Ref: DOI059531

Hon Jenny Lindell MLC
Chair, Environment and Natural Resources Committee
Level 8, 35 Spring Street
MELBOURNE VIC 3000

Dear Ms Lindell

INQUIRY INTO THE PRODUCTION AND/OR USE OF BIOFUELS IN VICTORIA

Thank you for your letter of 9 August 2006 regarding the Committee's inquiry into the production and/or use of biofuels in Victoria. I am pleased to respond to your request for a written submission from the Department of Infrastructure (DOI).

DOI regulates and provides essential infrastructure in Victoria and has responsibility for energy and security, transport, ports and marine, freight, information and communication technology, and significant public projects. Through the development of policy and the administration of public transport and freight and logistics operations, as well as key relationships with bodies such as VicRoads, DOI has the capacity to create an indirect effect upon the production and uptake of biofuels.

If you have any questions or seek any additional information, please contact Michael Hopkins, Director, Market Development, Public Transport Division on telephone (03) 9655 8668.

Yours sincerely

Howard Ronaldson
Secretary

The Department of Infrastructure's response to the Terms of Reference

This submission focuses on current activities in relation to the use of biofuels for transport – particularly biodiesel – and the role of broader energy policy in their production and use. Specific terms relevant to DOI, expanded upon below, are:

- the role of government in the manufacture and use of biofuels for transport;
- current use of biofuels for transport applications in Victoria; and
- the barriers to, and incentives for, increased use of biofuels for transport.

Attachment 1 details relevant DOI policy initiatives, and their relationship to biofuel.

The role of government in the manufacture and use of biofuels for transport

Whole of Government Co-ordination

Given the nature and lifecycle of biofuels, the Victorian Government's work on biofuels is wide-ranging, and involves several departments and agencies:

- the Department of Primary Industries (DPI);
- the Department of Innovation, Industry and Regional Development (DIIRD);
- The Department of Sustainability and Environment (DSE); and
- Sustainability Victoria.

The Department of Infrastructure's role

DOI currently has a supportive role in relation to the use of biofuels, specifically in the areas of energy policy and transport and logistics.

Working closely with the gas and electricity industries, DOI develops energy policy, which will "deliver a safe and reliable energy supply that is efficient, affordable and increasingly sustainable"[1]. Such policy generally focuses on the stationary (non-transport) energy sector and does not directly affect the development and uptake of biofuels.

However, this broader policy context establishes government's wider objectives for fuel conservation and the use of renewable resources and facilitates the work of other departments on biofuels. Specifically, a number of recent energy policy developments have the potential to stimulate growth within the renewable energy sector, which will indirectly benefit biofuels. These include the development of a National Emissions Trading Scheme (NETS), the Energy Technology Innovation Strategy, and support for renewable energy – particularly through the Victorian Renewable Energy Target (VRET) scheme. These policies provide market mechanisms and incentives designed to address the 'cost barrier' between low emissions fuels and technologies and conventional ones.

[1] Department of Infrastructure, 2006, Corporate Plan 2005-08, p.45

DOI is also responsible for the development and delivery of public transport services across Victoria, including buses, trams and trains and regulates the Victorian taxi, hire car, and tow truck and driver instructor industries. It also regulates and develops policy for freight, logistics and marine operations.

Current use of biofuels for transport applications in Victoria

Diesel vehicles

The majority of fuel consumed by Victorian vehicles (2002 data) is petrol (4,697 ML – 62% of total fuel consumption). Diesel use constitutes 1,530ML (20%) and gaseous fuels (predominantly LPG + CNG) 1,392ML (18%). Of Victoria's petrol consumption, the vast majority (83%) is by passenger vehicles. Diesel is predominantly used by trucks (73%) and gaseous fuels are primarily used by passenger vehicles (75%)[2]. Local market conditions are more prospective for biodiesel, due to the mandatory introduction of low-sulphur diesel in Australia by January 2009. This has stimulated an increasing number of new diesel passenger vehicles into Australia's domestic market, which will increase the retail market for biodiesel. Australia consumed 14.5 billion litres of automotive diesel in 2003-04, of which 12.5 billion litres was domestically refined[3].

