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Impact of government biofuel policy on grainfed beef industry

Abstract

The analysis of potential impacts of subsidised ethanol production on the beef industry was originated in response to public claims that such biofuel policies would stimulate agricultural production, and foster energy self sufficiency. This debate lacked a livestock industry perspective, backed by factual understanding of how such government intervention would affect the operations of the grain market, and the knock on impacts on the viability of Australian grainfed beef enterprises. The study also, in less detail, analysed potential impacts on other grain dependent livestock industries.

The outputs are ground breaking analysis of the inter-relationships between biofuel policy options, grain market responses, and likely effects on Australian beef industry performance.

This analysis is an important base for subsequent enhanced modelling, and for industry peak councils to more credibly communicate with policy makers. No similar work appears to have been carried out overseas to date.

Industry organisations utilised this analytical material to good effect in helping to persuade the Australian government not to mandate ethanol content in liquid fuels, as announced in the policy statement by the Prime Minister.

Executive Summary

Ethanol has been produced in Australia for potential use as a fuel additive for decades. It is a product of the distillation of organic material.

Over the past two years ethanol has been advocated by various interest groups, including some industry bodies, as a partial solution to the balance of payments and petrol price penalties inherent in Australia's growing reliance on imported crude oil, as well as fostering regional development.

Pressure for government intervention to subsidy the fledgling Australian ethanol industry resulted in extension of the excise exemption for ethanol until 2011 and calls for ethanol mandating, or compulsory usage. This public debate about the potential role of ethanol has been driven by the following factors:

- An assumption that the supply of ethanol feedstock, in particular grains which represent 80% of feedstock inputs in proposed plants, can readily increase in response to increased demand.
- A view that overseas government subsidisation of ethanol production offers useful precedents for Australia.
- Ethanol has been described as environmentally friendly and ecologically sustainable.
- It has also been portrayed as a new growth industry for regional Australia.

This pressure for ethanol mandating, and the associated debate about the merits of biofuels in Australian industrial usage, was brought to a head by the appointment by the Prime Minister in May 2005 of a Biofuels Task Force to report to him on various aspects of biofuels policy.

The Task Force called for inputs from interested parties.

Until May 2005, the interests of the beef industry in ensuring that biofuels policy did not lead to a distorted grains market, by the artificial ratcheting up of grain prices, had not been protected by active industry participation in this debate.

This project commenced in May 2005 with the objectives of preparing, and assisting the preparation of analytical material that assessed linkages between ethanol policy options and beef industry performance, and ensuring that this analytical material was available in timely and useable form for peak council use.

The following work was carried out by the consultant:

- Preparation of a submission to the Biofuels Task Force. This document was supported by other grain dependent livestock industries.
- Assistance in following up the submission with the Task Force.

- Input of analytical material into a paper explaining beef industry views that was circulated to members of parliament.
- Participation in an industry meeting convened by MLA Chairman to discuss industry contribution to analysis of ethanol policy impacts on beef industry.
- Working with MLA, ALFA and Centre of International Economics (CIE) to scope a report by CIE which was to quantify the effect on beef industry output, exports and prices received from various levels of grain based ethanol mandating.
- Acting as an industry reference point with CIE in the preparation of its report.
- Active scrutiny of biofuels related material in Australia, and in other countries through website review.

The CIE report was a ground breaking exercise. It provided the first quantification of how, for example, ethanol mandating at the E10 (10%) level would impact on the beef industry. This report played a major role in objectively refuting some key assumptions about the beneficial effects of subsidised ethanol production on the rural economy. The report factored in the major importance of competitively priced feedgrains in intensive meat production, and the risks to the beef industry from ethanol related distortions in the domestic feedgrain market.

The Prime Minister announced in September 2005 that the government would work with oil companies to encourage ethanol uptake; however, the government did not agree to any level of ethanol mandating. This decision was based on the concurrently released report of the Task Force which did not recommend mandating and which also drew attention to the likelihood of regional feedgrain prices being abnormally increased by subsidised ethanol plants. This finding was consistent with the CIE report finding that the convergence of drought and ethanol mandating at the E10 level would result in feedgrain prices reaching $450 per tonne.

The announcement by the Prime Minister averts a serious danger to the beef industry, at least in the short term.

The project outputs show that with the markedly changed structure of the beef industry over the past decade (about one third of Australia's beef output is now grainfed) there is a strong nexus between industry performance and grain market dynamics, and that consequently the industry must have the analytical tools to be an effective participant in the debate about the role of biofuels in the energy market.

In this context, the report identifies opportunities to enhance industry biofuel analytical capabilities through further issues monitoring and enhancement of existing industry models.

Contents

1 Background

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Over the past two years ethanol has been advocated by various interest groups, including some industry bodies, as a partial solution to the balance of payments and petrol price penalties inherent in Australia's growing reliance on imported crude oil, as well as fostering regional development.

Pressure for government intervention to subsidise the fledgling Australian ethanol industry resulted in extension of the excise exemption for ethanol until 2011 and calls for ethanol mandating, or compulsory usage. This public debate about the potential role of ethanol has been driven by the following factors:

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- A view that overseas government subsidisation of ethanol production offers useful precedents for Australia.
- Ethanol has been described as environmentally friendly and ecologically sustainable.
- It has also been portrayed as a new growth industry for regional Australia.

This pressure for ethanol mandating, and the associated debate about the merits of biofuels in Australian industrial usage, was brought to a head by the appointment by the Prime Minister in May 2005 of a Biofuels Task Force to report to him on various aspects of biofuels policy.

This project was established to help ensure that the beef industry had the timely information and analytical tools required to make an effective input to the review set up by the Prime Minister in May 2005 to investigate and report on the potential role of biofuels in meeting Australia's future liquid fuel needs.

This inquiry coincided with a strong upward trend in oil prices, and public pressure for mandating of ethanol content in petrol, in particular. This mandating advocacy claimed regional development, balance of payments and environmental benefits from ethanol blends.

2 Project Objectives

Project objectives were as follows:

1. Develop analysis of the potential impacts of government biofuel policies on the intensive livestock industries, including related changes in the global oil economy, and addressing projected effects on the availability and affordability of domestic feed grain.

2. Communicate the outcomes of the analyses to key stakeholder groups, especially the Livestock Feed Users Group, and relevant government agencies.

3 Methodology

The methodology used was as follows:

- A stocktake of the currently available literature and related documentation about government policies applicable to ethanol industry support globally. This stocktake was carried out on the internet, and by drawing on public service and academic contacts.

- An assessment of the current and foreseeable status of biofuels policy in Australia.

- Development of a list of key government contacts to ensure the communication objective was met.

- Preparation of analytical material to meet the immediate need for a submission to the Biofuels Taskforce, and for explanatory material to be sent to other stakeholder groups.

- Assist in the finalisation and utilisation of the CIE report.

4 Results and Discussion

Until May 2005, the interests of the beef industry in ensuring that biofuels policy did not lead to a distorted grains market, by the artificial ratcheting up of grain prices, had not been protected by active industry participation in this debate.

This project commenced in May 2005 with the objectives of preparing, and assisting the preparation of analytical material that assessed linkages between ethanol policy options and beef industry performance, and ensuring that this analytical material was available in timely and useable form for peak council use.

The analytical work broke new ground in assessing the relationships between energy policy options, the dynamics of the feedgrain market, and the performance of the beef industry as measured by projected cattle price, export volume and industry value of output responses to ethanol usage scenarios. This analysis, including an assessment of the current and foreseeable status of biofuels policy in Australia, is included in Appendix 9.1.

This analytical material was also used as the basis for the preparation of a fact sheet that was circulated to members of parliament explaining the views of the beef industry on the issue. This fact sheet is attached as Appendix 9.2.

The analytical process highlighted the need to obtain industry specific data that could be presented to the Biofuels Task Force. Following participation in an industry meeting convened by MLA Chairman, David Crombie, to discuss industry's contribution to analysis of ethanol policy impacts on the beef industry, the consultant worked with MLA, ALFA and Centre of International Economics

(CIE) to scope a report by CIE which was to quantify the effect on beef industry output, exports and prices received from various levels of grain based ethanol mandating.

The CIE report was a ground breaking exercise. It provided the first quantification of how, for example, ethanol mandating at the E10 (10%) level would impact on the beef industry. This report played a major role in objectively refuting some key assumptions about the beneficial effects of subsidised ethanol production on the rural economy. The report factored in the major importance of competitively priced feedgrains in intensive meat production, and the risks to the beef industry from ethanol related distortions in the domestic feedgrain market.

