Government of **Western Australia**
Department of **Mines and Petroleum**

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Dear Sir

INQUIRY INTO THE ECONOMIC IMPLICATIONS OF FLOATING LIQUEFIED NATURAL GAS OPERATIONS

Please find attached the Department of Mine and Petroleum submission in response to the above inquiry.

Yours sincerely

Tim Griffin
A/Director General
DEPARTMENT OF MINES AND PETROLEUM

30 August 2013

Department of Mines and Petroleum
Submission

Economics and Industry Standing Committee Inquiry

Inquiry Into the Economic Implications of Floating Liquefied Natural Gas Operations

August 2013

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1. Terms of Reference

The Western Australian Department of Mines and Petroleum (DMP) has provided input to the inquiry, through testimony provided by Mr Bill Tinapple, Executive Director of the Petroleum Division on Wednesday 19th June 2013.

The terms of reference provided by the Economics and Industry Standing Committee Inquiry Into the Economic Implications of Floating Liquefied Natural gas Operations is as follows:

> The Committee will identify the manner in which the use of floating liquefied natural gas operations will impact upon the following sectors of the Western Australian economy:
>
> - Engineering and design;
> - Fabrication and manufacturing;
> - Construction and ancillary services; and
> - Domestic gas supply and industrial gas users.
>
> The Committee will also identify the extent to which the use of floating liquefied natural gas operations will impact upon state revenue in Western Australia.

For the purposes of DMP's submission, the issues covered will be limited to domestic gas supply and impacts to state revenues. These areas fall within DMP regulatory responsibilities, where points focusing on design and construction do not.

2. State Commonwealth Areas of Regulatory Responsibility

Prior to 1970 both the state government and the Commonwealth claimed regulatory responsibility for offshore areas, leading to examples where both authorities issued titles in those areas. This state of affairs persisted until the High Court of Australia determination in 1975[1] which found that the Commonwealth had sovereignty rights in Australian territorial seas.

Following this decision, the Commonwealth and the states undertook negotiations resulting in the 'Offshore Constitutional Settlement'[2] in 1980, which deals with Commonwealth and state jurisdiction in the waters to the edge of the territorial sea. The settlement also includes arrangements on managing oil, gas and other seabed minerals, the Great Barrier Reef Marine Park, other marine parks, historic shipwrecks, shipping, marine pollution and fishing. In general, the states have responsibility for areas up to three nautical miles from the territorial sea baseline, which are termed 'coastal waters'.

[1] New South Wales v Commonwealth [1975] HCA 58; (1975) 135 CLR 337 (17 December 1975)
[2] Constitutional Powers (Coastal Waters) Act 1980

The following map details the various jurisdictional areas in offshore Western Australia. Each numbered area is controlled by the following legislative instruments:

1. Commonwealth Area - Offshore Petroleum & Greenhouse Gas Storage Act 2006 (The Petroleum (Submerged Lands) Act 1967).
2. State Area - Petroleum (Submerged Lands) Act 1982
3. State Area - Petroleum & Geothermal Energy Resources Act 1967

