

## Legislative and regulatory framework

- 7.1 A large volume of evidence has highlighted the importance of establishing an appropriate legislative and regulatory framework for CCS.<sup>1</sup> While evidence was generally supportive of initiatives undertaken to date, the need for further development was recognised, and there were concerns regarding the translation of broad policy principles into a practical working model.<sup>2</sup>
- 7.2 In its submission, the Australian Government notes the key requirements that it sees as underpinning a CCS regulatory system, including the need for the system to be:
- focussed on safeguarding public interest, particularly to minimise risks to health, safety, environment, economic consequences and government accountabilities;
  - based on sound risk management principles, be science-based and rigorous yet practical in approach;
  - clear and consistent in laying out rights and responsibilities of participants; and
  - consistent with obligations under international law.<sup>3</sup>
- 7.3 The regulatory framework will need to cover both onshore sequestration, which is primarily a state matter, and offshore sequestration, which is a federal matter. Currently state and federal legislation primarily covers access and property rights of sites. A

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1 For example see ESAA, *Submission No. 16*, p. 3.

2 ExxonMobil, *Submission No. 19*, p. 10.

3 Australian Government, *Submission No. 41*, pp. 28-29.

nationally consistent framework is required which covers issues such as transport, injection, monitoring and financial liability through the stages of CCS.

## International regulatory framework

- 7.4 Australia continues to play a key role in considering international regulatory, licensing and environmental issues concerning CCS within the IEA, the CSLF and the 1996 Protocol to the UN's London Convention of the Prevention of Marine Pollution by Dumping of Wastes and Other Matters.<sup>4</sup>
- 7.5 Australia is Chair of the IEA/CSLF Legal Issues Subcommittee which has been charged with examining legal and regulatory issues associated with the uptake of CCS on a global scale. In October 2006, a paper authored by the Australian representatives, entitled the National Legal and Regulatory Framework, was a key component of the IEA's workshop on the development and implementation of internationally agreed legal aspects of storing CO<sub>2</sub>.<sup>5</sup>
- 7.6 Australia, together with France, Norway and the United Kingdom, has taken a leadership role in proposing amendments to the 1996 Protocol to the London Convention to address regulatory concerns regarding the sequestration of CO<sub>2</sub> in sub-sea geological formations.
- 7.7 On 10 February 2007, the International Maritime Organization approved the amendments to the London Convention which will enable the storage of CO<sub>2</sub> under the seabed.<sup>6</sup> These amendments affirm that CO<sub>2</sub> is not a pollutant and may be safely stored under the seabed.

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4 Australian Government, *Submission No. 41*, p. 33.

5 Australian Government, *Submission No. 41*, p. 33.

6 Alistor Doyle, *Carbon, other pollutants to be stored beneath the sea to fight global warming*, <[http://www.oeregister.com/oeregister/healthscience/abox/article\\_1575392.php](http://www.oeregister.com/oeregister/healthscience/abox/article_1575392.php)>, accessed 12 February 2007.

- 7.8 The Australian Parliamentary Joint Standing Committee on Treaties inquired into these amendments and reported in March 2007. The committee endorsed the Annex I amendments to the London Convention.<sup>7</sup>

## Domestic issues

- 7.9 There is currently no specific legislative or regulatory framework for CCS in Australia. There are, however, existing state and federal laws and regulations with relevance to various aspects of CCS.
- 7.10 At the state level, the *Queensland Petroleum and Gas (Protection and Safety) Act 2004* and the *South Australian Petroleum Act 2000*, for example, 'provide for the transport by pipeline and storage in natural reservoirs of substances including carbon dioxide'.<sup>8</sup>
- 7.11 At the Commonwealth level, environmental laws relevant to CCS include: the *Environment Protection and Biodiversity Conservation Act 1999*; the *Environment Protection (Sea Dumping) Act 1981*; and the *Offshore Petroleum Act 2006*.
- 7.12 Current legislative arrangements involve multiple jurisdictions and approvals. It is desirable to achieve consistent legislation across all states and territories. Similar sedimentary storage sites in different states should be treated in the same way as far as practicable. Co-operation should be extended so that CO<sub>2</sub> produced in one state may be able to be stored in another where long-term and secure storage is proximate and suitable.
- 7.13 The Australian Government is currently in the process of developing a nationally consistent regulatory framework.
- 7.14 In September 2003, the MCMPR<sup>9</sup> established a Geosequestration Regulatory Working Group (consisting of all federal, state and

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7 Joint Standing Committee on Treaties, *CO<sub>2</sub> Sequestration in Sub-Seabed Formations: Amendment to Annex 1 to the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972*, 26 March 2007.

