



ENVIRONMENT  
INSTITUTE OF  
AUSTRALIA AND  
NEW ZEALAND

3 August 2007

Mining Legislation Review  
Mining and Petroleum  
Department of Mines and Energy  
PO Box 15216  
CITY EAST Qld 4002

Dear Sir or Madam,

Thank you for the opportunity to submit the Environment Institute of Australia and New Zealand – South East Queensland (EIANZ-SEQ) feedback on the Carbon dioxide geosequestration tenure administration Discussion Paper.

Our comments are as follows.

## 1. Summary

EIANZ is the peak body representing environmental professionals and has a public Policy on Climate Change. SEQ is EIANZ's South East Qld Division.

EIANZ-SEQ comments are based on the Department of Mines and Energy's discussion paper *Carbon dioxide geosequestration tenure administration* dated June 2007 (Discussion Paper). Our comments focus on the environmental considerations of tenure administration.

EIANZ-SEQ is supportive of initiatives to address enhanced Global Warming. The EIANZ position is that Climate change policy needs to embrace leadership, research, mitigation and adaptation strategies in order to deal with the environmental, social and economic implications of climate change. We commend the Department of Mines and Energy on this initiative.

While CCS is one of the mitigation measures it is but one of a suite of current initiatives, e.g. refer Queensland's *Climate Smart* policy, Australia's carbon trading plans, and urgently needed initiatives to tackle Global Warming that have yet to reach policy stage. Any CCS proposal needs to have the flexibility to accommodate and integrate with new policies.

It is also important that CCS uses established practices where it can, e.g. P&G Act, is integrated in the same way as other administration techniques, e.g. IP Act approvals, yet has flexibility for changing circumstances, e.g. better use of water than currently accepted under P&G Act during petroleum & coal seam gas extraction.

The precautionary principle should also be adopted to ensure that the site selection, deposition and ongoing site management demonstrate low risk in terms of future environmental and social impacts.

Environment Institute of Australia and New Zealand - South East Queensland Division  
*The professional association for environmental practitioners*

Suite 105, 1B/192 Ann Street, Brisbane Q 4000.  
Phone: 07 5429 8480 Fax: 07 5429 8486 Email: seq@eianz.org

## **2. Environmental values**

Key environmental issues and values are tenure, rights, assessment and management, water, gas and the ones typically associated with petroleum / gas infrastructure. Tenure, rights and management are discussed below in other sections.

Environmental issues with infrastructure are modifications of those risks found in the petroleum / gas industries.

We wish to focus on the gas and on water as two significant issues.

### **CO2**

The evolution of the waste industry offers a useful analogy and possible tools to manage this gaseous 'waste'. A huge industry arose from managing a societal problem in solid and liquid wastes. Over time, the waste industry's nature has changed, encapsulating the philosophy of the hierarchy of waste. Parts of the waste stream are now used as a resource, some parts have been eliminated, some are reused. By improving the 'quality' of waste going to landfill, space needs are shrinking. The same philosophy of using a hierarchy of control and management of a high quality 'waste', and possible future resource, apply to CO<sub>2</sub> and its storage.

Research and design using the natural carbon cycle to trap the carbon, the root cause of Global Warming, is the first priority. It may be possible to avoid excessive storage by, for example, elimination of Greenhouse gases.

Safe storage of the CO<sub>2</sub> is essential. As much as CO<sub>2</sub> injection has been used in the past for increasing gas / oil extraction, its primary purpose was not safe storage. Leakage is not an option, as it might be for leachate – dilution of pollution - in solid waste encapsulation

The chemistry between CO<sub>2</sub>, water and the entrainment rock must be understood. Using chemistry to aid sealing is advantageous.

Health, safety and environmental management of handling and injection of CO<sub>2</sub> are specific risks. Traditional risk assessment tends not to address or understand global consequences as well as local consequences. Consequence ratings for CO<sub>2</sub> release will need to be clear. Also, risk assessment needs to address both normal and abnormal conditions, e.g. potential emergencies such as CO<sub>2</sub> drowning.

### **Water**

Care and better uses of water than currently is the case for petroleum and coal seam gas extraction. Interception and pollution of valuable groundwater flows are to be avoided. Pollutants may be from, for example, gas byproducts from poor quality CO<sub>2</sub> (refer waste industry analogy above), chemical reactions or mobilisation of entrained salts in the rock strata.