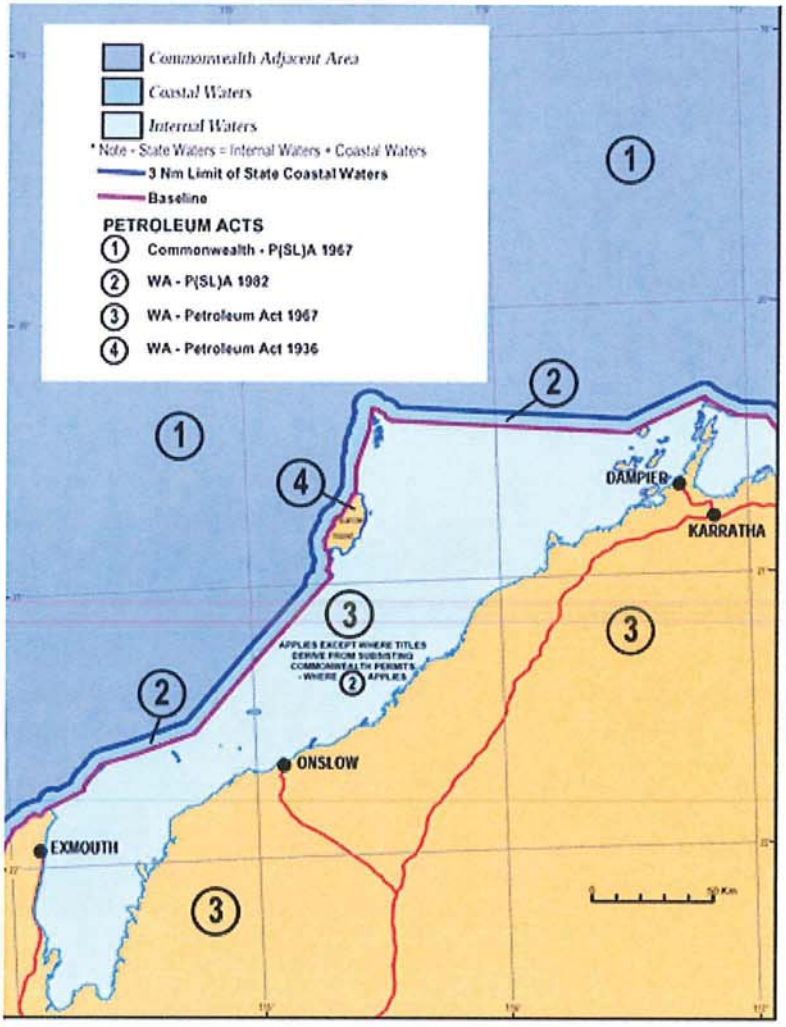

Figure 1. State & Commonwealth Offshore Areas

Following the enactment of the 1980 settlement a Designated Authority applied up until 2005, where the designated authority, DMP and its predecessor organisations, dealt with the day to day functions such as activity approvals, titles administration etc. The Joint Authority dealt with high level policy decisions, such as the granting of permits and the release of petroleum exploration acreage.

In 2005 the Commonwealth Government created the National Offshore Petroleum Safety Authority (NOPSA) to manage and regulate the occupational health and safety of offshore activities. In January 2012 the National Offshore Petroleum Titles Administrator (NOPTA) was created, which replaced the functions of the designated authority and expanded NOPSA's role to include environment regulation in the new

National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

3. Regulatory Jurisdiction for Resource Development

The present situation that applies in Commonwealth offshore areas (Figure 1. Area 1) is that the State Minister for Mines and Petroleum has an equal right, in the first instance, to approve major decisions with his Commonwealth counterpart. However, the Commonwealth Minister can override the State if he chooses to do so. The Commonwealth Offshore Petroleum and Greenhouse Gas Storage Act 2006, section 59(2) provides the Commonwealth Minister to override the state.

For example, the Commonwealth Minister for Resources and Energy The Hon Gary Gray AO MP, recently exercised this power to override Western Australia's objections to the variation of the conditions of retention leases WA-28-R; WA-29-R; WA-30-R; WA-31-R; and WA-32-R (Browse LNG Commonwealth retention leases). This is the first time in memory that these override powers have been exercised for a Western Australia offshore decision.

The typical sequence of petroleum titles begins as an exploration permit which is then progressed to a production license or a retention lease. A retention lease may be progressed to a production license should commercial conditions change to enable the viability of a production project. Work commitments are incumbent upon the holder of an exploration permit which typically includes seismic surveys and explorations wells. Conditions are placed upon holders or retention leases which typically include commerciality tests and field appraisal activities. Production license applicants are required, amongst other obligations to provide a Field Development Plan (FDP) for approval.

When considering commitment obligations particularly as they relate to retention lease conditions and FDP's, WA and the Commonwealth have often taken divergent views. WA considers that a company's commercial drivers may not be congruent with the overall interests to the people of Western Australia. WA considers that commerciality tests must also consider the interests of the state and be vigorously tested and validated. High-grading a resource to get maximum value in the shortest time frame is generally the most profitable approach. Temporary and transportable production equipment facilitate this approach.

4. Tax and Royalties

4.1 Petroleum Resource Rent Tax

The principal tax that applies in the offshore petroleum industry is the Petroleum Resource Rent Tax (PRRT). The PRRT is a secondary tax based on a project's profitability, and applies to all petroleum products from a project (i.e. crude oil, natural gas, LPG condensate but not value added products, such as LNG). PRRT is a profit based project tax.