It was clear from the CIE report that a large increase in ethanol grain usage attributable to mandating would cause a severe shock to the grain market where there are fragile supply/demand balances in eastern Australia. Due to quarantine restrictions on grain imports, this shock would lead to rapid grain price escalation in drought years; although the report also pointed out that there would be ongoing supply shortages in eastern Australia, requiring ongoing large scale diversion of ASW wheat from export. The Executive Summary of the CIE Report is attached as Appendix 9.3.

The initial analytical work and outcomes of the CIE study were utilised in the preparation of a submission to the Biofuels Task Force. This document was also supported by other grain dependent livestock industries. This submission to the Biofuels Task Force is attached as Appendix 9.4.

The Prime Minister announced in September 2005 that the government would work with oil companies to encourage ethanol uptake; however, the government did not agree to any level of ethanol mandating. This decision was based on the concurrently released report of the Task Force which did not recommend mandating and which also drew attention to the likelihood of regional feedgrain prices being abnormally increased by subsidised ethanol plants. This finding was consistent with the CIE report finding that the convergence of drought and ethanol mandating at the E10 level would result in feedgrain prices reaching $450 per tonne. A summary of the Biofuels Task Force report is attached as Appendix 9.5.

By the time of the policy statement by the Prime Minister there was a high level of awareness at industry and government level of the analytical basis for the industry position on ethanol mandating.

The announcement by the Prime Minister averts a serious danger to the beef industry, at least in the short term. Government rejection of mandating at this stage is no guarantee of long term policy outcomes.

5 Success in Achieving Objectives

The project was successful in meeting its objectives.

The key outcome was that the biofuels policy statement by the Prime Minister confined additional government support for ethanol production to discussions with oil companies to find ways of removing barriers to ethanol usage within a market based trading environment.

This policy outcome was based on the report of the Biofuels Task Force, the findings of which were broadly consistent with the livestock industry views put to it.

The release of a substantial body of expert analysis which has consistently opposed ethanol mandating (i.e. three ABARE studies, the Task Force report, and the CIE report) provide a solid and credible platform for future industry interventions in biofuels policy debates.

6 Impact on Meat and Livestock Industry – now & in five years time

In the short term, a significant danger to the beef industry has been averted

As referred to above, there has now been established a substantial body of economic analysis, and a contact database, which is a good platform for follow up work on this issue.

Ongoing calls for ethanol mandating are a serious longer term threat to beef industry growth. For the first time in the history of the industry there is the prospect of an essential ration component being redirected through government policy for energy usage.

This project, while breaking new ground, may well be seen as the first stage of an ongoing process of industry preparedness and awareness in biofuel policy debate.

7 Conclusions and Recommendations

The beef industry now has a large and direct stake in the structure and operations of the grains market. About one third of the volume of beef production is now derived from grain dependent feedlots. The industry is more specialised than was the case even a decade ago, with distinct product streams to meet specific customer requirements. The MSA scheme delineates eating quality categories. Grainfed beef is a key and growing part of the wider beef industry. Feedlots have essential roles in supplying quality sensitive customers, and in maintaining stability in the cattle market during droughts.

The above means that the entire beef industry is grain dependent, and must both understand the factors that affect the grain market and be well positioned to communicate with other grains industry stakeholders. This communication must be supported by sound, factual analysis.

This consultancy has developed a database of relevant studies and key stakeholder contacts which it would be useful to maintain.

The CIE report was a very useful project. However, the world trade model that it drew on is not well suited to more detailed cross-industry, and internal beef industry, modelling. For example, the capacity and output responses by feedlots to short and long term grain price escalation are not well understood. These modelling limitations should be addressed.

The Task Force report drew attention to limitations in ABARE modelling of regional impacts of ethanol policy options. This issue could be usefully discussed with other industry R&D agencies, as well as government officials.

It would also be useful to maintain a database of global ethanol industry activity, including grain usage in USA and Australia.

8 Bibliography

The following were important data sources drawn on in this project:

Various web sites accessed through the Google search engine;

The 2003, and updated 2004 ABARE/BTRE/CSIRO studies into biofuel viability in Australia;

Submissions to the Biofuels Task Force;

Biofuels Task Force Report, and attached ABARE report; and,

The CIE report commissioned by MLA.

9 Appendices

9.1 Analysis of Biofuels policy options

RESEARCH INTO POTENTIAL IMPACTS OF BIOFUEL POLICY OPTIONS ON BEEF INDUSTRY PERFORMANCE

BACKGROUND

To date, the operations of the Australian feedgrains market have been very largely unaffected by demand for grain by biofuel producers. The role of grain based biofuels in Australian energy policy has been the subject of intense public debate during 2005, and the formal subject of an inquiry into biofuel related issues commissioned by the Prime Minister.

The beef industry has a major stake in the operations of the Australian grains industry. Project FLOT.123 commissioned by MLA and published in 2003 provided an important baseline analysis of feedstuff supply variability scenarios and the options available to intensive livestock industries in managing such variability. This report drew attention to the potential problems posed by any significant upsurge in grain demand attributable to government induced expansion in ethanol production. The report did not explore that scenario in depth; this project draws on that earlier study, but is much more sharply focussed in analysing specific impacts on the beef industry from various biofuel production scenarios.

The project was also integrated with an MLA funded study carried out by the Centre of International Economics (CIE) which quantified how various levels of ethanol mandating would affect cattle prices, the volume and value of industry output, and the volume of exports. This modelling work drew on the global trade model maintained by CIE.

The issues analysis generated through this project was made available to Peak Councils, in particular Cattle Council of Australia (CCA) and the Australian Lot Feeders' Association (ALFA) for their separate usage. This project focussed entirely on ensuring that a factual understanding of linkages between ethanol demand and beef industry performance was carried out, and made available to industry organisations.

BEEF INDUSTRY STAKE IN GRAIN MARKET OPERATIONS

The feedlot sector currently contributes about one third of Australia's annual beef production by volume.

The FLOT.123 project, referred to above, calculated that in a normal year cattle feedlots utilise 2.73 million tonnes of grain. In order of utilisation the grains used are wheat, barley, sorghum, triticale and corn. The report concluded that "Australian feedlot production is dependent on feed grains as the primary energy source for cattle feed", and that during a multi-season drought total grain requirements by the feedlot sector increases because of reduced white cotton seed availability and (or) utilisation.

The above report also quantified grass fed ruminant feed demand during drought, as well as normal seasons. ABARE analysis suggests that in a normal season the pastoral ruminant sector consumes 41,600 tonnes of grain per month, increasing to 75,000 tonnes per month for sheep alone in the 2002 drought.

The intensive livestock industries, excluding grass fed supplementary and drought feeding, normally consume 8.42 million tonnes of grain a year.

BIOFUEL POLICY IN A GLOBAL CONTEXT

A driver of calls for ethanol mandating in Australian liquid fuel usage is the growing number of beef and grain producing countries that are legislating to specify a prescribed proportion of ethanol, and other biofuels such as biodiesel in national liquid fuel sales (i.e. mandating).

The USA currently utilises about 12% of its corn crop in biofuel production. Some US states now mandate ethanol content in petrol, and as energy policy develops in the USA in response to higher oil prices there is the prospect of more active federal intervention to induce, or mandate, biofuel usage. Brazil has sugar cane based ethanol used in petrol as a result of ethanol mandating. The EU nations are, to varying degrees, subsidising ethanol output.

This project identified the following crucially significant differences between the agribusiness circumstances in Australia, and those in other major beef producing and exporting countries:

- Australia is a major grain exporter, but a relatively small producer. The margins between annual feedgrain domestic consumption, for sorghum and barley in particular, and production are very small. In one year in every three on average in eastern Australia there is a feedgrains shortage.

- Our climate is particularly unreliable, and annual average supply and demand relationships obscure the recurring problem of drought induced grain price escalation and associated shortages. Forecast climate change, which CSIRO studies show will particularly affect the eastern states northern grain belt, would accentuate this problem. In contrast, USA has huge annual corn exports; Brazil decided to utilise abundant land suitable for low cost sugar cane cropping; EU ethanol subsidies should be seen in the context of a redirection of farm subsidies from human and stock consumption to industrial usage.

- Australia has an industry policy framework that has as its underlying premise the requirement that industries operate in the longer term on an unsubsidised basis. The requirement that our beef industry operate within this policy framework while having to source grain in a seriously distorted grain market would impose cost penalties on the beef industry, and seriously handicap it in global markets.

Australia is a major net energy exporter. The balance of payments considerations that have, in part, driven the biofuel policies of other countries, do not apply here.

BIOFUEL POLICY SETTINGS IN AUSTRALIA

At project commencement, Australian government support for domestic ethanol production was limited to a rebate on fuel excise until 2011, after which a concessional ethanol excise will apply, as well as the announced allocation of $36 million in start up grants to biofuel producers. However, only one grain based ethanol producer was awarded a start up grant. Some State governments, in particular Queensland and New South Wales, encourage ethanol production through government car fleet usage and publicity.

