DGP Sub 4

Dr David Worth
Past-Convenor
Sustainable Transport Coalition of WA Inc
PO Box 3383
Perth Adelaide Tce, WA 6832

d.worth@bigpond.com
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Dr Mike Nahan
Chairman
Economics and Industry Committee
Parliament of WA
1/11 Harvest Tce
West Perth WA 6005

Dear Dr Nahan

SUBMISSION TO EISC INQUIRY INTO DOMESTIC GAS PRICES

The STCWA is a nonprofit organisation that has been campaigning to make Perth less car-dependant since 2001. Attached are copies of various policy papers prepared by STC over the past 5 years on energy topics. Since 2003 the STCWA has also:

- held major conferences on oil and gas issues.
- briefed various organizations on oil and gas issues (such as BP Australia, Public Transport Authority, Australasian Fleet Managers Association and APPEA).
- made submissions to government inquiries.

The STCWA is keen to make this submission to your inquiry, especially in terms of its ToR "(3) That the Committee make recommendations on any measures that could be implemented to reduce the price of gas in Western Australia."

The STCWA believes that people in Western Australia should pay MORE, not less, for their consumption of future oil and gas products.

This is because:

i) lower prices will lead to an increase in the inefficient consumption of these products. WA must find a way to LOWER our consumption of these fuels, such as the automatic annual price increment put in place in 1988 by British Prime Minister Mrs Margaret Thatcher.

ii) these are key non-renewable fuel sources, especially for the transport and domestic housing sectors in WA. As we show below, the world's production of oil peaked in 2005-08 and natural gas will be the key bridging fuel to an electricity-based transport system, especially for the State's major cities.

iii) WA has only 1-2% of the world's gas reserves, most of which are locked into long-term contracts and therefore the 15% of the State's reserves available to the WA government should be carefully used for key transport and domestic heating purposes.

Summary of the STC's lobbying on these issues

In 2003 the STC held the 'Beyond Oil' conference in Perth. Speakers warned of the looming peak in world oil production but there was no agreement on when this peak would occur. The then-West Texas Intermediate (WTI) oil price was about US$30 per barrel, up from a historic band of US$20-25 per barrel maintained by OPEC for the previous decade. A second conference in August 2004 titled 'Oil: Living with Less' hosted a well-regarded speaker from Iran's National Oil Company who briefed the WA Cabinet on the impact of the peak of world oil production, which he saw occurring in 2006-07. World oil prices went through US$40 per barrel and petrol in Perth rose above $1 per litre for the first time during that conference.

The figure below compares the price-projections for WTI made by the STC, WA Treasury officials in budget papers, and Commonwealth ABARE forecasts over the time that the STC has been lobbying on these issues. The projections made by the STC have been the most accurate over the past 6 years due to our underlying assumptions about a near date for the peak of world oil production.

Figure 1- Oil price predictions, 2003-09

Date Made	For Year	WA Treasury		ABARE	Actual WTI	STCWA	
Mid- 2003	2004	$22	✗	$22	**$56**	**$40-45**	✓
Mid- 2004	2005	$24	✗	$24	**$70**	**$60-70**	✓
Mid- 2005	2006	$30	✗	$35	**$77**	**$70-80**	✓
Mid- 2006	2007	$68	✗	$60	**$100**	**$80-100**	✓
Mid- 2007	2008	$67.50	✗	$58	**$145**	**$120-150**	✓
Mid- 2009	2009-10	$55.80	✗	$56	**$65-85**	**$80-100**	?

