Bridging the Gap: An Analysis and Comparison of Legal and Regulatory Frameworks for CO_2-EOR and CO_2-CCS

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CO_2-EOR PROJECT

- Institute sought to have a clearer understanding and position
  - Drivers, potential, and impact of EOR.
- Integrated analysis required- dependencies between technical, economic, commercial, legal and regulatory.
- International perspective – based upon US experience, but considered other jurisdictions.
- Have technical, legal/regulatory, economic, and commercial skills in house to work with/undertake analysis.

OBJECTIVES – L&R STUDY

- To prepare a report which considers the existing regimes for EOR activities and their relationship with the nascent regulatory regimes for Carbon Capture and Storage (CCS).
- Examine the ‘gap’ between these regimes and the potential for a project to incorporate A-CO2 into EOR and ultimately transition from EOR to full-scale storage (CCS).
- Consider the essential characteristics of / considerations for a flexible regulatory regime – for those jurisdictions with an existing or ‘anticipated’ EOR industry.
- Legal and regulatory analysis nearing completion and is to be released as a part of the wider thematic study.

PART I

FRAMEWORKS GOVERNING CO_2-EOR OPERATIONS

OBSERVATIONS (I)

- Historic and well-characterised system of law and regulation for injections of CO2 (natural and captured) during traditional EOR operations:
- Storage in EOR is incidental to oil production and exact quantities stored not traditionally measured or verified.
- Permitting regimes associated with the extractive industries and a wealth of case law provide the 'backbone' of the EOR regulatory model
  - Basic oil and gas law in US and Canada
  - Oil and gas or mining codes could apply in EU Member States.
- Clearly-defined roles and responsibilities for national and state or provincial regulators.

OBSERVATIONS (II)

- Operators well-versed in requirements and expectations of the regulatory regimes.
- Elements of established regimes are practically and theoretically similar to those being developed for CCS – although clear distinctions remain.
- Early ‘transitional’ model for incremental storage exists (UIC/EPA rules in the US). It is lone example, however, and questions remain as to details of implementation and costs of opting in
  - CO2-EOR operators may “opt-in” to new Class VI if operations shift from traditional EOR to maximizing CO2 storage, thereby changing risk profile
  - Draft Guidance document for transitional mechanism not yet issued, but expected soon
  - Public consultation and comment likely over summer or early fall .

THE US MODEL

- A number of legal and regulatory elements are in place.
  - Commercial: CO_2 as commercial commodity; offtake agreements; property law governing interest in injected CO_2 in subsurface;.
  - State-level:
    - pipeline regulation; oil and gas permitting, verification and certification, re-use of stored CO_2; post-closure remediation (orphan wells) and limited monitoring regimes.
  - Federal-level:
    - Class II Program, consideration of CO_2- EOR in the RCRA and CERCLA regimes.

PART II

EMERGING LEGAL AND REGULATORY REGIMES FOR CO_2 STORAGE FOR CCS

OBSERVATIONS

- Comprehensive, dedicated CCS legislation has been adopted in many jurisdictions (in EU especially; in some US states and Canadian provinces)
- Legislation focused on emissions reduction objective (as opposed to the enhanced production sought through EOR)
- Legislation highlights differing policies between classifying CO_2 as commodity to be used or as waste to be disposed of
- Enacted legislation reflects the perceived ‘idiosyncrasies’ of full-scale storage (e.g. standards for site permitting, MMV, and long-term liability and post-closure stewardship (funding as well as institutional responsibilities)
- Some of the enacted storage legislation anticipates role for EOR and the potential transition (US and EU), but significant issues remain to be addressed

EU STORAGE DIRECTIVE

- Establishes comprehensive legal and regulatory framework, which:
  - Removes CO_2 storage from waste legislation;
  - Requires captured CO_2 to be permanently stored;
  - Establishes a regulatory regime for long-term liability and stewardship;
  - Pipeline access and capacity expansion rules designed to ensure access, while protecting service to existing shippers.
- Accepts principle of combining CCS storage with EOR, but requires storage to be under the Directive
- Does not appear to accept re-cycle and re-use of CO_2, as required by EOR operations

US REGIME

- Dedicated storage legislation adopted in 8 states; pipeline siting/ROW legislation adopted in at least 3 others
- Dedicated legislation generally treats CO_2 as valuable commodity
- Several states expressly contemplate re-cycle or re-use of stored CO_2
- Some provide for site review and permitting rules, monitoring and testing, site closure and post-closure rules (with ultimate transfer to liability and stewardship to government entity)
- Pipeline ROW acquisition addressed
- General “common carrier” approach to pipelines provides basis for ensuring access if disputes arise

PART III

ANALYSIS AND CONCLUSIONS

CONCLUSIONS AND ANALYSIS (1)

- An approach which considers the various storage scenarios in which CO_2 will be stored, provides a useful foundation

  - Study identified five potential storage scenarios, their component activities and the types of CO_2 utilised.

- Operational legal and regulatory frameworks in the US and Canada demonstrate that there are already elements which may successfully accommodate A-CO_2 in EOR

  - Although limited experience in other jurisdictions.

- Integration of A-CO_2 into operations which are a part of a storage regime is feasible; <u>however</u>, several issues will need to be addressed.

CONCLUSIONS AND ANALYSIS (2)

- Number of ‘pressure points’ which will require attention – many are presently acting as potential barriers.
- A-CO_2 utilisation for ‘base storage’ during EOR operations

  - EU Directive’s requirement for permanency.
- Transitioning from *incidental* to *incremental* storage during EOR

  - change in operation clauses (US Model)
- *Incremental* storage post-EOR activities

  - property rights considerations

  - monitoring and accounting protocols.

CONCLUSIONS AND ANALYSIS (3)

- Post-closure responsibility and liability
  - Expansion of the traditional fault-based schemes.

- Few principle points of contention and clear suggestions for policymakers seeking to make changes to legal and regulatory frameworks.

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