

## Chapter 5. The Future of Biodiesel for Local Governments in Australia

### 5.1. Looking Ahead

This research suggests that as oil costs and greenhouse mitigation concerns continue to increase, biodiesel will likely play a more prominent future role in Victoria and Australia-wide within local government fleets and in the community.

However, feedback from 50 councils has illustrated some differences regarding the role that councils believe biodiesel will and/or should play in the future.

The divisions largely reflect different perspectives on the many economic and environmental factors that require consideration in relation to biodiesel in Australia, as reflected in Chapter 2.

A focus on the long-term implications of these economic and environmental factors can be readily encapsulated by two questions, that of future council usage and also the appropriateness of a biodiesel mandate. The focus of this section, of looking ahead at biodiesel usage by local governments in Australia, will tease out the key issues within these questions.

#### 5.1.1. Future Usage

As part of the survey, councils were asked if they thought that biodiesel would play a significant role in council's future fuel usage in 2010. The results showed that 83% of experienced councils and 52% of non-biodiesel councils thought that it would. However, 37% of non-biodiesel councils believed that it would not play a significant role in council's future fuel use, whilst only one experienced council was of this opinion. Three councils from each group did not respond to the question.

To understand the concerns raised by approximately a third of councils overall who believe that biodiesel will not play a significant role in council's fuel usage in 2010, it is necessary to further investigate three key issues, those of sustainability of supply, GHG abatement, and the environmental impact of feedstocks.

##### 5.1.1.1 Sustainability of Supply

A major concern influencing council decisions on biodiesel uptake is the sustainability of supply and access to this resource. This is based on various estimations of the large area of Australian land that would be needed to grow crops for fuel rather than food

in order to offset a relatively small percentage of the country's growing transport emissions. Waste cooking oil and tallow are also finite resources. There is only so much feedstock available and as demand increases, competition may push the price up and the industry may be unable to meet demand through domestic feedstocks at an economically viable price.

Recent figures from CSIRO, for example, put the potential proportion of Australia's diesel usage that could be offset by biodiesel, using domestic feedstocks, at 10% (based on unpublished calculations by CSIRO). National diesel consumption in 2005/06 was 15,880 ML, which means that, based on the CSIRO research, 1,588 ML of this could theoretically be offset through the uptake of either 1,588 ML of B100 or 7,940 ML of blended B20. With 219 CCP councils Australia-wide, each council could implement the uptake of 1 ML of B20 per year and still leave 7,721 ML of B20 from domestic feedstocks available for other users.

In Victoria, according to further analyses by CSIRO, there is the potential for waste cooking oil, the cheapest biodiesel feedstock, to provide 20 ML of Victoria's annual biodiesel needs. Tallow from Victoria and the south of NSW, could contribute another 134 ML and is the next cheapest feedstock. Victoria's entire oilseed crop, if used solely for fuel, could provide 140 ML of biodiesel. This means that there is theoretically 294 ML of B100 biodiesel available annually in Victoria, or 1,470 ML of B20. If all 65 Victorian CCP councils were to use the 540,000 litres a year that the City of Greater Bendigo uses in its entire depot fleet of 140 vehicles, there would still be 1,435 ML of B20 available for other Victorian users.

This indicates the hypothetical potential for the uptake and impact of domestic biodiesel in Victoria. However, there are competing markets for waste oil and tallow, and obvious issues concerning the use of increasingly limited land and water resources to grow crops solely for fuel. Waste oil even raises some questions concerning the boundaries around palm oil regulations or policies, as a significant proportion of waste vegetable oil is palm oil, though this is perhaps an issue for the broader food industry.

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Of course, imported feedstocks could further increase the potential for biodiesel use both in Victoria and Australia as a whole. However, the life-cycle impacts of these feedstocks would have to be known before it was assumed that their use would result in net GHG benefits. Additionally, there is the potential that some second-generation biofuels with fewer direct environmental issues will become commercially available within the next five years. For example, Energetix (Vilo Assets Management Pty. Ltd) intend to establish a trial plant that will harvest microalgae grown on coal-fired power generation flue gas for use in the production of biodiesel. Energetix anticipate that this biodiesel will be commercially available in Victoria in two years<sup>98, 99</sup>.