Bus Operations

In 2002, Victorian buses consumed approximately 82 ML of diesel, with about 25% of that consumed by metropolitan Melbourne buses (that is, around 23 ML or 0.15% of national diesel usage)[4]. DOI estimates that in 2006, buses running public transport routes consumed 1 litre of fuel per 2.5 to 3 kilometres. Melbourne's public transport bus operators currently refuel from 38 depots across metropolitan Melbourne.

Individual trials conducted by bus operators in Melbourne into the use of biofuels have indicated that biodiesel blends are the most suitable fuel for bus operations. A biodiesel blend of 10-20% produced very good results, with little to no adverse effect on bus performance and fuel consumption and no engine modifications were required. Anecdotal evidence also suggests that bus chassis manufacturers support a bio-diesel blend in the range of 10% to 20%. By contrast, trials conducted using 100% biodiesel produced less favourable outcomes, resulting in a 5% power loss in lower power rated engines.

Bus operators are uncertain about the use of ethanol, predominantly due to the specialised and expensive refuelling infrastructure required for its use (not required for the use of biodiesel). Safety concerns related to on-site storage of ethanol have also been raised. Ethanol usage was also found to increase fuel consumption; some

[2] "Alternative Transport Fuels and Technologies", Apelbaum Consulting Group.
[3] Australian Government, 2004, *Securing our Energy Future*, chapter 4, Canberra & Axiom Energy, 2005, media release: *Axiom Energy to convert waste plastic into low sulphur diesel - an Australian first.* 5 Sept. 2005.
[4] Australian Bureau of Statistics, "Survey of Motor Vehicle Use", Australia, Oct 2002, 9208.0

buses operating on ethanol were found to have fuel consumption up to 50% higher than conventional fuel.[5]

The types of fuels used in public transport operations are determined by reference to the EURO standards. DOI has the ability, through bus operator agreements managed by the Public Transport Division, to encourage operators to switch to a biodiesel blend. However, further costings and research (into biofuels and other alternative technologies) would need to be conducted into operations and distribution methods for this to be an appropriate mechanism.

One main restriction to a higher uptake of biodiesel is its availability in the marketplace.

Train Operations

V/Line and freight train operators use diesel to power engine locomotives. In Victoria, most V/line and Pacific National diesel locomotives are fuelled at the Pacific National controlled fuel point in South Dynon which does not use biodiesel.

V/line have investigated the use of biodiesel, primarily in Sprinters and V'Locities, which are fuelled at V/Line controlled fuel points, such as Southern Cross, Ballarat East, Bendigo and Geelong. However, a key barrier to its use is that the manufacturer's warranty on engines used in the V'Locities will be void if biodiesel fuel is used.

Meeting our Transport Challenges

It should also be noted that Victoria's public transport system – particularly its bus services – is expanding. This is likely to result in an increased demand for diesel, and may also affect demand for biodiesel. The Victorian Government's policy for meeting Victoria's transport needs – as set out in *Meeting our Transport Challenges* – are discussed further in Attachment 1.

Barriers to, and incentives for, increased use of biofuel for transport

In 2005 a Commonwealth Government Biofuels Taskforce examined the latest scientific evidence on the impacts and benefits of biofuels. The Taskforce found that barriers to the increased production and uptake of biofuels included[6]:

- consumer apprehension due to widely publicised allegations of vehicle damage (engine and fuel line wear, decreased fuel economy). DOI notes that the use of petrol blends with more than 10% ethanol may void or limit engine warranties in some vehicles;
- increased fuel consumption without a requisite lowering in price. While almost all post-1986 vehicles can operate adequately on blend of up to 10% ethanol, fuel consumption does increase by around 2.6-2.8%[7];

[5] Informal trials have suggested that a bus running on ethanol used for public transport routes consumes in the order of 60-80 litres per 100 km's. A standard diesel bus used for public transport routes consumes in the order of 30-40 litres per 100 km's

[6] Australian Government, "Report of the Biofuels Taskforce to the Prime Minister", 2005, p.125. For further information please visit the biofuels taskforce website at www.dpmc.gov.au/biofuels

- commercial risk associated with market entry because of low consumer confidence;
- the federal government's fuel taxation reforms and complexity deters biofuel project proponents;
- lack of access to the existing fuel distribution network; and
- fuel volatility.

