



SENATE RURAL AND REGIONAL AFFAIRS AND
TRANSPORT REFERENCES COMMITTEE

Inquiry Into Australia's Future Oil Supply And Alternative Transport Fuels

Submission | July 2006

INTRODUCTION

The future of Australia's oil supply and the development of alternative transport fuels is a pressing issue for the nation. The increasing probability that the demand for transport fuels in Australia will outstrip supply and the increasing cost of transport fuels indicates an immediate need to assess viable alternative fuel sources.

Gardner Smith (Holdings) Pty Limited welcomes the opportunity to provide a submission to the Senate Rural and Regional Affairs and Transport References Committee inquiry into Australia's future oil supply and alternative fuels. The terms of reference seek comment from interested parties on:

- projections of oil production and demand in Australia and globally and the implications for availability and pricing of transport fuels in Australia;
- 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;
- flow-on economic and social impacts in Australia from continuing rises in the price of transport fuel and potential reductions in oil supply; and
- options for reducing Australia's transport fuel demands.

This submission will focus on the development of alternative transport fuels in Australia, and in particular, the emerging bio diesel industry. It examines:

- the burgeoning bio diesel industry in Australia;
- feedstock sources;
- production volumes and markets for bio diesel; and
- the projected increase in the availability of bio diesel in Australia.

It will also provide information on the take up of bio diesel in other countries, primarily Europe and the United States. This submission also outlines the importance of the supply chain and increasing demand for infrastructure to successfully develop a sustainable bio diesel industry and for bio diesel to be recognised as a legitimate alternative fuel.

GARDNER SMITH
(HOLDINGS)
PTY LIMITED

Gardner Smith (Holdings) Pty Limited is renowned for its expertise in the supply, storage, transportation and processing of bulk liquids. As an independent private company Gardner Smith (Holdings) Pty Limited has a network of offices, strategically located storage terminals, and oilseed processing facilities throughout Australia, New Zealand, China and South Africa.

The Gardner Smith Group in Australia is made up of the following associated businesses:

- Pacific Terminals: storage, packaging, transport and logistics of bulk liquids;
- Riverland Oilseed Processors: processing of oilseeds and refining of vegetable oil;
- Gardner Smith Agri Energy : agri products procurement and supply, marketing and distribution of bio diesel fuels; and
- AUSCOL: collection, recycling and refining of used cooking oils.

The biofuels businesses, evolving in Australia have the potential to expand and develop into a viable industry working within the current hydrocarbon market as a genuine alternative fuel from a renewable resource. Bio diesel is, as demonstrated in Europe and the United States, a legitimate alternative fuel for the transport and primary industry sectors.

Gardner Smith (Holdings) Pty Limited is actively involved in the bio diesel industry, and is working to foster its business through vertical integration. The company is involved in the development of bio diesel through having leadership of the “supply chain”. This includes:

- oilseed processing;
- supply of feedstocks to bio diesel producers;
- marketing of finished bio diesel and by products; and
- distributing bio diesel blends to industrial and transport end users.

Through involvement with each point in the supply chain, Gardner Smith (Holdings) Pty Limited is in the prime position to ensure the production and quality of bio diesel is at a standard deemed “fit for purpose”.

The Australian Bio Diesel Group has estimated the industry will be worth between \$650 – 750 million by 2008, and is forecasting exceptional growth. Gardner Smith (Holdings) Pty Limited is focused on all aspects of the bio diesel industry and views supply of feedstocks (in competition with the food industry) as a matter which requires effective forward planning, identification of relevant infrastructure and understanding of the supply chain.

BIODIESEL – EMERGENCE IN AUSTRALIA

The Federal Government has acknowledged the emergence of biofuels and their significant national benefits which include:

- a reduction in greenhouse gas emissions;
- reduced dependence on foreign petroleum;
- increased agricultural revenues; and
- widespread job creation.

Bio diesel has increased as a fuel constituent in Australia. Production has increased from approximately 4 ML in 2003-2004 to 14 ML in 2004-2005. This is expected to increase to more than 150 ML in 2005-2006, a clear indication that the industry has grown rapidly since it began as a “backyard” production.

Bio diesel which is produced and available at the “gate” of the facility is classified as a B100. In most applications, the B100 is blended with hydrocarbon diesel Automotive Diesel Oil (ADO) to provide a “bio diesel blend” to the market. B100 (100%) can be used as a transport fuel and has particular applications as a fuel in the marine industry as any spills have no environmental effects as the product is biodegradable. However, its quality has to be tightly controlled and there would not be enough production capacity to support the entire Australian diesel market. The preferred option is a blend of B100 and ADO, which has various optimum blends.

