



Wesfarmers Energy submission to the Senate Select Committee on Fuel and Energy

27 July 2009

Executive Summary

Wesfarmers Energy, a division of the Wesfarmers Group, welcomes the opportunity to make a submission to the Select Committee on Fuel and Energy, particularly in response to the following terms of reference:

- (e) taxation arrangements on fuel and energy products including:
 - i. Commonwealth excise,
 - ii. the goods and services tax, and
 - iii. new state and federal taxes;
- (f) the role of alternative sources of energy to coal and alternative fuels to petroleum and diesel, including but not limited to: LPG, LNG, CNG, gas to liquids, coal to liquids, electricity and bio-fuels such as, but not limited to, ethanol.

Wesfarmers Energy, through its Wesfarmers LPG (“WLPG”) and Kleenheat Gas (“Kleenheat”) businesses, is a long standing participant in the alternative fuels market as a producer, marketer and distributor of LPG and more recently LNG. Wesfarmers Energy, after more than 10 years of seeding and marketing LNG as an alternative fuel, has recently commissioned its \$137 million Western Australian LNG project to displace diesel in the Heavy Duty Vehicle (“HDV”) and remote power generation markets.

Wesfarmers Energy strongly believes that the Government has a role in encouraging the growth and adoption of alternative fuels and this can be done through various mechanisms:

1. natural gas engine conversion cost assistance for HDV fleet owners;
2. financial incentives to LNG suppliers to construct natural gas vehicle refuelling networks; and

3. removing (or substantially deferred) fuel tax on alternative fuels. If fuel taxes are introduced, these should be on an energy density basis.

1. Introduction

Wesfarmers Energy focuses on the energy sector and has several businesses that specialise in the production, marketing and distribution of traditional and alternative energy. Kleenheat has been a national marketer and distributor of LPG to the automotive, domestic and industrial markets for over 50 years. WLPG has an LPG production facility at Kwinana, which is capable of extracting 350,000 tonnes per annum of LPG from the Dampier to Bunbury natural gas pipeline, and has been in operation for over 20 years. This facility primarily supplies the Western Australian market with propane and butane and exports any surplus product.

Kleenheat commenced looking at LNG as a transport fuel in 1998. In 2001 it constructed a small trial facility in Western Australia to test LNG in HDVs. In 2005 this facility was duplicated to produce seven tonnes of LNG per day, sufficient for approximately 20 vehicles.

In 2006, Wesfarmers Energy announced the construction of its 175 tonnes per day LNG production facility (approximately 240,000 litres of diesel per day equivalent) for sale into the Western Australian market, replacing diesel in power generation and as a transport fuel. This is part of a \$137 million integrated LNG project, also involving Kleenheat marketing and distributing the LNG to the remote power generation, heavy duty vehicle and the industrial markets. enGen, Wesfarmers Energy's remote power generation specialist, constructs, owns and operates power stations for remote communities and mines and currently operates two remote power generation sites for mines using LNG.

Kleenheat introduced trial quantities of LNG in Victoria via its load out facility at the Gasnet Dandenong LNG storage facility. Today, Kleenheat, under the EVOL LNG brand, is servicing approximately 200 vehicles operating on LNG in Victoria and Western Australia, and has further expansion plans for the east coast.

Kleenheat has worked closely with the Australian Greenhouse Office, OEM engine suppliers, Australian transport fleets as well as upstream gas suppliers and is at the forefront of developing this industry segment.

Under a sustained high oil price environment, Wesfarmers Energy believes that there is a logical place for locally produced LNG made with indigenously sourced natural gas to displace imported diesel, which is susceptible to highly volatile pricing linked to benchmarked international oil prices.

Wesfarmers Energy's LNG project is one way that the division is looking for sustainable alternatives for the energy sector and builds on Kleenheat's reputation as a leading marketer and distributor of alternative transport fuels over many years with Autogas. Wesfarmers Energy will continue to evaluate and develop products that offer sustainable environmental benefits to its customers across all of its businesses.

