Regulatory and legal issues: development of an enabling legal framework for carbon capture & storage in the EU

Stakeholder Consultation meeting

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Risk management framework

Capture

- Regulated and permitted under IPPC – no legal change required
- Update of BAT Reference Documents (BREFs) to specify requirements
  - Large Combustion Plant
  - Cement and Lime Manufacturing
  - Mineral Oil and Gas Refineries
  - Possible horizontal BREF on CO2 capture technologies?

Transport

- Currently regulated at MS level (for natural gas); relevant European and international standards apply (for instance for transporting gas under pressure)
- Large pipelines require automatic Environmental Impact Assessment, small ones on case-by-case basis
- TREN Working Group on safety of oil and gas pipelines
- Conservative approach: no risk differences CO2/NG justifying a different approach.

Impacts and risks to be managed

Storage

- Adopt framework approach similar to IPCC guidelines
  - Model expected behaviour of CO2, and use site only if have demonstrated expected permanence of storage
  - Monitor site after use to confirm that CO2 behaving as expected
  - Decommission and close, with monitoring period after closure

- Centralised verification of safety in the initial phase

- Other provisions:
  - Transfer of responsibility to state on condition that risk of future leakage is demonstrated to be insignificant
  - Provisions on composition of the CO2 stream
  - Financial provisions for insolvency of operators before site is safely closed

Purity of CO2 stream

- **Concern of stakeholders that CCS may be used as alternative disposal technique for conventional air pollutants**
- **Debated in London Convention (percentage limitations)**
- **Alternative approach in OSPAR: effectively to apply the same de-NOx and de-SOx as required under current air quality legislation**
  - **'However, CO2 streams may contain incidental associated substances derived from the source material and the capture, transport and storage processes used. Maximum acceptable concentrations of these substances shall be related to the Best Available Techniques (BAT), to European standards for atmospheric emissions and/or for discharges to the marine environment (subject to concentration differences due to the specific CO2 capture process), and to their possible impact on the integrity of the relevant transport infrastructure and storage site.'**

Management options for storage

Regulate under Integrated Pollution Prevention and Control Directive

- Include under Annex I
- Detailed guidance on site characterisation, selection, operation, closure and post-closure in BREF on CO2 storage sites
- Other amendments:
  - Comitology for verification of safety of storage
  - Requirements on financial provisions for insolvency
  - Requirements on transfer of installation to state
  - Requirements on composition of CO2 stream
- BREF has less central role under Directive than requirements specified in Annexes
- Particularly sensitive for closure and aftercare, which would naturally be addressed in the BREF here, but are specified in the legislative text for (e.g.) landfill sites.

Free-standing legal instrument?

In any case, confer Environmental Impact Assessment/Strategic Impact Assessment, mainly to ensure public consultation.

Rights for prospection and exploration

Hydrocarbons Licensing Directive 94/22/EC

- Lays down rules that Member States have to follow when issuing authorisations granting exclusive right to prospect or explore for or produce hydrocarbons in a geographical area
- Member States have right to determine what areas in their territory to be made available
- Must ensure no discrimination as regards access to and exercise of activities
- Authorisations granted only after procedure in which all interested entities may submit applications (publication in Official Journal)

CCS

- Confer 94/22 onto prospection and exploration for CO2 storage sites

Removal of barriers

Water

- In Article 11.3.j of Directive 2000/60/EC, the following tiret is inserted after the third tiret:
  - "- injection of CO2 streams for storage purposes into geological formations which for natural reasons are permanently unsuitable for other purposes, provided that such injection is authorised under Directive XX/XX/EC"

Waste

- Examination in Impact Assessment
- Propose to remove CCS (as regulated elsewhere) from waste legislation
- In Article 1 of Directive 2006/12/EC, the following new paragraph is inserted:
  - "3. CO2 streams that are transported for the purpose of storage, injected or stored in accordance with the provisions of Directive XX/XX/EC are not considered to be waste as defined in paragraph (a)."

Liability for leakage from storage site

Local damage to health and property: leave to MS level

Local damage to the environment

- Confer Environmental Liability Directive (automatic under IPPC route)
- On analogy with landfill, applies to incidents during:
  - Full operational phase
  - Post-closure phase where monitoring is required
  - The phase where monitoring has ceased and site has been abandoned.
- The basic requirement will be strict liability.

Non-local damage (i.e. climate implications) covered by inclusion in ETS (see below)

Financial provision for future liability

- Environmental Liability Directive Article 14
- For non-local damage, see options under ETS Directive

Treatment under ETS

Basic framework:

- Phase II (2008-12): CCS can be included without legislative modification, but capture, transport and storage must be opted in together ('bubble' approach)
- Phase III (2013 onwards): looking at amendment to make it possible to opt in also separate installations, and to opt-in a class of installations for all Member States
- Conditions:
  - rules on risk management followed
  - Monitoring and reporting guidelines proposed by opting-in state and adopted by comitology

Surrender of credits for leakage from storage: two options

- Simple: allowances surrendered for any monitored emissions
- Precautionary:
  - Provisional allowances surrendered for percentage of emissions stored. Would be cancelled to cover any monitored leakage.
  - Any monitored leakage above 1% covered by additional surrender of allowances.
  - Non cancelled allowances may revert to operator under specified conditions (e.g. after fixed period).

Making CCS mandatory post-2020

- **Target in Communication on Sustainable Power Generation from fossil fuels communication**
  - All new post-2020 must use CCS
  - All new prior to 2020 must be capture-ready and retrofit rapidly after 2020

- Impact asssessment
  - What would we regulate: coal, gas, all fossil fuels, only large installations?
  - Cost of regulating?
  - Practicality of regulating?
  - Optimal retrofitting schedule for capture-ready plant
  - Effect on structure of energy market

- Advantages
  - Clear long-term signal which would stimulate deployment
  - Capture-ready at risk of operator: what investment to make now to make retrofit in 2020 easier

Timing

- **Draft impact assessment and legislative proposal end July 2007**
- **Internal procedures July-November 2007**
- **Adoption by Commission November 2007**