Expert Meeting on Financing Carbon Capture and Storage Projects

Possible Regulatory Options for the UK Government to enable CCS Projects

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Business model 1

• A company builds a power plant, a pipeline and accesses a store
Business model 2

- PF or IGCC power generator with CCS
- Pipeline operator
- Storage site operator
Business model 3

• Air separation company
• PF power generator with CCS
• Pipeline operator
• Storage site operator
Business model 4

• Gasifier hydrogen supplier with CCS
• Hydrogen power plant operator
• Pipeline operator
• Storage site operator
Who’s the Regulator?

- DTI for capture as part of industrial plant
- DEFRA(EA) for capture on environmental issues
- DEFRA(EA) for EU ETS
- DTI for Pipeline Act
- DTI for Petroleum Act so EOR and offshore pipelines
- DEFRA regulates FEPA so saline formations offshore in England & Wales and SE in Scotland
Carbon Capture Plant

- Planning Permission (Section 36 Electricity Act)
- Environmental impact assessment
- IPPC
- Health & Safety
Pipeline Matters

• Planning consent
• Pipelines Act
• Off shore pipelines regulated by Petroleum Act
• Health & Safety
• Re-use of pipelines
• Third Party Access
Health & Safety

• Industrial CO$_2$ applications commonplace
• Experience of large scale CO$_2$ handling in USA
• No UK experience of these volumes of inventory
• CO$_2$ not listed as hazardous under COMAH
• CCSA/El in discussion with HSE
• HSE will decide if they have sufficient data on which to base regulation. Industry group will review.
• EC Centralised verification of safety?
On-Shore Matters

- Landfill Directive
- Water framework Directive
- Planning consent – Town & Country Planning Act
- If CO$_2$ classed as hazardous under COMAH then HSE gets involved in planning and regulation
Off-Shore Matters

• London & OSPAR
• Environmental Impact Statements
• Safety Navigation Zones
• Air Navigation Order
• Exclusive Economic Zone, 12-200 miles
• Criminal & Civil Law
Licensing Phases

1. **Exploration** - period in which potential store is evaluated
2. **Retention** - time limited project development phase
3. **Operational** - injection of CO\(_2\) – could be time or volume limited or contract with decision points
4. **Closure** - monitoring & decommissioning
5. **Decommissioned** - site abandoned and responsibility/liability handed back to Crown
Storage Licensing Issues

- Site characterisation
- Condition of the site
- Extent of license
- Monitoring of the site
- CO₂ Purity?
- Termination conditions
- Insolvency
- Terms of closure
- Parallels in gas storage
Long Term Liabilities

• On-going monitoring
• Remediation in a failure event
• Compensation claims
• Cost of CO$_2$ emissions credits

• State must assume long term liabilities terms to be discussed
EU Emissions Trading Scheme

- Opt-in for Phase II
- Opt-in categories for Phase III? Or full recognition?
- Draft Monitoring & Reporting Guidelines made in UK
- In the different business models which is the installation?
Mandatory CCS

• Workable but with:
• Perverse consequences
• ‘Capture ready’ should be left to the market
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