PRRT is applied at a rate of 40 per cent to a project's taxable profit (project income less project expenditure, project exploration expenditure and exploration expenditure transferred in from other related PRRT projects).

Exploration expenditures that are not deducted in the tax year in which they are incurred can be uplifted and carried forward to be used as deductions in subsequent years. All project expenditures and payments of PRRT are tax deductible. All State and Commonwealth resource taxes will be creditable against current and future PRRT liabilities from a project.

On 2 November 2011, the Commonwealth government introduced the extension to the PRRT via a bill into parliament with the objective of delivering a fairer return to the Australian community from the extraction of its non-renewable resources. The PRRT regime was extended to all onshore petroleum operations from 1 July 2012. The expanded PRRT regime applies to taxable profits derived from a petroleum project in a financial year and is deductible against income tax. Taxable profit is calculated by deducting eligible project expenditures from the assessable revenue derived from the project. It will cover all Australian onshore and offshore oil and gas projects, including the North West Shelf.

4.2 Western Australian Resource Rent Royalty

In Western Australia, all minerals including petroleum and geothermal energy existing in their natural form are owned by the State, being held in trust by the Government on behalf of the community. The exception is where minerals are found on land which was allocated a freehold title before January 1899. When title to these nonrenewable resources is transferred to developers, the State expects a return to the community. Compensation in the form of a royalty is paid to the State for the use and loss of an asset. This principle is the basis of the State's royalty system.

For Western Australia Petroleum royalties are levied on petroleum production onshore, within coastal waters and on the North West Shelf Project. Total petroleum royalties collected in 2011 amounted to $949 million. This is approximately 18 per cent of all royalties collected in Western Australia (Figure 2.). The rate of royalty is normally set at between 10 and 12.5 per cent of the wellhead value of petroleum produced.

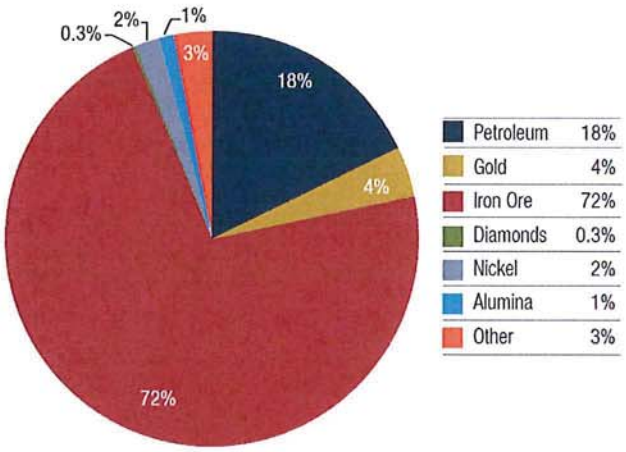

Figure 2. Royalty receipts collected in 2011 – Total value $5.3 billion: Source DMP

FLNG Developments located wholly within Commonwealth offshore areas, where state royalties do not apply, are not anticipated to have a direct effect on state petroleum royalties.

For any development of the Browse project, DMP recommends that the state's share of royalties is on production and not based on an arrangement to share PRRT over the whole project.

5. Browse Basin Retention Lease Resources in State Title Areas

On Tuesday 20th August 2013, Woodside Petroleum Ltd announced their recommendation to the Browse LNG Joint Venture participants that FLNG technology would be utilized to develop the three offshore Browse gas fields. Figure 3 below illustrates the title areas of the Browse LNG areas, two of which are state jurisdictional areas (R2 R1 and TR/5 R1), and 5 in the Commonwealth jurisdiction area.

