

## **Monash Energy**

### **Victorian Department of Primary Industries “Regulatory Framework for the Long-Term Underground Geological Storage of Carbon Dioxide in Victoria”**

#### **Submission and response to issues raised: February 2008**

Monash Energy’s response to the issues for comment raised in the DPI discussion paper is set out below.

#### **GENERAL STATEMENT**

There are three general overriding points which form consistent themes in this response.

1. CCS activities should not be seen as an industry in themselves. At this stage they represent an infant technology which if adopted will constitute a significant cost burden to industry. This cost may legitimately be seen to be the societal cost for continuing industrial activity in a future carbon constrained world and accordingly be supported and encouraged by legislators. It may of course be that in the future such activities mature into a stand alone profitable industry but at present this assuredly is not the case.
2. Given the above, legislation ought, expressly be designed to facilitate and encourage CCS and “first movers” in particular. Development of CCS infrastructure in Victoria will require significant capital outlay. CCS proponents will require certainty that the legislation and regulations will not impose either additional costs or an unduly onerous regulatory burden. In this regard consistency with CCS legislation in other Australian jurisdictions, notably the Commonwealth would be highly desirable.

Additionally, the following specific pitfalls should be recognised and avoided, irrespective of what legislative vehicle is used (Petroleum Act or stand alone legislation);

- a. a de facto preference is given to those holders of existing Oil & Gas exploration or production licences in the allocation of pore space for CCS activities. One would expect that if the proposed legislative purpose, namely the support & encouragement of CCS is adhered to during the application process the public benefit of establishing viable CCS activities will be as much considered and given due weight in accordance with that purpose as any other competing “public interest” such as that which may arise with oil & gas production. Please see our response to question 27 for our detailed thoughts on this important point of principle.
  - b. the imposition of a cost regime based on rentals & royalties, more applicable to income generating operations such as the extraction of crude oil & gas is imposed upon an activity which as explained above represents an additional level of expense to those carrying it out.
3. That such regulation, in recognising the societal value of CCS activities in reducing carbon emissions, achieves a balance in the allocation of liability that recognises the Crown to be the only appropriate holder of long term liability arising out of CCS activities. Such a regime should provide a robust and certain mechanism pursuant to which such long term liability can be transferred to the Crown upon the surrender of a CCS licence at the appropriate time.

This of course is not to say that CCS proponents should not bear liability whether statutory or at Common law in respect of their day to day activities during the currency of the CCS licence.

The response is not at this stage meant to be final or definitive but rather, to recognise that the development of such a regulatory regime will be of necessity, an iterative process over quite some time. It will have a greater chance of a successful outcome if all interested parties contribute to that process throughout. Accordingly Monash Energy looks forward to developing the themes outlined further during the development of legislation and supporting regulations.

### **SPECIFIC RESPONSES**

	<b>Question</b>	<b>Reference</b>
1.	<i>Should legislation regulating the injection and long-term underground geological storage of carbon dioxide be created as stand-alone legislation?</i>	Part 3.2
	<i>The overriding requirement for any legislation is the delivery of certainty based on equality of treatment amongst CCS proponents and directly affected parties, including where appropriate, the petroleum industry. While this does not of itself necessitate stand alone legislation, achieving the required balance is likely to be more difficult where the Petroleum Act is used as the template. It would be preferable if CCS legislative requirements were not seen as an “add-on” to the objectives of earlier legislation which was designed to regulate a different industry. In the final analysis however, the model should be seen to encourage CCS activities and not be simply, a regulation of them.</i>	
2.	<i>Is there a need for Victorian legislation regulating the geological storage of carbon dioxide to expressly classify or define the stored carbon dioxide as a resource or a waste?</i>	Part 4.1
	<i>An injected CO2 stream may contain traces of other substances. To avoid both duplication and to allow flexibility in developing the regulatory framework it is not appropriate to explicitly define CO2 as either a waste or resource.</i>	
3.	<i>Should Victorian legislation regulating the long-term underground geological storage of carbon dioxide include the following statement of purpose:  To regulate the injection and long-term underground geological storage of carbon dioxide in Victoria, as part of CCS activities, including exploration for storage sites.</i>	Part 4.2
	<i>A statement of purpose should be included, but worded differently. The purpose of the legislation should be expressed positively to enable and encourage CCS activities through the release of acreage for exploration and assessment and permitting of injection for long term geological storage. This comment should be read together with our comment on objectives, below.</i>	
4.	<i>Is there a need for legislation regulating the long-term underground geological storage of carbon dioxide to have a statement of objectives?</i>	Part 4.2
	<i>Yes. The importance of this is increased where the legislation is not of a stand alone nature but is part of an amended Petroleum Act. The Petroleum Act objective is expressed in value creating terms of encouraging petroleum exploration and promoting</i>	