Under the *Fair Trading (Product Information Standards) (Petrol) Regulations 2003* Victorian retailers supplying petrol containing ethanol must disclose the ethanol content to motorists through labels on petrol pumps.

In order to increase the use of biofuel for transport in Victoria it is first necessary to ensure that it is readily available, reasonably priced and safe. While fuel taxation is primarily a Federal Government responsibility, the Victorian Government could potentially work to address other barriers, for example by encouraging testing and use of ethanol blend fuels (E5 and E10) and biodiesel in Government and privately owned vehicles.

[7] Australian Government, "Report of the Biofuels Taskforce to the Prime Minister", 2005, p.125

Attachment 1 – DOI Policies and their relationship with biofuels

Energy Policy

A National Emissions Trading Scheme (NETS)

Support for a national emissions trading scheme (NETS) is a key component of the Victorian Government's greenhouse policy, particularly to address emissions from the stationary energy sector.

Since 2004 the Victorian Government has been working with all other States and Territories to develop a possible design for a NETS. This possible design is set out in a Discussion Paper, which was released on the 16 August 2006 for public consultation.

A NETS can provide a practical, flexible and relatively low-cost means of achieving significant greenhouse gas abatement[8]. An emissions trading scheme sets a limit (or 'cap') for emissions from a particular sector (eg. the stationary energy sector), for a given period. Permits to emit greenhouse gases are issued for each period, and participants in the scheme must hold permits equivalent to their emissions for that period. The imposition of this cap, and the trading of emissions permits, effectively places a price on greenhouse gas emissions. This price provides a drive for activities and technologies which result in reduced emissions, and makes them more competitive with conventional fuel sources and technologies.

A well-designed emissions trading scheme allows the market to seek out the lowest-cost ways of achieving emission reductions. This may be through purchasing emissions permits, taking action to cut their own emissions, or taking action elsewhere to 'offset' emissions (ie. counterbalancing emissions by reducing elsewhere in the economy)[9].

Biofuels and a NETS

A NETS can play an important role in commercialisation of new and existing abatement technologies and lower-emissions fuel sources. A NETS values externalities (greenhouse gas emissions), thereby providing an incentive to deploy lower-emission technologies that are available (eg. biofuels), but require additional financial support to compete with conventional technology (eg. petrol).

As is the case under the Kyoto Protocol and the European Union ETS, the proposed NETS does not cover emissions from fuel used by transport, and instead focuses on the stationary energy sector[10]. This makes it unlikely that biofuels would be directly affected by a NETS. However, there is scope to expand coverage to additional sectors – including transport – over time. The implementation of a carbon price on transport fuels would certainly increase the viability of biofuels, which are less greenhouse-intensive than petrol or diesel.

[8] National Emissions Trading Taskforce, 2006, *NETS Discussion Paper*, p.10
[9] National Emissions Trading Taskforce, 2006, *NETS Discussion Paper*, p.11
[10] as defined by the National Greenhouse Gas Inventory

Biofuels may be involved in the scheme in the future, as an emissions "offset". The proposed NETS considers the possibility of recognising offset credits created through the Clean Development Mechanism of the Kyoto Protocol, which includes biomass projects. The proposed NETS also suggests that, in the long-term, transport-related emissions reductions may be considered as an eligible offset[11].

The Victorian Renewable Energy Target (VRET) scheme

The Victorian Government strongly supports renewable energy, recognising that renewables can:

- drive regional investment and employment in emerging, sustainable industries;
- contribute to the diversity and security of Victoria's energy supplies; and
- deliver greenhouse gas abatement in the long-term, protecting Victoria against future carbon constraints.