2. Taxation arrangements on fuel and energy products

Wesfarmers Energy believes that LNG can play an important role in the overall energy mix in Australia and can also play a key role in reducing carbon pollution emission levels. Wesfarmers Energy's key target markets for LNG are:

- remote power generation (off-grid / off-NEM applications);
- industrial applications where process heat / energy is required; and
- the HDV trucking segment, where LNG can displace diesel and reduce exhaust emissions by up to 25 per cent in addition to providing significant fuel cost savings to truck operators.

Presently, alternative fuels (including LPG and LNG) are free of excise or fuel tax, but the current intention is for fuel tax to be introduced from July 2011.¹

¹ Fuel Tax Credit Reform Discussion Paper, May 2005, "from 1 July 2011, alternative fuels such as biodiesel, ethanol, liquefied petroleum gas (LPG), compressed natural gas (CNG) and liquefied natural gas (LNG) begin to incur fuel tax".

Fuel type (cents per litre)	1 July 2011	1 July 2012	1 July 2013	1 July 2014	1 July 2015
Biodiesel	3.8	7.6	11.4	15.3	19.1
Ethanol	2.5	5.0	7.5	10.0	12.5
LPG	2.5	5.0	7.5	10.0	12.5
LNG	2.5	5.0	7.5	10.0	12.5
CNG (cents per m3)	3.8	7.6	11.4	15.2	19.0

Table 1. Proposed fuel tax rates applicable to alternative fuels

Wesfarmers Energy believes that the introduction of this tax will have a significant and damaging effect on the emerging alternative fuels sector, particularly LNG, which can and should play a significant role in Australia for the following reasons:

- a) natural gas is a low cost, indigenous fuel of which Australia has an abundance;
- b) LNG has shown to produce lower greenhouse gas (“GHG”) emissions and lower particulate emissions when compared to an equivalent diesel engine;
- c) increased use of LNG, as a locally produced fuel, will increase Australia’s self sufficiency in the production of high value transport fuels and reduce Australia’s dependence on the increasingly unstable oil rich regions; and
- d) increased use of LNG would have a positive impact on Australia’s balance of payments, by reducing Australia’s reliance on high value imported diesel.

Wesfarmers Energy suggests that removing (or at least delaying) the introduction of fuel tax on natural gas based alternative fuels will increase the willingness of consumers to switch to alternative fuels, allowing these markets to establish and help achieve the Government’s objective of lowering GHG emissions via transport fuels.

An established and viable alternative fuels market will only be achieved when economies of scale, similar to those in the refining industry are achieved. Parallels can be drawn with the LPG Autogas industry which was successfully established over the last 20 years with no excise. LPG is now widely used within Australia, playing an important role as a low GHG, alternative fuel and diversifying the transport sectors fuel mix.

Once LNG is established and considered a mainstream fuel, and benefiting from economies of scale, low technological and investment risk, then Wesfarmers Energy would welcome further debate on the timing of the introduction of fuel tax.

If a fuel tax on alternative fuels is to be considered in the future, Wesfarmers Energy strongly recommends that the tax be levied on an energy density (mass) basis, rather than the current proposal which is volumetric. Unlike traditional liquid fuels, the gaseous alternative fuels densities can vary significantly with temperature and pressure. To alleviate this, any tax should be calculated on the energy density or MJ per kilogram basis.

The detrimental affect that a fuel tax on LNG can have is demonstrated by comparing the case of a HDV operator using LNG with and without fuel tax (calculations shown in Appendix 1). Wesfarmers Energy's experience shows that HDV operators (particularly smaller / medium sized firms) typically make investment decisions based on suitable payback periods. The typical life for a fleet HDV is five years, so ideally an operator will look for a payback of less than three years to recover the investment and then make a suitable return on that investment. The example shows that without fuel tax, a HDV LNG conversion cost of \$150,000 will be paid back in approximately three years. When fuel tax is added in July 2011, the savings decrease annually and the \$150,000 conversion cost is only paid back in five years. For a conversion after July 2015, the payback is nine years. This is clearly uneconomic for the HDV operator and no investment would be made in converting trucks to LNG.

Under this scenario, industry development will stall until diesel prices increase above LNG prices further to absorb the fuel tax component levied. It needs to be highlighted that there are significant infrastructure investment decisions and associated gestation periods that are required to support the industry.

