Advanced Fuels Technology Pty Ltd
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Thursday 23 February 2006

The Secretary
Senate Rural and Regional Affairs and Transport
Parliament House
Canberra ACT 2600
(Transmitted via email to rrat.sen@aph.gov.au)

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

24 February 2006,

Please find enclosed a submission from our company to the “Inquiry into Australia's future oil supply and alternative transport fuels”.

Yours Sincerely

Sean D Blythe
Chief Executive
Advanced Fuels Technology Pty Ltd

Submission to the Senate inquiry into Australia's future oil supply and alternative transport fuels.

23rd February 2006

ADVANCED FUELS TECHNOLOGY Pty Ltd

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INTRODUCTION TO ADVANCED FUELS TECHNOLOGY PTY LTD

Since 1996, the Advanced Fuels Technology group of companies (Advanced Fuels) have been at the forefront of the gaseous alternative fuels and automotive industry in Australia and internationally. Our products and services offered include: Compressed Natural Gas (CNG), Liquefied Natural Gas (LNG) and Biogas Conversion Equipment, Installation and Training.

We take a totally integrated approach to alternative fuels, providing complete refuelling infrastructure and services, hydrogen vehicle technology and more. Our commitment is to provide total solutions for fleet managers wishing to integrate alternative fuels into their fleets.

Our products have been installed on thousands of vehicles, in Australia, India, Indonesia, Singapore, Pakistan, Sri Lanka, China and Thailand. We have completed alternative fuels contracts in Australia for leading vehicle and engine Original Equipment Manufacturers (OEMs) including Caterpillar, Cummins, Iveco, Isuzu and Mercedes Benz.

WHY NATURAL GAS?

Natural gas is the cleanest of all the fossil fuels and can also be derived from renewable sources in the form of biogas or bio-methane. It is non-toxic and non-corrosive. As a vehicle fuel, natural gas produces significantly lower harmful emissions of nitrogen oxides (NOx), particulate matter (PM), and greenhouse gas (GHG) than oil-based gasoline or diesel. It produces no benzene, a common constituent of gasoline exhaust.

Australia has abundant domestic natural gas reserves and a well-developed and secure natural gas transmission pipeline network.

WHY NATURAL GAS VEHICLES?

Natural gas vehicles (LNG, CNG or biogas) are a clean and practical solution for low-emissions transportation today. While other clean transportation technologies exist, natural gas vehicle technology is proven and mature. High-performance, reliable, natural gas vehicles offer a real and immediate alternative to conventional diesel and gasoline vehicles.

Approaching stringent emissions standards for commercial transportation, together with concerns about volatile oil prices and oil supply security will bring further economic advantages for natural gas vehicles.

Around the world, natural gas is being widely adopted as a transportation fuel. To date, it is the only alternative fuel with measurable market penetration, and its use continues to rise. Some of the main drivers for the rapid growth of natural gas for transportation are:

Increased Energy security
The emerging reality of higher oil prices and dwindling supplies due to tensions in the Middle East, as well as China and India's growing consumption should result in an increased focus on the use domestic natural gas.

Enhanced Energy diversity
Political conflict and natural events such as the recent hurricanes in the US have highlighted the economic vulnerability caused by the continuing reliance on crude based fuels. Natural gas provides a means of diversifying fuel supplies and allowing transport systems to continue to function during times of low crude oil supplies.

Reduced Emissions
Tightening regulations make it more difficult for diesel engines to comply without the addition of expensive after-treatment systems. Even when compared to diesel powered vehicles with after-treatment, **natural gas vehicles:**

- Are up to 30% quieter,
- Reduce oxides of nitrogen by up to 90%
- Reduce particulate matter by as much as 99%
- Reduce Greenhouse gas emissions by up to 17%

Mandates and incentives do work
Many countries have strong mandates and incentives for natural gas vehicles. International governments are driving purchases of natural gas vehicles for environmental and energy security reasons. Jurisdictions with strong mandates or incentives include the US (particularly California, New York State and Texas), China, India, Germany, UK, Egypt, Thailand, France, Malaysia and Brazil.

Available & proven natural gas infrastructure – pipelines & liquefaction plants
Natural gas infrastructure continues to develop around the world at a rapid pace. Significant infrastructure is found in the major markets such as the Argentina, Brazil, Pakistan, India, China and the US. Experience from this global expansion will be quickly applied to the Australian market.

A bridge to the Hydrogen economy

Natural gas vehicle and fuelling technologies provide the bridge in the expected transition of transportation away from petroleum and diesel to hydrogen.

Hydrogen, like natural gas, is a gaseous fuel requiring storage, transport, and delivery technologies that are very different from liquid fuels. As such, the evolving codes of practice, standards and training programs

currently in place for the natural gas industry are already being utilised for the rapid commercialisation of hydrogen.