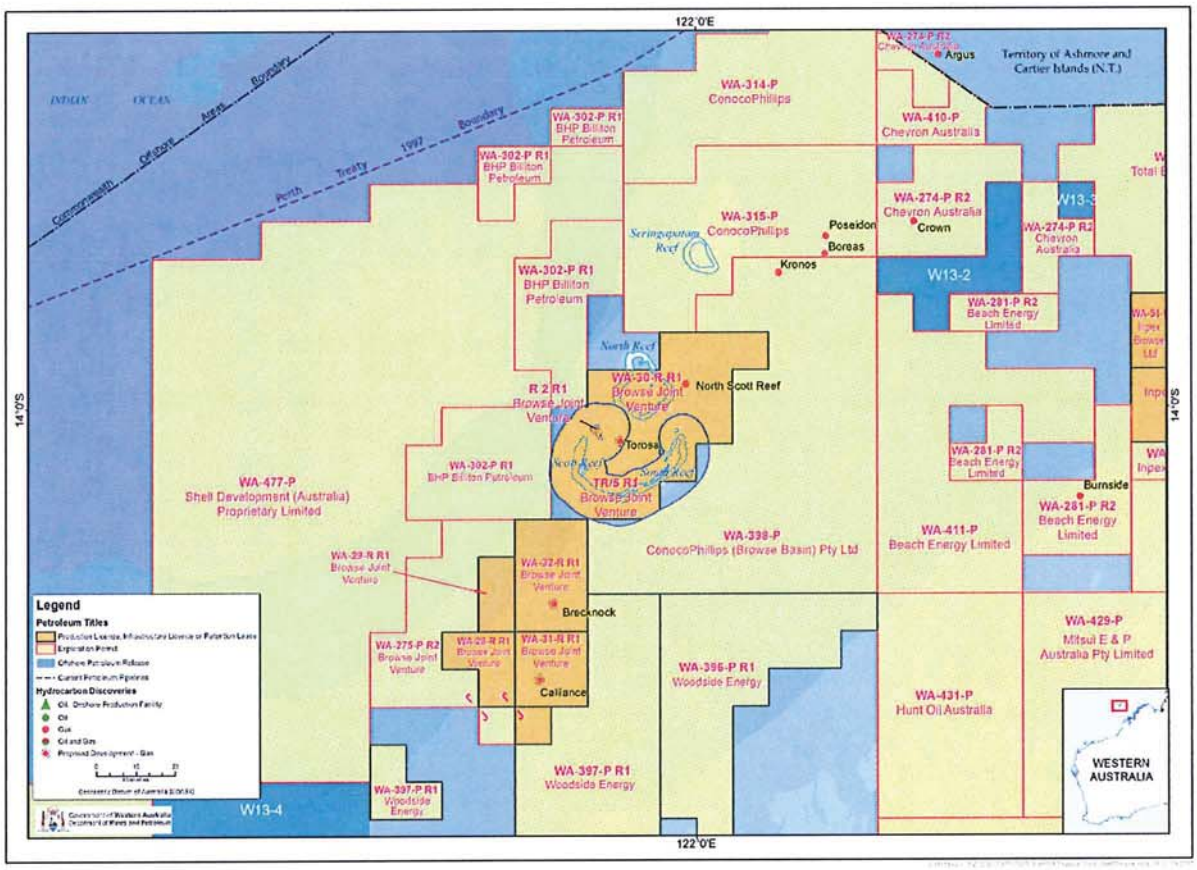

Figure 3. Petroleum title map of the Browse LNG Development

There is a difference in view between DMP and Woodside as to the amount of gas reserves that fall under WA state jurisdiction in the state retention leases on the Torosa gas field. Recently, Woodside indicated in a supplement to its "Commerciality Report" on the Browse Retention Leases that P50[3] gas initially-in-place (IIP) was approximately 2.6 trillion cubic feet (Tcf) for the state areas versus approximately 24.3 Tcf for the whole Torosa field. This indicates that Woodside considers that approximately 10.6% of the gas in Torosa lies within State areas.

DMP's independent studies suggest that approximately 7 Tcf gas IIP is more realistic based on sound engineering and geoscientific principles. Accordingly, DMP's independent studies indicate that approximately 32% of the Torosa field gas resides in the state and 16% of the total Browse Basin JV gas resides in the State Retention Leases.

[3] P50 denotes a 50% probability of exceeding the stated resource amount.

