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Committee Secretary  
**Senate Economics Committee**  
Department of the Senate  
PO Box 6100  
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Dear Secretary

## **OFFSHORE PETROLEUM AMENDMENT (GREENHOUSE GAS STORAGE) BILL 2008**

Thank you for providing Woodside the opportunity to comment on the Offshore Petroleum Amendment (Greenhouse Gas Storage) Bill 2008 (**Bill**).

### **About Woodside**

Woodside is one of Australia's top ten companies by market capitalisation, and the nation's largest publicly-traded oil and gas exploration and production company.

Based in Perth, Western Australia, Woodside has major operational assets and exploration and development interests in five continents including Australia and the United States.

In 50 years we have grown from a pioneer oil and gas explorer to Australia's largest independent producer of oil and gas and one of the world's largest producers of LNG.

Woodside operates Australia's largest resources project, the North West Shelf Venture in Western Australia, which produces about 40 per cent of Australia's oil and gas.

In 2010, Woodside will complete construction of its \$12 billion Pluto LNG Project near Karratha – the largest single investment by an Australian resources company. The proposed Sunrise LNG Development is expected to be ready for start-up as early as 2013, while the Browse LNG Development in northern Western Australia will potentially establish Australia's third LNG hub by 2015.

Woodside's goal is to be a global leader in LNG production by 2015, when global demand for LNG is expected to exceed supply.

With a proved plus probable reserves to production ratio of 25 years at 2007 production rates, Woodside is poised to help meet growing global demand for clean energy.

## Woodside's interest in the Bill

Woodside has a particular interest in the greenhouse gas storage mechanisms proposed by the Bill. As a petroleum operator with extensive exploration and production interests in Commonwealth waters, Woodside wishes to minimise the risk of greenhouse gas storage activities having an adverse impact on those interests.

Woodside may also wish to pursue the opportunity presented by the Bill to undertake greenhouse gas storage activities as a part of its strategy to reduce its greenhouse gas emissions profile.

## Our Submission

In summary, Woodside supports:

- the introduction of legislation to support greenhouse gas storage activities;
- that regime being included in the Offshore Petroleum Act given the synergies between the title systems and the need to manage the potential for conflict between petroleum activities and greenhouse gas storage activities; and
- the adoption of the proposed legislative model by States and Territories to ensure a nationally consistent framework in both offshore and onshore areas and to minimise regulatory burden.

However, Woodside has strong reservations about the impact this Bill, in its current form, has on our ability to develop some of the largest resource projects in Australia.

The intent of our submission is to ensure there are no unintended consequences arising from the Bill for large scale LNG developments. Large scale LNG developments such as that proposed for Browse LNG are world scale undertakings and involve a capital investment likely to exceed \$20 billion.

Such LNG developments already capture reservoir CO<sub>2</sub> and therefore provide a relatively pure stream of CO<sub>2</sub> potentially suitable for geo-sequestration. As such, they are likely to provide real and early success in mitigating greenhouse gas emissions. These developments should have the opportunity to sequester greenhouse gases arising from the production stream and processing activities (as an 'Integrated Petroleum Development'). An 'Integrated Petroleum Development' can be defined by three points of the gas processing cycle, being: one or more production fields, a gas processing facility and a greenhouse gas storage formation.

The Bill in its current form limits the opportunity for an 'Integrated Petroleum Development' to sequester greenhouse gas – and in doing so – introduces a new risk to project schedules around key development concepts.

Woodside supports in principle the bidding process for geo-sequestration acreage. However, Woodside proposes that an 'Integrated Petroleum Development' should be able to sequester greenhouse gases arising from that development without being subject to competitive bidding for the opportunity to undertake that activity.

A development such as the Browse LNG Development represents a significant investment by our company and our joint venturers requiring reasonable surety of timeline and development scope. Exploring for and appraising suitable injection sites, procurement of long lead items, mobilisation of the offshore construction workforce and specialised construction vessels, and the management of the schedule and other project interfaces is intrinsic to the successful execution of the entire project.