CIE REPORT FINDINGS

The CIE study found that a 10% level of ethanol mandating in Australia, if restricted to domestic producers purchasing local feedstock, would seriously damage the beef industry, and require the redirection of the bulk of the current wheat export trade to domestic customers (i.e. the balance of payments effects would be adverse) (see CIE report in separate attachment).

The report also drew attention to some peculiar features of the domestic feedgrain market, also identified in this study, that accentuate the adverse impacts of ethanol mandating. There are quarantine prohibitions on inland usage of unprocessed imported grain. The shipment of grain from the consistently large grain exporting States of South Australia and Western Australia is cost handicapped by infrastructure and regulatory barriers. Since 80% of planned ethanol investment assumes grain based production, very largely in eastern Australia, the interaction of drought events and these structural factors could lead to feedgrain prices in eastern Australia soaring above $400 per tonne, when 10% ethanol mandating also applied.

A key consideration was the supply response by feedgrain producers to higher feedgrain prices. The model used was able to simulate short run feedgrain price behaviour, but it was beyond the scope of the report to quantify longer run grain supply response (assuming short run price increase could be sustained in the face of reduced livestock industry activity, and the availability of cheaper imported ethanol, subject to the scope of ethanol mandating).

PROJECT INPUTS TO PEAK COUNCIL POSITIONS

The preceding analysis was drawn on as input to the following industry activity in the ethanol debate:

- A submission to the Biofuels Taskforce set up by the Prime Minister. The Task Force had requested a beef industry submission. The submission was supported by all other intensive livestock industries.

- The MLA Chairman convened an industry meeting in Brisbane to discuss how the beef industry should best understand and communicate its stake in the ethanol debate.

- A brochure drawing on project material was separately prepared by the intensive animal industries and widely distributed; a copy of this brochure is attached.

- The consultant interacted with CIE staff in the preparation of the CIE report, and in subsequent discussion with CIE staff on data and modelling gaps that could be usefully addressed in any subsequent MLA funded follow up ethanol related quantitative analysis.

This CIE report was also widely distributed, and its analysis was not credibly challenged by professional economists, either in the private sector or in government. The informal feedback from some government agency sources was positive in terms of the credibility of the analysis; as was the feedback on overall project analysis.

PROJECT OUTCOMES

The Prime Minister announced immediately prior to project completion that the government had decided to work with oil companies to encourage increased ethanol usage without further subsidisation, or introduction of any form of ethanol mandating.

Useful ground breaking analysis and modelling work has been carried out which has provided factual insights into the interactions between grain and beef market operations in the context of increased ethanol demand for feedgrain inputs.

As far as can be ascertained, this is the most detailed analytical work of its type carried out in any major beef producing or exporting country.

9.2 Ethanol fact sheet

THE TRUTH ABOUT ETHANOL SUBSIDIES

OVERVIEW

Australia's intensive livestock industries (pork, cattle lot feeding, dairy, poultry products) have a big stake in the current debate about ethanol mandating.

We are not opposed to grain being purchased for ethanol production if that is the most efficient use of the grain. We are adamantly opposed to government subsidies, in particular mandating inclusion levels, to create an ethanol industry that has no underlying viability, and will severely disadvantage current grain dependent industries.

Ethanol is distilled from biomass; however, grain is forecast to be the major source of ethanol, and most plants publicly announced to be built are to be located in grain growing regions.

Australia is not a large global producer of feed grains. We are a minor exporter in most years, and the small margin between supply and demand is often lost during periods of drought. There is a feedgrain shortage in eastern Australia every 3 years on average. Since the intensive animal industries are concentrated in eastern Australia, they are ALREADY vulnerable to grain shortages. Our annual grain requirements are now equivalent to about three quarters of average sorghum and barley production.

Our industries are now at serious risk from ethanol subsidies, and calls for mandating of ethanol content in fuel in particular.

Government subsidies to ethanol producers create artificial demand for feedgrains at the expense of the livestock industries. We are price takers in world markets, and face fierce competition from international competitors in the Australian market and overseas. This competition will only get tougher as countries such as Brazil, now the world's largest beef exporter, intensify competition.

Grain ethanol producers in Australia currently are fuel excise exempt through a rebate on domestic production. This full rebate is scheduled to scale back after 2011, but will continue on indefinitely. In addition, some ethanol producers have been awarded start up grants by the Australian government. There is now strong political pressure for the government to force ("mandate") a percentage of liquid fuel to contain ethanol. This would provide a guaranteed customer for the grain ethanol producers. To put this issue in perspective, the following should be understood:

The government's non binding 350ML annual biofuels target would consume 700,000 tonnes of grain if, as independent analysis suggests, 75% of that biofuel output was grains based.

If, as has been suggested, Australia mandated 10% ethanol content, 4.5 million tonnes of grain each year would be required, given the above assumption. This is an amount equivalent to the entire barley and sorghum crop in a severe drought.

Such mandating would hit the intensive livestock industries like a shock wave by making grain scarcer and more costly.

Extensive grazing industries are also large grain users, particularly during droughts when supplementary feeding can become a necessity.

In droughts, ethanol mandating would necessitate the use of the available feed grains for distillation to meet fuel content requirements. Our industries would face the equivalent of a never ending drought as the ongoing feedgrain supply/ demand balance is permanently destabilised.

THE FACTS ABOUT ETHANOL

We are concerned that pressure to mandate ethanol content is based on various incorrect assumptions. It is time that our political representatives knew the FACTS.

ASSUMPTIONS, and FACTS, are as follows:

ASSUMPTION

Ethanol creates new jobs in regional Australia without costing existing ones.

FACT

ABARE analysis is that each new job in an ethanol plant costs the community over $200,000 in government support. In a submission to the Biofuel Task Force recently, the Stock Feed Manufacturers Council of Australia stated that the negative impact of ethanol subsidies "will be seen in potential feed mill closures, loss of jobs and investment in regional Australia. This will have a compounding effect upon other companies supplying services to the stockfeed industry. There is a significant risk that providing support for new ethanol plants on regional development grounds may be counterproductive, with short term benefits being offset by longer term costs coming from closure of feed manufacturing sites and the decline in livestock production within these regions."

ASSUMPTION

Ethanol is environmentally friendly and renewable.

FACT

US studies show that there is a strong body of expert opinion that even under the benign growing environment of the US corn belt, ethanol production is a net energy consumer. While no equivalent studies have yet been done in Australia, it is likely that the equation is even less favourable here with our lower and less consistent yields. In addition there are various points of view regarding the environmental benefits of ethanol on vehicles.

Besides, how sustainable would a mandating policy really be as the economic consequences become apparent? How long would the Australian community, and its elected representatives,

continue a policy of such inefficiency and inequity?

ASSUMPTION

Higher oil prices have strengthened the case for Australia to support a crop based ethanol industry.

FACT

Ethanol has much lower energy content than petrol derived from crude oil. The Australian Automobile Association estimates that crude oil prices would have to reach around $US100 per barrel for ethanol to be economic in its own right.

If higher oil prices make ethanol production more attractive, they conversely weaken any arguments for mandating.

ASSUMPTION

Australia should follow countries such as USA and Brazil in mandating ethanol content.

FACT

Australia is a net energy exporter, unlike those countries. Our balance of payments is a net beneficiary of higher oil prices. This means that we do not have the energy self sufficiency and balance of payments drivers of those countries.

We also do not have annual corn crops of over 220million tonnes as does the USA where mandating to date has been at state level only. Nor do we have huge areas of potential farmland to be cropped for fuel as did Brazil.

Australia has been reducing levels of industry assistance; governments have required our industries to stand on their own two feet in world markets.

Generations of Australian political and farm leaders have rightly criticised the “beggar my neighbour” farm subsidy policies of the EU and USA, in particular, in the recognition that such policies inevitably handicap more efficient industries in Australia.

It is even more ironic that grain grower representatives, through the NFF, were actively opposed to manufacturing subsidies in Australia, including the motor vehicle assistance plan that required a specified level of local content.

There is good reason to believe that mandating use of Australian ethanol content in fuel would be in conflict with our WTO obligations.

ASSUMPTION

Grain production in Australia will increase in response to greater demand from ethanol plants. This will alleviate any problems.

FACT

There is limited agronomic scope in the foreseeable future for a huge sustainable increase in feedgrains production, particularly as a short run response to subsidised ethanol demand. The grain belt is subject to significant rainfall and social parameters. Production increases to date have been gradual and yield based.

Drought will continue to impose its own recurrent barriers to production.

The assumption that above world market grain prices can be brought about in Australia indefinitely by ethanol mandating is also unrealistic. Grain imports into the seaboard and contraction of demand from unsubsidised current customers will prevent that from happening in the longer term.

