Discussion paper: Strategic directions for development of the Queensland bio-based industrial products sector

Caltex Australia Limited welcomes the Queensland Government’s objective to develop a sustainable and internationally competitive bio-based industry. Caltex supports the development of a market-driven, sustainable biofuels industry based on consumer confidence, reliable supply and competitive prices.

1. Caltex and the Australian petroleum industry

In 2009, Australia consumed around 50,600 megalitres of petroleum products, of which ethanol-blended fuel sales represented around four percent.\(^1\) Australia is a net importer of petroleum products with imports providing 22 percent of Australia’s requirements in 2008-09.\(^2\)

Caltex is a refiner and marketer of petroleum products in Australia, with operations in all states and territories, with about 3,900 employees. It supplies over one third of wholesale transport fuels (petrol, diesel and jet fuel) nationally. It has a branded retail petrol market share of about 16 percent nationally (excluding Woolworths co-branded sites).

Caltex accounts for almost a third of Australia's oil refining capacity. It owns and operates two of Australia's seven operating oil refineries – at Kurnell in Sydney and Lytton in Brisbane. Between them, the Caltex refineries have the capacity to process 244,000 barrels (about 39 million litres) of crude oil per day.

Caltex produces mostly high-value transport fuels which contribute to the growth of the economy and provides significant employment. The two refineries directly employ almost 900 Caltex workers and around 550 contractors. These numbers can escalate when there is major maintenance and project work, growing by a further 1,200 workers to bring the total number employed to over 2,600.

While conventional fossil fuels including refined products will remain dominant over the next few decades, Caltex believes alternatives to conventional refined petroleum products will become increasingly important and as such is investing in the development of biofuels blend markets and distribution infrastructure to meet current and future demand expectations.

Caltex produces a range of biofuels blends, including both ethanol and biodiesel blended products. Caltex’s ethanol blends consist of a blend of petrol and ethanol at varying percentages. These products include Bio E10 Unleaded, a 10 percent ethanol blend, and the recently announced Bio E-Flex fuel, which contains up to 85 percent ethanol.

Caltex’s Bio E10 Unleaded is available at more than 400 Caltex service stations across NSW, ACT and Queensland. The product is also available at some Caltex sites in Victoria. Caltex’s Bio E-Flex will be available at 30 sites in Melbourne, Sydney, Brisbane, Adelaide and Canberra by October 2010, increasing to 100 service stations in 2011.

Caltex’s biodiesel blends consist of a blend of diesel and biodiesel at varying percentages. These products include New Generation Diesel, a two percent biodiesel blend; Caltex Bio B5, a five percent biodiesel blend; and Caltex Bio B20, a blend with 20 percent biodiesel.

Caltex’s New Generation Diesel can be used in all diesel vehicles and equipment and is available in the Newcastle and Hunter regions in NSW. Caltex sells its Bio B5 and B20 to mining companies, and commercial truck and bus fleet customers in South Australia, Queensland and NSW.

Caltex has invested over $20 million in terminals, service stations and blending facilities to support projected future growth in the biofuels industry.

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\(^1\) Department of Energy, Resources and Tourism, *Australian Petroleum Statistics*, June 2009

\(^2\) Australian Institute of Petroleum, *Downstream Petroleum 2009*
2. The Australian biofuels industry

For long term energy security, Australia needs greater diversity in its transport fuel supply to provide options to adjust when liquid fuel demand outstrips supply from conventional crude oil reserves and there is greater reliance on non-conventional sources of liquid fuels (the “peak oil” scenario).

Caltex supports the establishment of a sustainable and viable Australian biofuels industry, which is still a small but developing industry. Caltex believes that biofuels can play an important role in reducing greenhouse gas emissions from transport and increase Australia’s energy security, particularly once economically viable second generation biofuels become available.

Currently, first generation biofuels in Australia are produced from mainly waste wheat, sugar cane and red sorghum for ethanol and predominantly used cooking oil, tallow and canola for biodiesel. First generation biofuels tend to be sourced from products that compete with food production and has given rise to the ‘food versus fuel’ debate. The ability to produce biofuels from non-food based feedstocks is a significant driver for second generation biofuels as well as reducing feedstock costs.