B100 is the preferred option of several end-users, including road transport and marine applications, which is currently a niche market. There will be additional growth in other markets looking to use a B100 to support occupational health and safety requirements (mining and marine) and also environmental grounds (such as resort power generation requirements).

By 2010, bio diesel B100 production is set to be at 1,500 ML, subject to the industry being able to work within the previously prescribed timeline and having access to sufficient feedstock.

Feedstocks for bio diesel currently include:

- Tallows (and used cooking oil);
- Domestically grown Vegetable Oils (Canola and Cotton); and
- Imported Palm, Coconut and Soya bean oil.

Future feedstocks may include Pongamia oil (a tree native to parts of Queensland) and fungal production from the harvesting of CO₂.

The increased demand will initially require importation of fats and oils to supplement the domestic supply. Feedstocks will be imported as an interim step until domestic feedstock production catches up with bio diesel demand and production. Palm oil and soya bean oil required for the purpose of producing bio diesel will be imported from countries which promote the sustainable development of these industries. For example, Gardner Smith (Holdings) Pty Limited is a member of the Roundtable for Sustainable Palm Oil (RSPO) which has been established to promote and monitor the sustainable cultivation of palm oil and to ensure the industry grows and develops in an environmental, social and economical manner. This is also the case when importing soya bean oil for the production of bio diesel. Soya bean oil will be sourced from South American producers who are members of the Roundtable on Responsible Soy (RTRS) to support the sustainable development of the industry, taking into consideration the environmental factors when cultivating feedstocks for the production of bio diesel.

The increased demand for feedstocks in Australia for the production of bio diesel will identify where opportunities exist for rural and regional Australia to develop feedstocks to meet this multi billion dollar industry. This will in turn support the economic development of a diversified agricultural sector in Australia.

SOURCES, PRODUCTION AND MARKET FOR BIODIESEL

Australia Fats & Oils – Current Position

The current supply of fats and oils in Australia has been static for the past five years. Australia is currently producing:

- 650 ML domestic consumption comprising of:
 - 270 ML soft oil (Canola, Cotton Seed, Sunflower Oil, Soy Bean)
 - 165 ML tropical oils (Palm Olein, Palm Kernel, Coconut Oil)
 - 215 ML tallow and used cooking oil
- 380 ML tallow export
- 55 ML vegetable oil export
- 1,085 ML total disappearance of fats and oils.

Projected Position – 3 year outlook

The forecast feedstock demand for bio diesel in Australia is :

- 540 ML committed production capacity commissioning 2006
- 460 ML planned capacity for commissioning 2007 (includes BP Brisbane)
- 500 ML capacity under evaluation for commissioning 07-08
- 1,500 ML total of committed & potential feedstock requirement
 - Majority of 350,000 tallow exports likely to be used domestically. Palm oils and Soya bean oils will likely make up the feedstock short fall until local oilseed production grows
 - All this means a 150% Potential increase of fats & oils requirements over the base

The exponential growth predicted for the bio diesel industry, coupled with the already recognised environmental benefits of bio diesel as an alternative fuel source indicate this is a viable product that the government should be thoroughly exploring. Essential to the development of a competitive bio diesel industry is some level of government regulation to ensure:

- bio diesel can successfully compete on price with hydrocarbon diesel;
- bio diesel is produced and sold in a responsible manner and to an Australian standard that is fit for purpose; and
- industry standards are developed, and are clear and enforceable.

Environmental Benefits of Bio Diesel

Environmental and economic externalities of diesel use are driving the demand for alternative fuels and in particular, bio diesel, with advantages of bio diesel being:

- It is a renewable bio-based fuel and, as such, has lower life cycle CO₂ emissions than diesel derived from mineral oils;
- Neat bio diesel contains almost no sulphur and no aromatics. In a properly tuned engine this is expected to lead to lower exhaust emissions;
- The material is bio-degradable and non-toxic;
- As an oxygenated compound, it reduces the non-soluble fraction of the particles;
- The polycyclic aromatic hydrocarbon (PAH) content of exhaust particles is reduced;
- In a mixture with low-sulfur diesel, bio diesel can act as a lubricant;
- The absence of sulfur allows more efficient use of oxidation catalysts;
- Reduction in emissions including greenhouse gases and localised visible pollution;
- Increased employment opportunity in regional areas within the agriculture industry; and
- Reduction in the reliance on imported mineral fuels.