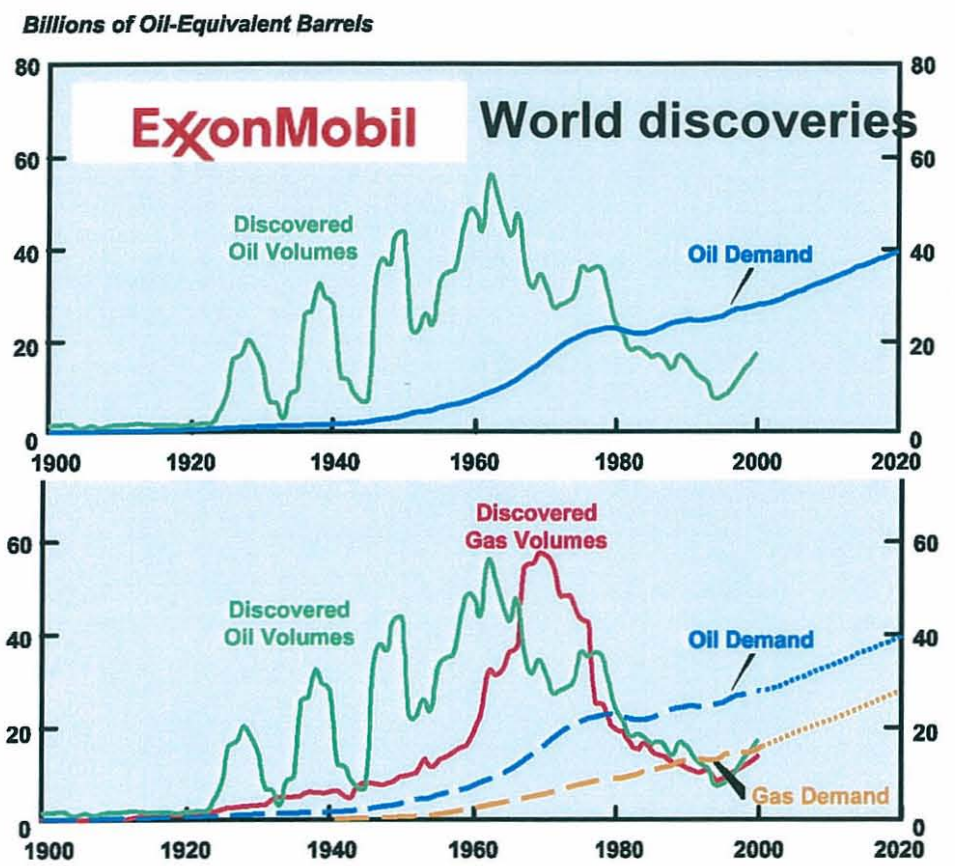
1. Why world oil production has peaked.

The key piece of data in trying to understand future oil and gas prices are the curves contained in Figure 2 prepared by ExxonMobil's Executive Vice President, Mr Harry J. Longwell in an article in *World Energy* in 2002. In summary:

- world annual discoveries of oil reached a maximum in the early 1960s (50 years ago), with smaller discoveries still being made but mainly in deep water (eg Gulf of Mexico).

- annual world consumption of oil passed the figure for annual new discoveries in the early 1980s (30 years ago), with current consumption about 4-5 barrels for every new barrel discovered.
- world annual discoveries of natural gas reached a maximum in the early 1970s (40 years ago), with smaller discoveries still being made but mainly in deep water (eg North West shelf) or shale rock (eg NSW and Queensland coalbed methane gas).
- annual world consumption of natural gas passed the figure for annual new discoveries in about 1990 (20 years ago).

Figure 2- Oil and natural gas discoveries and consumption[1]



2. Current world oil production.

Between 1930 and 1970, world oil production doubled every decade, allowing rapid economic growth, especially in western countries such as Australia. However, between 2002 and 2010 world oil production has grown just 10% (from 67 to 74.5 million barrels per day (mbpd)), and between 2005 and 2010 has actually decreased by 1-2%. Figures

[1] "The Future of the Oil and Gas Industry: Past Approaches, New Challenges", *World Energy*, Vol. 5, No. 3, 2002, page 102. www.worldenergysource.com/articles/pdf/longwell_WE_v5n3.pdf

below show the latest reported production for crude oil (Figure 3) and all liquid fossil fuels (Figure 4) from 2002-10.

