Submission to Senate Select Committee on Fuel and Energy

August 2010

Terms of Reference

The Senate Select Committee on Fuel and Energy was established to inquire and report by **30 August 2010** on ten key points.

In part, the Terms of Reference sought to inquire and receive comment on:

- the impact of higher fuel and energy prices
- the role of the Petrol Commissioner
- competition in the domestic energy market
- emissions trading scheme
    - future investment in fuel and energy infrastructure

It is worth noting that investment in fuel and energy infrastructure is included as a sub heading in the Terms of Reference under Clause 1.d and the impact of an emissions trading scheme.

Australia has a growing reliance on transport fuels, as do other nations, and in order to continue to satisfy that demand we need to provide the investment in fuel and energy infrastructure.

Whilst the impost of an ETS as proposed by the Government in 2009 could have increased the cost of fuel by more than 20 cents per litre, that cost would have been passed directly to the consumer and would not have had a direct effect on the investment required in order to meet the supply requirements of Australia.

The Terms of Reference for Clause 1.h.ii and 1.h.iv are:

- 1.h.ii increasing domestic oil/gas exploration and refinement activities, with a view to reducing Australia's reliance on imported oil,
- 1.h.iv securing Australia's future domestic energy supply:

These two points have to be considered together. Domestic production of oil and gas does not provide security of transport fuels if that crude oil is sent to an overseas refiner for processing.

What is Liquid Fuel Security?

The Department of Resources Energy & Tourism has produced 2 recent assessments to determine in part Liquid Fuel Security for Australia. The **Liquid Fuel Vulnerability Assessment (LFVA)** looked at the current position as at 2008 and forward to 2020 and the **National Energy Security Assessment (NESA)** looked at the current position as at 2008 and forward to 2023.

The **NESA** defines energy security as the adequate, reliable and affordable supply of energy to support the functioning of the economy and social development, where:

- ***Adequacy*** is the provision of sufficient energy to support economic and social activity;
- ***Reliability*** is the provision of energy with minimal disruptions to supply; and
- ***Affordability*** is the provision of energy at a price which does not adversely impact on the economy and which supports investment in the energy sector.

The NESA comments these three dimensions are interrelated and, to a large extent, mutually reinforcing. For example, if energy supplies are not adequate to meet the needs of the economy or community, the price of energy will need to rise or intervention in the market will be required to allocate scarce energy resources. However, if the price of energy rises to an extreme level, the affordability of energy will be reduced, thereby constraining economic and social activity.

The **National Energy Security Assessment (NESA)** further defines the level of energy security using classifications of low, moderate and high. The definitions are:

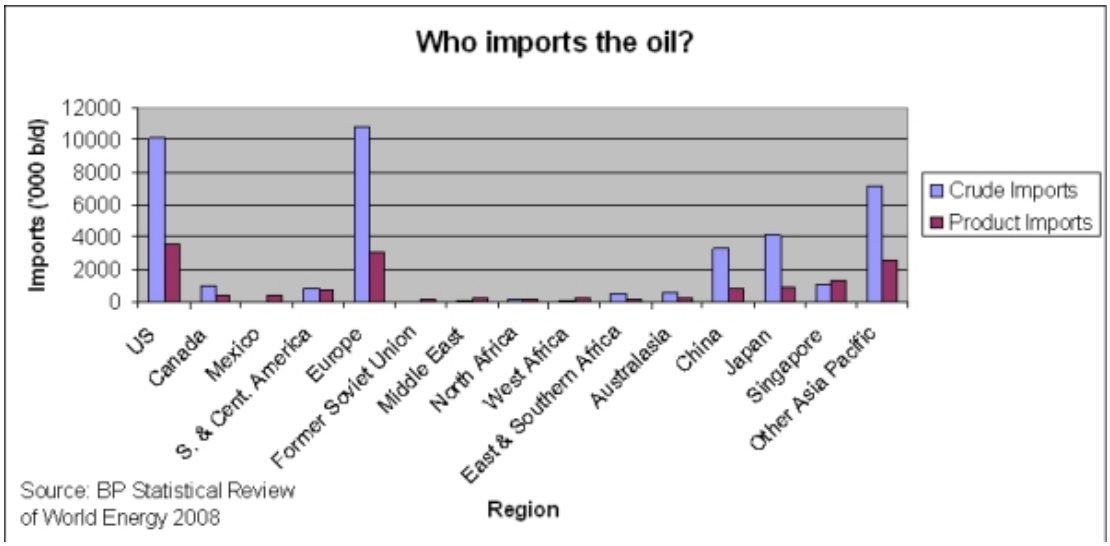
- ***Low*** is when the needs of Australia are not, or might not be met;
- ***Moderate*** is when the needs of Australia are being met, however there are issues that will need to be addressed to maintain this level of security;
- ***High energy security*** is when the needs of Australia are being met.