It should be noted that historically Woodside have reported the following numbers (P50), without technical justification:

Year	Gas (IIP, Tcf)	WA Share (%)
2003	22	32.1
2008	22.4	Not reported
2010	20.66	Not reported
2011	17.6	Not reported
2013	24.3	10.8

Typically, recoverable gas estimates are utilized as a basis for unitization negotiations or sharing of revenues. An issue is that recoverable gas proportions depend on the development plan. This is a particular issue for Torosa, where access for drilling production wells may be limited by the reef and due to thinning of the gas reservoir towards the north, which may limit the commerciality of drilling additional wells. At this time DMP estimates the total proportion is estimated to be between 5% and 15% of total recoverable gas resources for the Browse Basin LNG. DMP is endeavoring to refine this estimate

6. Domestic Gas Supply

Because FLNG does not require infrastructure in Western Australia, the WA Government has no opportunity to apply its 15% domestic gas reservation policy.

7. FLNG Technology

There are risks associated with FLNG technology, which is discussed below.

7.1 Technology Risks

FLNG is as yet, unproven technology. Shell Development Australia's Prelude FLNG project is the first such project in the world. This is in contrast to standard onshore LNG technologies commercially demonstrated by the first LNG exports from the Camel LNG project in Algeria in 1964. DMP considers that significant commercial risk remains as a 'steady state' production from an FLNG facility is not yet demonstrated.

DMP has some concerns around safety, particularly in regards to the close proximity of process machinery, LNG storage and offloading facilities to living quarters. It may take significant time, major reconstruction and, as a result, additional tax deductions to ensure all safety environmental hazard are properly managed once the FLNG starts full operation.

7.2 Resource Recovery – Tax and Royalty Revenue Loss

DMP has major concerns with the ultimate recovery of gas and gas condensate offered by an FLNG facility compared to other production facility types. Western Australia has had some considerable experience with Floating Production, Storage and Off-take (FPSO) oil production vessels, where seven are still operating in WA offshore adjacent waters.

It is worth noting that resolving FLNG "teething" problems which are inevitable for a new technology will all reduce the revenue return to the Commonwealth under the PRRT. Effectively the Australian community is providing a subsidy.

A FLNG facility operates along similar principles to an onshore facility but with lower capital costs and higher operational costs. These ongoing higher operating costs, coupled with the mobility of FLNG, could precipitate the abandonment of a producing gas field significantly earlier than a platform based facility. This earlier abandonment would result in less gas and condensate resources being recovered than might have otherwise been the case with a platform based facility. To illustrate this point, DMP estimates that approximately 10 million barrels of oil remain in the offshore Griffin field as the recovery of the remaining oil reserve became uneconomic with the FPSO operating there. For the WA portion of gas reserves, this could be a significant reduction in State royalty revenues.

Towards the end of a gas fields production phase, having a platform and infrastructure in place encourages ongoing production even when the margins are small. Whereas with a floating platform there will be pressure to move it to a higher margin field as quickly as possible. This drive to maximize profit for shareholders is understandable but it is not in the best interests of the WA community

8. Economic Benefits to Western Australia

DMP considers that should FLNG technology prove successful and evolves as the preferred development choice for offshore gas production in Australia, the State would want to give significant consideration as to how the maximum benefit can be derived from these projects and this new technology.

Using the Prelude FLNG project as a guide, Shell indicates that approximately $200 million per annum will be spent on operations and maintenance and that 75% of this could be spent in Australia. Shell has indicated that operations and marine logistics for the FLNG facility will be sourced from Darwin. However, the drilling supply base and aviation will be operated out of Broome.

Aside from direct supply and service opportunities, other indirect opportunities exist for the State based on providing a centre for technological support research and development for this new industry. This could occur, particularly considering that the first and possible second, third and fourth (Browse FLNG) FLNG projects will be located in WA offshore areas. WA could develop as a world centre of excellence for FLNG.

Existing petroleum sector research capability in Western Australia at Curtin, UWA and research teams of major petroleum companies are well placed to expand.

The Australian Marine Complex is a world class centre for excellence for manufacturing, fabrication, assembly, maintenance and technology servicing the marine, defence, oil and gas and resource industries, which could be expanded.
The Australian Centre for Energy and Process Training (ACEPT) is the leading provider of process operations training for the Australian oil and gas, mineral and chemical processing industries and it could be expanded.

9. References

WA Department of Mines and Petroleum: Western Australia's Petroleum and Geothermal Explorer's Guide (2012 Edition)
http://www.dmp.wa.gov.au/documents/121894_Explorers_Guide_Web.pdf