There are a range of factors outlined in the Queensland Government’s discussion paper that influence the establishment of a viable bio-based industry, including non-feedstock inputs, feedstocks, processes, products and markets. Caltex does not intend to comment on all of these factors but instead highlight key challenges that need to be addressed to support the further development of the Australian biofuels industry.

Caltex believes there are ten essential steps required for a viable biofuels industry to exist in Australia, as outlined in Attachment A, and these will be discussed throughout this submission.

a. Developing a market for the Australian biofuels industry

As stated in the Queensland Government’s discussion paper, it is true that first generation biofuels alone have limited capacity to achieve targets for substituting fossil fuels, climate change mitigation and economic growth. However, Caltex believes it is necessary that a first generation industry with established markets, supply routes and infrastructure exist to allow for the commercialisation of more sustainable, lower cost second generation biofuels.

Caltex foresees future growth potential for the Australian biofuels industry as government regulation in the form of mandates are increased and/or introduced, demand from customers rises, and petroleum demand increases. Currently, the mining and commercial sectors are driving demand for biodiesel as businesses become increasingly aware of the need to be more accountable for their greenhouse gas emissions. Fleet owners are also seeking to invest in low carbon emitting vehicles such as hybrids, electric vehicles and flex-fuel vehicles.

NSW is currently the only state with a mandated volume for ethanol and biodiesel. The NSW Government has legislated that at least four percent of the current volume of petrol sold in the state must include ethanol. From 1 January 2011 the mandated volume will increase to six percent until 1 July 2011 when all regular grade unleaded petrol must include 10 percent ethanol. The NSW Government also requires biodiesel supply, typically in the form of diesel blends, to equal two percent of diesel sales, increasing to five percent from 1 January 2012.

The Queensland Government has drafted legislation with a five percent ethanol mandate of unleaded petrol volume from 31 December 2010. While this is yet to be legislated, Caltex’s commitment to the industry is reflected in that it already sells ethanol and biodiesel blends in Queensland. Already at 35 Caltex service stations in Queensland regular unleaded petrol has been displaced in order to build sales towards compliance with the proposed mandate and customers can choose between Bio E10 Unleaded and our premium petrols, Vortex 95 and Vortex 98. At a further 74 Caltex service stations, consumers are able to purchase either Bio E10 Unleaded, regular unleaded petrol or our premium fuels.

Caltex has been engaged in the Queensland Government’s policy development process regarding the five percent mandate but believes the supply chain and market needs further support to be better
prepared to meet the increased demand that will result from the Queensland Government's five percent target.

The introduction of mandates by governments should be supported by an ongoing education campaign to inform consumers about the product and vehicle compatibility. Acceptance of ethanol remains low mainly due to consumers' lack of understanding about biofuels and consumer confidence is fundamental for a viable biofuels market. Establishing a well-informed market that understands the product and is confident in its use will continue to help build demand for biofuels.

Manufacturers and importers of vehicles should be required to only sell new vehicles in Australia that are warranted to use at least 10 percent ethanol blends, such as Bio E10 Unleaded. All diesels should be warranted to use five percent biodiesel blends with a higher percentage as a longer term policy objective.

b. Developing sustainable biofuels products at competitive prices

The Queensland Government’s discussion paper highlights the need to 'ensure that advanced renewable fuels, material and bio-based chemicals are able to compete with petrochemical alternatives' as a product challenge for the industry. However, Caltex views this as a key challenge for the entire Australian biofuels industry because without a commercially viable and price competitive product the industry will not survive.

Influences on the price competitiveness of biofuels include fluctuating exchange rates, international oil prices (which affect the local price of petrol and diesel) and feedstock prices. The low margins currently experienced by the industry are a result of relatively low international oil prices (which limit the ability to secure higher biofuels prices) and high feedstock costs.

Biofuels will become more price competitive with conventional petroleum products as international oil prices increase and the ‘peak oil’ scenario eventuates. It is generally accepted that oil demand will outstrip conventional oil supply in the foreseeable future (although this may still be some years away or even next decade), leading to higher oil prices or even oil price shocks if supply is very tight.