Figure 3- World crude oil production (May 2010)

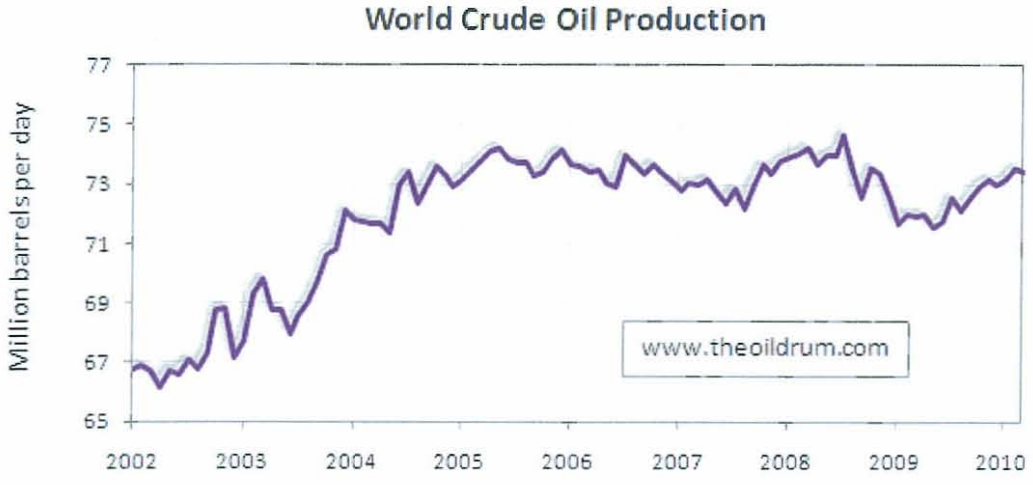
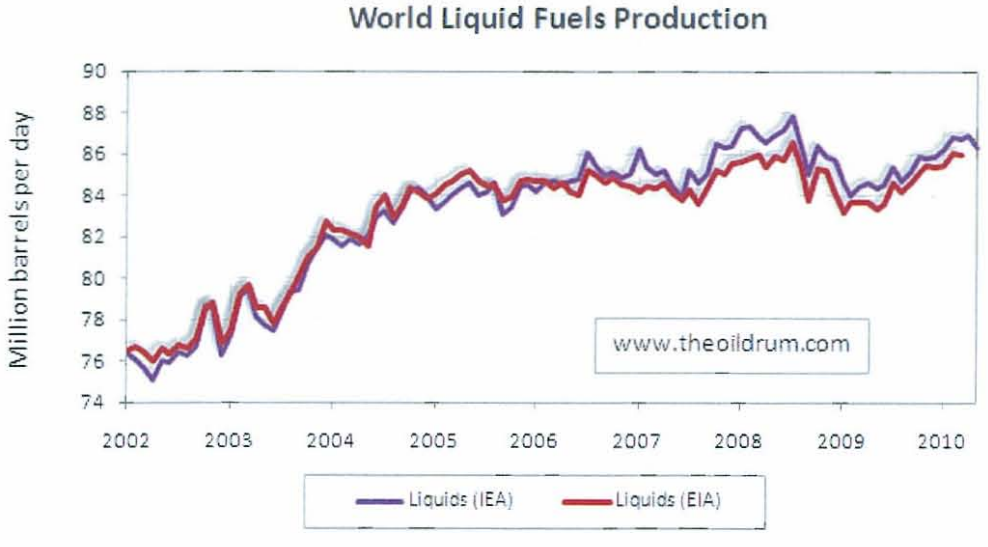


Figure 4- World liquid fuel production (May 2010)



2

This 'peak' in oil production doesn't mean that new oil fields aren't being discovered, but the ones that have been discovered over the past 10 years have been small fields producing less than 100,000 bpd (see Figure 5 below). The growth in world liquid fuels to about 86 million barrels per day between 2002-10 has occurred through an additional 1-2 mbpd of oil from Canadian tarsands, 2-3 mbpd of oil from US ethanol production but mainly from 8-10 mbpd from condensate produced at natural gas wells. Liquid condensates have moved from representing 5% of all liquid fuels in 1980 to more than 10% as the global natural gas industry has expanded (see Figure 6 below).