The market will always win, but there will be severe adjustments in regional Australia while this happens.

ASSUMPTION

Ethanol generates a valuable stockfeed byproduct. This creates a win/win outcome.

FACT

Distillers grain is energy deficient. Grains are the key component of stockfeed because of its energy content. For example, dairy farmers commonly have 25% of their dairy cattle ration as grain to supplement protein rich grass.

Distillers grain is just another protein meal option with a limited and price sensitive potential role in the livestock industries.

YOUR SUPPORT IS NEEDED

Australia’s intensive livestock industries need YOUR support in heading off this serious threat to our viability.

9.3 Executive Summary of the CIE Report

Executive summary

The government wishes to encourage production and use of ethanol in fuels

The Australian government has been putting in place a set of policies aimed at encouraging the production, distribution and transport use of ethanol, as part of a broader policy aimed at promoting biofuels.

- This policy has a wide range of objectives including reduction in dependence on imported energy, increased use of energy from renewable resources, promoting activity and employment in regional Australia, and a set of other environmental and health objectives.
- The objectives and how to achieve them are still evolving.

The two main instruments of the current policy are discounted excise rates for locally produced biofuels (compared to the excise payable on traditional fossil fuels of comparable energy content) and capital subsidies for new or expanded biofuel capacity.

Locally produced ethanol is not competitive with traditional fuels, and there is consumer resistance

A number of analyses undertaken by government agencies have shown that the economics of ethanol production is doubtful at best even with a full rebate of excise.

- One reason for this is the reluctance of fuel users to use blends containing ethanol when the choice is left to them.
- Further, all options for expanding ethanol production other than from waste starch are unlikely to be competitive with traditional fuels in the medium to longer term.

Ethanol proponents want blends to be mandated

This has led to proponents calling for the Government to mandate the blending of ethanol with petrol and diesel in all fuel sold to domestic consumers.

- This is designed to overcome consumers' reluctance to use ethanol, and to provide certainty for investors in ethanol production.
- Projects with the combined capacity to produce nearly 900 million litres of ethanol a year from grain are reportedly waiting on further changes in policy.

If sale of blended fuels is mandated, it would be logical to import ethanol

Ethanol is not competitive with petrol or diesel on a cost per energy content basis even at current world oil prices. Locally produced ethanol is also not competitive with the likely landed (full) excise inclusive cost of imports of ethanol from the world's benchmark producer, Brazil.

- In a competitive and open economy, the logical response to mandating would be to import ethanol at current prices.
- This would erode the intent of the current excise regime and the capital subsidies. Potential ethanol investors may therefore push for a policy that requires use of locally produced ethanol or deters imports of ethanol.

If ethanol cannot be imported, the next most competitive option may be to produce ethanol from imported grains

If imported ethanol is excluded from the mandating policy a possible response by the petroleum industry, given very high domestic ethanol prices, would be to import US grain and process and blend the ethanol in line at port.

- This option gets around quarantine protocols, reduces the disadvantage of high domestic transport costs within Australia and takes advantage of the availability of US grains at world prices.
- This option may be seen to be inconsistent with some objectives of ethanol policy. It is therefore possible that ethanol proponents will require that the policy mandate the use of ethanol made from locally sourced feedstock.

What are the impacts of mandated blending of ethanol produced from local feedstock?

The question addressed by this report is: what would be the impact of such a policy regime on demand and supply in the feedgrains market in Australia? (Most plans for expanding production use feedgrains as the feedstock.)

- In addition, what would be the impact on the competitiveness of livestock producers who compete on world markets?

Australian livestock industries depend on feedgrain

Australia's livestock industries are both directly and indirectly dependent on feedgrain security.

- Intensive feeding industries such as cattle lotfeeding, pigs, dairy, chicken meat and eggs directly consume either wholegrain or compound grain products.
- Other livestock industries such as extensive beef, sheep and wool also rely on feedgrains for supplementary feeding through droughts.
- The extensive industries are also linked to the intensive industries through the sale of feeder stock — the most notable being the strong linkage between pasture fed beef and the lotfeeding industry.

Access to affordable grain underpins the competitiveness of Australian beef

Access to affordable grain underpins the capacity of the livestock industries to remain reliable suppliers to global markets, and lotfeeding allows the Australian beef industry to distinguish itself from lower cost beef producers in, for example, South America.

- The lotfeeding sector allows Australia to compete head-to-head with the US in supplying high quality product to the Japanese and local markets.
- Lotfeeding also allows the finishing of pasture fed cattle, to attain suitable sale weights during drought periods. Experience has shown that the presence of the lotfeeding industry has held up cattle prices in times of drought. Its presence has provided a kind of insurance for the grass fed beef industry.
- A loss of reliability and competitiveness in the grain fed market may have impacts on customer loyalty and confidence in domestic as well as export markets.

Nutritional content is important

Price is not the only aspect of access to grain: the nutritional content is also a key factor. While production of ethanol from grain produces a meal by-product (distillers grain), its energy content is very low. Advice from leading nutritionists suggests that it could only provide 10 to 20 per cent of feeding rations on a dry weight basis, and would need to compete on price with other protein options to meet feedlot requirements.

Sorting out the impacts is complex

CIE has undertaken an analysis to capture the essential dimensions of this complex policy issue.

- This involves tracing through the effects of an increase in demand for feedgrains required for the manufacture of ethanol under a number of policy scenarios.

If E10 and E15 blends using ethanol from local feedstock are mandated, feedgrain prices would rise by over 25 per cent

Mandatory blending of ethanol at 10 per cent for petrol and 15 per cent for diesel would permanently increase the average price of grain in Australia by over 25 per cent. This would be well over current export parity prices, and prices paid by Australia's competitors.

- By 2010, ethanol production would demand an additional 12.1 million tonnes of grain.
  - This is relative to a potential pool of feedgrain of around 28 million tonnes in 2010.

The estimated price impact assumes that all locally produced coarse grains can be used in ethanol production or fed to livestock and up to 60 per cent of wheat production can be diverted from export markets and domestic human use. This assumes that it would be affordable to transport wheat

from producing areas in Western Australia, and that adequate infrastructure to manage the redirection of wheat were in place. It also assumes that the AWB would reorient its business focus from exports to the domestic market.

In theory, there could be some re-allocation of land from other uses, particularly cotton, to supply the additional demand.

- If all cotton land were switched to sorghum, this would at best increase grains availability throughout Australia by 1.6 million tonnes or 6 per cent.
- But more importantly, the average sorghum price in a normal year would have to be over $400 per tonne to persuade cotton growers to switch crops.

Some users may be able to import grain, but quarantine protocols are a large barrier for inland users

If prices rise sufficiently, grain users in metropolitan areas — mainly chicken meat and egg producers — could import grain. Most likely this would be US corn.

- However, this option is not currently available for inland users due to quarantine protocols.

Mandating would cushion ethanol producers from price effects, so the impact of droughts — grain prices as high as $450 per tonne — would be forced onto all other grain users

The impact of a sustained increase in demand for feedgrains would especially increase the vulnerability of all other feedgrain users to the impact of drought.

- If grain production fell by 50 per cent in 2010, as it did in 2002-03, total availability of grain would fall to around 14 million tonnes.
- In this situation grain prices could rise as high as $450 per tonne. This would seriously affect livestock industries that compete directly with other countries on world markets and would have the potential to shut down parts of our leading export oriented industries including beef and dairy.

Higher grain prices will reduce returns to beef producers

The immediate impact of higher feed grain prices on beef producers will be shared between the feedlot sector and the pasture fed industry. A key driver of this impact is the share of feedgrain in the total costs of the feedlot industry. At a grain price of $180 per tonne, this is estimated to be around 22 per cent. If grain prices rise to $230 per tonne, the price that feedlot operators could pay for feeder cattle would fall by 13 cents per kilogram live weight. If grain prices rise to $450 per tonne in a time of drought, feeder prices could fall by as much as 90 cents per kilogram. The ultimate distribution of this impact on ability to pay would depend on factors such

as the degree of integration between the various markets for cattle and for beef.

Higher grain prices will raise costs of ethanol, and in turn fuel prices

The magnitude of the price increase will also impact on the cost of ethanol production.

- In times of drought, this could lead to increases in retail fuel prices of around 7 cents per litre.
- This not only impacts on motorists but also reduces the competitiveness of fuel-intensive and transport-intensive industries such as agriculture and mining.

Exports will fall, offsetting any positive BOP effects from reduced fuel imports

Rather than a positive effect on the balance of payments, the policy will have a negative impact because of:

- lower exports of livestock products;
- a severe contraction in grain exports (which may require substantial structural adjustment in the wheat industry); and
- increased imports of grain.