### 5.1.1.2. GHG Abatement

Many councils have been trialling and using biodiesel as a way of reducing transport emissions and meeting greenhouse gas reduction goals, such as for the CCP program. However, there is as yet no clear consensus as to accurate greenhouse benefits of using biodiesel rather than diesel due in most part to the complexity of life cycle analyses, and the use of differing feedstock and blends (refer to section 2.3.2. and section 3.2.4.2: Measuring and Reporting GHG Emissions).

This uncertainty was reflected through the survey, with several councils regarding the GHG benefits that are ascribed to biodiesel as negligible, or not proportionate to the investment and effort required. The fact that figures for life-cycle analyses can vary quite considerably, for reasons outlined in Chapter 2, further complicates the situation for many of these councils who believe that they “vary too much to be convincing”.

“potential GHG abatement [in Victoria] of up to 441,000 tonnes Co<sub>2</sub>-e”.

However, on the flip side, many councils take the stance that it is a good thing for the environment, especially in terms of air quality, and despite uncertainty in quantifying GHG benefits, are prepared to act now and assess these benefits later. Greater certainty regarding greenhouse

benefits will increase the uptake of biodiesel, but as the climate crisis deepens, this may also increase uptake through the sheer desire to act and do the right thing.

Based on current knowledge and methods regarding the GHG benefits of domestic feedstocks, if Australia were to use its estimated available capacity of domestically sourced biodiesel (1,588 ML of B100 or 7,940 ML of blended B20), this would provide potential annual GHG abatement of up to 2,500,000 tonnes CO<sub>2</sub>-e according to the AGOs emission factors, depending on the blend and the feedstocks (this assumes an average emission factor for B100 across all three feedstocks as no one feedstock could provide the total volume).

In Victoria, the estimated available supplies of used cooking oil (UCO), tallow and oilseed could together displace 6% of Victoria’s annual diesel consumption in 2004/05, with potential GHG abatement of up to 441,000 tonnes CO<sub>2</sub>-e according to the AGOs emission factors, again depending on the blend and feedstocks (this is based on the emission factors for canola and tallow as they make up the majority of the feedstocks). This is equivalent to taking 88,200 cars off the road for a year.

### 5.1.1.3. Environmental impact of feedstocks

Several councils demonstrate wariness about committing to a future of increased biodiesel usage that involves unsustainable practices, including the destruction of tropical forests and peatlands for palm oil plantations, use of limited water supplies to grow fuel, and land for fuel competing with land for food. The use of palm oil is a particular concern for many councils, so much so that some have passed resolutions banning its use by their council.

In order to both minimise the potential impact of imported feedstocks and maximise the benefits that can be derived from Australia’s domestic capacity, some councils recommend that the use of biodiesel be limited to certain applications. Stuart Nesbitt from Hume City Council, is of the opinion that:

*“Sustainable Biodiesel is... a finite resource, and its consumption must be carefully managed to achieve maximum benefit. As a result I now only advocate biodiesel consumption in diesel fleets operating in dense urban environments where improved air quality*

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*is important, or in ecologically sensitive environments. The greatest advantage of biodiesel is in air quality improvements, so the use of Biodiesel as a finite resource should be contained to areas of use where this benefit can be best exploited.*" (Refer to Appendix J for full case study).

However, others are of the opinion that Australia's biodiesel production and demand is still well short of capacity using domestic feedstocks and such limitations would impede the further development of this industry in Australia. As Peter Dormand from Newcastle City Council states:

*"It would be wrong for us as a nation to slow the momentum for uptake before capacity has been reached and our efforts and energy should go into driving the market. We can work out what we're going to do when we can't supply it. At the moment, this is not the case so we need to get on with the job."* (Refer to Appendix G for full case study).