[2] Both figures from http://europe.theoildrum.com/node/6600#more

Figure 5- Changes in size of annual oil fields discovered (1930-2010)

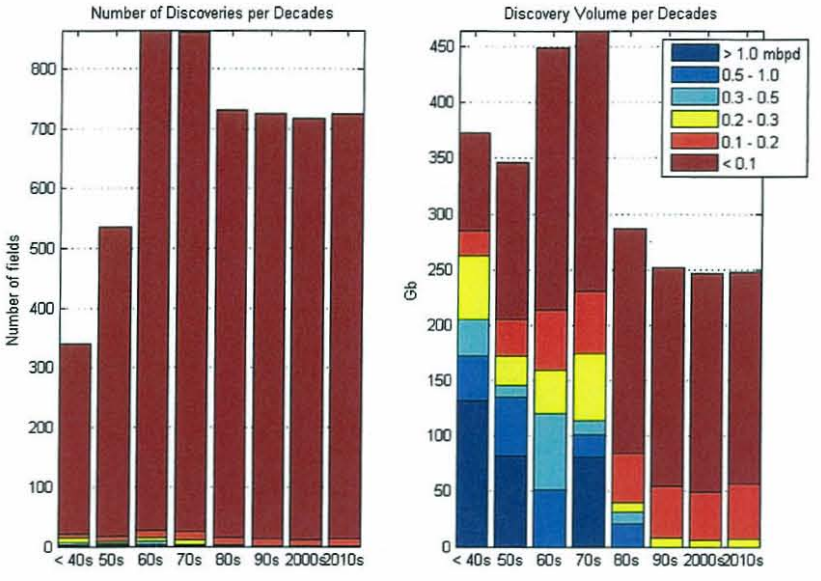
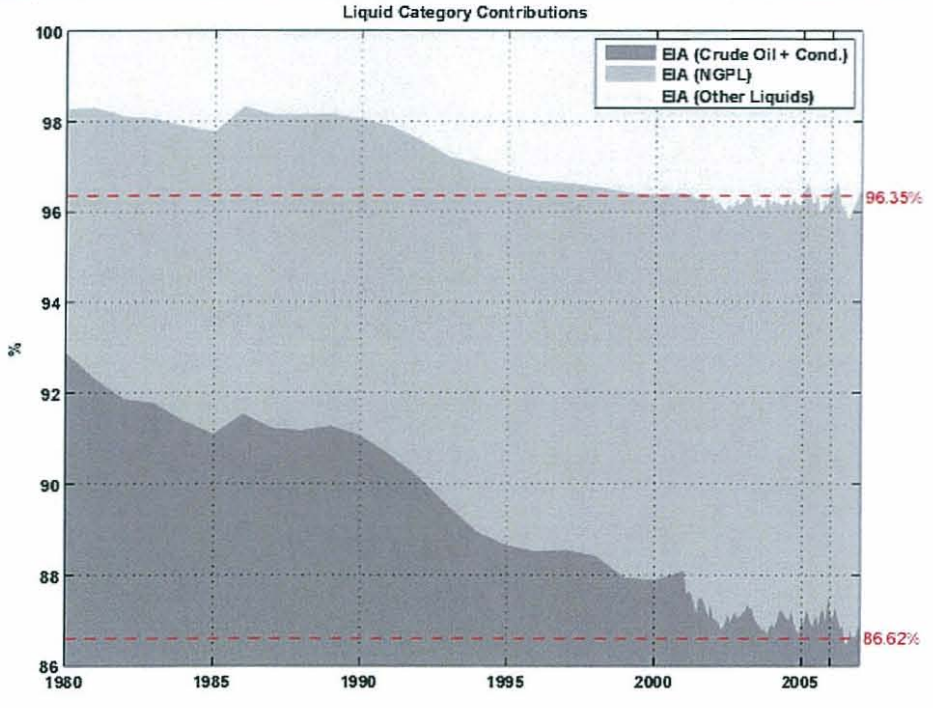