Enforcing a bid process onto projects of this type creates a new and unnecessary risk to cost and schedule not faced by our international competitors. While carbon sequestration forms only one part of an 'Integrated Petroleum Development' concept, any risk to obtaining title, including schedule delays arising from competitive bid processes can adversely impact concept and investment decisions.

Given the significance of the emerging Australian LNG market, the availability of relatively pure CO<sub>2</sub> streams and the opportunity presented by the Bill to reduce greenhouse gas emissions further by geosequestration, the potential impact for 'Integrated Petroleum Developments' arising from bidding for sequestration acreage should be mitigated.

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For your consideration we include further issues we have identified from our review of the Bill as an attachment to this submission.

We look forward to any further opportunity to present our submission to the Committee. Please call Reinoud Blok on (08) 9348 6896 if you require further details relating to our submission.

Yours sincerely



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**Rob Cole**  
Executive Vice President Corporate Centre and General Counsel

Attached: Woodside Energy Ltd: Further issues for Senate Committee consideration arising from the Offshore Petroleum Amendment (Greenhouse Gas Storage) Bill 2008

## Woodside Energy Ltd

# Further issues for Senate Committee consideration arising from the Offshore Petroleum Amendment (Greenhouse Gas Storage) Bill 2008

### 1. CO<sub>2</sub> disposal under a Production Licence (PL)

The Bill (item 124 p54/55) states that:

*It is intended that holders of petroleum production licences will continue to have the ability that they currently have (subject to obtaining normal regulatory approvals) to do whatever is necessary in the licence area for the purpose of recovering petroleum in the licence area, including:*

- (a) Injecting methane and/or CO<sub>2</sub> in the licence area for gas recycling or enhanced petroleum recovery; and*
- (b) (subject to approval) injecting for disposal in the licence area methane or CO<sub>2</sub> stripped from the petroleum stream that is recovered in the licence area.*

- **Mechanism for exploration for GHG disposal formation within petroleum titles – Clause @249AC**

The Bill does not make clear whether a holder of a PL can explore for a suitable GHG disposal formation within the PL (for disposal of CO<sub>2</sub> that was produced from within that PL) without violating clause 249AC (Prohibition of unauthorised exploration for a greenhouse gas storage formation).

It should be clear that a production licensee must be able to explore for a CO<sub>2</sub> disposal location in order to undertake the injection activities specified in italics above. If that is not the case, it is unclear what process must be followed by a production licensee to explore for a disposal location.

In practice, exploration or appraisal for a CO<sub>2</sub> disposal location must occur before the application for the PL is lodged. Only then can the disposal option be included in the Field Development Plan (assuming that is the relevant authorisation to undertake injection activities under a PL). Hence, the exploration or appraisal for a CO<sub>2</sub> disposal formation must occur under the title preceding the PL (either an Exploration Permit or a Retention Lease).

Woodside suggests that the Bill provides for exploration or appraisal of CO<sub>2</sub> disposal formations under an EP/RL/PL.

- **Potential for storage formation to be outside petroleum titles**

If the identified storage formation for disposal of CO<sub>2</sub> under a PL is slightly outside the EP/RL/PL boundary (for example a down-dip injection scheme), Woodside suggests that the Bill should allow for the:

- a. extension the PL boundaries to include the disposal area; or
- b. petroleum licensee to apply for an injection licence over the extended disposal area on a non-competitive basis.

- **Rights conferred by production licence – Clause 137(3)**

Despite that statement regarding existing petroleum rights, the Bill does not appear to provide that certainty.

Currently, a (petroleum) PL authorises the licensee to “(d) carry on such operations, and execute such works, in the licence area as are necessary for those purpose”. In practice, this has included the authority to dispose of gas via re-injection into the production licence area, and to inject gas as a means of enhanced oil recovery (EOR) or enhanced gas recovery (EGR).

The Bill could be interpreted to prohibit such activities. Even if such activities can be permitted, it is then unclear under what authority such injection activities can be undertaken.

## **2. Ministerial Discretion**

The Bill states that decisions relating to greenhouse gas titles and key petroleum activities will be made by the responsible Commonwealth Minister.