Based on **Energy Information Administration (EIA)** outlook for 2010 with projections to 2035, satisfying the growing world demand for liquids in the next decade will require accessing higher cost supplies of feedstock, particularly from non-OPEC producers.

Growth in non-OPEC production will come primarily from high-cost conventional projects in regions with unstable fiscal or political regimes and from relatively expensive unconventional liquids projects.
And with supply from the world's top 15 oil exporters, who provide more than 90 per cent of world oil export's in decline and demand for oil imports on the increase, there are signs there is going to be an issue with sourcing imports.

State owned refineries are actively entering into Term Contracts with oil producers in order to maintain continuity and security of supply.

Both the **Liquid Fuels Vulnerability Assessment (LFVA)** and **NESA** avoid this significant issue by stating that the diversification of oil supply sources is important without identifying that all oil importers will be attempting to diversify supply sources. The competition for oil exports will be intense and leads to the next issue: geopolitics.



The competition: At just over 1% of the demand for crude oil, Australia is a minor player in the oil import game. The competition will be intense to "diversify" supply.

The **NESA** states that the "longer term outlook for liquid fuel security will see increasing reliance on difficult geographic and geopolitical regions. This may result in price volatility." While price volatility is of concern, this statement significantly understates the potential for geopolitical problems resulting from dependence on oil imports. There have been identified a number of geopolitical feedback loops that will exacerbate the problem of declining oil exports.

A summary of the major feedback loops are:

Mercantilism

Declining oil exports will encourage nations to guarantee sources of supply through long term supply deals. China is particularly aggressive in this regards, signing recent deals with Brazil and Russia to secure long term oil supplies and investing in energy companies around the world. Energy mercantilism will further reduce the amount of oil available for importation and encourage other countries to lock up long term supply options.

Another option is military adventurism.

These feedback loops will reinforce each other and impact globally. For example Mexico will soon turn from major oil exporter to net importer. This will increase the scarcity of oil exports around the world exacerbating both the likelihood and impact of the other feedback loops. It is difficult to forecast exactly how geopolitical feedback loops will impact upon Australia's liquid fuel security but it is reasonable to expect that declining oil exports combined with geopolitical feedback loops will have a **negative impact** on Australia's oil supply. There is another feedback loop however that deserves a section on its own, and that is oil industry investment.

Investment

The **International Energy Agency's (IEA)** World Energy Outlook 2008 stated that there is a "real risk that under-investment will cause an oil-supply crunch" before 2015. This was prior to the full impact of the global financial crisis. A recent report from the **IEA** suggested that global energy sector investment will fall by 21 per cent in 2009 with projects the equivalent of 6.2 million barrels a day, around 8 per cent of current world oil production, being cancelled or delayed. *The Economist* warns that investment shortfalls will result in another oil price spike when global demand for oil recovers.

In 2009 the **IEA** further reports a tightening in refined products, in particular middle distillates as strong demand growth outruns refinery additions. That situation is already occurring in Australia.

The investment feedback loop suggests that a lower oil price, resulting (at least in part) from economic recession triggered by high oil prices will lead to falling investments and increase the likelihood of future oil shocks. The **NESA** acknowledges that there is a risk of a supply side crunch however not until 2018 is this seen as a concern.

Current events would indicate that this supply crunch is likely to occur much sooner. Treasury expects economic growth of 4.5 per cent in 2011-12.

This is about the same timeframe that the next oil shock is likely to occur. If the link between oil price spikes and economic recession holds, then it is hard to see how this recovery will be possible.

The current cost of imported petroleum products is approximately US$19 million per day, exclusive of Excise and GST.