A: PROJECTIONS OF OIL PRODUCTION AND DEMAND IN AUSTRALIA AND GLOBALLY AND THE IMPLICATIONS FOR AVAILABILITY AND PRICING OF TRANSPORT FUELS IN AUSTRALIA

Advanced Fuels is not in a position to forecast the global or domestic oil supply/demand balance. We are however in a position to suggest that at some point in the not too distant future, peak oil will be experienced and this only increases the likelihood of oil shortages (supply/demand imbalance) and subsequent price increases for the traditional fossil fuels.

Given the above, and the general uncertainty regarding the future of oil supply (availability & price), Advanced Fuels believes it would be prudent for Australia to invest in fuel alternatives that can provide some assurance in an uncertain future. The most viable alternatives are natural gas sourced from traditional gas fields and from digestion or landfill gas reclamation. If Australia rapidly invested in gaseous fuels infrastructure and technology this would help underpin its energy security.

B: POTENTIAL 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

Australia has abundant reserves of natural gas that can be rapidly monetised for use in the transport markets – what is lacking is the investment environment that will support the commitment which is needed by industry participants.

The alternative gaseous fuels industry in Australia can be described as a collective of organisations, each of which focus on particular segments of the value chain, but with the capacity to expand rapidly if the market requires it. The segments can be loosely defines as gas production (exploration and liquefaction), gas distribution and retail businesses (LNG and CNG dispensing), gas engine providers (OEM and after-market), gas vehicle installers and vehicle service and maintenance providers.

With a relatively small amount of funding, the industry will rapidly evolve and become self-sustaining. Advanced Fuels strongly recommends that the Government considers the following initiatives:

1. **Set a minimum target for the conversion of a percentage of the diesel fleet to operate on Natural Gas**. The identification of a realistic target can reduce investment risk and, as such, promote the investment by commercial participants. This approach is proven and has been implemented in the European Union where a target of 20% substitution of

conventional fuels by alternative fuels has been set. A target which proposed that 10-15% of all new commercial vehicles being registered on Australian roads by 2010 be powered by gaseous fuels would seem reasonable. There is a target for biofuel in Australia.

2. **Sponsor the development of a strategic corridor of LNG refuelling stations along the Adelaide – Melbourne – Sydney – Brisbane corridor.** This will promote acceptance of the fuel by fleet customers and enable small, large and regional fleet operators alike to benefit from the use of natural gas as a transport fuel.

3. **Fund the introduction of new gas engine technology to the Australian market.** Australia has a transport task, which is very different to many comparable countries. We live in a large, comparatively sparsely populated continent. We move large, heavy freight long distances by road. Despite our market differentiation in this regard, the majority of heavy vehicles and engines are imported from Europe, Japan and the USA. Australia is "a technology taker" with respect to engine and vehicle development. In order to stimulate the availability of appropriate engines and conversion systems for our unique transport task, the government should continue to recognise the need to promote investment and identify specific funding for gaseous engine technology developers.

4. **Continue to support end-users via the Alternative Fuels Conversion Programme (AFCP) funding of 50% of the conversion cost of a diesel vehicle to enable it to operate on gas.** In time, as the market matures and the fuel price differential increases, this program will be retired. However, at this point the added cost of converting diesel vehicles to run on gas is seen as a hurdle by innovative fleet users and the grant funding helps overcome economic barriers, increasing the conversion rate. In addition, the existence of the AFCP provides a degree of assurance to fleet customers that Government is supportive of the gaseous fuels industry and recognises that it will be a sustainable and long term option for fleet customers.

5. **Establish a long-term view of fuel excise to ensure fleet users can confidently invest** in new fleets that have a typical life of 5 years or more. Fuel price differential is a major factor that fleet customers consider when considering the conversion from traditional fuels to natural gas – uncertainty associated with excise regimes will only delay the investment commitment.

6. **Sponsor the development of small LNG and CNG depot based refuelling stations** which will enable smaller and regional operators to consider the conversion of "return to base" fleets to operate on natural gas. This is a proven strategy which has been employed in cities such as Paris, Los Angeles and 56 other cities in the US for refuse collection vehicles.

7. **Implement an Import Duty Regime that will enable products imported for use in the gaseous transport fuels industry to have zero duty.** Currently, items including CNG or LNG cylinders, compressors, liquefaction plants and regulators attract import duty of 5% when imported from countries with which we do not have free trade agreements. Such an initiative will ultimately reduce the cost to end-users and enhance the viability of the industry.

C: FLOW-ON ECONOMIC AND SOCIAL IMPACTS IN AUSTRALIA FROM CONTINUING RISES IN THE PRICE OF TRANSPORT FUEL AND POTENTIAL REDUCTIONS IN OIL SUPPLY

Advanced Fuels is not in a position to comment.

D: OPTIONS FOR REDUCING AUSTRALIA'S TRANSPORT FUEL DEMANDS

Advanced Fuels is not in a position to comment.