	<i>production for the benefit of all Victorians. The objectives for CCS activities should be expressed in equally value creating terms, such as encouraging and promoting CCS in the interests of all Australians to achieve a public good consistent with green house gas mitigation</i>	
<b>5.</b>	<i>Should Victorian legislation regulating the geological storage of carbon dioxide include guiding principles? If yes, what principles should be included?</i>	Part 4.3
	<i>CCS is a cost associated with enabling significant industrial project development, such as CTL or power generation. It is envisaged that without CCS certain coal based industrial development simply will not take place. CCS is not a business in itself but a substantial additional cost. Guiding principles need to capture this reality. For these reasons the Geothermal Energy Resources Act analogy is not appropriate. The caution suggested in the Stern Review [Chapter 16] mentioned in our introduction needs to be kept in mind. If the Guiding Principles are not focussed on enabling CCS in a way that is mindful of the need to overcome the hurdles of substantial costs and uncertain benefits, private enterprise and capital markets may be unable to shoulder the burden and risk. The Principles need to deliver a fair equitable balance between petroleum license holders and other commercial activities with those of CCS activities for the achievement of the overall public benefit in Victoria.</i>	
<b>6.</b>	<i>Should the term “CCS stream” (or similar) be used to describe carbon dioxide injected into a geological formation for storage as part of CCS operations?</i>	Part 4.4.1
	<i>CCS legislation is being developed for the management of a process and technology that is in a relatively early stage of development. A flexible approach needs to be taken to ensure that whatever definition is employed does not operate as a shackle to pioneering successful development. In this regard it makes sense to adopt an approach that is consistent with the London Protocol and OSPAR Convention. Care needs to be taken to ensure that if enhanced oil recovery is excluded, a situation does not arise where EOR becomes unreasonably advantaged to the exclusion of CCS activities.</i>	
<b>7.</b>	<i>Should other greenhouse gases be covered by the term “CCS stream” (or similar)?</i>	Part 4.4.1
	<i>Yes. Equally, the term should recognise that the substances are not limited to green house gases alone. This much appears to have been acknowledged in the MCMPR definition.</i>	
<b>8.</b>	<i>Should the term “CCS operation” be used to describe CCS activities? If so, what activities should the term cover?</i>	Part 4.4.2
	<i>The DPI comment is that CCS activities and operations are similar to activities undertaken by a petroleum operator. Superficially this may be so. However the drivers for the different activities are quite opposite.  The CCS activity is not an endeavour in its own right but part of an industrial process taking place upstream of an injection point. This difference as already noted needs to be recognised in the statement of Principles and in the Objectives. If this is clearly recognised then there is logic in distinguishing the CCS activities from petroleum operations, although this would not be necessary under a stand alone legislative approach.</i>	

9.	<i>Is there a need for the term CCS exploration to be expressly defined? If so, are there any activities additional to the conducting of geological, geophysical and geochemical surveys, the making of wells and the taking of samples for the purposes of chemical or other analysis, that the term should cover?</i>	Part 4.4.3
	<p><i>Yes. Exploration should also include injection or production of fluids for the purpose of determining viability (reservoir properties).</i></p> <p><i>There may be a need also to specifically refer to installation of equipment/measurement devices for the purpose of monitoring.</i></p>	
10.	<i>Is there a need for the term CCS injection to be expressly defined? If so, are there any activities additional to the injection and storage of carbon dioxide for long-term geological storage that the term should cover, for example monitoring and verification activities?</i>	Part 4.4.4
	<p><i>We understand that the question posed is not so much enquiring on the definition of ‘CCS injection’ but rather the overall operation of the CCS process. The thrust of the Petroleum Act treatment of defining ‘petroleum production’ is to describe operations for the recovery, either now or later, for the purpose of commercial production. The petroleum analogy with CCS again breaks down on this point. As stated, CCS is a cost (not a profit centre/operation) and exists to enable the successful development of an industrial process and subsequently continuing economic prosperity. Its stated objective/purpose should be to encourage and promote CCS in the interests of all Australians to achieve a public good consistent with green house gas mitigation.</i></p> <p><i>If it is desired to cover M&amp;V (akin to management of petroleum operations for proper reservoir management and good oil field practise), then logically this is to be limited to the period during the injection operations and up to license release. Beyond that period, ‘long term’ M&amp;V should appropriately be passed onto the State.</i></p>	
11.	<i>Is there a need for Victorian legislation regulating the underground geological storage of carbon dioxide to clarify who owns the stored carbon dioxide? If yes, is it appropriate for the legislation to specify that (a) on injection and until surrender or cancellation of the CCS injection licence, the stored carbon dioxide is the property of the CCS operator, and (b) on surrender or cancellation of the CCS injection licence, the stored carbon dioxide becomes the property of the State?</i>	Part 5.1
	<p><i>The commentary on this issue recognises a number of the underlying complexities of property law and potential liability implications of defining ownership of CO2 at different stages. This comment is necessarily brief and gives an overall direction rather than seeking to be a full examination of complex property issues at this stage.</i></p> <p><i>Ownership does not necessarily need to be defined for the sake of clarifying liability. Liability for a CCS injected stream derives from the common law and from statutory liabilities to be prescribed in CCS legislation and other regulation such as environmental legislation, to the extent it is not amended to exclude application to CCS injection and storage processes. Thus, the question of ownership of CO2 could be left silent. However, it must be reasonably inescapable that injected CO2, upon injection, is capable of ownership and that ownership remains in the hands of the party injecting but only for the time that such party retains control over the sands/reservoir into which the CO2 was injected. Part (a) of the suggested treatment therefore appears to be a</i></p>	