The Victorian Government has set out to increase the share of Victoria's electricity consumption from renewable sources, and in July 2006 launched a market-based scheme – the Victorian Renewable Energy Target (VRET) – to drive investment in renewable energy. The scheme sets a target for an additional 3,274 Gigawatt hours of electricity to be produced from renewable energy sources by 2016 (equating to 10% of total Victorian electricity consumption in 2016). The scheme will start on 1 January 2007 and end on 31 December 2030, with an independent review to be held in 2011.

Under the scheme, accredited power stations will create certificates for electricity generated from eligible renewable energy sources, including hydro, solar, wind, biogas and biomass. Electricity retailers are then obliged to source a proportion of their electricity from renewable sources, by acquiring and surrendering certificates.

The VRET scheme and biofuels

It is unlikely that biofuels will be significantly affected by the VRET scheme. As VRET focuses only on the stationary energy sector, energy produced from biofuels are not eligible to create certificates.

However, a growth in the renewable energy industry – for example, through increased energy production from biomass and biogas – will have positive flow-on effects for the biofuels industry. The scheme has the potential to stimulate the production of biomass which is both recognised as an 'eligible source' under the VRET scheme, and is used to manufacture biofuels, such as energy crops, agricultural waste, and waste from food and food processing. Such an increase has the potential to make biofuel production more viable, by providing economies of scale for some fuel sources.

[11] National Emissions Trading Taskforce, 2006, *NETS Discussion Paper*, p.85

Incentives for new and lower-emissions technologies

The Government strongly supports new and renewable technologies, particularly as a means to achieve deeper cuts to emissions levels.

The Energy Technology Innovation Strategy (ETIS)

In the 2005-06 budget the Victorian Government provided over $100 million to develop and demonstrate energy technologies in which Victoria has a particular advantage (eg. cleaner brown coal), renewable energy and energy efficiency technologies.

The Centre for Energy and Greenhouse Technologies (CEGT)

In August 2003 the Victorian Government provided over $14 million to establish the Centre for Energy and Greenhouse Technologies (CEGT), with a further $15 million funding announced earlier this year. The Centre is a private company that provides investment funds and support services, particularly for the late stage development and commercialisation of new sustainable energy and less greenhouse-intensive technologies.

Currently there is little research and development (R&D) occurring in relation to biofuels in Victoria, largely because biodiesel and ethanol are already commercial technologies. Therefore, if the CEGT was to fund biofuels, it is likely that it would relate to technologies for the production or application of biofuels.

Support for Renewable Energy Technology

Launched in September 2003, the Renewable Energy Support Fund supports innovative new small to medium scale renewable energy projects in Victoria. The fund has received a further $2.35 million in 2006-07.

The Government will also invest a further $10 million over three years to support renewable energy technology research and development.

Transport Policy

Meeting Our Transport Challenges

The Government has recently announced its vision for meeting the transport needs of all Victorians, and in May 2006 it released *Meeting our Transport Challenges* that outlines an action blueprint for shaping Victoria's transport system into the future. The blueprint is supported by a $10.5 billion funding package, the largest single transport investment program in Victoria's history, aimed at delivering more services, better safety and improved reliability. This program doubles the annual capital expenditure on public transport compared with the previous four years.

As a result, approximately 24,000 extra public transport services will be delivered across Victoria every week, an extra 50 million passengers carried on public transport per year, and over 800 new staff employed on the public transport network.

A particular focus of *Meeting our Transport Challenges* is improving transport choices for people in the outer suburbs of Melbourne. Nearly $1.4 billion has been allocated for a massive expansion of local bus services and the extension of SmartBus routes on major arterial roads. This expansion of bus services will have a flow on effect into the fuel market, particularly that of diesel. This could expand the demand for bio-diesel should it prove to be a viable operational alternative and become easily available to operators.