

**Strand Line**

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<<Letter 290808.pdf>>

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### **Public Reading – EU Draft Directive on Geological Storage of CO<sub>2</sub>**

Reference is made to letter from the Ministry of Petroleum and Energy and the Ministry of the Environment published 14.07.2008, with reference 200800648. Det Norske Veritas (DNV) submits hereby our view on the proposed directive from the European Commission on geological storage of CO<sub>2</sub> (COM/2008/0018 Final).

As a general remark, DNV welcomes this proposal as a necessary step in the effort of establishing the legal framework for carbon, capture and storage projects.

#### *Ad Commission review of draft storage permits (Article 10):*

DNV questions the role of the Commission in reviewing the draft permits. The main argument for the review procedure by the Commission of draft storage permits (Article 10), is to secure sufficient environmental integrity across Europe, and to avoid or reduce risks of distortions on competition. Since geological storing of CO<sub>2</sub> is proposed to be linked to the European Emissions Trading Scheme (ETS) and the carbon market, the issue of *securing confidence* in and *trust* to a high, overall level of environmental integrity is of vital importance.

Therefore, the role of an independent third party review of the draft storage permits needs to be considered. A formal provision in the draft directive for 3<sup>rd</sup> party, independent, fit-for-purpose verification of all phases of storage projects that allows and promotes equal and fair treatment of storage projects in different EU member states should be considered. Necessary levels of quality and reliability of 3<sup>rd</sup> party auditing would be achieved through systems of accreditation and oversight similar to those applied in the Clean Development Mechanism under the UNFCCC system of approval of projects for reducing greenhouse gases in Annex II nations.

Independent verification is important for several reasons: 1) demonstrate compliance (EU ETS Directive requires verification, EU Reporting and monitoring guidelines set objectives, criteria and methods), 2) avoid loss or liabilities resulting from unjustified gain (over-reporting or underreporting have financial consequences), 3) fairness in competition, 4) gives a systematic approach, and 5) there is a significant probability for a public acceptance failure in implementation of CCS in large parts of the EU if regulatory framework weaknesses implied by lack of 3<sup>rd</sup> party independent verification.

As a second opinion, if the Commission continues to have the review role, the role of a third party verifier of the review done by the Commission needs to be considered.

#### *Ad changes, review, update and withdrawal of storage permits (Article 11):*



Under the proposal, no substantial changes and updates of storage permits does qualify for a second review. DNV questions whether this is sufficient for the carbon market in order to secure necessary trust in geological storage projects.

*Ad threshold for a demonstration storage project:*

We believe that a higher threshold for a demonstration storage project would provide a more optimal increase in building necessary storage knowledge and industrial competence, because it would allow for larger demonstration capture plants that more closely represent the operational challenges that dominate the CCS technology uncertainty. An additional benefit is that sites that are chosen for demonstration purposes might be more likely candidates for larger scale storage at a later phase if they are chosen on the basis of a larger demonstration maximum. We propose that the maximum for a single demonstration project be increased to 500 kilotons total onshore, and maximum 2 mill tons offshore. An additional safeguard could be to limit the total scope of demonstration projects based on fossil-fuel processes in the EU area to 10 million tons stored CO<sub>2</sub> by 2020, perhaps applying some demonstration total caps on individual EU member states. This could potentially accelerate interest in developing CCS by promoting "fast adapters".

*Ad definition of "leakage":*

There is not enough description and definition of "leakage". This is critical because confirmed leakage is grounds for cancelling a storage permit, which is the main form of punishment for failed storage. The issue of leakage should be given its own chapter with a medium-to-high level of technical discussion on detection methods, limits and predictions.

*Specific comments:*

Annex I:

Step 1 (b) should also mention the emphasis on predicting the movement of reservoir brine displaced by injected CO<sub>2</sub> as related to hydrogeology models of the site.

Step 1 (e) should include in parenthesis after fracture pressure, fault reactivation and fault valving.

Step 3.1 (b) is unclear what is intended to be performed in the context of "security characterisation". We interpret the intention to be a post-modelling uncertainty analysis in which parameter interaction is expressed in the language of mathematical correlation.

Step 3.1 (e) "solution velocity" should be "dissolution rate"

Step 3.1 (p) "Fracture sealing rates" is not a known, recognised technical term. A fracture can be filled with mineral-saturated fluids that can change phase to solid minerals over geologic time by geochemical reactions at depth. But these processes take millions of years and are not relevant for the time frame of storage (1000-10000 years).

Yours faithfully  
for DET NORSKE VERITAS AS

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