	<p><i>logical outcome. This however needs to be qualified to limit the injector’s ownership of the CO2 stream to the extent that the CO2 has not become a fixture (through being dissolved in formation water or mineralised) or effective control over the sands/reservoir has passed to another party. Equally, part (b) logically follows in ascribing ownership to the State upon storage licence surrender but should be expanded to include transfer to another storage operator at any time prior to surrender of the licence. Issues concerning liability are dealt with later in this document.</i></p>	
12.	<p><i>Should Victorian legislation regulating the underground geological storage of carbon dioxide expressly provide for ownership of the storage formation? If yes, is it appropriate that the legislation expressly provide that ownership of the underground geological storage formation vests in the crown?</i></p>	Part 5.2
	<p><i>The whole thrust of the proposed titles regime for CCS is based upon ownership of the storage sands/reservoir by the Crown. Following from this it is proposed that the Crown, in right of the State of Victoria, issues subsidiary rights such as assessment, retention and injection licenses all of which are to define usage rights of a nature subsidiary to ownership of the structure per se. It does not appear that the proposed structure of CCS titles would be compatible with ownership other than by the Crown. To the extent that the question seeks input on the position where subsurface ownership may not be vested in the Crown but with a freehold owner, the interests of greater certainty and reduced complexity would be improved where ownership resides with the Crown.</i></p> <p><i>However, the commentary in section 5.2 goes further than simply addressing ownership and in so doing raises matters of concern.</i></p> <p><i>First, there is reference to a proposed Queensland model whereby subdivision and subsequent trading in titles may occur without recourse to the petroleum legislation. The analogy would be trading in CCS storage structures without recourse to CCS legislation, which legislation may (and in our view, should) be linked to a licence holder possessing from the application stage, an available CCS stream. The underlying assumption of the Queensland proposal re petroleum reservoirs is that there is value in them. Conversely CCS storage and a licence to inject is a cost and is premised on the development of a new and uncertain industry and technology.</i></p> <p><i>The key points to be kept foremost in considering overall CCS enabling legislation are that as a first mover with substantial risk, encouragement and certainty is required. A party developing an industry producing a CCS stream therefore would need to have every encouragement about secure access to a CCS injection licence over and above a party/investor seeking arbitrage.</i></p> <p><i>Secondly, we are uncertain of the exact meaning of ‘volumetric subdivision’. We have assumed that each subdivision would contain a discrete formation geologically separate from that in another subdivision. If this is not the case, there are significant issues concerning common user injection into common storage, particularly at the ‘infant’ stage of a party seeking to control costs to a manageable level so as to develop a new technology for the purpose of green house gas mitigation. See #13 below for additional technical considerations.</i></p>	

13.	<p><i>Should legislation regulating the injection and long-term underground geological storage of carbon dioxide enable the grant of separate rights in relation to a sub-surface stratum of land?</i></p>	Part 5.2
	<p><i>Having multiple CCS rights holders in the same defined area but in respect of different stratum would appear to inevitably lead to duplication of appraisal, infrastructure, wells and M&amp;V activity.</i></p> <p><i>Duplication will not only add to CCS costs, but increase leakage risk through the drilling of unnecessarily wells.</i></p> <p><i>Again, the overriding consideration should be to develop legislation that will enable the development of CCS storage from its present infancy to a developed technical solution for green house mitigation. The legislation should not be seeking to anticipate all permutations and combinations at this early stage. Mimicking petroleum legislation is inappropriate given that the legislative treatment for regulating rights to access and extract petroleum has been developed over a period of 100 years.</i></p>	
14.	<p><i>Is it appropriate that the tenure system for underground geological storage of carbon dioxide be based on the existing Victorian regime for petroleum operations?</i></p>	Part 6
	<p><i>The commentary states that Victoria should follow the Commonwealth approach essentially for consistency reasons and based on the logic of the MCMPR. Logic and a certain similarity in the technical development and operation of CCS may behove basing a CCS titles system on the (Victorian) petroleum legislative regime.</i></p> <p><i>However this runs the risk of assuming that CCS titles are to perform a like role to petroleum titles. This is manifestly not the case. The driver for obtaining and operating under the petroleum titles regime is the economic extraction of valuable hydrocarbons with a view to making a profit. As stated elsewhere in this document, CCS in the context proposed, is a cost burden for a different and developing industry.</i></p> <p><i>The second point (similar to issue #1) is that by modelling CCS titles on petroleum and housing them in the CCS legislation can result in a skewing of the regime towards petroleum rights. The overriding requirement for any CCS legislation should be the delivery of certainty based on equality of treatment and equity amongst CCS proponents and directly affected parties, including where appropriate, the petroleum industry. Achieving the required balance requires greater vigilance where the Petroleum Act is adopted as the template.</i></p> <p><i>Assuming use of the petroleum template for the CCS tenure system, great care (both legislative and regulatory) needs to be directed towards ensuring equitable treatment for assessing suitable acreage for release, and for the grant of a CCS assessment permit, holding lease and injection licence. Any notion that existing petroleum titles have some de facto primacy in situations of overlap simply due to CCS being a late comer to the umbrella of existing petroleum legislation needs to be clearly dispelled.</i></p> <p><i>One key will be the clear definition of equitable standards for the transition from a CCS assessment permit through to an injection licence and how any existing hydrocarbon operations/deposits influence the award of such titles. There will be no incentive to invest in appraisal and developing an injection plan, if the granting</i></p>	