The analysis in this report suggests that in a non-drought year, mandatory blending of locally produced ethanol would lead to a reduction in imports of petrol and diesel valued at around $1.3 billion (at a US$40 per barrel price of oil). But the economy would forego exports valued at around $2.1 billion and incur additional imports of $380 million to achieve this saving.

Who pays for mandatory blending of ethanol?

Without mandating, ethanol producers would have to compete on the same footing as suppliers of other fuels and other users of grain. Mandating ethanol however, removes nearly all price disciplines – forcing livestock producers, other purchasers of grain and fuel consumers to bear the costs of the lack of viability of local ethanol production.

9.4 Submission to Biofuels Task Force

SUBMISSION

BY THE

LIVESTOCK FEEDGRAIN USERS GROUP

(LFGUG)

TO THE

TASKFORCE ON BIOFUELS

Australian Pork

ALFA

Australian Dairy Farmers

Australian Chicken Meat Federation

Australian Egg Industry Association
A united voice on egg industry matters…

June 2005

Index:

Purpose

This submission is lodged on behalf of the Livestock Feed Grain Users Group (LFGUG).

The LFGUG is a grouping of livestock industry organisations representing grain dependent industries, ie:

- Australian Lot Feeders Association (ALFA)
- Australian Pork Limited
- Australian Egg Industry Association
- Australian Dairy Farmers
- Australian Chicken Meat Federation

LFGUG integrates and represents the interests of the above industries on issues related to secure access to feedgrains.

The purpose of this submission is to provide the Taskforce with the views of livestock industries who are grain dependent, and are therefore major stakeholders in the ethanol debate.

We interpret the Taskforce's Terms of Reference as representing a wide ranging review of the economic, health and environmental basis for ethanol assistance in Australia. Consequently, our submission is similarly wide ranging, although cross referenced to your Terms of Reference.

We look forward to discussing this submission with you.

Executive Summary

Our Position

LFGUG is concerned at various reports that this review is intended to provide the justification for mandating ethanol content in fuel. We are completely opposed to government regulation to compulsorily "pull through" ethanol demand, when current government policies of domestic excise rebates and start up grants represent extremely generous assistance to an industry also benefiting from much higher than forecast oil rises.

We are also opposed to any extension of existing ethanol assistance.

If grain based ethanol production is not viable with that assistance, and at current high oil prices, then the only logical explanation is that, under Australian conditions, ethanol is not as attractive to investors and customers as previously assumed by government.

Key Points

This submission draws attention to the following key points:

(a) Ethanol start up assistance should be allowed to terminate, as announced; ongoing customer compulsion to purchase ethanol would overly disadvantage other grain purchasers, and be a totally unjustified further intervention in the feedgrain market. The current excise rebate of 38c per litre amounts to a subsidy equivalent to ethanol producers of over $150 per tonne of grain.

(b) Feedgrain growers have expanding domestic and international customers, including LFGUG members; there is no feedgrain surplus and, on the contrary, forecasts suggest an increasingly tight supply/ demand outlook interposed with recurrent, and more frequent droughts (this is documented in the submission).

(c) Grain based ethanol draws on what is, by global standards, a small and highly variable volume of domestic production. Every few years, on average, history suggests a, drought in eastern Australia will cause feedgrain shortages. The 2003 Macarthur Report found that there is already a feedgrain shortage in Northern NSW/ Queensland one year in three. Grain based ethanol production is in no way comparable to a domestic oil field; there would be serious knock on effects to existing unsubsidised feedgrain users from locking in feedgrain tonnages for subsidised ethanol production.

(d) The environmental impact of E10 or E20 ethanol mixtures appears mixed, arguable and complex. For example, the study carried out for DEH by Orbital Engine Company found that "over mileage there will be

a significant increase in the regulated tailpipe emissions" at the E20 level, while fuel consumption, and at high ethanol levels, engine wear seems to be a problem. We have not seen any evidence that possible environmental benefits of ethanol blending justify heavy industry subsidisation on those grounds.

ABARE noted in the April 2004 study, "there are a range of alternative options to enhance octane levels, one of which is ethanol."

(e) We are aware of the growth in ethanol production in overseas, particularly in Brazil, North America and the EU. This submission draws attention to flaws in transposing overseas practices to the Australian environment; we do not have huge, reliable grain 'surpluses'; our growing environment is fragile and we experience frequent grain shortages due to drought; during such droughts secure access to grain is vital to enable Australian livestock industries to maintain livestock purchasing and to supply our contracted customers. The grain requirements of a subsidised ethanol industry would have the effect of an ongoing drought in its impact on a feedgrain supply/ demand balance.

(f) Australian industry policy over the past two decades has emphasised reductions in effective rates of industry assistance. Current ethanol policy is already at serious odds with this policy position, with each job created in ethanol production highly expensive to the taxpayer. If current short term ethanol start up assistance became ongoing through mandating ethanol content, it would be a very serious departure from the industry policy criteria that apply to other industries, including intensive livestock producers.

(g) Australia is a net energy exporter, and the energy self sufficiency drivers that have influenced the ethanol subsidy (eg Brazil mandating ethanol content; USA with mandated volume targets plus some State ethanol content mandating) should not similarly apply here.

(h) Those companies who have taken, or planned to take, advantage of existing government ethanol assistance have also benefited from higher than expected oil prices. There is no justification to conscript outcomes for their product by mandating E10 or E20.

LFGUG Role and Composition

LFGUG has been active in expressing its concern at the potential impacts of subsidised and grain based ethanol production in Australia on the domestic feedgrain market, and consequently on the capacity of our industries to obtain secure access to Australian feedgrains.

Taskforce Terms of Reference

This section of our submission addresses each part of the Taskforce terms of reference.

We note that, taking account of "the latest scientific evidence on the impacts of ethanol and other biofuel use on human health, environmental outcomes and automotive operations, the Taskforce is to take into account the "most recent economic analyses". Our interpretation of these terms of reference is that it is open to the Taskforce to recommend further ethanol subsidies, if it so wishes.

Terms of Reference A

Findings of December 2003 CSIRO/ ABARE/ BTRE Desk Study

The December 2003 study found that ethanol, in particular, was not viable at 2003 levels of assistance. Following the subsidies subsequently enacted, ABARE was commissioned by the government to update the earlier study to take account of more generous excise concessions along with the capital grants ie with the extra subsidies, would the government biofuels target of 350 million litres be met?

ABARE in its updated 2004 study concluded that:

"…the new excise arrangements announced in December 2003 are likely to provide sufficient assistance to the ethanol and biodiesel industries to underpin their economic viability over the longer term, given that various oil prices, exchange rate and cost assumptions made in the study. In particular, the estimated rates of return for ethanol and biodiesel producers, in the long run, under current policy settings, are commensurate with the rates of return achieved by firms operating in other mature industries in the Australian economy."

"Further, the returns available to new entrants to the biofuels industry over the next ten years are potentially very large. Annual real rates of return on capital are estimated to average over 30 per cent (and 40 per cent in the case of biodiesel) in the period to 2010-11 before declining thereafter. The magnitude of these potential returns, although dependent on fluctuating commodity and

financial markets, appears to provide considerable compensation for the establishment of new facilities (even after allowing for the risks associated with expanding current biofuel markets) and consideration of alternative investment opportunities."

The Taskforce should note that those conclusions were drawn on the assumption of much lower oil prices than now apply.

CRITICALLY, ABARE ALSO CONCLUDED THAT "OVERALL, UNDER THE CURRENT POLICY SETTINGS ANNOUNCED IN DECEMBER 2003 AND ON THE BASIS OF THE EXPECTED RETURNS TO INVESTMENT IN NEW BIOFUEL CAPACITY RELATIVE TO RETURNS ELSEWHERE IN THE ECONOMY IN BOTH THE SHORT AND LONG TERM, THERE APPEARS TO BE NO SIGNIFICANT IMPEDIMENT TO MEETING THE ANNOUNCED TARGET OF 350 ML OF BIOFUEL PRODUCTIVITY BY 2010".

Plainly, ABARE has concluded that it would be at serious odds with sensible industry policy for additional assistance, in any form, to be offered to ethanol producers when, even at the much lower oil prices factored into the study, investment in biofuels is an attractive proposition.

Terms of Reference B

DEH Study into Impact of E10 and E20/ Other international and Australian scientific research on health and environmental impacts.

There is an increasing body of research into the effects of these ethanol blends on the environment and on engine performance and longevity.

Although not expert in this area the reviews we have seen (eg the reviews carried out by the Orbital Engine Company for DEH) suggest that there would be significant problems at the E20 mixture level. Similar testing on non automotive engines found that CO emissions reduced by 33% with E10 but NOx increased by up to 75%.

There seems to be some evidence that ethanol mixes increase average fuel consumption.

