

The Secretary
Senate Rural and Regional Affairs and Transport Committee
Parliament House
CANBERRA ACT 2600



Inquiry into Australia's future oil supply and alternative transport fuels

The committee is strongly urged to recommend that Australia take immediate and significant steps to prepare for Peak Oil. The long lead-times of preparatory actions means that any delay may have serious economic and social consequences.

"The cost of preparing too early is nowhere near the cost of not being ready on time" (Minister MacTiernan, speech, 2004)

This submission represents the collective wisdom of a large number of senior staff within the WA Department for Planning and Infrastructure and other Western Australian Agencies. The conclusions drawn and the recommendations made come from years of practical experience and are supported by a large volume of case studies, research projects, scientific papers and literature.

In the interests of readability, the submission language is informal and detailed explanations of underlying concepts have been avoided. We have assumed that after reading many similar submissions, the readers will be sufficiently familiar with the concepts involved.

The Senate is to be congratulated for holding this long overdue Inquiry into Australia's Transport Energy. We collectively thank you for your efforts in this critical field and hope that any recommendations the committee makes are quickly translated into policies, actions, funding opportunities, research and legislation.

Should you have any further queries in relation to this submission, please do not hesitate to contact Mr Glen Head, Director Perth Fuel Cell Bus Trial & Transport Sustainability on 08 9216 8498 or ghead@dpi.wa.gov.au

Various links and descriptions of Western Australian responses to the issues raised by this Senate Committee have been included at the end of this document.

Comments on Inquiry Terms of Reference

a. Projections of oil production and demand in Australia and globally and the implications for availability and pricing of transport fuels in Australia;

The Department accepts evidence showing that new oil discoveries and production capacity will at some point in the near future not be able to keep pace with demand (see speeches made by the Minister for Planning and Infrastructure, attached). This scenario is commonly referred to as 'peak oil'.

Timing:

Regardless of whether this point occurs in 5 years or 25 years, unless strong leadership is shown by both Commonwealth and State Governments, backed by industry and the community, the Australian economy and society are likely to face significant upheaval.

It should be recognised that any government-led initiatives to minimise the impacts of the peak oil scenario will have long lead-times and should therefore be initiated as soon as possible.

Technological Fix:

Exploiting lower-grade and more difficult to extract sources of oil (shale oil, tar sands etc.) may well become economically feasible, but only after significant increases in the wholesale price of oil. For example, the price of oil has effectively doubled in less than two years, and yet these alternate reserves are still not considered viable. Prices may have to rise for a sustained period in order for these sources to become viable, which could have severe economic and social consequences.

b. Potential of new sources of oil and alternative transport fuels to meet a significant share of Australia's fuel demands, taking into account technological developments and environmental and economic costs;

As a general rule, new transport fuels should contribute positively to all three of the aims highlighted below:

- Reduce national vulnerability to transport fuel price rises;
- Increase fuel security (by reducing need to import from politically unstable regions);
- Significantly reduce greenhouse gas emissions, which cause climate change.

Environment:

While the first two points above are self-explanatory, the third may require some explanation. Both Europe and some parts of North America are taking significant policy and pricing steps to reduce their dependence on imported oil primarily to reduce their greenhouse gas emissions and moderate or avoid climate change. As the consequences of climate change in Australia become more readily

identifiable and pronounced (altered rainfall patterns, desertification, salinity, changed vector-borne disease ranges, coastal erosion, more severe weather events etc.), it may become necessary to limit the use of fossil fuels – even cleaner, domestically produced fuels – for such low-grade tasks as being burned directly for transport outcomes.

Biofuels:

Biofuels should not generally be considered as a large-scale replacement for oil unless feedstock crops can be grown without contributing to the degradation of the land (salinity, top-soil erosion, reduction of native vegetation) and can use water sustainably. It is essential that we avoid exchanging one set of problems for another.

A potentially sustainable source of biomass for production of transport fuels is various waste streams (woodchips, municipal waste, crop stubble, used oils etc.). While the quantity of materials available, along with the technical challenges of converting them to transport fuels of consistent quality, suggest that these sources will at best replace only a relatively small proportion of fossil fuel use, the State Government nevertheless believes that the potential of biofuels should be explored further. It therefore established a Biofuels Taskforce in January 2006, which is to report to Parliament within the next 12 months. The group will work with industry to provide recommendations and strategies on issues including:

- the impediments to the development of a **biofuels** industry in WA;
- consumer acceptance of **biofuels**; and
- the cost-effectiveness of using **biofuels** as alternatives to petrol and diesel, particularly in regional areas.

The Department is a member of this Taskforce.