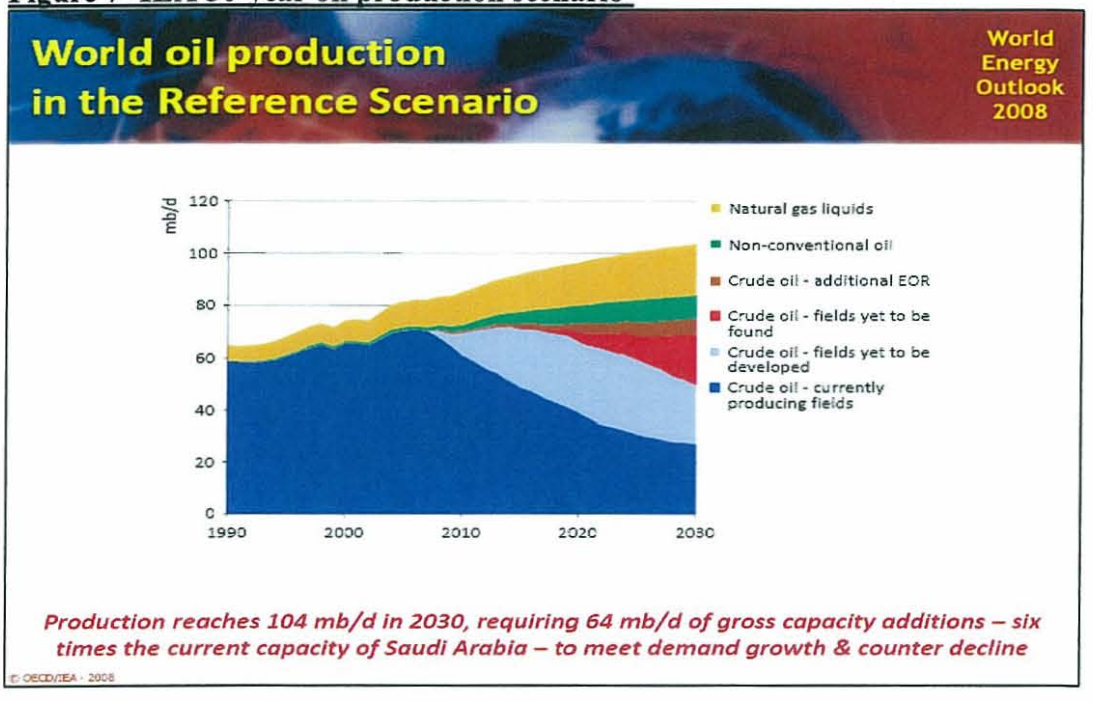
Figure 6- Changes in size of annual oil fields discovered (1930-2010)



IEA confirms serious situation

After denying any chance of a peak in world oil production, the International Energy Agency's *World Energy Outlook 2008* published in November 2009 confirmed that to maintain world oil production at current levels the world would need to find in the next 20 years the equivalent capacity of 4-6 Saudia Arabian production (40-60 million barrels per day) (see Figure 7 below). In the past 20 years the world hasn't discovered NO new fields of the size of Saudi Arabia.

Figure 7- IEA 30-year oil production scenario[3]



3. Current Australian oil production.

Australia's indigenous oil production peaked in 2000 and data provided to a Senate Committee inquiry in 2006 by ABARE and Geoscience Australia shows a widening gap between our production and our annual consumption forecasts. More worrying, this inquiry found that about two-thirds of Australia's oil production can't be refined in Australia's own domestic oil refineries, so is exported. That means that current crude oil imports for our refineries and imports of finished products (eg diesel) means that we are reliant on overseas countries for our imports about 80% of our oil and refined product needs.