Being aware, at this relatively early stage, of the potential implications for Australian biodiesel producers of an unregulated increase in demand, and taking note of recent developments in biofuels policy in Europe, it is perhaps wise to put in place various safeguards as soon as possible both in relation to the best use of Australia's domestically produced biodiesel and the source of supplementary imported feedstocks.

### 5.1.2. A Biodiesel Mandate

Mandates offer another means, along with tax incentives, rebates and targets, of creating policies to support the use of biodiesel. They consist of establishing, by law, a minimum level of consumption. There are two primary forms such a mandate can take.

The first is a mandated level of national consumption, which could require, for example, that a minimum of 5% of national fuel consumption requirements be met by biodiesel annually. With this type of mandate, there is no stipulation as to the percentage blend that is to be used as long as the total national use equates to 5% at the end of the year. This means that areas with limited biodiesel availability could use a lower percentage blend, say B2, while other areas might be in a position to use a higher blend, say B20 or higher. In this way the mandate can be met in a variety of ways according to the pattern of availability and uptake across the country.

The second type of mandate is a minimum biodiesel blend to be applied nationally for all diesel fuel usage. This would require that all diesel fuel be blended to a minimum level of, for example, 5% biodiesel.

While mandates can certainly create a clear signal in support of biodiesel uptake, there are two main concerns. The first is around feedstock availability. Given that the CSIRO has estimated that 10% of current national diesel consumption could be displaced using domestic feedstocks, a mandate any higher than this will put pressure on domestic resources, could adversely impact on market prices for canola and other oilseed crops and would almost certainly necessitate a growth in imported feedstocks. While this may provide localised GHG and other benefits in the short term, it raises the issues around food vs fuel, life-cycle impacts and fuel security that have been discussed previously. Furthermore, as fuel consumption for transport is expected to increase significantly over the coming years, the potential proportion of Australia's fuel requirements that could be met using domestically sourced biodiesel will decline accordingly.

The second concern is that any mandate would have to be accompanied by price controls to ensure that diesel users were not disadvantaged through being required by law to purchase a higher cost fuel. This might necessitate close control on feedstock prices and regular adjustments, in the form of rebates or grants, in response to fluctuations in the fossil fuel market.

The Biofuels Taskforce reports that biodiesel producers, state governments and members of parliament support the introduction of a biodiesel mandate<sup>17</sup>. However, automotive associations, vehicle manufacturers and, as might be expected, major oil companies are opposed to such mandates, as are livestock industries due to the potential impact on grain prices. Following the recent Parliamentary Inquiry into the Production and/or use of Biofuels in Victoria<sup>93</sup>, the committee concludes that the significant growth in Australia's biodiesel industry demonstrates that it is sufficiently viable without further government support in the form of a mandate. However, it does support an extension of the Victorian policy requiring the use of ethanol blends in Government fleets, whenever practicable, to include the use of biodiesel.

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Of the 40 councils that responded to the question of a national biodiesel mandate, 55% support a mandated level of biodiesel uptake. The most commonly proposed mandate level was B20, followed by B5, with a few councils calling for higher levels, up to B40. Many councils that support a mandate are unsure at what level this should be set and place certain provisos around its introduction.

Some of these provisos focus on environmental or sustainability issues (note: the following dot points are either quoted or paraphrased from council responses):

- “A level that promotes the use of sustainable biodiesel, but not one that opens the floodgates to imports such as palm oil”
- Support a mandate “...provided there is sufficient Australian based production capacity”
- Support a mandate provided it is “...linked to a sustainable domestic supply”

Others reasons given by councils in support of a mandate include the overall reduction in transport emissions that would follow and that it encourages the use of waste products. However, this report has shown that the volumes of waste oil that are currently available would be quickly outweighed by demand if a significant national-level mandate were introduced. Therefore the implications of meeting this mandate from all feedstocks have to also be considered. From a behavioural point of view, some councils believe that a mandate would overcome existing resistance to change. A progressively higher mandate, spread over five years would, it is proposed, enable the industry and market to adjust gradually to an increase in demand and avoid placing undue pressure on users to meet blend and usage levels until the availability and economics were favourable. The introduction of a biodiesel mandate would need to be accompanied by consumer education to overcome negativity surrounding the fuel’s compatibility with diesel engines and other operational characteristics. Existing tax policies that work against transport efficiency and the uptake of alternative fuels would also need to be revised.