However, the environmental effects of large scale farming for industrial purposes also need to be taken into account. The Australian agricultural farming environment is fragile, and requires significant fertiliser applications. If it is assumed that current feedgrain production levels have been substantially expanded by subsidised ethanol demand the resultant environmental impacts on the Australian farming ecology would also need to be taken into account by the Taskforce.

There appear to be varied opinions globally about the net health and environmental effects of large scale ethanol production and usage. A USA report (Attachment A) argued that ethanol mixes increased pollutants, and have higher emissions of volatile compounds than does petrol blended with methyl tertiary-butyl ether.

It seems that this is a complex area where research is continuing, but that, as a minimum the environmental and health benefits, and motor vehicle impacts of E10 and E20 are sufficiently arguable to invalidate these as strong social grounds for further government intervention to support ethanol production.

Terms of Reference C

Economic and Scientific Basis for Ethanol Support Overseas

Our study of overseas ethanol support policies suggests five primary policy drivers for those countries that are major ethanol producers, and with subsidised ethanol production. The application of each of those policy drivers to Australia is analysed below each overseas driver, ie:

(1) *The countries or regions are net energy importers, and the production of biofuels has been seen as reducing dependence on energy imports. For example the origins of political interest in ethanol in USA was the oil embargo of 1973 and the related oil price shock leading to the Energy Tax Act of 1978 which authorised exemptions from excise tax for biomass derived fuels.*

Australia is a net energy exporter, with about 20% of our exports currently energy related. This means that Australia is a net beneficiary of higher oil prices (currently nearly $US 60 per barrel) since this is shown to put upward pressure on coal, LNG etc prices. A recent ABARE report has commented that production of non oil sources of energy has more than compensated for the decline in oil production, and had attracted strong price increases. In its October 2004 report on oil price impacts the Reserve Bank commented that "if the price of oil were to remain high for an extended period it could be expected that prices for other energy sources such as coal would also increase, as has tended in the past."

In addition to issues of supply consistency is the question of whether extracting ethanol from grain crops under Australian farming conditions does, in fact, generate net energy. There is, at least, a highly arguable assumption.

A study published on 2 April 2005 by Science Daily in the USA (Attachment B) found that more fossil energy is used to produce ethanol than the energy contained within it. The study factored in the energy inputs required by industrial agriculture, and concluded that the

cumulative energy consumed in corn farming in USA, and ethanol production, is six times greater than the energy released by ethanol in a car engine.

A separate study by Argonne National Laboratory also released recently, found that ethanol generated 35% more energy than it took to produce, which supported a 2004 USDA study that ethanol may net 67% more energy than it produced.

These studies, and others, are based on US circumstances, and it is not at all clear what the net energy equation would be under Australian growing and transportation conditions. It may well be that our lower yields (ie lower energy yields from free solar energy) would result in a lower net energy yield than calculated in the USA, where there is a divided body of expert opinion.

The opportunity cost of producing an industrial crop instead of the flow on benefits to Australia of producing substantially value added food products on the limited arable land available would also have to be factored in.

At least one LFGUG member is planning to commission an equivalent Australian study to the US study referred to above.

What can be concluded at this stage is that US studies suggest that the net energy yield from corn based ethanol production ranges from very substantially negative to modestly positive.

(2) *There has been a very large capacity to redirect unutilised land (eg in Brazil) or to redirect export output from high volume crops (eg corn in USA) to a domestic industrial market without disrupting established domestic industries. For example, in the EU, most ethanol is currently derived from crops that would otherwise be subsidised in any case.*

LFGUG is well aware of the global push for new sources of renewable energy. Australian government support for ethanol production is part of this global picture, although it is at odds with the general thrust of industry policy (See later comments).

However, Australia is in no way comparable to USA, South America or Europe in its capacity to redirect grain production from food to industrial usage. Nor is there any defensible basis for Australia to do so.

About 57% of Brazil's sugar crop is used for ethanol production; this should be seen in the context of the Brazilian government mandating ethanol blending, and the huge fertile area available in Brazil for crop

production.

In Europe, the EU has adopted the policy of securing a market share of 5% of total motor vehicle consumption by 2005. France is using 70% of its non food set aside land (410,000 hectares) for biofuel production. In Germany no excise tax applies for biodiesel.

Australia is a small producer of grain relative to South America, EU and USA/ Canada. Between 1993/94 and 2003/04 our total production of coarse grains averaged 10 million tonnes per annum compared with US annual corn production alone of over 230 million tonnes per annum with annual exports of over 40 million tonnes. Brazil and the EU each produce over 40 million tonnes of corn annually.

Our production is also unusually variable, ranging from a low of 5.5 million tonnes in the drought year of 1994/95 to 13.1 million tonnes in 2001/02 and 2003/04. Aggregate feedgrain production is not trending upwards.

This production variability taken with increased demand from livestock users as well as quarantine restrictions on grain imports has resulted in higher than normal price volatility eg if sorghum increased from an average $168/ tonne in 1993/94 to $216/ tonne in 1994/95, and $224/ tonne in 1995/96. During this period grain prices escalated well above import parity.

If subsidised ethanol plants were to further add to domestic demand, it is likely that such price volatility, given the absence of a safety valve for allowable unprocessed grain imports would increase.

Moreover, our grain dependent livestock industries are unusually exposed to global competition eg grainfed beef is 60% export dependent while the US grainfed beef industry is about 5% dependent.

The Grains Council is of the view that "the Australian cropping area is estimated to decline over the next five years from the record crop area of 20.6 million hectares by 2% to approximately 20.2 million hectares by 2008/09 due to urban encroachments, land degradation and diversification into vegetable and fruit crops". The Grains Council has also forecast that demand for feedgrain in Australia over the next five years will increase by 29% for the feedlot industry; 12% for the pig industry; 15% for broiler production and 7% for dairy.

Our separate forecasts also indicate strong domestic livestock industry growth at a faster rate than projected changes in feedgrain output (See Attachment C drawn from Macarthur Consulting report). This Macarthur

Report which was released in 2003, found that "strongest demand growth is projected in Queensland and New South Wales, the States where supply shortages have been most acute, and where intensive animal production is concentrated".

These circumstances are fundamentally different to those in the major ethanol producing countries

(3) *A view that ethanol provides big environmental benefits over fossil fuel alternatives.*

The environmental/ health attributes of ethanol are discussed elsewhere in this submission. We know that this is a somewhat uncertain and complex field, with work in progress, and that there are strong advocates of ethanol assistance on environmental grounds.

To further illustrate the point that this is a many sided debate, we have previously attached (Attachment A) an article by G Libecap, Professor of Economics and Director of the Karl Eller Centre at the University of Arizona. This article states that "the most recent information suggests that ethanol, when mixed with gasoline, has higher emissions of volatile organic compounds than does gasoline blended with MTBE and the use of ethanol could increase the release of nitric oxide and other pollutants such as carcinogenic aldehydes into the atmosphere. A 1999 National Academy of Sciences study found no significant reduction from ethanol's use and instead possible increases from pollutants that cause smog (National Research Council 1999).

While acknowledging the fluidity of this debate, we submit that it can be responsibly concluded that any environmental benefit from ethanol usage (even at E10 levels) are not so unambiguous and substantial to justify any extension of, or addition to, the current short term ethanol subsidies.

(4) *Creating domestic jobs instead of "exporting" them offshore.*

The creation of jobs through government regulation/ subsidy is an illusion. The jobs in the industries that purchase feedgrains are real and sustainable. Employment in industries that depend upon ongoing subsidies to maintain operations is a form of public service.

(5) *Agricultural industries pressing for a reliable (and government underpinned) domestic customer without the difficulties and uncertainties of exports.*

At the national level the grains industry has not pressed for ethanol assistance in Australia. There is a growing recognition that the best

interest feedgrain producers are served by having viable, sustainable customers who do not depend on political decisions for survival. In fact, LFGUG/ Grains Council of Australia are planning much closer, organised collaboration over the next few years to foster sustainable livestock industry markets for feedgrains, and to improve the interface between feedgrain producers and livestock industry customers.

(6) *Consistency with an existing policy framework on those countries of government subsidisation of agriculture; given this baseline, the assistance to ethanol production may end up being revenue neutral or even positive.*

Australia has made great strides over the past two decades in reducing levels of industry assistance, and is fostering more efficient allocation of resources. The latest Productivity Commission report comments that "most Australian industries now receive relatively low government assistance by historical standards. Effective rates of tariff assistance currently average just under 5% for manufacturing (and remain negative for mining) while the effective rate of assistance for most agricultural industries is 2% or less".

Current ethanol assistance is at serious odds with this trend, which has helped bring about strong economic growth in Australia and low unemployment.