Not only is Australia in a perilous position in having to rely on overseas sources for crude oil and oil products, a Geoscience Australia submission to a Senate inquiry placed Australia's remaining crude oil resources at just **6.6 years**, based on current consumption rates. This is because:

> *Only a limited number of Australian fields have been able to sustain high rates of production in order to meet this demand. Historically, only eight oil fields have sustained an annual rate of over 50,000 barrels per day and only three have maintained that rate for a decade. All these fields are now in decline. Another 20 fields have sustained rates of over 10,000 barrels per day but, as their reserves are typically smaller, they can only manage this for a few years.*

The corresponding ratio for natural gas is 65 years.[4]

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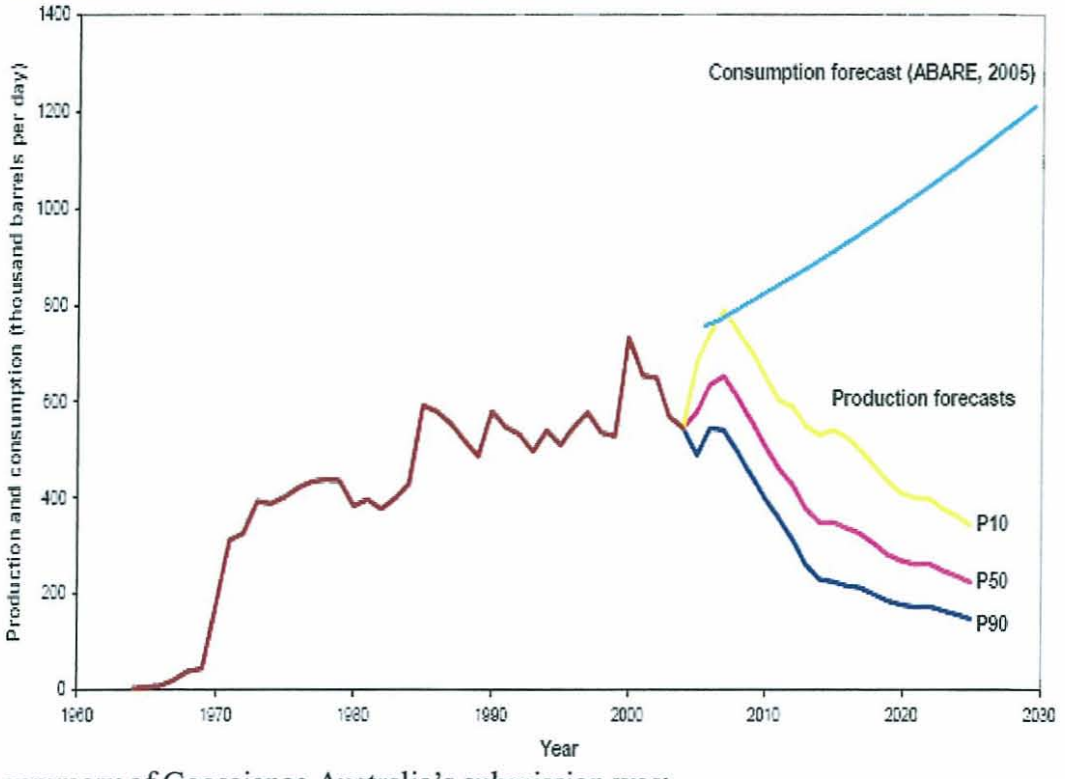
[3] www.worldenergyoutlook.org/2008.asp p250.