- **Guidelines for application of discretion**

The Bill raises sovereignty issues for existing and future petroleum operations arising from the entry of a new activity (greenhouse gas storage) and supporting industry into the same areas, the nature of which is uncertain.

Woodside is concerned about the limited consultation on the Bill – particularly given much of the support for the proposed legislation is to be provided by way of (as yet) unpublished regulations and guidelines.

In particular, Woodside is concerned that even if it objects to certain greenhouse gas activities being undertaken over petroleum titles (whether or not the title was pre-existing), the Minister may still approve those activities if the Minister forms the view that the two activities can co-exist. Woodside does not support the potential for such discretion to be applied against it where there is potential for its existing or future activities to be affected. In the absence of appropriate regulations and guidelines, it cannot endorse the ‘significant risk’ and ‘significant impact’ tests applied by the Minister being determinative of whether or not a greenhouse gas activity can be undertaken in the absence of approval from the petroleum permit holder.

- **Administration by single authority**

Woodside recommends that the proposed future Offshore Petroleum and Greenhouse Storage Act be administered by a Joint Authority comprising a member representing the State and the Commonwealth. The proposed administration under the Bill is at odds with the current administration of petroleum activities under the Offshore Petroleum Act.

## **3. GHG Assessment Permit boundaries – Clause 249 AD (1)(a)**

The Bill assumes that a GHG Assessment Permit will have fixed boundaries analogous with Petroleum Exploration Permits. However, petroleum exploration searches for static petroleum pools whilst GHG exploration searches for formations that allow potential dynamic trapping of a GHG.

Prior to commencement of data acquisition under a GHG Assessment Permit, it is unlikely that the permit boundaries have been appropriately defined to encompass a dynamic trap.

We propose that, if the permit boundary is later found to curtail a potential dynamic trap and the acreage on the other side of the boundary is not under title, the Assessment Permittee can be awarded on a non-competitive basis an extension of the Assessment Permit to include the dynamic trap (subject to other controls proposed in the Bill).

#### **4. CO<sub>2</sub> plume extends beyond Injection Licence boundary – Clause 249CD(1)(b)**

The Bill assumes that the stored greenhouse gas substance remains within the licence boundaries. However, that plume could migrate across a title boundary, even if extensive migration predictions have demonstrated this to be unlikely.

Clause 249CZA of the Bill gives the Commonwealth Minister the power to deal with such ‘serious situations’. Despite those powers of intervention, other than ceasing or suspending injection (if not already so), there are few practical (and cost effective) measures that can be implemented to stop migration of the plume across a licence boundary.

In determining what reasonable steps might be taken to address the ‘serious situation’, Woodside suggests that the Minister should be required to consider the consequences of CO<sub>2</sub> migration across licence boundaries against the effort and chance of success of implementing remediation measures.

Furthermore, if the acreage beyond the boundary is not under title, Woodside submits that the Bill could allow the licence boundary to be extended to accommodate the additional migration path as an alternative to issuing directions (subject to other controls proposed in the Bill).

#### **5. Site Closure**

- **Time for issue of Site Closure Certificate**

The site closing period is not time-bound. A key condition for issuing a site closure certificate is that “the responsible Commonwealth Minister should be satisfied that the greenhouse gas substance injected into the identified greenhouse gas storage formation is behaving as predicted in Part A of the approved site plan” (249CZF(4)(a)).

Predictive modelling is probabilistic by nature due to the uncertainties in subsurface parameters. Therefore the modelled plume will never exactly behave “as predicted”. We recommend that a site closure certificate be issued upon satisfaction of conditions relating to plume behaviour falling within a predicted range and after a fixed time from the application for a site closing certificate.

- **Rights afforded by Site Closure Certificate**

The Bill does not state what rights a site closing certificate provides to the licensee. If the intent is that a site closing certificate allows the licensee to surrender the licence in good standing and therefore relieves the licensee of any statutory obligations, the Bill should state this.

We recommend that the site closing certificate indemnifies the Operator against future liability to the extent that the liability does not arise from negligence or deliberate misconduct.