For example, in Wesfarmers Energy's experience it takes:

- approximately two years to build a domestic LNG production facility;

- approximately four months (allowing for local government approvals) to construct an LNG refueller, plus six months for vessel construction;
- approximately 12 months to construct necessary LNG road trailers; and
- approximately six months for a new customer to trial LNG before making a larger commitment to the alternative fuel.

In summary, it is clear from the above timeframes that it will take many years for LNG to significantly displace the diesel market and deliver the GHG and fuel mix diversity benefits that it has to offer. Wesfarmers Energy believes that fleets should be incentivised to trial gaseous based alternative fuels now, so that when there is a structural shift upwards in oil prices (driven by demand or supply security issues), the Australian transport segment will be prepared.

3. The role of alternative fuels

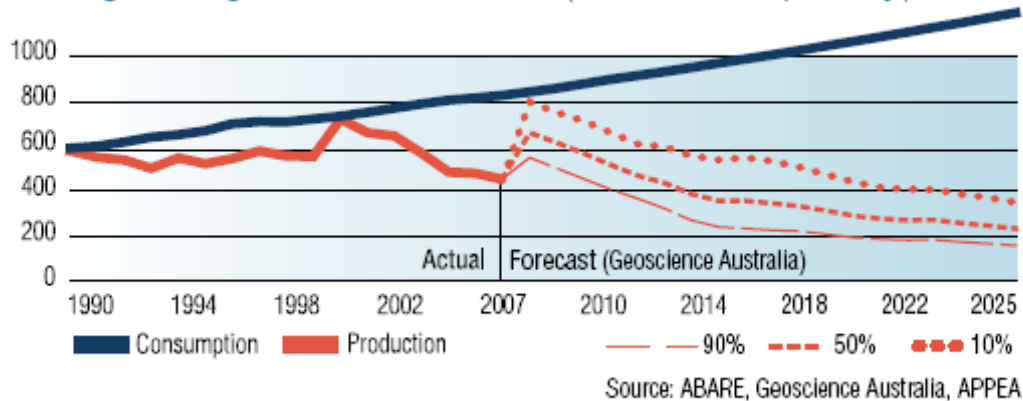
Australia is in a good position to build a strong natural gas transport fuel market and enjoy security of energy supply given its abundance of natural gas reserves. However, its adoption has been slower than countries such as Europe, South America and Asia.

The Bureau of Transport and Regional Economics² advises that Australia's road transport task is forecast to increase by approximately seven per cent per annum between 2005 and 2025 (see Appendix 2). It is also well documented by many sources, including APPEA that Australia's self sufficiency in oil is expected to continue to fall (see chart below).

So while demand for transport fuel is growing, Australia should focus on developing domestically produced alternative fuels and ensure that we have a robust supply network to meet the fuel demand forecasts.

² Demand Projections for Auslink – Working Paper 66, Table 2.12

Forecast liquids supply and demand — a growing trade imbalance ('000 barrels per day)



Note: 90% represents Geoscience Australia's high probability case and 10% the low probability scenario.

Source: The Australian Petroleum Production and Exploration Association (Key Statistics 2008)

Wesfarmers Energy is at the forefront of commercialising LNG in the heavy duty vehicle industry, but more government and industry co-ordination is needed to ensure its commercial viability in the future. Wesfarmers Energy believes that strong government policy, along with business investment, will assist the development of a viable LNG supply network while the industry is forming.

Issues facing HDV operators

Early adopters of this technology are currently affected by:

- high HDV conversion costs to enter the segment as there are no economies of scale;
- limited availability and developmental risk of natural gas engine technology – Australia requires engines with higher horse power than most established overseas natural gas vehicle markets;
- lower / volatile oil price – placing economic uncertainty early adopters; and
- limited access to capital and increased risk averseness for new HDV investment and research and development projects.

Issues facing LNG suppliers

Early movers in the LNG supply chain are currently affected by:

- a) domestic LNG suppliers forced to absorb high Take or Pay (“TOP”) gas contracts but selling to a domestic fuels industry where there are no TOP diesel fuel contracts;
- b) the perception of supply risk with only a small number of LNG production facilities nationally, whereas the supply risk relating to diesel (many fuel suppliers & many fuel sources) is low;
- c) the cost and development effort required when converting international technology to Australian conditions and regulatory standards; and
- d) limited access to capital and increased risk averseness for investment and research and development projects.