Value of Imports - Current - to June 30, 2009

					Rate 38.143		Rate 0.7	3.78533	42
	Import Vol Per Day	AUD Value cent per ltr	Net GST	GST Value	Excise	Net Value	Value US$	Value Gallon	Value Barrel
	282,000	*1.10*	1.00	0.10	0.38143	0.62	0.43	1.64	68.84
Value USD Per Day	$19,412,838								
Value USD Per Annum	$7,085,686,007								

Source: Extract Table 4. Imports of Petroleum, Australia. Issue No. 156 – July 2009

With the impending closure of 2 refineries located in Sydney and Melbourne, the total import requirement will be in the order of 440,000 barrels per day (70 million litres per day) for a value of almost US$40 million, exclusive of Excise and GST.

This is the equivalent of 2 oil tankers every day of the week.

Value of Imports - Post 2012

	Import Vol Per Day	AUD Value cent per ltr	Net GST	GST Value	Rate 38.143 Excise	Net Value	Rate 0.9 Value US$	3.78533 Value Gallon	42 Value Barrel
	445,000	1.10	1.00	0.10	0.38143	0.62	0.56	2.11	88.51
Value USD Per Day	$39,386,230								
Value USD Per Annum	$14,375,973,890								

Source: Extract Table 3. Australia Petroleum Statistics & IEA – July 2009

Australian will need to import more than US$15 billion of finished petroleum fuels post 2012, which will have an impact on our balance of trade.

A more realistic liquid fuels security assessment

The real weaknesses of the both the **NESA** and the **LFVA** are not the analysis themselves but the questions that are not asked and hence not answered. Considering these key questions, namely declining oil exports, geo-political feedback loops and the investment outlook provides the opportunity to make a more realistic appraisal of Australia's liquid fuel security as detailed below:

	Current	2013	2018	2023
Adequacy	High	Moderate	Low	Low
Reliability	High	Moderate	Moderate	Low
Affordability	Moderate	Low	Low	Low
Overall	**High**	**Moderate**	**Low**	**Low**

- ***Adequacy:*** the adequacy of Australia's future oil supply based upon this model suggests that **Australia's fuel supply could fall short of projected demand by over two thirds by 2025.**
- ***Reliability:*** the increasing impact of geopolitical feedback loops over time and the requirement to increase the length of our oil supply chain will reduce reliability of supply.
- ***Affordability:*** oil prices are likely to remain volatile over the longer term however the overall trend will be up.

ACIL Tasman has produced a report on August 24, 2009 titled **Petroleum import infrastructure in Australia** for the Department of Resources, Energy and Tourism.

The document offers a detailed description of the Australian petroleum import infrastructure.

In particular to this submission the report has a reference to two Australian ports and the existing infrastructure and resultant berth congestion, scheduling inefficiencies and costs.

The Holden Dock located in Melbourne is one berth and the Bulk Liquid Berth in Port Botany is the other.

And both of these cities currently host 2 refineries and within a short period they will be host to 1 refinery in each city.

This will create an immediate import requirement of 78,000 bpd (12.5 ML per Day) in Melbourne and 85,000 bpd (13.5 ML per Day) in Sydney.

This import requirement would have to be supplied by the most cost efficient vessels working within the port and berth restrictions. In the case of Holden Dock there is a berth restriction in relation to the maximum LOA (Length Overall) which will see most current double hull MR (Medium Range) clean products tankers excluded or seeking dispensation in order to berth.

With an immediate requirement of one MR tanker every 36 hours after the closure of the Altona refinery, the berth will become congested. Given the imported product would have to be scheduled some 28 days in advance, any delay in shipping will see a "stock-out" of petroleum products in Victoria.

A similar scenario faces the Bulk Liquid Berth in Port Botany. Whilst this berth has less vessel restrictions than Holden Dock, this berth is designed for multi users and already experiences delays.

In each scenario the issue is future berth congestion and the ability to schedule efficiently cargoes of petroleum products 28 or more days in advance, from refineries located in the Far East or the Sub Continent.

Australia will be in a position of having to rely upon our transport fuel needs being met by overseas refineries, which have no vested interest in security of supply for Australia.

This fact applies from today through to 2030 and beyond.

The continued reduction in refining production capacity over the past 2 decades has increased our dependence on imports of petroleum products, which is currently 30% of market demand.

The significant rationalisation since 1980 resulted in four refining companies operating seven refineries, due to changes in the Australian Fuel Standards and the cost of upgrading and maintaining equipment and infrastructure originally developed during the middle of the last century. As a result there have been closures of:

- The Total Oil refinery at Matraville in Sydney in 1984 (12,000 bpd)
- The BP refinery at Westernport (Victoria) in 1985 (60,000 bpd)
- The Mobil Oil refinery at Port Stanvac (South Australia) in 2003 (100,000 bpd)

The Shell refinery in Sydney (85,000 bpd) and the Mobil Altona refinery (78,000 bpd) are slated to close before the end of this decade.