Natural Gas:

LNG, LPG, CNG, LCNG and Gas-to Liquids technology may address the short term price volatility and fuel-security points made earlier, but fail on the greenhouse gas / climate change criteria. As with peak oil, local gas production too will at some point be unable to keep pace with demand, thus leading to a repeat of current challenges. If used for transport, WA reserves may last only between 20 and 50 years. These two factors suggest that careful consideration should be given to the challenge of balancing the research and investment aimed at progressing natural gas transport fuels, against the possible benefits of working to bring forward the implementation of longer-term solutions, such as transport that relies on domestically sourced, truly renewable resources.

Renewables / Hydrogen:

Renewable energy sources include a combination of solar, wind, hydro (existing, not new), geothermal, tidal and wave power. These can be used to produce electricity, which can either be used directly to power vehicles (battery) or can be

used to generate some other energy-carrier such as hydrogen or compressed air which can be used as a transport fuel. These options meet all three criteria above, in that prices per kW are falling for each of these electricity production methods (thereby offering pricing stability), the mechanisms for generating, converting and storing the electricity are, or could be, all local technologies (thereby offering fuel security) and do not involve large-scale greenhouse gas emissions.

Geo-Sequestration:

Geo-sequestration may offer a short-term way of using Australia's natural gas resources without contributing to climate change. Again, any investment needs to be made with the knowledge that, at current extraction rates, our natural gas reserves are estimated to last about 80-130 years. If natural gas were to be used to offset a significant proportion of our transport fuel needs, extraction would need to be increased by several hundred percent, thus reducing the availability to perhaps 20-50 years and begging the question: "Should significant funds be invested in a solution that will last such a short time?"

The Department of Industry and Resources (DoIR) provides information on WA natural gas reserves – the links to these publications are provided in the attachment.

c. Flow-on economic and social impacts in Australia from continuing rises in the price of transport fuel and potential reductions in oil supply;

Personal mobility, usually via the private motorcar, is taken for granted by the vast majority of Australians. Australians regularly travel relatively long distances for work, for recreation, for shopping and for social interaction.

Equity:

If transport costs were to increase dramatically, the burden would fall disproportionately on the less affluent sectors of our community, especially those living in the outer suburbs, with less access to amenities and public transport.

Typically, these people are least able to afford newer, more fuel-efficient vehicles, need to accept work wherever it may be (often far from home) and are most in danger of suffering social isolation as a result of reduced mobility.

Further, increased transport costs would likely dampen real-estate prices in outlying areas (thus further burdening the less-affluent) and increase the value of inner-city properties that have access to amenities and public transport.

These factors reiterate the need for strong investment in accessible public transport and more integrated transport and land use planning, as is being undertaken in Western Australia.

Goods and Services:

Every local and imported product has a 'transport' component, typically varying from 1% to, in some cases, more than 50%. The same applies to many services. Increases in transport fuel prices will be reflected in higher prices for goods and services. The viability of some particularly vulnerable industries – where the transport component of production costs is high (such as fresh produce growers who supply distant markets) – may be at risk.

Economy:

Globally, higher transport fuel prices (and supply interruptions) can reduce overall economic activity and investment, with particularly onerous implications for primary-resource-exploiting nations like Australia. Demand for Australian ores and commodities is predicated on continued global economic growth.

d. Options for reducing Australia's transport fuel demands.

There are a number of options for reducing our reliance on imported fossil fuels that can be described as 'No Regrets' options. In other words, these options have significant social, environmental and economic benefits regardless of how long oil and gas supplies last and regardless of whether fuel prices increase or not. In other words, they make just as much sense if the techno-optimists turn out to be right, or if the doomsayers end up being right.

- Improve urban planning (as with WA's Network City and Transit Oriented Development (TOD) strategies – see links attached);
- Invest in public transport, with an emphasis on pre-investing into greenfield development sites so that new residents do not develop car-intensive transport habits (see Perth Southern Rail Project link);
- Invest in walking and cycling paths and facilities; thus making non-motorised transport more attractive (see cycling link);
- Encourage use of more fuel-efficient private motor vehicles (through appropriate incentives, regulation, and legislation);
- Comprehensive travel demand management public education initiatives such as Western Australia's TravelSmart (see link below);
- Removing perverse subsidies (rework FBT & Import Duties) that reward additional travel and/or fuel consumption.

The above 'no-regrets' initiatives offer long-term multiple benefits to society at low overall cost.

Further suggestions for measures beyond the no-regrets options highlighted above can be found in the interim report of the Western Australian Transport Energy Strategy Committee on the Department for Planning and Infrastructure website (http://www.dpi.wa.gov.au/mediaFiles/greentrans_tescinterimreport.pdf).