There are environmental issues that Gardner Smith (Holdings) Pty Limited will consider when assessing feedstocks for import to meet the demand for bio diesel in Australia. As mentioned previously in this submission, any feedstocks (palm oil and soya bean oil) will be imported by Gardner Smith (Holdings) Pty Limited from countries promoting the sustainable development of their respective industries. The RSPO has a number of environmental groups as members including the World Wide Fund (WWF) for nature Indonesia, Malaysia and Switzerland branches and the Global Environment Centre. Environmental agencies are members of the RSPO to promote the sustainable development and cultivation of palm oil in developing nations. The RSPO encourages the production of palm oil which is socially, economically and environmentally sustainable. To ensure the development of a sustainable bio diesel in Australia, palm oil will only be imported under the guise of the RSPO.

This is similarly the case when importing soya bean oil. The RTRS has been established to provide guidelines for the sustainable cultivation of soya bean oil. The WWF is also a member of the RTRS and the main objective of the RTRS is to promote the economic development of South American nations which cultivate soya bean oil, primarily Argentina and Brazil, and provide environmental and sustainable guidelines for the development of the industry.

OVERSEAS COMPARISONS

A number of overseas countries have adopted policies to assist the production and use of biofuels. The production of biofuels in other countries has required government assistance to ensure the viable development of the industry. The main commercial bio diesel producers are the United States and the European Union.

World production of bio diesel for 2005 – 2006 is estimated to be 3.8 million litres. Member countries of the European Union are world leaders in the bio diesel industry and have been actively producing and promoting bio diesel as an alternative transport fuel since 1991. The United States is currently in an accelerated development phase and is implementing a strategy to ensure they are on par with the European Union with regards to the development of bio diesel as an alternative fuel source.

While the necessity for bio diesel as an alternative fuel source differs in Europe from Australia, with demand being driven by the increasing cost of hydro carbon diesel, Australia should look to Europe as world leaders in the sustainable development of a successful bio diesel industry and as a potential model to develop the Australian industry.

Case study – Bio diesel production in the United States

The bio diesel industry in the United States has a dedicated yearly production of approximately 415 million litres. This is expected to grow by a further 350 million litres in the 2005/06 financial year. There are currently thirty companies involved in the development and production of bio diesel.

The United States is currently reaping the economic benefits of the bio diesel industry in both the petroleum and agricultural sectors. An important factor that is not usually considered when calculating the costs and benefits of industrial feedstock materials is the macroeconomic effect associated with domestically produced, renewable energy sources. Economic benefits of the bio diesel industry in the United States include:

- increasing demand for feedstock (oilseeds or animal fats) and the diversification of the agricultural sector;
- an increased number of jobs in the manufacturing sector;
- an increased tax base from plant operations and income taxes;
- investments in plant and equipment; improvement of trade balance; and
- reductions in health care costs due to improved air quality and greenhouse gas mitigation.

Benefits similar to those experienced in the United States are already starting to be seen through the development of the bio diesel industry in Australia. Further government support for the development of the bio diesel industry will result in greater benefits for the agricultural and manufacturing sectors and will also have a positive impact on the Australian environment.

Case Study – Bio diesel production the European Union

Bio diesel has been in production in Europe since 1991. Production of bio diesel in Europe exceeded 1.4 billion litres in 2003/04. The increased demand for alternative fuel sources and the success of bio diesel in the European Union can be partly attributed to countries which are signatories to the Kyoto protocol. Kyoto signatories will have contributed 2% by 2005 and 5.75% 2010 of biofuels placed in the market. The overall intention is to substitute renewable fuels for 20 % of traditional fuels by 2030. The European Union is taking a two pronged approach to achieving this target. First, minimum biofuel content of 2 % is required for the fuel to be considered biofuel. Second, a European framework has been established to allow members states to implement tax breaks to enhance the development of the biofuel industry. As biofuels are more expensive to produced and distribute than traditional fuels, the European Union has allowed members states to apply for a total or partial exemption of taxation for biofuels.

Since 2002, production of bio diesel has increased by 35% per annum. European Union standards for the production of bio diesel are built on canola oil. The major concern for the bio diesel industry in Europe is not the ability to grow but the capacity to crush. The three main bio diesel producing countries in the European Union are Germany, France and Italy.

Germany currently has 10 bio diesel plants with capacity ranging from 14 to 540 million litres. In January of 2005 the German government approved the use of B5. B5 is currently sold in approximately 19,000 filling stations. In 2003-2004 France had 4 plants, which produced 450 million litres of bio diesel.

