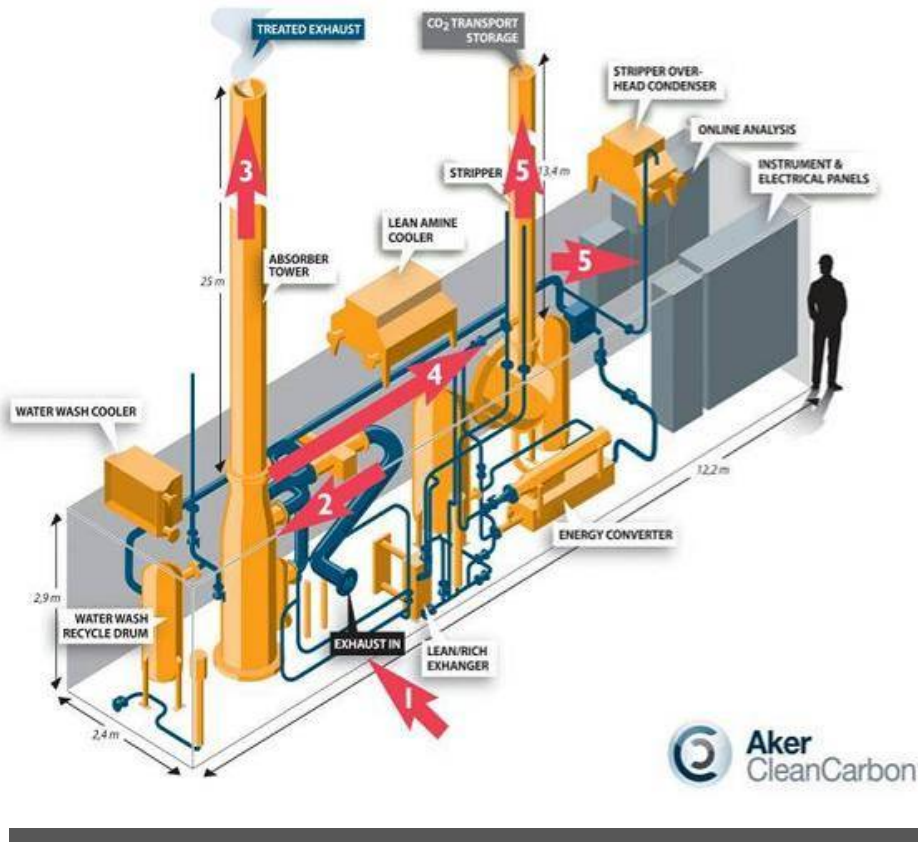
Mar 2010-Mar 2011

11 month, part funded FEED project

Some additional work carried out into March

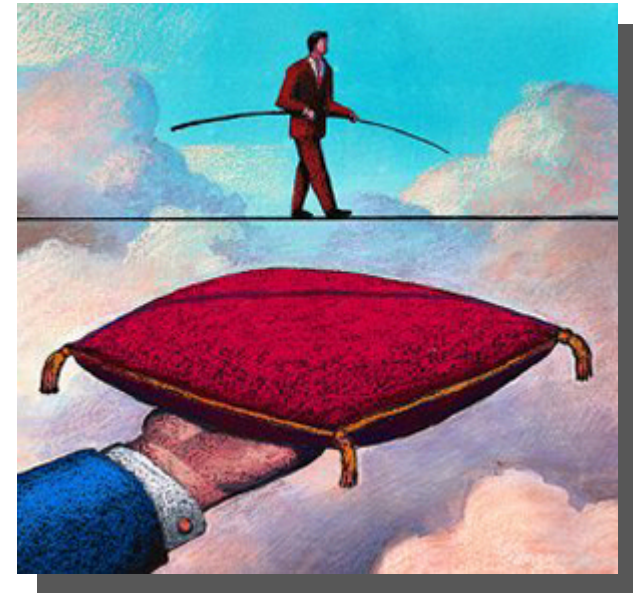
SPC is now is final Consortium in the UK Competition

The Carbon Capture MTU at Longannet



What is FEED?

- Challenge & investigate design assumptions from Outline Solution
- Provide greater technical, cost, programme and risk certainty
- Commitment to undertake extensive knowledge share programme




Outcomes from FEED

- Engineered & further developed technical solution
- Progressed applications for consents & licenses
- Firmed up on costs & commercial terms
- Engaged with key stakeholders



Example of stakeholder engagement: visits to MTU at Longannet Power Station

Consortium Lessons Learned

	Mobilisation	Ensure an appropriate mobilisation period to establish Consortium relationships, processes and systems prior to the start of FEED
	Early Engagement	Facilitate early engagement with key decision makers, internal stakeholders, local communities, regulators and potential Partners
	Communication & Collaboration	Strong leadership, planning and cross-Consortium communication required to create and present an integrated Consortium
	Competitive Procurement	Recognise restrictions imposed by developing a demonstration project within the bounds of a competitive procurement process
	Adapting to Uncertainty	Working with uncertainty across regulation, scope, budget, political will and novel technology

Key Workstream Learning

Project Governance:
Robust organisation structure required & strong internal investment case

Technical:
Manage the Project by its interface points

Knowledge Transfer:
Understanding stakeholder needs central to successful CCS KT programme

Consents:
Cannot be applied for as one complete project, but a co-ordinated approach to applications & engagement activity is really important

Communication:
Make decisions quickly, react rapidly to a changing external environment

Overall:
Partners must trust one another to deliver specific parts of the project, while maintaining oversight should support be required.

Commercial:
FOAK project, no CCS model in place. Procurement as R&D project, not competitive tender

Consortium Management Office:
Early mobilisation, project management systems in place

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