Acknowledging the limited availability of domestic feedstocks and aware of the potential to target biodiesel’s air quality benefits to the most affected areas, many councils support a mandate targeted at fleet operations only, not for general domestic consumption.

While the majority of surveyed councils do support a biodiesel mandate, there are still 45% that do not. The reasons for this are largely economic, and focus on the points raised earlier regarding the current lack of price controls.

Councils would be disadvantaged if forced to purchase higher cost fuel, and the current lack of availability in many areas, especially rural and remote regions, would push costs up even more. Rather than mandates, some councils believe that more advantageous tax credits and rebate schemes would better support growth in the biodiesel industry and encourage uptake. Such schemes could make biodiesel more economically viable, perhaps even a cheaper fuel option compared with diesel. Under a broader system of credits and rebates, other alternative fuels could also become more economically viable and indeed some councils see fuels such as natural gas, biogas and ultimately hydrogen, as having a longer-term future than biodiesel.

“...many councils support a mandate targeted at fleet operations only, not for general domestic consumption.”

A final concern raised regarding a biodiesel mandate is that, like offsets, it would not directly encourage any change in behaviour but is, in effect, a way of carrying on business-as-usual while hopefully reducing the impact of that behaviour. However, as this report has illustrated, Australia’s fuel needs for transport are expected to grow considerably and there is the possibility that, without associated changes in behaviour involving fuel efficiency and demand management, any GHG abatement resulting from biodiesel uptake could be negated by an overall increase in fuel consumption.

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### 5.2. Opportunities for a Sustainable Biodiesel Industry

Many councils acknowledge that huge potential exists for biodiesel uptake within local governments, creating opportunities for councils not only to contribute to reduced GHGs and air/water pollution but also to:

- Display leadership to their wider communities and nationally;
- Encourage creativity and openness to new ideas and technologies;
- Reduce reliance on finite fossil fuels;
- Increase security in Australia's ability to produce domestic energy;
- Generate local economic development and employment in regional and rural areas;
- Foster diversity in Australia's domestic markets, and;
- Work collaboratively with various stakeholders and form regional partnerships to facilitate change beyond their council boundaries.

The issues surrounding biodiesel uptake that have been identified by councils at this relatively early stage of the Australian biodiesel industry also present opportunities to review current policies and strategies and make changes that could enable more informed and beneficial decisions to be made regarding biodiesel uptake.

“local governments... [can]...influence the direction that the industry takes from this point onwards.”

Councils have themselves suggested several steps that could be taken in this direction, thereby making it easier for them to make these decisions. These include:

- Leadership and support at Federal and State levels;
- Rebates and incentives (i.e. green grants/greenhouse credits & offsets);
- Planning policies to support renewable industries;
- Guaranteed costs and long-term supplies;
- Improved supply structure;
- Reliable data - ICLEI/AGO endorsed;
- More research, information and education;
- Clarity on warranties - both producers' and manufacturers'.

What this indicates is that local governments are thinking ahead and want to position themselves within an appropriate and relatively stable framework that allows them to make optimum decisions, environmentally, economically and socially, regarding council's future fuel use.

The primary opportunity for local governments in relation to biodiesel exists in their being able to influence the direction that the industry takes from this point onwards.

Being held increasingly accountable for their environmental impact and more directly answerable to their communities, local governments could lose considerable standing if the decisions they make regarding biodiesel uptake turn out, under scrutiny, to be either more harmful for the environment or simply replace one set of problems with another.