8 Department of Industry, Tourism and Resources, Carbon Dioxide Capture and Geological Storage (CCS) Regulation (last reviewed 13/11/2006), <<http://www.industry.gov.au/content/itrinternet/cmscontent.cfm?objectID=705E9B4B>>, accessed 25 May 2007.

9 The MCMPR consists of the federal Minister for Industry, Tourism and Resources, State and Territory Ministers with responsibility for mineral and petroleum, with New

territory jurisdictions) to develop draft regulatory guiding principles for CCS.<sup>10</sup> In November 2004, the MCMPR charged its Contact Officers Group with reporting on how to implement a legislative framework to regulate CCS in Australia.

- 7.15 In November 2005, after consultation with relevant stakeholders including key industry peak association bodies, environmental representatives, research organisations and MCMPR representatives, a set of guiding principles for CCS was agreed upon.<sup>11</sup>
- 7.16 Six key issues were seen as fundamental to a CCS national regulatory framework:
- Assessment and approvals process;
  - Access and property rights;
  - Transportation issues;
  - Monitoring and verification;
  - Liability and post-closure responsibilities; and
  - Financial issues.<sup>12</sup>
- 7.17 Although there is no CCS specific regulatory framework, it was suggested that legislation associated with the petroleum and mineral exploration industries covering approval processes, environmental protection, transport of gases by pipeline (although not specifically CO<sub>2</sub>), a legislative regime for storage and injection of gases as part of a petroleum recovery operation might provide a foundation.<sup>13</sup>
- 7.18 A significant volume of evidence to the inquiry was supportive of the MCMPR initiative and its recommendation for amendment to existing petroleum legislation rather than the development of totally new legislation where possible.<sup>14</sup>
- 7.19 Chevron, for example, stated that:

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Zealand and Papua New Guinea having observer status. Its mandate is the promotion and development of Australia's mining and petroleum industries.

10 Australian Government, *Submission No. 41*, p. 27.

11 Australian Government, *Submission No. 41*, p. 27.

12 Australian Government, *Submission No. 41*, pp. 6-7.

13 Australian Government, *Submission No. 41*, p. 27.

14 CSIRO, *Submission No. 10*, p. 8; Chevron, *Submission No. 12*, p. 3 & 10; Australian Government, *Submission No. 41*, p. 27.

While new or amended legislation may be required to allow the injection of carbon dioxide, many aspects of existing legislation, regulation or the principles behind existing regulation can be readily adapted to facilitate geosequestration projects.<sup>15</sup>

7.20 Chevron suggests using or adapting existing laws and regulations for areas such as:

- environmental impact assessment;
- the transportation of CO<sub>2</sub>;
- the design, drilling and production regulations in relation to petroleum wells; and
- disposal management plans.<sup>16</sup>

7.21 According to Anglo Coal;

On balance therefore we think incorporation into existing petroleum legislation is the most practicable route, given that there will be a vital need to promote co-development and to reconcile conflicts between overlapping tenements-both of which would be difficult to achieve if the respective tenements were housed in different regulatory structures with different regulators.<sup>17</sup>

7.22 Witnesses have stressed, however, the need to ensure that any future CCS legislation does not prejudice the existing rights of the oil and gas exploration and mining industry. Where there is likely to be an overlap of tenure, every effort will need to be made to ensure that co-development will not advantage one party at the expense of the other. As Anglo Coal cautions:

While accepting that CCS is best dealt with by amending petroleum legislation administered by the petroleum regulator, care will need to be taken to ensure that in the process the rights of CCS tenement holders are not subordinated to those of petroleum tenement holders.<sup>18</sup>

7.23 The Australian Government submission notes that while existing petroleum legislation may provide the basis for regulation of CCS

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15 Chevron, *Submission No. 12*, p. 3.