It is difficult to find a respected economics expert who is other than highly critical of current ethanol policies; as an example, David Trebeck, Executive Chairman of ACIL Australia in an April 2003 address to the Australian Trucking Association Annual Conference spoke of his experiences in chairing the Commonwealth Government Fuel Taxation Inquiry. Among other things he commented that "I have said before that the idea of mandating ethanol in all petrol sold reflects the worst policy principles possible – non transparency, resource allocation costs unknown, practical problems for refiners unexplored and possible effects on engines and vehicle performance unclear".

Our Conclusions

We opposed the ethanol subsidies introduced to date, and have previously asked the government to confirm that current assistance will be allowed to phase out as previously announced.

We would be bitterly opposed to any extension of existing subsidies, and to any mandating of ethanol as a petrol blend (eg E10 or E20 mixes).

This submission supports those conclusions by showing that overseas justifications for ethanol industry support are not relevant to Australian circumstances.

We are not opposed to an unsubsidised ethanol industry in Australia. We are opposed to using taxpayers funds, or government regulations, to foster an industry that is not inherently viable without subsidies, and will disadvantage existing rural industries that are viable, and will become hostage to future Government policy decisions.

If ethanol plants are not viable without further assistance in an economic environment where crude oil is approaching $US60 per barrel, and given that the April 2004 ABARE study found that they would be so at much lower oil prices than now apply, then the only logical conclusion to draw is that Australia does not have a comparative advantage of large scale grain based ethanol production.

ATTACHMENT A

PERC REPORTS June 20, 2003

ENVIRONMENTAL PHANTASM

POLITICAL FORCES KEEP DREAMS OF ETHANOL ALIVE

By Gary D. Libecap

Ethanol is a politician's dream. It is supposed to reduce automobile emissions of carbon monoxide and other gases, promote energy independence, and assist midwestern corn farmers (not to mention large ethanol producers such as Archer Daniels Midland and Cargill). In April, the Senate Environment and Public Works Committee approved a plan that, if enacted, would double ethanol production.

But ethanol fails to perform as promised. Its use appears to have no net positive air quality benefits; its production may entail other environmental costs such as soil and water degradation; and it probably does not contribute to energy independence. Only in helping corn growers and ethanol producers does ethanol pull through as advertised.

Ethanol's political history goes back to the Arab oil embargo of 1973 and the related oil price shocks, which made America's growing dependence on foreign oil a political issue. Ethanol, which is alcohol produced from renewable sources of biomass such as corn, looked like a way to stretch gasoline supplies.

Although the cost of producing ethanol was nearly twice that of gasoline in 1980, forecasts of gasoline prices issued by the U.S. National Alcohol Fuels Commission-as high as $4 per gallon by 1990-1991-made ethanol seem a reasonable supplement. The nineteen congressional members of the commission came mostly from agricultural states.

The actual subsidy began with the Energy Tax Act of 1978, which authorized exemptions from the federal highway excise tax for biomass-derived fuels such as "gasohol," a mixture of 90 percent gasoline and 10 percent ethanol. Subsequent laws added income tax credits for blenders of ethanol and gasoline and provided more than $1 billion in loan guarantees for ethanol plants (Kane and LeBlanc 1989). Some states provided an added subsidy of $.20 to $.30 per gallon of ethanol (GAO 1997).

In 1986, a study of ethanol released by the U.S. Department of Agriculture (USDA) concluded that ethanol production could not survive through 1995 without "massive Government subsidies" (Gavett, Grinnell, and Smith 1986, iv, 45). But ethanol advocates moved quickly to repudiate the report's findings, and a 1988 USDA study argued the opposite: By raising corn prices, farmers' deficiency payments would fall to such an extent that there would be a net savings to the government (LeBlanc and Reilly 1989, 39).

In the early 1990s, political competition with MTBE (methyl tertiary-butyl ether) developed. The 1990 Clean Air Act Amendments required that gasoline be reformulated with oxygenates to reduce volatile organic compounds (VOCs) and carbon monoxide emissions in areas where air quality was low. Either ethanol or MTBE could be added to gasoline to reduce carbon monoxide emissions.

Farm-state politicians attempted to mandate only renewable oxygenates. In response to their lobbying, the Environmental Protection Agency (EPA) in 1994 issued an administrative rule that required at least 30 percent of the oxygenates used in reformulated gasoline come from renewable sources (EPA 1994, National Research Council 1996, 4)-even though ethanol would have to be specially blended in order to avoid increasing VOC emissions.

The EPA's rule was challenged in appeals court. The American Petroleum Institute and National Petroleum Refiners Association argued that the EPA lacked statutory authority to impose a mandate to use renewable oxygenates and that the mandate undermined the VOC emission reductions required by the Clean Air Act. The court agreed, reversed the EPA ruling, and scolded the agency for taking action that could increase air pollution (American Petroleum Institute v. EPA 1995, 1118).

Efforts to advance ethanol continued, however. Congress extended the ethanol subsidy through 2007. And problems developed with MTBE. To meet Clean Air Act standards, the California Air Resources Board required that by 1996 all gasoline sold in the state be oxygenated during winter months. MTBE was the preferred oxygenate because reformulated gasoline with ethanol could not meet California's limits on VOCs. But MTBE is water-soluble, and leakage from storage tanks potentially could contaminate groundwater supplies. It has an unpleasant smell and taste, and it may be a carcinogen. In 1997 the EPA issued a drinking water advisory regarding MTBE. The next year, the EPA formed a blue-ribbon panel to review use of MTBE and other oxygenates. Concerns about MTBE also raised questions about the need for any oxygenates to meet the requirements of the Clean Air Act (U.S. House 1998).

In March 1999 Governor Gray Davis ordered the phase-out of MTBE from California gasoline supplies by December 31, 2002. California regulations allowed refiners to produce complying fuel without any oxygenates. But in June 2001, responding to lobbyists, the new Bush administration denied California's request for a waiver from federal oxygenate requirements and ordered the state to include ethanol as a fuel additive. California resisted, with Governor Davis filing suit to block EPA requirements for ethanol use in reformulated gasoline. Today, a political compromise is under consideration (Carlsen 2002, A15).

Numerous scientific assessments in the early 1990s challenged the environmental benefits of ethanol. Studies by the EPA, National Academy of Sciences, the White House National Science and Technology Council, and the Committee on the Environment and Natural Resources of the National Science and Technology Council did not find conclusive air quality benefits from the use of any oxygenate additive.1 In 1994 policy debates, representatives of the Sierra Club, Environmental Defense, and Resources for the Future, opposed the oxygenate mandates. Ethanol advocates never dropped their environmental claims, however.

The most recent information suggests that ethanol, when mixed with gasoline, has higher emissions of VOCs than does gasoline blended with MTBE, and the use of ethanol could increase the release of nitric oxide and other pollutants such as carcinogenic aldehydes into the atmosphere. A 1999 National Academy of Sciences study found no significant pollution reduction from ethanol's use and instead possible increases in pollutants that cause smog (National Research Council 1999).

Nor is it likely to contribute to energy independence. A critical study of ethanol's energy and environmental effects published in the *Encyclopedia of Physical Science and Technology* (Pimentel 2002) concluded that conversion of corn and other food/feed crops into ethanol by fermentation is a net energy user.

Ethanol illustrates the workings of the political process when there is an entrenched, well-organized beneficiary, heterogeneous opponents with less at stake, and technical information that makes it difficult for general voters to assess the issue. Unless a constituency emerges in whose interest it is to expose ethanol, or unless the costs of the subsidy rise substantially, this agricultural support program will continue.

NOTE

1. These studies are documented in the chapter from which this essay is excerpted (Libecap 2003).

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Gary D. Libecap is professor of economics and director of the Karl Eller Center at the University of Arizona. During 2003, he is serving as one of PERC's two Julian Simon Fellows. This article is excerpted from "Agricultural Programs with Dubious Environmental Benefits: The Political Economy of Ethanol," in Agricultural Policy and the Environment, edited by Roger E. Meiners and Bruce Yandle (Rowman & Littlefield Publishers, 2003).

ATTACHMENT B

Energy Bulletin

Published on Saturday, April 2, 2005 by Science Daily

Study: Ethanol Production Consumes Six Units Of Energy To Produce Just One

By SD staffer

In 2004, approximately 3.57 billion gallons of ethanol were used as a gas additive in the United States, according to the Renewable Fuels Association (RFA). During the February State of the Union address, President George Bush urged Congress to pass an energy bill that would pump up the amount to 5 billion gallons by 2012. UC Berkeley geoengineering professor Tad W. Patzek thinks that's a very bad idea.

For two years, Patzek has analyzed the environmental ramifications of ethanol, a renewable fuel that many believe could significantly reduce our dependence on petroleum-based fossil fuels. According to Patzek though, ethanol may do more harm than good.