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### 5.2.1. Local Government Policy Criteria

The issues raised in Chapter 3 regarding GHG abatement, supply, feedstocks, sustainability, costs and efficiency may justifiably lead to uncertainty within local governments about the future of biodiesel.

However, they also provide focal points around which local governments have the opportunity to state what would be an acceptable future industry, such that they, and Australia as a whole, might stand to benefit economically and environmentally.

If local governments place parameters around their support of biodiesel now, for instance by requiring guaranteed fuel standards, feedstocks, sources of feedstocks and supply guarantees, then the industry is more likely to develop according to these parameters. If the industry is unable to meet these parameters, then this will indicate that, in its current guise, the industry is not providing a viable alternative to normal diesel, either in terms of reducing the impact of fossil fuels on our environment or adequately addressing issues of fuel scarcity and/or security.

There are precedents and possible models already emerging for this type of pro-active engagement.

The Netherlands' new position, and also the UK government's new reporting and certification framework for biofuels (see Chapter 2, Information Box 1), are indications that industry practices are ultimately controlled by what the market determines is acceptable.

Australia needs to start looking ahead, taking note of the trends already emerging in Europe, and position itself to establish an appropriate framework for its biodiesel industry from, almost, the ground up. The Netherlands has also established the world's first guidelines for the production of biofuels, which, along with the UK's new system, could form the basis of just such a framework. These guidelines include criteria for the impacts on GHG emissions, local food supplies and prices, biodiversity, water supplies, soil quality and social well being of workers. If limited domestic supplies mean that imported palm oil is set to become a necessary component of Australian biodiesel, then local governments are increasingly reflecting that some kind of TBL framework is needed to ensure this, or indeed any biodiesel

feedstock, is not causing more environmental harm than the original diesel fuel.

Local governments can take each of the uncertainties around the future of biodiesel and turn these into the bases of a regulatory framework by incorporating them into council policies and contracts. To this end, possible questions that could be asked towards the formulation of such council policies and contracts are:

#### **GHG abatement**

What are the optimum blend and the optimum feedstocks for maximum GHG abatement, also taking into consideration other emissions and the most appropriate application in terms of their impact, ie. urban, rural, fleet only etc.?

#### **Supply**

What level of demand can be reasonably met with a guaranteed supply? Given this level, what is the most appropriate application for maximum benefit?

#### **Feedstocks**

What is the preferred order of hierarchy of supply for feedstocks? Should there be a limit on the proportion of domestic oilseed for fuel to control price competition with grain for livestock and food? Are the feedstocks sourced locally, interstate or overseas? Under what conditions?

#### **Sustainability**

Are the feedstocks produced sustainably and with minimal harm to the environment? How is this ascertained? Is this guaranteed or certified?

#### **Costs**

Does the current legislation act as a disincentive to the use of alternative fuels and vehicle efficiency? Can council take any action to address this?

#### **Efficiency**

Are transport efficiency and reducing fuel demand given at least equal emphasis and support as the uptake of alternative fuels?

Ideally, more emphasis should be given to transport efficiency and reducing fuel demand than the uptake of alternative fuels as these measures should reduce the amount of alternative fuel that needs to be purchased.

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### 5.2.2. Local Economic Development

The emergence and establishment of renewable/sustainable-focused industries in a certain area can lead to similar businesses being attracted to the same area, based on the assumption that there is local awareness around such goods and services and therefore the market is more accessible. Often flagship businesses or industries, such as biodiesel, or in the case of Portland Victoria, a wind farm blade factory<sup>94</sup>, can be catalysts for this kind of development and as more businesses are attracted, mutually reinforcing supply chains can develop around supporting their specific needs and markets.