16 Chevron, *Submission No. 12*, pp. 10-11.

17 Anglo Coal, *Submission No. 24*, p. 24.

18 Anglo Coal, *Submission No. 24*, p. 24.

with regard to capture and transport, more legislation is required in relation to the injection and storage phases of the CCS process.<sup>19</sup> In particular, site selection criteria need to be determined and agreed upon, with a robust system of verification and monitoring to be developed and implemented to ensure compliance with any regulations.<sup>20</sup>

- 7.24 With regard to the regulation of monitoring and verification, the ESAA believed that it is important that the authorisation and compliance regime is not too onerous, otherwise there is a risk that the development of the technology will be stifled.<sup>21</sup>

## Australian Government response to site access and property rights

- 7.25 In its May 2007 budget, the Australian Government committed itself to amending the *Offshore Petroleum Act 2006*.<sup>22</sup> The Government believes that amending the Act will 'facilitate access and property rights for offshore legislation' for CCS and encourage the states to 'introduce mirror legislation to facilitate [CCS legislation] within their own jurisdictions'.<sup>23</sup>
- 7.26 Specifically with regard to onshore legislation, a state jurisdiction, the Australian Government expects that the states will examine the CCS regulatory principles established by the MCMPR and 'seek to introduce their own legislation to facilitate carbon capture and storage projects'.<sup>24</sup>

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19 Australian Government, *Submission No. 41*, p. 29.

20 Australian Government, *Submission No. 41*, p. 30.

21 ESAA, *Submission No. 16*, p. 3.

22 The Hon Ian Macfarlane, MP, Media Release, *Budget Boost for Carbon Capture and Storage*, 8 May 2007.

23 Ms Constable, *Transcript 9 October 2006*, p. 8.

24 Ms Constable, *Transcript 9 October 2006*, p. 8.

- 7.27 The Australian Government has announced that the amendment to the *Offshore Petroleum Act 2006* will be underpinned by a regulatory regime which is expected to 'establish the methods for selecting storage sites and then regulating and monitoring the storage activity'.<sup>25</sup> The regulatory system is expected to cover:
- assessment and approval of proposed activities;
  - risk and site analysis; and
  - the monitoring required for long-term storage and data analysis.<sup>26</sup>

### Long-term liability

- 7.28 Given that CCS envisions the storage of CO<sub>2</sub> for potentially thousands of years, long-term storage poses important regulatory issues, in particular, responsibility and timeframe for liability post-closure.<sup>27</sup>
- 7.29 CSIRO suggests that operators could either make financial provision or equally insure for future remediation in a trust held by government.<sup>28</sup>
- 7.30 Chevron proposed that liability be shared by operators and responsibility handed to the government once the site has been closed.<sup>29</sup>
- 7.31 Against this, Greenpeace Australia Pacific argues strongly that the long-term liability for leakage should not be transferred to government, and by implication, to taxpayers and future generations. If, as proponents have stated, the risk of leakage is likely to be less than one per cent over 1000 years, then Greenpeace Australia Pacific argues that the operators should be able to carry that risk.<sup>30</sup>
- 7.32 The International Association of Hydrogeologists have pointed out that regulation needs to ensure the integrity of injection wells that

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25 The Hon Ian Macfarlane, MP, Media Release, *Budget Boost for Carbon Capture and Storage*, 8 May 2007.

26 The Hon Ian Macfarlane, MP, Media Release, *Budget Boost for Carbon Capture and Storage*, 8 May 2007.

27 Greenpeace Australia Pacific, *Submission No. 15*, pp. 19-21.

28 CSIRO, *Submission No. 10*, p. 8.

29 Chevron, *Submission No. 12*, p. 14.

30 Greenpeace Australia Pacific, *Submission No. 15*, pp. 19-20.

pass through freshwater aquifers<sup>31</sup> and that national protocols and guidelines need to include a competent groundwater specialist.<sup>32</sup>