Bio diesel is currently used in the following blends:

- B5 for private passenger use
- B20 for fleet and transport vehicles.

By 2003-2004, production of bio diesel in Italy reached 150 million litres. Italy is currently exploring opportunities in the ethanol industry as it is viewed by the Italian government as being a 'better fit' for the Italian economy as opposed to bio diesel.

In all of these countries the bio diesel industry has developed through continued government financial support. For example, Spain and Germany have legislated for 100% tax relief to be provided to the biofuels industry until 2009. The United Kingdom provides tax relief at 39% and Italy at 42%. Government financial assistance has been necessary to ensure the industry successfully develops in a responsible and sustainable manner. There is no reason to assume that an efficient biofuels sector can develop without similar support in Australia.

DEVELOPING
THE BIODIESEL
INDUSTRY
– BIODIESEL AS
A RECOGNISED
'ALTERNATIVE
TRANSPORTATION
FUEL'

Gardner Smith (Holdings) Pty Limited is supportive of recent Federal Government recognition of the viability of biofuels and its projected support for the biofuels industry as outlined in the Biofuels Action Plan released in late 2005. In order for the bio diesel industry to develop in Australia to its potential, the Federal Government needs to consider the following:

Infrastructure costs and the 'supply chain'

More than 75% of the cost in the production of bio diesel is the feedstock. This can have different effects on different producers.

As a private company, Gardner Smith (Holdings) Pty Limited is integrated across the bio diesel supply chain, and where possible, seeks an industry leadership position. The Gardner Smith Group, as previously outlined in this submission, is made up of a number of businesses associated with the complete supply chain. Activities include:

- the processing and refining of oilseeds and vegetable oils; the collection, recycling and refining of used cooking oils;
- storage, packaging, transport and logistics of bulk liquids; and
- the procurement, supply and marketing of bio diesel as the end product.

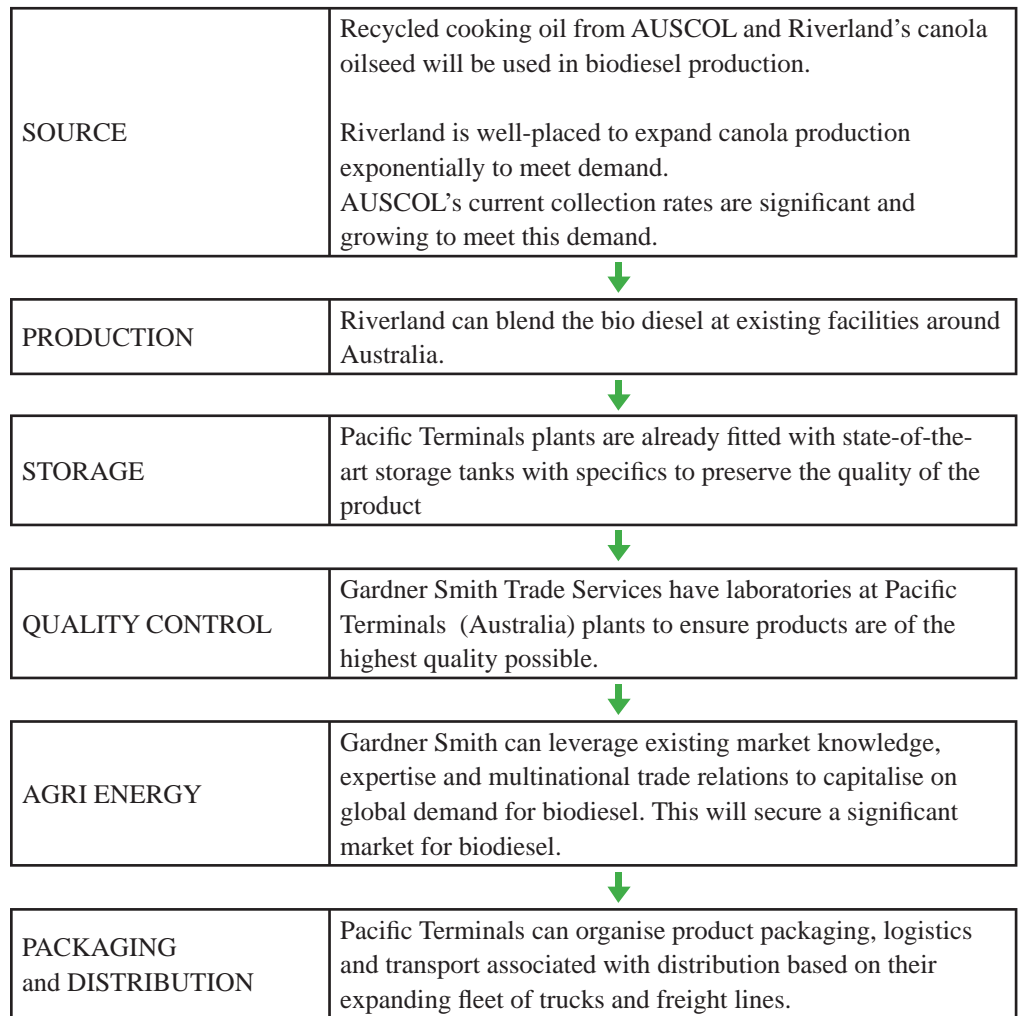
This position allows for the production cost of the end product to be kept at a minimum as the infrastructure is already established and operational.