It should be noted that the activities advocated within this submission will have little chance of coming to fruition without the strong support of both the community and the business sector. As such, education and awareness should be government's highest priority, aimed at generating a groundswell of support for initiatives that reduce Australia's need for fossil fuels.

Components of such an education and awareness campaign might include:

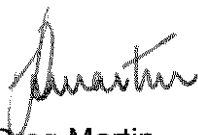
- Public involvement in framing the debate and setting over-arching goals;
- Strong Government policy statements (public acknowledgement of the scope and nature of the challenges we face);
- Governments having a clearly articulated strategy for getting us from where we are, to where we want to be;
- Willingness to sign international agreements;
- Willingness to establish firm performance targets to encourage industry research and investment;
- Correction of perverse subsidies, such as Fringe Benefits Tax, which encourage/reward increased travel;
- Significant (matching) Government investment in technology development and technology trials;
- Government investment in new (desirable) technologies for Government use; and
- Pursuing 'no-regrets' options vigorously in a highly visible way.

Conclusion

Thank you once again for providing the opportunity to contribute to the Inquiry.

Should you have any further queries in relation to this submission, please do not hesitate to contact Mr Glen Head, Director Perth Fuel Cell Bus Trial & Transport Sustainability on 08 9216 8498 or ghead@dpi.wa.gov.au

Yours sincerely



Greg Martin
Director General

28/3 /2006

Western Australian Responses to: Increasing fuel prices, uncertainty of supply and greenhouse emissions from transport

While there is disagreement on the precise timing of the peak in oil production, whether it is 2010 or 2035, it is certain that cheap and available oil will become more and more scarce as the demand for it grows.

As WA's Minister for Planning and Infrastructure, Hon Alannah MacTiernan, said in opening a conference on this same subject in August 2004, "it is also certain that the cost of preparing too early is nowhere near the cost of not being ready on time". The Western Australian Government recognises that our continued dependence and reliance on oil makes us vulnerable to future shocks and at the same time is negatively affecting our environment. For our future viability – economically, socially and environmentally – we must build resilience into our system.

The Western Australian Government has started this process in several ways, by:

- Introducing measures to diversify our fuel sources.
- Investing heavily to bring about behavioral change that reduces our dependence on the motor vehicle.
- By introducing policies that aims at reducing the transport task and/or which sees the transport task delivered with less fuel.

Some of these measures are described below.

Adding diversity

The State Government has committed to moving towards a better mix of fuels – for both environmental benefit and economic resilience.

Gas buses

On coming to government in 2001, the new State Government was faced with a contract entered into by the previous government for over 800 diesel buses. This contract has now been renegotiated and since 2002 only gas buses have been purchased for the metropolitan area. The Government will take possession of another 300 of the Euro 4 emission standard buses during the next few years. The Euro 4 dedicated compressed natural gas (CNG) engine has significantly lower emissions than those of the Euro 3, which is the requirement of the latest Australian design rules, and is well in advance of Australia's environmental standards, thereby making WA a leader when it comes to providing a clean, green public transport system.

Fuel cell bus trial

Perth is participating in the world's major trial of hydrogen fuel cell buses. Perth is one of eleven cities investing in this project, which is critical to developing this technology to commercial feasibility. Since September 2004, three Daimler-Chrysler hydrogen fuel cell buses have been used on normal Transperth service routes. The State Government has invested around \$10 million in the project.

The State Government has also entered into an agreement with Murdoch University that will see a series of research programs examine the environmental, economic and social impacts of hydrogen-based transport.

LPG vehicle subsidy scheme

Though the cost of gas is much cheaper than petroleum products, the up-front conversion cost is creating resistance in our motorists. The State Government has a \$500 vehicle subsidy to address that problem. The take up rate has been modest with an average of around 1500 claims per year.

Reducing automobile dependence

Perth has a high level of automobile dependence. To address this requires a major boost in our public transport infrastructure. ABS data shows lowest usage of public transport in areas without rail access. Initiatives being taken by the State Government to address this issue are summarised below.

New Metrorail

The centrepiece of the State's public transport expansion program is the new Metrorail project to the rapidly growing city of Mandurah south of Perth. However, the new Metrorail project is more than just a rail line to Mandurah. The project will effectively double the size of Perth's urban passenger rail system, adding over 80 Kilometres of track on three lines and doubling the number of railcars. The new southwest line alone will service almost 400,000 people, or almost one quarter of Perth's population, on commencement. The rail expansion is expected to carry almost 35,000 people each weekday when services commence and remove well over 25,000 vehicles a day from our freeways. It will replace over 10 million motor vehicle journeys each year with a significant benefit to our air quality. The patronage on the new southwest line will result in up to 15 million litres of fuel saved each year on work trips alone.