	<i>of an injection licence is predicated on the assumption that the petroleum rights have primacy.</i>	
<b>15.</b>	<i>Is the proposed duration of the CCS exploration permit (5 years, with the option of renewal for a further 5 years) appropriate?</i>	Part 6.1.2
	<p><i>The arbitrary nomination of five years is an example of the concern that a drafter may, perhaps unwittingly, be influenced by the petroleum regime simply because that is the template adopted. Many years of experience have demonstrated that five years (with extension) is an arbitrary time that generally meets a balance between active exploration and the likelihood of finding a petroleum accumulation. On the other hand CCS with little technical history is dependent upon relatively greater exploration uncertainties and depends for its success on the success of the related industrial CO2 emitting project development. Exploration may need to be phased over a longer time. The appropriate time for holding an exploration permit may need to be responsive to the time scale and nature of the CO2 emitting development.</i></p> <p><i>In summary, the exploration permit period needs to be flexible and responsive to the underlying project development on a case by case basis. It should not be an arbitrary term analogous to petroleum exploration.</i></p>	
<b>16.</b>	<i>Should legislation regulating the injection and storage of carbon dioxide impose any constraints on the power of the Minister to give directions to a CCS exploration permit holder where a CCS storage formation is discovered?</i>	Part 6.1.3
	<p><i>Provided any holding lease provides required security over the period of grant that is responsive to progress on the underlying CO2 emitting project development, the discovery of a suitable CCS storage by the assessment permittee would as a matter of self interest result in immediate application for holding lease or licence as appropriate.</i></p> <p><i>The question posed appears to again be the result of petroleum template thinking where Ministerial directions in this area are to ensure that a company does not unjustifiably seek to warehouse commercial petroleum accumulations. For CCS the driver is not warehousing a storage for intrinsic gain, but the pivotal alignment of storage availability with the timing of the CO2 emitting project development.</i></p>	
<b>17.</b>	<i>Where a CCS exploration permit holder discovers petroleum or a petroleum exploration permit holder discovers a geological formation suitable for the long-term storage of carbon dioxide, should there be an obligation for the explorer to report that discovery to the State?</i>	Part 6.1.4
	<p><i>The underlying question is the scope of rights associated with a petroleum exploration permit or a CCS assessment permit. On the understanding that a petroleum exploration permit holder has no rights over the storage discovery and a CCS assessment permittee has no rights over a petroleum discovery, the duty to report geological information should stand and all discoveries should be mandated.</i></p> <p><i>The associated principle is the importance of adequate distribution and publication of geological and related information such as well and pressure data. A regime that facilitates such release whilst protecting security for what might otherwise be confidential information might need to be implemented.</i></p>	

18.	<p><i>Should the legislation allow a CCS or petroleum exploration permit holder to enter into an arrangement with an applicant for a production or injection licence over the same area, to enable the carrying out of that other activity? If yes, what constraints, if any, should be placed on the arrangement?</i></p>	Part 6.1.4
	<p><i>Coexistence in cases of overlap in any event demands cooperation between the parties whether it be voluntary or mandated agreement. In addition, what is not prohibited by the legislation presumably is allowable. Provided the parties hold valid and subsisting permits/licences under the petroleum/ CCS legislation they should be free to enter into contractual arrangements between themselves. A deadlock breaking mechanism should however still be available. For example, at the point where a CCS assessor seeks to move to an injection licence, if the petroleum licence holder does not agree on the injection storage plan, the prior agreement should not preclude action by the regulator to employ the legislative principles governing overlap situations.</i></p> <p><i>Another protection is required to avoid gaming. The agreement should only be permissible between arms length companies and, in line with our previous comments, where the CCS licence holder has or is expected to have, a CCS stream for injection. The situation must be avoided where an incumbent petroleum licence holder through a subsidiary acquires a CCS assessment permit to tie up acreage or to seek arbitrage. Also, commitments associated with an existing petroleum permit should not double as a commitment for CCS purposes. The level playing field should be preserved.</i></p>	
19.	<p><i>Given the Commonwealth Government's commitment to the introduction of a national emissions trading scheme by 2012, is it appropriate that a CCS retention lease be subject to a commercial viability requirement?</i></p>	Part 6.2
	<p><i>Notions of 'commercial viability' derive presumably from the concept as it appears in the petroleum legislation in respect of considerations for the grant of retention leases. The posing of the question in relation to CCS storage is indicative of being unduly influenced by the petroleum regime simply because that is the template adopted. As previously stated, the driver in petroleum exploration activities is the recovery of a valuable commercial resource. CCS on the other hand is at this time, a cost burden, not a business in its own right. Development of CCS storage is dependent upon success in developing the underlying CO2 emitting industrial project.</i></p> <p><i>What might make an identified CCS storage commercially viable where the 'discoverer' holding the assessment permit has not yet matured its underlying project? If the market has attributed a value to the CCS storage which becomes de-linked from a project seeking to deliver a CCS stream, the costs of getting CCS storage could be expected to increase.</i></p> <p><i>At all times management of CCS titles needs to be responsive to the main underlying development. If the situation arises due to application of tests of 'commercial viability' where the underlying project development including the disposal of a CCS stream is prejudiced, failure of such a project would amount to policy failure and failure of the presumed legislative purposes/objectives of the CCS legislation.</i></p>	