It is difficult in these early stages of Australia's biodiesel industry to accurately assess the long-term impact that local government uptake could have on local economic development. However, the increased demand from local governments in Victoria is almost certainly a contributing factor in the expansion of existing producers/suppliers from other States and the establishment of new enterprises within Victoria. This is leading to the creation of additional jobs for a domestic market that previously did not exist, being met almost solely through imports. A US University of Missouri study has estimated that the production of approximately 380ML of biodiesel can generate an increase of AU\$10 million in personal income and an additional 6,000 jobs<sup>95</sup>.

“...the creation of additional jobs for a domestic market that previously did not exist...”

For local governments that have adopted a regional development model, encouraging this kind of development can be part of a broader strategy that may focus on creating a hub for sustainable businesses.

Local economic development can be a positive outcome of biodiesel uptake and local governments can play an instrumental role in maximising the benefits through effective research and planning. As facilitators of this kind of development, local governments can seize the opportunity to act as information brokers, demonstrating leadership for further uptake within the community, as well as support for existing and new businesses. This could take the form of campaigns, workshops or forums that foster networking and partnerships between businesses and the community. Such partnerships often bring the potential to link to funding opportunities and attract investment from research and development bodies. Ultimately it can be seen how such an area could develop into a 'centre of excellence' for renewable/sustainable resources.

This model can be expressed in a variety of ways and the council context will be a significant determinant of the actual outcome. For instance, the resources available in a rural council, which may be a centre for agricultural activity, are very different from those of an urban council, which may be a regional transport hub. Capitalising on the local resources and perceived needs in each case will require different planning processes and produce different results. However, in both cases, the uptake of biodiesel is feasible and the previous examples of local economic development in relation to biodiesel demonstrate the potential added value of such a project beyond the environmental and possible short-term financial benefits. As Hobsons Bay City Council indicates, with reference to their planned and soon-to-be implemented joint biodiesel project with Hume and Ballarat City Councils:

*“...economically, it would open new markets for farmers and potentially lower the fuel costs for transport companies; socially, it may create new employment opportunities in Buloke; environmentally, it would greatly improve air quality in Hobsons Bay and the lower the community's greenhouse gas emissions.”*

(Matt Aquilina, Hobsons Bay City Council).

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### 5.3. Future Developments in Biodiesel

As well as formulating plans and policies based on the current state of the biodiesel industry in Australia and other parts of the world, it is also important to consider the possibility of new developments in the future.

Second generation fuels are already being developed and these could significantly influence the future of biodiesel in Australia as most of them require much reduced energy investment compared with energy return and therefore produce lower life-cycle emissions. Some of these biodiesel sources also avoid issues of food vs fuel as they are not competing for the same land or resources and can even make use of arid, high saline regions with formerly no economic value. Others make further use of our society's increasing volumes of waste, in the form of sewage and plastics. Some of the potentially more viable feedstock sources currently being investigated and, in some cases, already under production, include jatropha, mustard and algae (from sewage as well as microalgae). For most of these second generation biofuels, it is likely to be between five to ten years before they are commercially available, although biodiesel producers in some areas are progressing faster in this direction with Energetix in Victoria (contracted biodiesel supplier to the Cities of Ballarat, Hobsons Bay and Hume) expecting their microalgae-sourced biodiesel to be commercially available in two years<sup>98</sup>.

These developments could significantly alter the outlook for biodiesel, both economically and environmentally, creating opportunities to address some of the challenges that this fuel currently presents. This leads to a final point regarding the future of biodiesel.

In their 2005 report, the Biofuels Taskforce states that new biodiesel production appears to be uneconomic in the long-term, and to remain viable after the 19c/L production grant ceases (2015) would require subsidies of between 21 and 32 c/L<sup>17</sup>. Also:

*"Greenhouse gas benefits alone would not warrant further assisting biofuels, given the availability of much cheaper carbon reduction options"*

Weighed carefully against environmental implications, the decision of whether or not to support biodiesel does

not rest solely on economics. As Peter Dormand says:

*"One of the most positive outcomes of Newcastle's biodiesel project was the increased confidence to tackle new things, to look for and try alternatives."*

(Refer to Appendix G for full case study)

In the current world situation with fast approaching dangerous levels of atmospheric CO<sub>2</sub>, and with transport as one of the largest, and fastest growing, contributing sectors, there will need to be a radical change in transport behaviour over the next two decades. A readiness and flexibility to try new things and remain open to constant improvements and developments will create more opportunities for creativity to be tested and for effective solutions to emerge faster than if they were met too soon with scepticism and resistance.