[4] Submission by Geoscience Australia to the Senate Rural and Regional Affairs and Transport Committee Inquiry into Australia's Future Oil Supply and Alternative Transport Fuels,

Figure 8- Widening gap between Australia's oil production and consumption[5]



The summary of Geoscience Australia's submission was:

- Australia's supply rate of crude oil from current discoveries is declining.
- Condensate [from natural gas fields] can provide a useful increment to crude oil production but is not an adequate substitute, as it can depend on gas supply rates.
- **To sustain Australia's domestic crude oil supply will require the discovery of a major new oil province**. (emphasis added)

4. Natural gas as a future fuel.

The CSIRO in a report in 2008 said:

> *In the next ten years it is projected that electricity, liquefied petroleum gas (LPG) and natural gas (particularly in freight) will be the first fuels to expand their use, particularly if there is an abrupt decline in the availability of international oil supplies.*
> *Only these among the non-conventional fuels have the capacity to expand their availability into the transport market in a relatively short time frame due to existing production and distribution infrastructure.*[6]

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www.aph.gov.au/Senate/committee/rrat_ctte/completed_inquiries/2004-07/oil_supply/submissions/sub127.pdf, page 32.

[5] Submission by Geoscience Australia to the Senate Rural and Regional Affairs and Transport Committee Inquiry into Australia's Future Oil Supply and Alternative Transport Fuels, www.aph.gov.au/Senate/committee/rrat_ctte/completed_inquiries/2004-07/oil_supply/submissions/sub127.pdf , page 18

[6] CSIRO (2008) *Fuel for thought - the future of transport fuels: challenges and opportunities,* www.csiro.au/files/files/plm4.pdf, page 10

The CSIRO suggested that the use of natural gas in Australia's transport sector would rise from 2 petajoules in 2008 to over 200 pj by 2020.[7] Similarly, a Senate inquiry found in 2006 that "it is clear that gas will be the most significant transition fuel option for Australia, and as such a national reserve should be established."[8]

STC's own policy papers have tried to encourage Australian governments to make greater use of natural gas as a transport fuel. Despite the difficulty in getting this fuel from the north-west to metropolitan areas, STC sees this fuel as playing a major role in public transport, freight and mining fleets- especially given the ease of converting diesel engines to CNG fuel. The lower carbon emissions compared to petrol and diesel are another reason why this will be an important transport fuel source. However, WA's vulnerability to a disruption in access to natural gas was dramatically shown by the explosion and fire at the Varanus Island gas plant.[9]

The STC recommends that the Government expedite the construction of a second Dampier-Perth pipeline, or the development of a strategic gas reserve in the south-west of the State.

In terms of price, the STC recommends that the WA Government put in place measures to make natural gas and petrol/diesel more expensive as a way to help move Western Australian's to a more sustainable use of these fuels- as the current State Government has recently done with price rises for water and electricity. Current petrol prices in the UK are about AUS$2.10 per litre and since PM Thatcher put in place an annual increment, British drivers have moved to smaller and more fuel efficient cars. The rise in Australian petrol prices to over $1.60 in 2009 led to a substantial shift in public transport usage of over 30% in most States.

The price of Australian gas exported in the form of liquefied natural gas (LNG) has traditionally been tied to international oil prices (given their fungability), and hence in recent years the price realised for this gas has been rising as the price for WTI has risen from $20 per barrel in 2002 to over $140 per barrel in early 2009, and now averaging $70-80 per barrel. In contrast, domestic natural gas on Australia's eastern seaboard remains relatively cheap compared to global gas prices, largely due to substantial natural gas resources being tied to a domestic pipeline infrastructure rather than to export markets. Hence the lower prices in eastern states could be seen as a market failure, while the higher prices in WA are more in line with the world-wide demand for gas and oil.

Sincerely,

David Worth

STCWA

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[7] CSIRO (2008) *Fuel for thought - the future of transport fuels: challenges and opportunities,* www.csiro.au/files/files/plm4.pdf, page 28

[8] Senate Standing Committee on Rural and Regional Affairs and Transport (2006) *Australia's future oil supply and alternative transport fuels - Interim report,* www.aph.gov.au/Senate/committee/rrat_ctte/completed_inquiries/2004-07/oil_supply/int_report/c02.pdf, page 7.

[9] www.theaustralian.com.au/news/nation/gas-explosion-could-be-felt-nationally/story-e6frg6pf-1111116669660

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