20.	<i>Is 15 years an appropriate time period for the duration of a CCS retention lease?</i>	Part 6.2
	<i>It is important not to place obstacles in the way of seeking to establish a viable system for disposal of CCS into storage. Presumably some time period needs to be stipulated and 15 years at least recognises that it might take considerable time to develop the underlying CO2 emitting project. However, there may be circumstances that delay utilisation of the storage structure such as project delay due to changing market conditions affecting the underlying project. Provision for Ministerial discretion to provide extensions would be appropriate with a merit review on a case by case basis which recognises the risk attendant to first movers seeking mitigation of CO2.</i>	
21.	<i>Should the Minister be able to release areas for CCS injection and storage without requiring the area first be subject to a CCS exploration permit?</i>	Part 6.3.2
	<i>From a technical perspective, some level of technical assessment/appraisal is likely to be required. For an area to be already known as suitable for injection and storage would tend to mean that some body or the Government has previously undertaken the risk of conducting appraisal and assessment works. The situation may be applicable for example where there is a fully depleted oil/gas reservoir where the petroleum production licence has been surrendered. In such situations, it would seem to be reasonable for the acreage to be released provided the same was done in an open and transparent manner and one in which existing Oil &amp; Gas production licence holders, with access to well and reservoir data in respect of such area and not “open file” or otherwise in the public domain would not, de facto, be put in a more favourable position than other applicants.</i>	
22.	<i>What factors should a decision maker have regard to in determining whether to grant a CCS injection licence?</i>	Part 6.3.2
	<p><i>Factors such as the financial standing and technical ability of the company to operate safely, have possible or probable access to a CO2 stream etc. should have already been addressed at the award of the assessment permit stage. Also, through the act of releasing the acreage for an assessment permit, the authority would presumably have reached a view that, if only on a prima facie basis, there is no material impediment of a legal nature as would prevent the release or the conduct of the assessment activities.</i></p> <p><i>When moving to a consideration of the grant of an injection and storage licence, further elements need to be considered. These would include a satisfactory CCS development plan which demonstrates expected CO2 plume behaviour, M&amp;V plans, satisfaction of financial and engineering competence, HS&amp;E competence and compliance, rights of any existing petroleum licence holder, co-ordination agreement between coexisting parties etc.</i></p>	
23.	<i>Is it appropriate for the CCS operator to have the onus of showing that an underground geological formation is suitable for the long-term storage of carbon dioxide, particularly given the proposals for long-term liability as set out in Part 15 of this paper?</i>	Part 6.3.2
	<i>Yes, this would be appropriate. However this can only be the case where there is full access to data. The onus could not be fulfilled if critical data is withheld.</i>	

24.	<i>Should legislation regulating the injection and storage include restrictions on the area to which the CCS injection licence applies?</i>	Part 6.3.3
	<p><i>Understanding potential plume migration paths relative to acreage boundaries will be critical to approval of an injection plan.</i></p> <p><i>If the intention is for plumes to stay within acreage boundaries, acreage dimensions should be defined accordingly and such definition should be sensitive to the realities of the given geology.</i></p>	
25.	<i>Is it appropriate for a CCS injection licence to be issued for an indefinite term or should it be limited by time period or by volume of carbon dioxide injected?</i>	Part 6.3.3
	<i>At the infancy stage of establishing a regime for injection and storage of CCS and with much to be learned from experiences yet to be had, it seems appropriate at this point for a licence to be issued for an indefinite period. The indefinite period would conclude upon surrender/relinquishment of the licence in a prescribed manner when CCS operations have ceased.</i>	
26.	<i>What factors should a CCS injection development plan be required to address?</i>	Part 6.3.5
	<i>A CCS plan would include the elements listed in the commentary.</i>	
27.	<i>Should a CCS proponent who wishes to utilise a storage reservoir in a petroleum production licence area for long-term storage of carbon dioxide be able to apply to the Minister for the excision of that area where the consent of the petroleum operator, is unable to be obtained? If yes, is there a need for the criteria for assessing whether third party access to the storage reservoir should be granted to include a public interest test?</i>	Part 6.3.6
	<p><i>This question is difficult to understand. A CCS ‘proponent’, assumes that they are not already the holder of an assessment permit. In that case the ‘proponent’ would have no standing in respect of acreage over which there is a subsisting petroleum title. Indeed the question appears to presuppose that there has not yet been a release of the acreage for CCS assessment. In such a case, it is difficult to see how a CCS ‘proponent’ could have the requisite technical and geological knowledge to be aware that the acreage could be suitable for long term injection and storage of a CCS stream which might warrant applying to the Minister for excision from the petroleum licence.</i></p> <p><i>If the question means by the expression ‘CCS proponent’ that they aspire to have the acreage excised and released to enable exploration and assessment, then this is a reference to what is expected to be the typical situation of overlap of petroleum licence acreage with prospective CCS acreage. It is vital that acreage be available for exploration and assessment for CCS storage which overlies petroleum licences for the simple reason that that is where many prospective storage structures suitable for long term trapping of CO2 are expected to be located. The Commonwealth model to date acknowledges this by releasing acreage within a petroleum licence subject to a ‘no significant negative impact’ test. Whether the release of acreage for CCS appraisal amounts to an ‘excision’ is a matter of legislative mechanics. The key point is that the CCS regime must deliver genuinely prospective acreage for CCS assessment, particularly where overlapping petroleum licences. Failure to achieve such an outcome would be a policy failure.</i></p> <p><i>In the second part of issue #27, the reference to the ‘third party’ does not appear to be a correct description. The language is</i></p>	