Likewise, more beneficial uses for water brought to the surface need to be sought on a dry continent that is likely to see changing climate.

## **3. Tenure model**

Any model must be developed consistently with other related legislative reviews, of which there are many.

Volumetric sub-division appears sound. It must accommodate multiple uses, e.g. mining, oil/gas, geothermal, CCS, nuclear storage etc and be linked to surface uses. Hence its 3-Dimensional nature – with environmental, social/cultural & economic values – needs to be explained carefully.

Use of the modified petroleum tenure system seems sound. Modifications need to include the purpose of CCS and the environmental issues of its management.

The new principles of 'mine closure' should apply to CCS closure. This means planning for closure at the Environment & Social Impact Assessment (ESIA) stage. It also means agreeing on a set of risk assessments for determining long term liabilities. The government on behalf on the people should accept only low risk and limited liability at closure.

We should not attempt to transfer one long-term problem to become another long-term problem.

#### **4. Assessment, approval, administration and liability**

Thorough ESIA and existing licensing (EA) should be used. Standard risk assessments need cover normal & emergency situations. Understanding both probability and consequence will require research. Carbon assessments and Carbon limitation for CCS projects – whether in Carbon Trading or in ESIA - are essential to reduce carbon footprint, e.g. reduce unnecessary pipelines.

Assessments and licensing at all stages of the approvals processes should be undertaken by competent, registered and certified practitioners who can be held accountable for their works.

Third party reviews on behalf of the regulator paid for by the proponent should again be undertaken by competent, registered or certified practitioners which will provide independent and transparent review and comment.

Regulatory administration should be supplemented by self-regulation via accredited Codes, e.g. Green Star systems. Voluntary Codes, in the language of key stakeholders and used effectively, limit the need for regulatory input. A CO<sub>2</sub> underground management statement, as described, has merit.

When considering at what stage to transfer responsibilities to the State, the Queensland mining industry's record of transfer offers a lesson on some of the difficulties.

It should also be noted that the new proposed mine closure scheme is yet to be tested against a number of major mine closures or progressive closures. Subsequently caution should be demonstrated when drafting regulations.

We should also understand that stability and limited liability of the storage and non-polluting effects of any gas or ground waters may be hard to prove.

#### **5. Property rights and access**

Agree with Discussion Paper

#### **6. Transportation**

Agree with Discussion Paper

## 7. Monitoring & verification

Monitoring wont be easy. Out of sight (underground and invisible) may be out of mind. Predictive modelling and in-situ monitoring will need to prove containment within the defined volumetric sub-division and migration only within prescribed parameters. Experience with monitoring ground contamination plumes (especially gases) and groundwater movements will help with monitoring.

Nationally agreed data sets, indicators and reporting will be beneficial, i.e. consistent with the steam lined energy and greenhouse gas reporting system being developed.

## 8. Financial issues

Agree with Discussion Paper

## 9. Other Policy

We raise (in Section 4) our concerns about consistency with emerging policy. We offer the example of carbon trading.

The Institute supports the Federal Governments proposed carbon trading scheme, and those existing voluntary schemes which have robust verification processes and government certified products. Carbon trading presents significant opportunities for greater environmental outcomes (particularly through greenhouse gas emission reductions) and at the same time create real opportunities for market creation within the environmental profession.

As such, we believe that the discussion paper, whilst in a number of sections mentions carbon trading, presents a clear lack of discussion on the interaction between geosequestration tenure and the generation of carbon credits and rights associated with them. In relation to the six key issues endorsed by the MCMPR, the monitoring and verification and liability and post closure responsibilities have fundamental relationships with successful carbon credit generation, verification, insurance and exchange.

The Institute recommends that DME consider this strong connection between geosequestration and the likely frameworks and requirements of carbon credit generation and verification for market trading.

Should you wish to discuss any of these points further, please feel free to contact our office via email [seq@eianz.org](mailto:seq@eianz.org) or telephone 07 5429 8480 to arrange for one of the individuals involved with preparing these comments to contact you.

Regards



Claire Gronow  
President  
EIANZ – South East Queensland Division