## Legislative framework for CCS trial and demonstration projects

- 7.33 It is not intended that small-scale demonstration projects will be covered by the MCMPR framework. The small scale projects currently planned or under development will be subject to the requirements of their jurisdictions.<sup>33</sup>
- 7.34 Stanwell has proposed that the Australian Government should establish interim legislation in order to facilitate demonstration projects.<sup>34</sup> Once the technology is fully commercialised, the experiences gained could then be used to help structure a more durable legislative and regulatory environment.<sup>35</sup>
- 7.35 According to Anglo Coal, the most cost effective way forward would be to utilise existing Commonwealth and state petroleum and mining legislation by way of amendments to facilitate CCS development and demonstration.<sup>36</sup>

## Australian experience to date

- 7.36 In Victoria, the Monash Energy project requires legislation to ensure access to sequestration sites in the Gippsland Basin in Bass Strait. This is complicated by the fact that the likely storage sites are already held by petroleum companies and the legislation will have to deal with overlapping interests.<sup>37</sup>
- 7.37 To date, the regulatory framework for transporting, injecting and monitoring is yet to be determined but will be informed by the MCMPR's Guiding Regulatory Principles.<sup>38</sup>
- 7.38 The experience of CO2CRC in taking forward the Otway Basin Project, also in Victoria, has been that there are far more legal and

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31 International Association of Hydrogeologists, *Submission No. 8*, p. 1.

32 International Association of Hydrogeologists, *Submission No. 8*, p. 1.

33 Australian Government, *Submission No. 41*, p. 32.

34 Stanwell Corporation, *Submission No. 32*, p. 6.

35 Stanwell Corporation, *Submission No. 32*, p. 6.

36 Anglo Coal, *Submission No. 24*, p. 22; Stanwell Corporation, *Submission No. 32*, p. 6.

37 Government of Victoria, *Submission No. 42*, p. 6.

38 Government of Victoria, *Submission No. 42*, p. 6.



regulatory obstacles to overcome than originally anticipated.<sup>39</sup> The CO2CRC was not critical of these obstacles but it does highlight that in any jurisdiction there are many areas where it is unclear which regulation applies to CCS.<sup>40</sup>

7.39 Further delays have been incurred with the project following the local council's decision to ask the Victorian Planning Minister to make an amendment concerning the rezoning of land associated with the storage site.<sup>41</sup>

7.40 On Barrow Island in Western Australia, the Gorgon Project has raised numerous regulatory issues. Currently, the only legislation in WA that can approve CCS activities on Barrow Island is the *Barrow Island Act 2003* (BIA). In particular, the following procedures must be followed in relation to the Gorgon Joint Venture:

- Under section 13 of the BIA, a person must seek the BIA Minister's approval to dispose of the CO<sub>2</sub> by injection into a subsurface reservoir beneath Barrow island;
- Under Schedule 1 to the BIA (Gorgon Gas Processing and Infrastructure Agreement), requires the proponents to submit a CO<sub>2</sub> disposal proposal and a Closure Plan proposal which addresses the long term management of the injected CO<sub>2</sub>;
- The proposed project will be regulated in line with existing relevant petroleum industry legislative requirements;
- In relation to injection, drilling and geophysical surveys, the joint venture will be required to comply with the petroleum Act 1967 and Onshore Schedule;
- BIA has amended the *Petroleum Pipeline Act 1969* to allow for transport of CO<sub>2</sub> by pipeline to Barrow Island; and
- Capture of CO<sub>2</sub> during the gas processing will be authorised and regulated under the State Agreement plant proposals and the Major Hazards Facility regulations for plant.<sup>42</sup>

7.41 However, to transport and inject CO<sub>2</sub> elsewhere in the state, amendments to existing legislation or new legislation would be required.

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39 CO2CRC, *Submission No. 36.1*, p. 7.

40 CO2CRC, *Submission No. 36.1*, p. 7.

41 The Age, *Carbon Storage Plan Gains Momentum*, 19 February 2007.

42 WA Department of Industry and Resources, *Submission No. 26*, p. 9.

7.42 In South Australia, the Cooper Basin has been identified as a possibility for geosequestration projects. The SA Government, in line with the MCMPRs' Guiding Principles, has already amended the South Australian *Petroleum Act 2000* to facilitate geosequestration activities.<sup>43</sup> Further amendments are being drafted to take account of gas storage licences (GSL) (in relation to existing petroleum exploration licences (PEL)) and petroleum production licences (PPL). In particular, the amendments will ensure GSL rights continue where the PPL or PEL rights are distinguished. The amendments will:

- Allow the grant of exclusive gas storage exploration licences with compatible overlapping rights spatially coincident with pre-existing licences;
- Specify that no royalty payments will be introduced for gas storage, either for storage of gas for late sale or for geosequestration; and
- Make it clear both PPLs and GSLs provide entitlements to safely sequester carbon dioxide, as well as safely store gases for later sale.<sup>44</sup>

7.43 As demonstration projects are rolled out, these legal and regulatory complexities will be thoroughly examined and each project will add to the body of knowledge and help develop a more comprehensive set of rules and regulations that will govern future CCS projects.

## Conclusion

7.44 It is important that both the Commonwealth and state governments develop appropriate legal and regulatory frameworks during the demonstration projects. While it is not possible to come up with a "one size fits all" approach, it will be important to establish clear and unambiguous procedures to enable future projects to proceed with full knowledge of the legal and regulatory requirements.

7.45 The recent changes to the London Convention, allowing the burial of CO<sub>2</sub> under the seabed, will go a long way to facilitating the advancement of CCS technology as many suitable storage sites are located offshore.

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43 Government of South Australia, *Submission No. 5*, p. 5.

44 Government of South Australia, *Submission No. 5*, p. 5.

- 7.46 Currently, there are some regulations in relation to the capture and use of CO<sub>2</sub> for EOR in the petroleum and mining industries. There is no regulation, however, specific to either sequestration or monitoring, at either Commonwealth or state level.
- 7.47 Therefore, there is a need to establish a regulatory framework to cover the injection of CO<sub>2</sub> and, subsequently, operational monitoring, site closure and post abandonment monitoring, which will provide confidence for investors to undertake large scale development.
- 7.48 The mitigation of CO<sub>2</sub> emissions is a national responsibility and it follows that the federal government has primary responsibility to create the regulatory environment in which sequestration projects can proceed with safety and confidence.
- 7.49 The creation of a regulatory environment, together with successful demonstration projects, will go a long way to enhance public confidence, by assuring people that their interests and safety are properly protected.
- 7.50 To maintain public confidence, regulations should focus on defining financial responsibility in the event that liability due to environmental damage or public health issues might arise in the future.
- 7.51 The issue of long-term liability is of particular concern. Regulations need to be flexible and strong enough to apply to the sequestration and storage of CO<sub>2</sub> which is intended to be in place for hundreds, if not thousands, of years. Regulations for financial liability need to be designed to cover both the period during which the CO<sub>2</sub> is being sequestered and the period after the injection process has ceased.
- 7.52 Post-injection liability presents particular challenges, due to scale and timeframe. The Committee acknowledges that there needs to be greater understanding of the risks involved in long-term storage, in order to assess the liability of operators and other parties with legitimate interests who may be affected. The Committee also acknowledges that industry certainty is required for CCS to progress. Therefore, the Committee sees the development of legislation which addresses financial responsibility as essential.
- 7.53 The Committee suggests that it may be appropriate for any future legislation to look at this post-injection period as three separate phases.
- 7.54 The first would encompass the closure of sequestration sites and their monitoring and verification during the initial period after closure. The

duration of this initial period would depend on the physical nature of the site.

- 7.55 The second and third components of the framework would define the responsibilities of government and industry relating to financial liability following post-closure monitoring and verification.

### **Recommendation 5**

**The Committee recommends that the Australian Government, following industry consultation, develop legislation to define the financial liability and ongoing monitoring responsibilities at a geosequestration site.**

**The Committee recommends that financial liability and site responsibility should consist of three phases:**

- **Full financial liability and responsibility for site safety and monitoring should rest with industry operators for the injection phase and a subsequent length of time (this time to be determined by the Australian Government subject to specific site risk analysis);**
- **Following the above specified time, shared financial liability and responsibility for site safety and monitoring should rest equally with industry operators and state, territory and Australian governments in the longer term. The exact length of this shared responsibility and liability phase should be determined by the governments subject to specific site risk analysis; and**
- **Following the determined phase of shared liability and responsibility, full financial liability and responsibility for site safety and monitoring should be transferred to the two spheres of government in perpetuity.**