	<i>redolent of having a petroleum perspective due to using the petroleum template. If the vehicle used to establish a CCS regime is to be through the amendment of the Petroleum Act, CCS parties would not be 'third parties', but be equally recognised parties under the Act with certain rights and obligations. If second part of the question posed in issue 27 is a reference to distinguishing between competing interests of a petroleum licence holder and those of a CCS assessment permit holder seeking to obtain an injection licence, then a public interest test would be appropriate. Such a test would presumably be informed by the legislated statement of purpose and objectives concerning encouragement of CCS for the mitigation of CO2 for the benefit of all Australians (Victorians).</i>	
<b>28.</b>	<i>Where a CCS storage reservoir extends over a number of areas that legally entitles more than one CCS injection licence holder to inject a carbon dioxide/CCS stream, should the Minister be able to require the CCS operators affected to enter into cooperative arrangement for injection and storage of the carbon dioxide so as to inject the carbon dioxide as effectively as possible and/or keep disruptions to the environment to a minimum?</i>	
	<i>The framing of this issue appears to again come from a petroleum perspective. Unitisation and coordination agreements in petroleum areas arise due to a petroleum pool extending across more than one licence area. On the other hand the issue of a CCS injection and storage licence is predicated on having the licence define a geological formation where the CO2 can be expected to remain and not migrate off into other CCS licences or elsewhere. It would be the extremely rare situation therefore that contemplates several CCS operators having licences where the formations overlap.</i>  <i>If the question is intended to enquire as to the operational arrangements for common user access to one storage formation, then such a multi user regime/model or standard form cooperation agreement would be necessary. However, the desirability of establishing a common user approach this early in the learning experience of establishing a CCS regime is to be avoided. If such multiple user regime is seriously to be considered then numerous significant additional issues will arise which have not at this stage been considered and will need to be taken into account. Accordingly, the uncertainties and potential risks would become compounded. It would be wise to establish a regime that can be allowed to evolve as experience of the CCS world is accumulated, rather than seek to legislate for every combination at an early stage.</i>	
<b>29.</b>	<i>Should pipelines situated wholly within a CCS injection licence area be able to be exempted from the requirements of the Pipelines Act 2005 (Vic)?</i>	Part 6.3.8
	<i>It appears both logical and appropriate that exemption would be desirable.</i>	
<b>30.</b>	<i>How should resource use conflicts be managed?</i>	Part 7
	<i>The necessity of a clear legislated statement of purpose and objects cannot be understated. A clear expression of parliamentary intent will inform regulators and the Minister in making decisions on the occasion where there might be competing interests. A balance needs to be struck between interests of petroleum licence holders and the imperative to have an effective CCS injection and storage regime that will meet the national interest in green house gas abatement and CO2 mitigation.</i>	

	<p><i>Broadly, the balance should ensure that neither activity impedes the other or materially impacts the other's resource in a way that gives no competitive advantage to either party.</i></p> <p><i>Principles of cooperation have been outlined previously by MCMPR. Guiding principles should acknowledge the reality of coexistence and include providing for equality and equity between the different activities and not give any competitive advantage to one over the other. It is important that Government support the ability of parties to reach resolution based on commercial principles. If agreement between the parties cannot be reached it is imperative that there a legislated deadlock breaking mechanism to be independently administered by the Minister acting on the advice of the Department being fully informed of the underlying commercial issues and acting in accordance with the guiding principles, statement of purpose and objects.</i></p>	
<b>31.</b>	<p><i>Should legislation regulating the injection and storage of carbon dioxide provide for grant of a special access authorisation to enable a CCS operator to undertake exploration activities to gain geological information for their own use or for sale?</i></p>	Part 8
	<p><i>Yes.</i></p>	
<b>32.</b>	<p><i>In relation to the grant of a CCS exploration permit, retention lease or injection licence, is there a need for mandatory conditions? If yes, what matters should the mandatory conditions of a CCS exploration permit, retention lease or injection licence address?</i></p>	Part 9.2
	<p><i>Recognition must be given to the reality that CCS is in its infancy. Whilst mandatory conditions can be expected, they should not be so onerous, burdensome or costly as would cause failure. Mandatory conditions applied to the petroleum industry are against the background of producing a commercial product of high value and with many years of established petroleum industry 'good practice'. CCS is not an industry in itself and is a cost centre for a fledgling industry the successful development of which is reliant on an effective and viable CCS regulatory regime being established..</i></p>	
<b>33.</b>	<p><i>In giving the Minister broad discretion to impose any additional conditions on a CCS exploration permit, retention lease or injection licence he or she thinks fit, are there any discretionary conditions that should expressly be provided for in legislation?</i></p>	Part 9.2
	<p><i>Acknowledgement needs to be given to infant stage of CCS. Thus, Ministerial discretion is desirable on a case by case basis where certain prescriptive or mandatory conditions might otherwise result in a CCS development failing.</i></p>	
<b>34.</b>	<p><i>Is it appropriate that transfer of a CCS title be subject to a best interest requirement? If yes, should the test to be applied be specific to the best interests of the people of Victoria?</i></p>	Part 9.3
	<p><i>The operation of the Petroleum Act in practise shows that the Minister's exercise of discretion concerning the 'best interests of the people of Victoria' has been exercised in a manner that has not been of great moment. On that basis a like provision could be included. However, the best interests test should be expressed as subject to the legislated purpose and objects stated in the CCS amending legislation.</i></p>	