If oil prices increase longer term as expected and feedstock prices stabilise, the margins and viability of the local biofuels industry will improve. Australia is a net importer of petroleum products and will remain so in the future, so the local biofuels industry needs to be internationally competitive against both imported petroleum products and imported biofuels.

Further R&D investment is required for the optimisation of crops and conversion processes for biofuels production including the development of second generation feedstocks. Biofuels are expected to become more price competitive longer term as feedstock prices reduce with more sustainable, economically viable second generation feedstocks becoming available.

In determining the sustainability of alternative fuel products their ‘life cycle’ impacts need to be considered and should be linked to the provision of financial assistance. The most efficient use of resources would be to provide greater support for alternatives that provide a higher reduction in emissions on a ‘life-cycle’ basis. For example, neat ethanol produced from sorghum results in an 18 percent reduction in greenhouse gas emissions compared to petrol as opposed to a 46 percent reduction from neat ethanol produced from molasses\(^3\). However, full life-cycle emission reductions are highly dependent on the configuration of particular projects. In general biofuels produced from second generation feedstocks are expected to provide greater emission reductions but this is not necessarily the case for well-designed first generation plants.

c. Investing in infrastructure to establish a reliable supply chain

An established and efficient supply chain from feedstock production through to retail infrastructure is needed to continue the development of a biofuels industry and allow for expansion of the market as demand increases. It will be equally important to ensure that as the market moves from first generation to second generation that the existing infrastructure and supply chain can support both.

\(^3\) Prime Minister’s Task Force 2005
The commercialisation of second generation biofuels will be challenging without an established supply chain.

Financial assistance should be considered to help develop the biofuels supply chain, from production and distribution to the wholesale and retail level. Investing in infrastructure to adapt to new markets is expensive so in moving towards the longer term objective of sustainable second generation biofuels, transitional financial support for production, infrastructure and marketing of first generation biofuels may be required.

The infrastructure required to support the continued development of the Australian biofuels industry is still in its initial stages. Biofuels require separate storage tanks from conventional petroleum products and new blending facilities to enable the safe blending of biofuels with petrol and diesel. This infrastructure requires significant investment by industry participants but is necessary for a reliable biofuels supply chain. Service station upgrades to support biofuels cost around $20,000 for pumps and, if necessary, tank replacements on average cost $500,000.

If bio-based industries establish themselves in regional areas close to their feedstock supply, it is important that established infrastructure exists for end-users and customers to be able to access the product in a timely and efficient manner. It is crucial that bio-based industries do not isolate themselves from their customers and market. Transportation costs to terminals and markets need to be considered in determining whether local products can be competitive particularly against imported product.

d. Role of governments in developing the Australian biofuels industry

While biofuels blends are locally available, the policy stance of federal and state governments is not uniform and a strategic policy framework does not exist. Both federal and state governments, in conjunction with industry stakeholders, need to adopt a proactive policy framework that targets both supply and demand issues and encourages continued development of biofuels in Australia.

Governments need to consider the impacts that changes to a range of policies such as R&D incentives, excise, industry development grants, carbon prices, fuel standards and sustainability requirements have on a developing biofuels industry.

Government policies can have an impact on investment in developing markets, particularly if one technology receives greater assistance and incentives than another. The level of support provided to various alternative fuels should be consistent to ensure that investment in certain sectors is not discouraged.

Equitable taxation and subsidies are required for the development of the alternative fuels markets as they naturally influence industry investment and consumer behaviour. The Australian biofuels industry must be required to be internationally competitive and therefore a level playing field with imports in terms of excise and subsidies is necessary, although transitional arrangements may be implemented (as is currently the case for ethanol).

Uncertainty about excise and grant arrangements can create difficulties for the developing Australian biofuels industry. To illustrate this one can look at the eligibility of fuels for the Australian Government’s Fuel Tax Credit Scheme. The credit is available to fuels that meet the applicable national fuel standard, which included biodiesel blends. However, the diesel fuel standard was revised in 2009 to classify biodiesel blends of more than five percent as not diesel. This resulted in biodiesel blends of five percent and less receiving 100 percent of the credit and biodiesel blends of 20 percent only receiving 80 percent of the tax credit unless covered by a variation to the diesel standard (as is generally the case at present).