By leveraging the supply chain as demonstrated in the diagram on page 10 Gardner Smith (Holdings) Pty Limited can identify how bio diesel can be produced, stored and distributed successfully.

The demand for bio diesel has created a shortfall in storage capabilities throughout Australia. There are currently no dedicated bio diesel storage facilities in Australia and strategic multi regional facilities, with required capacities of 100,000 cubic metres with a capital value of approximately \$100 million, will be required as production and demand for bio diesel increases. The shortfall in infrastructure is most predominately in the storage of feedstocks for the production of bio diesel and in the transportation of bio diesel as a final product. In order for the industry to develop to its full potential government support for the infrastructure to assist the industry to meet the current demand needs to be considered by the Federal Government.

The Federal Government has previously noted that "globally, and in the absence of subsidies, biofuels cost more to produce than petroleum fuels."¹ As new technologies emerge and there is an increasing uptake of new technological processes, costs of production decrease. It has been suggested that Australian biofuels will generally remain uncompetitive with conventional fuels without medium-term government assistance. At its current production rate, the existing infrastructure is not enough to keep pace with the growing bio diesel industry. While there are a number of proposed bio diesel production sites being considered throughout Australia capital commitment is required for the infrastructure to continue to be developed at the same pace as bio diesel production.

¹ Australian Government Biofuels Taskforce, Report of the Biofuels taskforce to the Prime Minister, August 2005, page 5



Fit for purpose

Fundamental to the success of the bio diesel industry is ensuring that bio diesel produced and sold meets Australian Standards and is “fit for purpose”. The Federal Government, through the Department of Environment & Heritage (DEH) is looking to the bio diesel industry to position itself to be self-regulatory, along the lines of the petroleum industry. The DEH is currently seeking input from the industry for the establishment of clear product guidelines.

Gardner Smith (Holdings) Pty Limited manufacturers a bio diesel to meet the Australian Standard for the market into which it is being offered. That is why we have adopted the language that our product is “fit for purpose.”

A blend of B100, added to ADO at a ratio of 5%, is considered diesel and is currently the preferred option of the oil majors. It is also the blend supplied as “start-up” fuel for imported diesel equipment for both on and off-road use. Through the Biodiesel Association of Australia (Gardner Smith

is a member and also has representation on the Steering Committee) manufacturers have proposed the adoption of the BQ 9000, adapted for Australia.

This approach by the industry has been welcomed by the DEH and is seen as an important building block for the industry to maintain momentum, while implementing planned growth.

Gardner Smith (Holdings) Pty Limited has outlined its position on self governance and standards to the Biodiesel Association of Australia, the Federal Government, and customers, with a mandate to offer finished product which meets an oil industry standard and satisfies requirements under original equipment manufacturers.

CONCLUSION

Bio diesel provides a legitimate alternative transport fuel for both on- and off- road use. It is fundamental that the industry is fostered and developed by the government to ensure that it reaches its full potential and can become a true viable alternative.

In order for the bio diesel industry to develop Gardner Smith (Holdings) Pty Limited believes it is essential for the government to play a significant role. Factors that need to be considered when assessing the viability of biofuels, as outlined in this submission include:

- government support for the industry to ensure the price of bio diesel remains competitive with more traditional petroleum and diesel;

- investment in “supply chain” infrastructure to ensure that the production and development of bio diesel is controlled from beginning to end;
- standards developed for bio diesel and other biofuels to ensure that the end product is “fit for purpose”; and
- regulatory standards to ensure the industry develops to its full potential and provides a legitimate, alternative transport fuel.

Gardner Smith (Holdings) Pty Limited looks forward to providing further information to the Senate Rural and Regional Affairs and Transport References Committee on request.