35.	<i>Should a CCS proponent be required to continue to undertake monitoring and verification activities for a specified period following completion of the injection phase of CCS operations, before a CCS injection licence may be surrendered? If yes, for what period of time following completion of injection activities should a CCS proponent be required to undertake these monitoring and verification requirements?</i>	Part 9.4
	<i>M and V would likely continue to be the responsibility of the CCS licence holder whilst it retained its licence following cessation of injection. A combination of meeting a set of performance criteria and doing so within a set time following cessation of injection could be an appropriate mechanism. The period of the time to be designated within which the criteria should be met should be arrived at after further technical and scientific consultation.</i>	
36.	<i>Following surrender of a CCS injection licence, is there a need for ongoing monitoring and verification of the injection site? If yes, should responsibility for such monitoring and verification activities, including any remediation or rehabilitation required in the post-closure period be transferred to the State?</i>	Part 9.4
	<i>If the surrender criteria are defined appropriately and met by the CCS licence holder, then to the extent that further M and V might be required, it should pass to the State upon licence surrender.</i>	
37.	<i>In what circumstances should the Minister be able to cancel a CCS exploration permit, retention lease or injection licence?</i>	Part 9.5
	<i>Provided the conditions for the issue of a permit, lease or licence are being met, there should be no reason to allow for cancellation. In respect of cancellation of a CCS injection and storage licence the additional criteria as per the petroleum legislation are not appropriate. Perhaps the only criteria could be an inability to secure or have a CCS stream available for injection in breach of the criteria set out in the licence conditions.</i>	
38.	<i>Should the Minister be able to issue directions to a CCS proponent where a CCS exploration permit, retention lease or injection licence is to be surrendered or cancelled? For example, as a minimum should a CCS proponent be required to undertake monitoring and verification requirements for a specified period?</i>	Part 9.6
	<i>Refer answers to issues #35 and #36.</i>	
39.	<i>Given the variety of legislation which may apply to a CCS injection and storage project, is there a need to streamline the approvals processes? If yes, how should this be achieved?</i>	Part 10
	<i>Major projects, of which CCS operations will tend to be categorised, benefit from streamlined approvals processes and from time to time such streamlining is achieved by project specific acts of parliament, such as The Barrow Island Act. As CCS is intended to become a tool for better management of the environment such a stream lined approach dealing with related legislative requirements covering matters including environment, waste disposal, planning etc. is desirable. It would be ironic if the purposes and objects of the CCS legislation could become frustrated by hurdles imposed by other environmental regulation. The current provisions of the Petroleum Act 1998 (Vic) which exempt exploration activities from the Planning and Environment Act 1987 and embraces the Environmental Effects Act 1978 as the umbrella approvals process for petroleum production provides a tested and accepted model. It is recommended that this approach be adopted for CCS legislation.</i>	

	<i>While CCS is being established as a mature technology it will be critical that Parliament signals strongly its expectations of any CCS legislation through well constructed purpose, objectives and guiding principles provisions.</i>	
<b>40.</b>	<i>How should planning approvals for CCS exploration and injection operations be managed?</i>	Part 11
	<i>Refer previous answer.</i>	
<b>41.</b>	<i>If planning approvals for a CCS injection and storage project are to be streamlined, should CCS operators be subject to a consent regime similar to that for petroleum operators as detailed in Part 9 of the Petroleum Act 1998 (Vic)?</i>	Part 12
	<i>It is difficult to see how CCS injection and storage operations would, in a contamination sense, be as intrusive or potentially contaminating as petroleum production operations. The driver should be to place as few obstacles in the way of CCS developments.</i>	
<b>42.</b>	<i>In preparing a CCS operation plan, what matters should a CCS proponent be required to address?</i>	Part 13
	<i>It is too early to state in any detail.</i>	
<b>43.</b>	<i>Section 165 of the Petroleum Act 1998 (Vic) details specific obligations a petroleum operator must undertake in conducting any petroleum operation. Is there a need for legislation regulating the exploration for suitable underground geological formations and the injection and long-term storage of carbon dioxide to include similar general provisions? If yes, what matters should such a provision address?</i>	Part 13
	<i>The matters covered under the Petroleum Act provide some guidance, however at this stage it is too early to be definitive. The matter will require further discussion during detailed development of final legislation.</i>	
<b>44.</b>	<i>In determining whether compensation is payable for any loss or damage as the result of CCS operations over Crown land, is there a need for the Minister to take into account any benefits that may accrue to the people of Victoria from the CCS operation?</i>	Part 14
	<i>The whole CCS scheme is to deliver a public environmental benefit to be expressed in a legislated statement of purpose and objects. The greater environmental good achieved by CCS is clearly to be taken into account in the circumstances described.</i>	
<b>45.</b>	<i>Should legislation regulating the injection and long-term storage of carbon dioxide modify the common law liabilities of a CCS proponent? If yes, in what way should the common liabilities of a CCS proponent be modified?</i>	Part 15
	<i>Modification of common law liability by reducing exposure represents a reduction in risk to a CCS proponent. With lower risk the likelihood of CCS development is materially improved. However, it is very clear from the commentary that no modification of common law liabilities is contemplated. In fact the commentary makes the point that it is desirable to retain common law liability so that CCS operators have a financial incentive to ensure proper conduct at all times. In these circumstances we do not offer any further comment at this stage.</i>	