Improving the public transport system

The State Government is also improving the existing public transport infrastructure by making it safer, more accessible and easier to use. Investments include:

- Acquiring around 75 new gas buses each year to keep the fleet modern;
- Delivering a train safe program including guards on every train, CCTV and secured parking;

- Trials of a Smartrider ticketing system which will enable quicker, easier ticketing and the introduction of fare gates at major stations.
- A \$15.8 million 'building better stations' program, including major upgrades to six existing stations.
- The modernisation of the country coach fleet, rail services and town bus services.

Expanding the cycling network

Cycling is massively underdone in WA particularly when considering the State's climate and topography. To turn this around requires investment in quality infrastructure and sophisticated promotion and education. Since February 2001, in excess of \$60 million has been spent on cycling infrastructure across the State, an unprecedented expenditure in quality infrastructure.

This infrastructure, together with creative promotion, is paying off with the number of cyclists making use of the Perth bicycle network more than doubling over the past five years. Indeed, over the past four years, the Government has built 184km of bike paths in the metropolitan area and 183km of bike paths in regional areas. More than 350km of on-road bike facilities have also been created across the State.

A recently released national report, 'Exercise, Recreation and Sport Survey Annual Report 2004', a joint initiative of the Australian Sports Commission and State and Territory departments of sport and recreation, found that Western Australia had achieved the largest growth in cycling in Australia, overtaking Victoria to become the main cycling State in Australia.

TravelSmart

WA has been an early champion of this individualised behaviour management program. Since 2001, the Government has invested \$4 million with great results. So far it has been offered to 158,000 people across 9 communities in the metropolitan area. Significant shifts in behaviour have been achieved – such as average 13% reduction in kilometres of car travel. There has also been an average 67% increase in cycling trips, 25% increase in walking trips and 20% increase in public transport trips. TravelSmart also saves householders money – recent results from the City of Melville project indicate a saving per participating household of \$500 per year in car running costs.

More recently, four workplaces adopted the TravelSmart Workplace Program and successfully developed their own Green Transport Plan to reduce single-occupant car trips to and from work. Another three businesses also reviewed their Green Transport Plans with assistance from the Department.

Reducing the transport task

Reducing the transport task requires the integration of transport and land use planning. The State Government has fused the former Ministries of Transport

and Planning into the Department for Planning and Infrastructure, and has transferred Main Roads planning function into that agency.

The Government has undertaken a whole series of initiatives to get more cohesion in planning. For example, the Freight Network Congress devised a plan to move freight more efficiently between port and industrial areas. Among other things, the plan seeks to increase the use of rail through Fremantle Port from 3% (2003) to 30% (2012/13) and to significantly increase truck efficiency by reducing one way movements and encouraging more containers per vehicle.

The 'Dialogue with the City' community planning forum conducted in 2003-4 is providing the framework for containing sprawl and building more dynamic, networked local centres around transport nodes.

The 'building better stations' and 'transit oriented development' programs will also see more dense development around rail stations and transport corridors.

Vehicle fleet policy

To get the same mobility for less fuel, the State Government is leading by example in the choice of cars for our government departments.

In the Planning and Infrastructure portfolio, for example, a policy has been introduced to increase the number of 4 cylinder vehicles in the fleet. We have increased the proportion of 4 cylinder vehicles from 20% to more than 40% and that proportion will continue to increase. We have also increased the number of Toyota Prius hybrids in our fleet to more than 22 – with additional vehicles on order.

LINKS

Cycling:

<http://www.mediastatements.wa.gov.au/media/media.nsf/d3ea7ba6c70aeaae48256a7300318397/ce8ad6c787ed1e6a482570ee0022a1e6?OpenDocument>

TravelSmart:

http://www.dpi.wa.gov.au/mediaFiles/tsmart_highlights.pdf

Network City:

<http://www.dpi.wa.gov.au/networkcity/1214.asp>

Transit Oriented Development:

<http://www.patrec.org/conferences/TODJuly2005/TODJuly2005.html>

Perth Southern Rail Project (New Metro Rail):

<http://www.newmetrorail.wa.gov.au/Default.aspx?tabid=165>

Western Australian gas reserves:

http://www.doir.wa.gov.au/documents/mineralsandpetroleum/2004_yearly.pdf

[http://www.doir.wa.gov.au/documents/mineralsandpetroleum/Reserves_0304\(1\).pdf](http://www.doir.wa.gov.au/documents/mineralsandpetroleum/Reserves_0304(1).pdf)