These are real risks for potential consumers and suppliers considering investments in natural gas as an alternative to diesel.

4. Recommendations

The Government has a role in encouraging the growth and adoption of alternative fuels and Wesfarmers Energy believes this can be done through various mechanisms:

- a) conversion capital cost assistance for HDV fleet owners;
- b) financial incentives to suppliers to construct natural gas vehicle refuelling networks; and
- c) no or substantially deferred fuel tax on alternative fuels. If fuel taxes are introduced, these should be on an energy density basis.

APPENDIX 1

HDV operator LNG payback periods

Assumptions:

- a) 250,000 km per annum;
- b) 1.6km travelled per litre of diesel (assumed B Double application);
- c) HDV LNG conversion cost at \$150,000;
- d) 95 per cent LNG substitution (5 per cent diesel);
- e) diesel price (retail) at \$1.20 per litre (excluding GST and excise, but includes road user charge); and
- f) LNG price at \$0.90 per diesel litre equivalent

Diesel versus LNG fuel costs for financial years ending 30 June are calculated below.

Results

Period	1	2	3	4	5	6
Years	2011	2012	2013	2014	2015	2016
Annual diesel cost	\$187,500	\$187,500	\$187,500	\$187,500	\$187,500	\$187,500
Annual diesel cost @ 5%	\$9,375	\$9,375	\$9,375	\$9,375	\$9,375	\$9,375
Annual LNG cost	\$129,158	\$129,158	\$129,158	\$129,158	\$129,158	\$129,158
Total fuel cost	\$138,533	\$138,533	\$138,533	\$138,533	\$138,533	\$138,533
Potential fuel savings	\$48,967	\$48,967	\$48,967	\$48,967	\$48,967	\$48,967

Table 1 – Potential fuel savings using LNG compared to diesel

The results show an annual fuel cost saving of approximately \$50,000 per annum, generating an acceptable payback for the vehicle owner of approximately three years.

Applying the same logic as above, but introducing fuel tax as proposed is shown below.

Results

Period	1	2	3	4	5	6
Years	2011	2012	2013	2014	2015	2016
Annual diesel cost	\$187,500	\$187,500	\$187,500	\$187,500	\$187,500	\$187,500
Annual diesel cost @ 5%	\$9,375	\$9,375	\$9,375	\$9,375	\$9,375	\$9,375
Annual LNG cost	\$129,158	\$135,616	\$142,074	\$148,532	\$154,990	\$161,448
Total fuel cost	\$138,533	\$144,991	\$151,449	\$157,907	\$164,365	\$170,823
Potential fuel savings	\$48,967	\$42,509	\$36,051	\$29,593	\$23,135	\$16,677

Table 2 - Diminished potential fuel savings for LNG when excise is introduced

The table above highlights the annual impact of rising fuel tax from \$0.025 per litre in July 2011 to \$0.125 per litre in July 2015. After July 2015 the annual savings are more than halved when compared to the no excise scenario above

APPENDIX 2

TABLE 2.12 PROJECTED INTER-REGIONAL FREIGHT MOVEMENTS, BY TRANSPORT MODE, 1999–2025

Year	Mode						All modes
	Road	Rail	Coastal shipping	Air	Pipeline	Conveyer	
(million tonnes)							
1999	1318.4	420.9	45.2	0.3	54.6	104.1	1943.5
2000	1378.7	432.7	46.1	0.4	55.8	107.5	2021.2
2005	1662.9	498.3	50.4	0.5	61	124.6	2397.7
2010	1957.7	573.9	54.6	0.7	66.2	141.9	2795
2015	2246.2	647.1	58.8	0.9	70.3	157.7	3181
2020	2535.5	717.9	62.8	1.2	73.8	172.3	3563.5
2025	2831.2	776.2	66.7	1.4	76.1	185.4	3937

Department of Transport & Regional Services, Bureau of Transport & Regional Economics, Demand Projections for Auslink: Non-Urban Corridors: Methodology & Projections, Working Paper 66