46.	<i>Should liability be transferred to the State in the long-term?</i>	Part 15
	<p><i>Yes. The appropriate transfer is at the time of meeting the criteria that results in approved relinquishment of the CCS injection and storage licence. At that point liability should pass to the State. Given the clear assumptions of the State of Victoria in the commentary to issue #45 above concerning common law liability, the liability taken up by the State would any other liability, including any residual statutory liability. For the CCS licence holder, upon relinquishment, it would cease to have any statutory liability.</i></p> <p><i>The concept of a shared responsibility between CCS injection cessation and relinquishment of the CCS licence does not appear to serve any purpose but could add to complexities. Monitoring and verification would also be the responsibility of the CCS operator until relinquishment.</i></p>	
47.	<i>Should a CCS proponent be required to obtain and maintain insurance against the expenses or liabilities which may arise as a result of CCS injection and storage activities? If yes, what type of insurance would be required? For what period of time should a CCS proponent be required to hold such insurance?</i>	Part 15.1
	<p><i>No bond should be required. The financial quality of the CCS applicant should be established at the outset. Development of CCS in Australia and in Victoria will require corporations of substance facing the challenge of seeking to develop CCS in an economic cost effective manner.</i></p> <p><i>Insurance will be difficult to secure in the unknown world of carbon capture and long term storage, particularly in the early stages where the risk for first movers is at its highest.</i></p> <p><i>Bonds are an unnecessary hurdle and can be a brake in developing CCS. CCS is a cost and adding to this cost is the reverse of what CCS needs from Governments.</i></p>	
48.	<i>In requiring a CCS proponent to take out a bond or financial assurance, what matters should the bond or assurance cover?</i>	Part 15.2
	<i>See comment to #47.</i>	
49.	<i>For what period of time should a CCS bond or financial assurance be held?</i>	Part 15.2
	<i>See comment to #47.</i>	
50.	<i>If the State is to be responsible for long-term monitoring, verification and remediation of a CCS injection and storage site, how should such activities be funded?</i>	Part 15.3
	<p><i>CCS is intended to enable the development of carbon emitting industry such as power generation, CTL etc and thereby enable existing carbon emitting industries to continue operations in a carbon constrained world. Without a satisfactory CCS regime, such developments will not be either acceptable or viable. The statement of purpose and objects in CCS legislation would be expected to reflect such imperatives.</i></p> <p><i>The real costs of M and V are expected in the pre licence relinquishment phase and the risks of leakage are noted by the Intergovernmental Panel on Climate Change as being very low (Refer Section 15, page 59 of commentary). To the extent that there is a financial cost for long term monitoring, such cost should be borne by the State consistent with the public benefit to be derived from the CCS.</i></p>	

51.	Should a CCS operator be charged rent for the storage of carbon dioxide in an underground geological storage formation? If yes, is it appropriate that the revenue raised be used to fund the long-term monitoring, verification and remediation of a CCS injection and storage site?	Part 15.4
	<p>.CCS will be determined by the geology of the development region and its relative scarcity will be affected by the demand for CCS storage. The overarching object should be to minimise CCS costs, especially at this early stage of development of these activities As stated previously, CCS is not a business in its own right but a cost supporting an underlying CO2 emitting development. If CCS is to be developed from its present embryonic state it must not be burdened directly or indirectly, with artificial costs that appear to assume that CCS is akin to the commerciality of petroleum developments. Therefore we would strongly discourage the Government from artificially restricting access sites in order to maximise rents.</p> <p>So far as monitoring and verification activities are concerned we believe that regardless of rent charges or revenue questions there is a role for Government to support such activities.</p>	
52.	How should legal issues relating to the transport of carbon dioxide between different jurisdictions be addressed?	Part 16
	Consultation can be undertaken with the relevant jurisdiction affected before approval for injection is given. This is a good example of retaining flexibility at this early developmental stage of CCS and not seeking to prescribe for every eventuality.	
53.	Is it appropriate that CCS proponents be subject to a geological information collection and dissemination regime?	Part 17.1
	Yes	
54.	Is there a need for a mechanism to require the release of geological information from petroleum operators to CCS proponents in specified circumstances – for example where there is a risk that a potential CCS operation may impact on an existing petroleum operation?	Part 17.1
	<p>Yes, it is critical that CCS proponents have complete access on a reasonable ‘cost reimbursement’ basis to all available information. This data will be required to assess the suitability of potential injection sites and to determine further appraisal requirements. In particular, well production and pressure data will be necessary to determine the likelihood of interaction with hydrocarbon deposits.</p> <p>Information needs to be released to enable full appraisal and this may include data that is not in the public domain. Availability of such data is essential in the ‘national interest’ to ensuring a level playing field between CCS and petroleum licence holders.</p>	
55.	Should legislation regulating the injection and long-term underground geological storage of carbon dioxide provide for the establishment of a CCS register?	Part 17.2
	The creation of a clear and unambiguous property right is essential. The establishment of a register is a mechanism that would support this.	