#### **6. Declaration process – Clause 79B**

Woodside is concerned that the Minister may encumber a ‘post-commencement’ EP/RL/PL after it is issued by way of ‘declaration’. We raise the following concerns in that regard:

- a. In bidding for exploration permits, there will be a lack of certainty around whether they might be Declared, which could impose significant costs in terms of special casing and special abandonment;
- b. Since the rules apply to exploration permits even if there is no current GHG title, it is not clear on what basis the Minister would make a decision about whether a particular exploration permit might be a candidate for being Declared;
- c. It is not clear when the Minister would make this evaluation, what would trigger it, and how long it would take. If, for example, an evaluation was triggered upon an application to shoot seismic or drill a well, there could be severe adverse consequences to companies if there is a significant evaluation period following this application that may delay the petroleum activity.
- d. If a declaration evaluation has to occur on every major (or even the first major) exploration activity after an exploration permit is granted, that this could interfere with operational approvals under those permits. If an exploration permit is 'declared', a broad range of activities, including seismic and CSEM, can be subject to Ministerial approval. This may introduce approval delays on activities because of the approval process, which is highly undesirable.
- e. Should there be a mechanism, at the time of acreage release, for the government to indicate whether the Exploration block will have or is likely to become declared, in part or in whole?
- f. For the Minister to have the right to declare an exploration permit, he needs to believe that there is "a significant risk of a significant adverse impact" on greenhouse gas operations. Woodside cannot comment on that 'significant' test in the absence of guidelines which might specify the circumstances in which that discretion will be applied.

## **7. Well abandonment – Clause 316-311A(2)(b)**

The remediation of previously abandoned or suspended wells to a standard suitable for CO<sub>2</sub> service can be either technically challenging or impossible. This is particularly the case for older wells that were abandoned with cement plugs that may only partially cover exposed formations. Therefore, it may be impossible to re-enter the borehole and perform remedial work. Woodside suggests a 'reasonable endeavours test' apply to well remediation directions.

## **8. Ranking of multiple applications for work-bid greenhouse gas assessment permit (Clause 249AL)**

If multiple applications have been received for the grant of a greenhouse gas permit, the responsible Commonwealth Minister may offer the permit to the "most deserving" applicant. The criteria on which the ranking is to be made must be publicly available.

This parallels the process of granting work-bid petroleum permits, with the criteria published in a guideline in relation to the Australian Government's PSLA (Bid Assessment Criteria). We submit that similar guidelines should be produced in relation to greenhouse gas permits and look forward to participating in consultation on such guidelines. In the interim, we offer the following suggestions for bid criteria:

- a. an existing (named) CO<sub>2</sub> stream;
- b. the required timing of the CO<sub>2</sub> sequestration (proponent of a project requiring sequestration earlier than another proponent's project);

- c. priority to be given to the applicant with the project most affected economically by the grant of (or refusal to grant) the licence;
- d. priority to be given to the applicant with the largest work programme, as per petroleum criteria;
- e. if the proposed GHG block overlies a current petroleum title, the bid evaluation should take into account the items of petroleum investment that have been carried out by the petroleum licensees, where the greenhouse gas title applicant and petroleum licensee are the same.

**9. Access regime - Clause 249CE(10), (11)**

Woodside believes that third party access should be governed in the Bill. The OPA for petroleum, third party access is for pipelines only and is governed by the Offshore Petroleum Act (s.192).

Woodside submits that third party access for greenhouse gas activities does not include access to:

- a. identified greenhouse gas storage formation;
- b. wells, equipment or structures for use in injecting greenhouse gas substances into identified greenhouse gas formations, or
- c. equipment or structures for use in the processing, compressing or storing of greenhouse gas substances prior to injection.

**10. Injection Licence condition on origin of the greenhouse gas substance – Clause 249CE(3)(f)**

It is unclear why a condition of a greenhouse gas injection licence is to specify the origin of the greenhouse gas substance. This does not appear to serve any purpose and leads to a requirement for a variation if a licensee changes the source of the GHG substance.

**11. Site Plan**

Woodside believes the term Site Plan is confusing and does not relate to the actual purpose of this plan. We recommend changing this to "Injection and Storage Plan".

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