The result is 335,000 bpd less domestic refining capacity than in 1980.

"The Australian economy is heavily dependent on petroleum based products. Australia has enjoyed a high level of petroleum self sufficiency for many years thanks to its crude oil reserves and refining capacity. Australia has also enjoyed ready access to cheap sources of petroleum from Asian refineries. These factors have negated the need for the Government to establish a strategic oil stockpile in Australia.

Australia's level of self sufficiency is forecast to decline in the next ten years as local production of crude oils and condensate decreases. This coupled with a reduction of refinery capacity in Australia is expected to see Australia move to being a net importer of liquid petroleum products.

While the Australian Government believes that the establishment of a strategic stockpile in Australia is not required, it is taking a number of steps to prepare for possible disruptions in fuel supplies and identifying ways in which Australia's declining levels of self sufficiency can be addressed."

Extract from Oil Supply Disruption Management Issues 7 April 2004 – Presentation to IEA Workshop

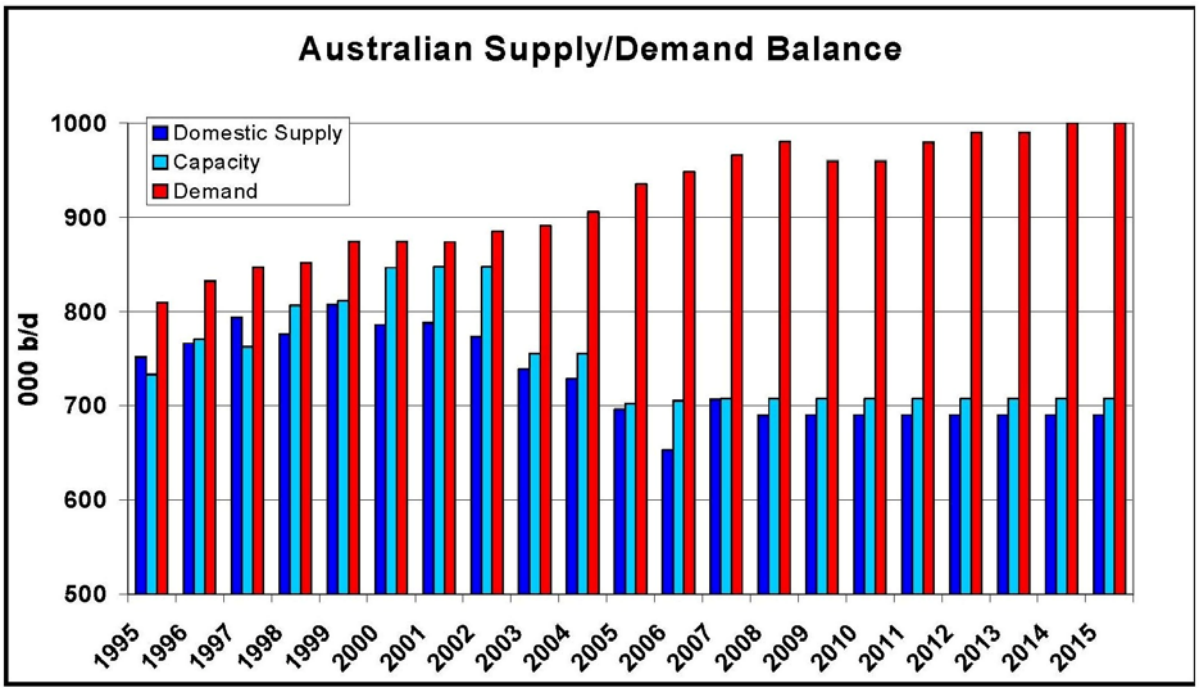
The **NESA** and **LFVA** both make mention of requirement for additional infrastructure in order to meet the demands for imports of finished petroleum products, however the issue has not been addressed by Government or the current industry participants.

Australian ports for the discharge of bulk liquid petroleum products have major bottlenecks at 2 or the largest petroleum products markets in Sydney and Melbourne.