The change to the definition of the diesel fuel standard results in disincentives for customers to use higher biodiesel concentrations, which provide greater emission reductions. To allow biofuels to help reduce greenhouse gas emissions government policies need to be supportive of the industry. Caltex hence proposes that the Federal Government avoid the removal of tax concessions for 20 percent biodiesel blends to avoid the discouragement of biofuels use.
As outlined in the Queensland Government’s discussion paper, Australian biofuels producers currently receive production incentives from the Federal Government making biofuels exempt from the full fuel excise of 38.143 cents per litre. The fuel excise is effectively offset at the production level through the Energy Grants (Cleaner Fuels) Scheme Act 2004 for biodiesel and through AusIndustry’s Ethanol Production Grants program for ethanol. These grants will be phased out over a period of ten years, resulting in the effective increase in excise applied to locally-produced and imported biofuels as outlined in Attachment B.

The production capacity of the local biofuels industry needs to increase, particularly for ethanol, to meet the growing demand for biofuels from government mandates. So production incentives need to continue to encourage investment and help build the industry’s capacity. However, Caltex acknowledges that such incentives need to be removed over a period of time to allow the industry to become internationally competitive.

Governments need to provide more than financial support to the Australian biofuels industry. Sustainability criteria for biofuels need to be established to support the development of the local biofuels industry and fuel standards need to be monitored and revised to ensure that safe and quality fuels are entering the Australian market. This also helps to develop consumer confidence in the quality of the biofuels they purchase.

As outlined there are a range of issues that currently impact the establishment of a viable biofuels industry in Australia and ultimately oil prices, carbon prices and production costs will determine this. However, government policies can assist and support the economy’s transition towards alternative fuels.
Attachment A


Biofuels – ten essential steps for a viable industry
Scientists round the world are racing to develop new-generation renewable fuels from algae and other sources but Australia still lacks a policy vision and strategic framework for this fledgling industry.

Caltex proposes 10 key points for a policy framework:

1. Provide more information for consumers.
2. Implement the proposed 50% discount on new excise taxes to be introduced over 5 years starting in July 2011.
3. Avoid effective removal of tax concessions for 20% biodiesel blends as a result of making a biodiesel blend standard.
4. Ensure manufacturers make vehicles so they can run on at least E10 blend and ensure warranties include this fuel.
5. Ensure biofuels meet all fuel quality requirements including national fuel quality standards.
6. Optimize crops and conversion processes for biofuels production in Australia.
7. Ensure sustainability criteria take into account "life cycle" ecological impacts – and link this to the provision of financial assistance.
8. Targeted financial assistance to new Australian biofuels producers for a limited period.
9. Financial assistance for developing the biofuels supply chain – including distributors, wholesalers and retailers – and for developing technology including vehicles.
10. Ensure a level playing field for taxation on domestic and imported biofuels from July 2011.
Attachment B

Table 1: Biodiesel tax rates – May 2010 Budget

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<th>Period</th>
<th>Effective excise rate for domestically-produced biodiesel (Australian cents per litre)*</th>
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<td>Until 30 June 2011</td>
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<tr>
<td>1 July 2011 to 30 June 2012</td>
<td>3.8 Acpl</td>
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<tr>
<td>1 July 2012 to 30 June 2013</td>
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<td>1 July 2013 to 30 June 2014</td>
<td>11.4 Acpl</td>
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<td>1 July 2014 to 30 June 2015</td>
<td>15.3 Acpl</td>
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<td>From 1 July 2015</td>
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*Same effective rates of customs duty apply to imports.

Table 2: Ethanol tax rates – May 2010 Budget

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<th>Period</th>
<th>Effective excise rate for domestically-produced ethanol**</th>
<th>Customs duty for imported ethanol</th>
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<td>From 1 July 2015</td>
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<td>12.5cpl</td>
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** As part of its agreement with the independent MP Tony Windsor post-election, the Government will extend this excise phase-in to 10 years ie to 2020.