**"...the unquantifiable benefits of supporting and encouraging innovation and flexibility must not be overlooked."**

In terms of dollars per tonne of GHG emissions, some councils argue that there are more effective means of achieving abatement, particularly if further support in the form of tax incentives, rebates, grants and price regulations are required to encourage more widespread production, supply and uptake. Currently, as is evident from experienced councils, there is proportionately very little initial investment required from councils in order to implement biodiesel uptake, and after this initial investment, the annual GHG savings are effectively at no extra cost. However, even if this were not the case, our transport infrastructure and patterns of behaviour are so heavily entrenched, and this sector accounts for such a significant and increasing proportion of fossil fuel emissions, that the unquantifiable benefits of supporting and encouraging innovation and flexibility must not be overlooked.

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### 5.4. Conclusion

To constitute a viable alternative to normal diesel fuel, biodiesel ought to be less harmful to the environment and have fewer issues around fuel scarcity and/or security.

This report has highlighted that biodiesel has many practical advantages over normal diesel in terms of safety, toxicity, biodegradability, emissions, and elements of vehicle performance. There are few practical problems that may be associated with biodiesel uptake besides the initial fuel filter changes (not regarded as a problem by any experienced councils), an increase in NO<sub>x</sub> emissions (technologies are currently being researched to address this) and the possibility of slightly reduced power with blends above B50. However, biodiesel can present several regulatory, managerial and administrative challenges for councils in relation to the fuel itself - feedstocks, supply, availability, standards, sustainability and life-cycle impacts, as well as its implementation - resistance, funding, warranties, tax credits and emissions monitoring/calculations. Unlike practical problems, of which there are few, all of the regulatory, managerial and administrative challenges in relation to biodiesel uptake are either subject to change and, ideally, improvements or within councils' power to influence.

This highlights the fact that there are currently no prohibitive barriers to local government uptake of biodiesel. There may be barriers that, depending on the situation, present councils with varying degrees of challenge. However, these also present opportunities for councils to identify the areas where they need to exert greater control and demand clearer signals from both industry and government regarding the future of this fuel. A clear opportunity exists in the fact that the industry is expanding significantly and demand has not yet reached Australia's capacity for biodiesel production using just domestic feedstocks.

CSIRO estimated that biodiesel produced using domestic feedstocks could potentially offset approximately 10% of Australia's annual diesel usage and 6% of Victoria's. If deployed in the most effective manner, this could form an important component of Australia's future domestic fuel security, which will most likely be comprised of a suite of alternative options, rather than just one. It would at least ensure that essential services could be maintained in the event of a shortage of fossil fuels.

The degree to which biodiesel can offer local governments an environmentally preferable alternative to normal diesel differs depending on its production and use. As Tim Grant from CSIRO says, it cannot be regarded as an 'environmentally friendly' fuel in terms of full life-cycle analysis as there are, at the present time, no environmentally friendly fuels, given that they all result in the addition of more GHGs to the atmosphere than there were to begin with. However, biodiesel could, under certain conditions, offer a more acceptable interim option, that at least contributes fewer GHGs and improves air quality, until such time as more advanced, ideally carbon-neutral transport technologies become commercially viable.

There is currently a prime opportunity for local governments in Australia to address the challenges, and also frame or define the opportunities that biodiesel presents through being pro-active in setting conditions or parameters around local government uptake and thereby influencing the way the industry unfolds from this point forward.

In setting these parameters, local governments will need to weigh current and future opportunities for biodiesel uptake against changing environmental, social, economic and ethical implications surrounding its production and supply processes.