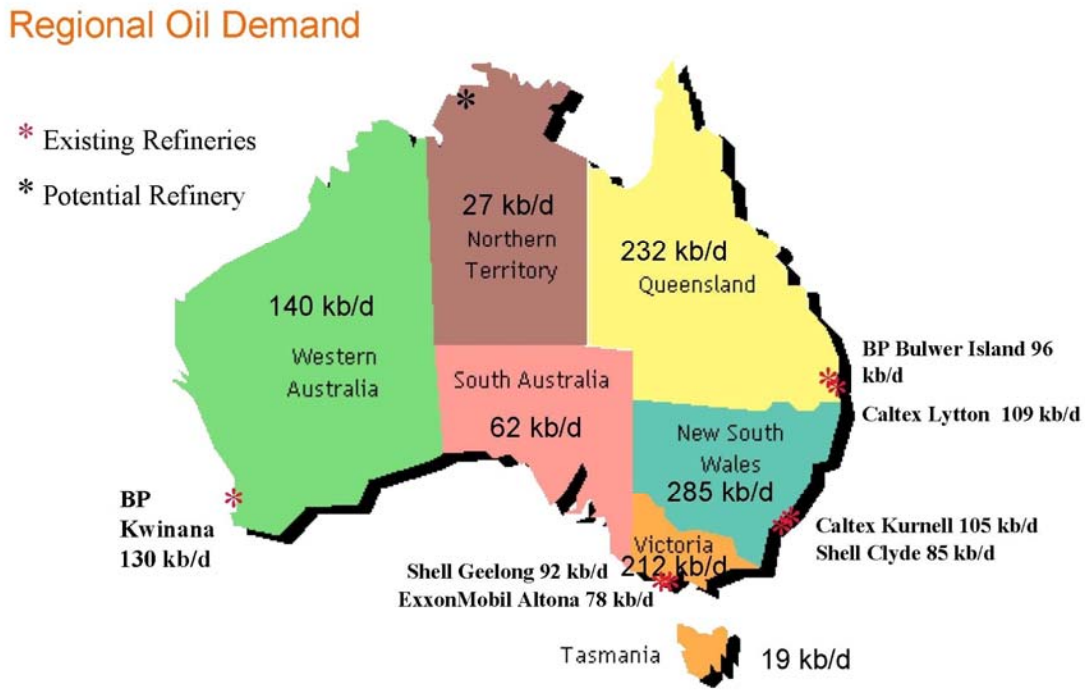
With the closure of the Mobil refinery at Altona in Melbourne and the Shell refinery at Clyde in Sydney, there will be an immediate additional import requirement of 160,000+ barrels per day or the equivalent of a fully laden Medium Range (MR) petroleum product tanker every 36 hours.

According to Oil and Gas Journal (OGJ), Australia had 1.5 billion barrels of proven oil reserves as of January 1, 2009. The majority of these reserves are located off the coasts of Western Australia and the Northern Territory.

The current imported transport fuel requirements are serviced by suppliers in regions considered in the **NESA** which will see "increasing reliance on difficult geographic and geopolitical regions".



Supply Demand Balance – Does not take into consideration the closure of Shell & Mobil refineries



Conclusion

On the face of it, both the **NESA** and **LFVA** appear to be a comprehensive analysis of Australia's liquid fuel security situation. However, both reports ignore or avoid the critical issues that will impact upon Australia's future liquid fuel supply. This results in an inappropriate assessment of Australia's liquid fuel security. The unfortunate consequence is that Australia is likely to face significant economic and social hardship over the next few decades as our liquid fuel security declines.

The disappointing aspect is that much of this hardship could be avoided through a realistic liquid fuel security assessment and appropriate policy responses.

The **ACIL Tasman Petroleum import infrastructure in Australia** report of August 24, 2009 under the Terms of Reference sought outcomes whereby the Department is seeking a comprehensive evaluation that examines current and forecast supply and demand for imported crude oil and petroleum products, and the capacity of Australia's existing import infrastructure (specifically major ports, refineries, terminals, loading and storage facilities and pipelines and other distribution infrastructure) to meet our expanding petroleum import requirements as well as identifying any barriers to competition or impediments to efficient investment.

To some extent the NESA and **LFVA** are at odds with the ACIL Tasman report on import infrastructure.

What is clear however is that the assessments and the report do not address the issue of the loss of domestic refining capacity and how to correct the obvious impediment to Australia's liquid fuel security.

Immediate refinery investment and further development of the associated ports infrastructure will significantly enhance liquid fuel security for Australia.

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August 09, 2010

With Reference to:

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