"In terms of renewable fuels, ethanol is the worst solution," Patzek says. "It has the highest energy cost with the least benefit."

Ethanol is produced by fermenting renewable crops like corn or sugarcane. It may sound green, Patzek says, but that's because many scientists are not looking at the whole picture. According to his research, more fossil energy is used to produce ethanol than the energy contained within it.

Patzek's ethanol critique began during a freshman seminar he taught in which he and his students calculated the energy balance of the biofuel. Taking into account the energy required to grow the corn and convert it into ethanol, they determined that burning the biofuel as a gasoline additive actually results in a net energy loss of 65 percent. Later, Patzek says he realized the loss is much more than that even.

"Limiting yourself to the energy balance, and within that balance, just the fossil fuel used, is just scraping the surface of the problem," he says. "Corn is not 'free energy.'"

Recently, Patzek published a fifty-page study on the subject in the journal Critical Reviews in Plant Science. This time, he factored in the myriad energy inputs required by industrial agriculture, from the amount of fuel used to produce fertilizers and corn seeds to the transportation and wastewater disposal costs. All told, he believes that the cumulative energy consumed in corn farming and ethanol production is six times greater than what the end product provides your car engine in terms of power.

Patzek is also concerned about the sustainability of industrial farming in developing nations where surgarcane and trees are grown as feedstock for ethanol and other biofuels. Using United Nations data, he examined the production cycles of plantations hundreds of billions of tons of raw material.

"One farm for the local village probably makes sense," he says. "But if you have a 100,000 acre plantation exporting biomass on contract to Europe , that's a completely different story. From one square meter of land, you can get roughly one watt of energy. The price you pay is that in Brazil alone you annually damage a jungle the size of Greece ."

If ethanol is as much of an environmental Trojan horse as Patzek's data suggests, what is the solution? The researcher sees several possibilities, all of which can be explored in tandem. First, he says, is to divert funds earmarked for ethanol to improve the efficiency of fuel cells and hybrid electric cars.

"Can engineers double the mileage of these cars?" he asks. "If so, we can cut down the petroleum consumption in the US by one-third."

For generating electricity on the grid, Patzek's "favorite renewable energy" to replace coal is solar. Unfortunately, he says that solar cell technology is still too immature for use in large power stations. Until it's ready for prime time, he has a suggestion that could raise even more controversy than his criticisms of ethanol additives.

"I've come to the conclusion that if we're smart about it, nuclear power plants may be the lesser of the evils when we compare them with coal-fired plants and their impact on global warming," he says. "We're going to pay now or later. The question is what's the smallest price we'll have to pay?"

~~~~~~~~~~~~~~~ Editorial Notes ~~~~~~~~~~~~~~~~~~

The original Univ.California, Berkley press release can be found here

Another recent study has argued that Ethanol production yeilds 1.35 units of energy for every one unit invested:
www.greenbiz.com/news/news_third.cfm?NewsID=27864

Permaculturist David Blume argued at The First U.S. Conference on Peak Oil and Community Solutions that in fact with sophisticated integrated farming techniques that ethanol production can be viable and produce useful byproducts.
www.communitysolution.org/pconf1.html

It should be noted that it is very problematic to compare different types of energy. A pound of butter may contain the same amount of energy as a gust of hot air - but comparing the two is not very meaningful. Howard Odum's EMergy (embodied energy) analysis allows different qualities of energy be compared in a more meaningful way, but it seems to be a quite difficult process, and is limited by the amount of energy accounting which has been done.

The truth of the matter - whether ethanol production can can be net energy positive - will only be finally evident when all the hidden fossil fuel subsidies have left us. Biodiesel and ethanol may or may not prove to be widely useful (I suspect that on a small scale they will be) but they will never supply anything like the same amount of energy as we've come to expect from fossil fuels.
-AF
Article found at :
http://www.energybulletin.net/newswire.php?id=5062

Original article :
http://www.sciencedaily.com/releases/2005/03/050329132436.htm

ATTACHMENT C

MEAT & LIVESTOCK AUSTRALIA

on farm

Review Options to Reduce Feedstuff Supply Variability in Australia

Volume 1: Main Report

Australian Pork

DAIRYAUSTRALIA
Delivering for the dairy industry

another innovation

Project number FLOT.123

Final Report prepared for MLA by:

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Meat & Livestock Australia Limited
ABN 39 081 678 364

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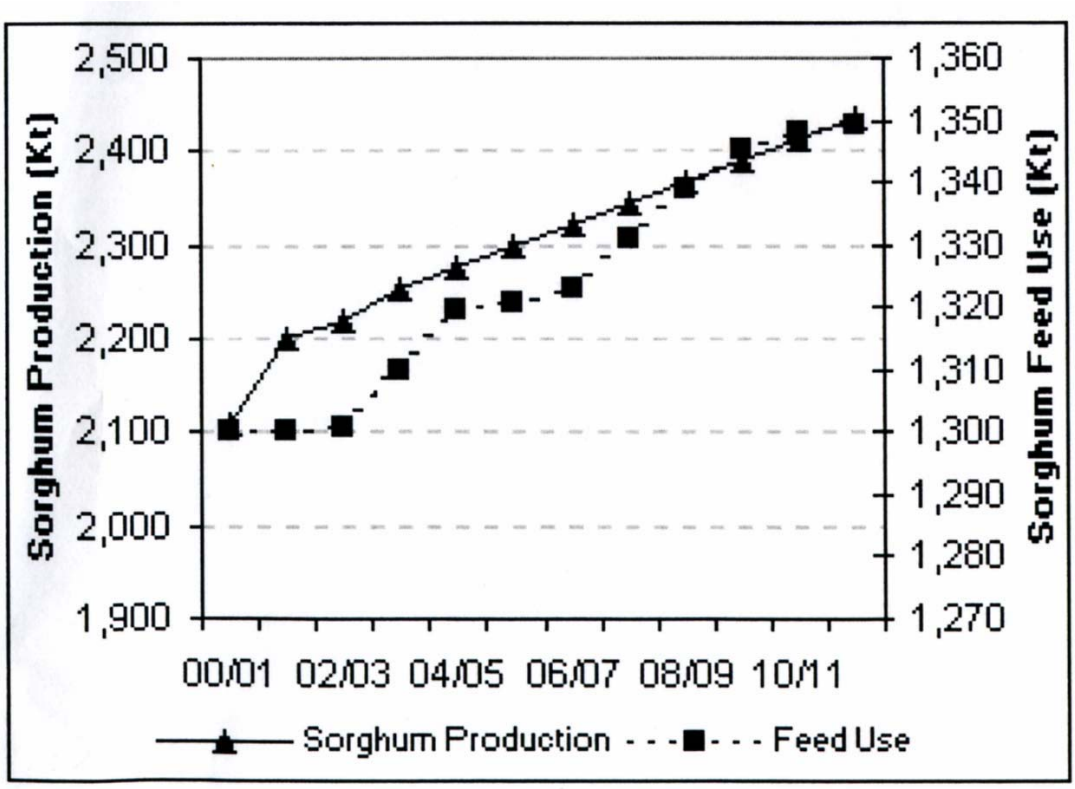
November 2003

Feedlots

Feed Grain Production and Demand Forecast



Attachment D

Australian Dairy Farmers Limited

Submission to the Biofuels Taskforce

Summary

Australian dairy farmers collectively consume about 2.5 million tonnes of feed other than pasture each year. Dairy farming is a significant industry in many major rural regions of Australia. This leads to dairy farmers being significant regional consumers of grain and this grain is usually sourced from their closest grain production region.

Grain based ethanol production already has a substantial competitive advantage over dairy due to the current subsidy on fuel excise and the ADF has consistently opposed this subsidy regime. Dairy farmers do not have a concern with having to compete with any other industries be it another animal production or ethanol production industry, if there is a level playing field. However, with ethanol being given a competitive advantage against dairy farmers, there is an unfair cost to dairy farmers in purchasing grain. This position would be significantly worsened if there was any intention by Government to extend and or increase the current subsidy regime or to embark on a any new tranche of start-up assistance to ethanol producers. Australian dairy farmers will strongly oppose any further extension of subsidies to grain based ethanol production.

The issue of competitiveness against grain use in the dairy industry is more pressing when there is a shortage of grain as seen during the recent drought in the major grain growing regions of the eastern States. Subsidies on grain based ethanol production can effectively lead to the same circumstances of lower grain supplies to dairy farmers every year. This, coupled with what amounts to an effective ban on the availability of imported grain, means the price of grain to dairy farmers over the past 4 years has been above the long term trend and, at times, above world market prices. This could also be the case into the future as a result of grain based ethanol production subsidies.

The Australian dairy industry has a gross ex factory value of approximately $9 billion with the gross value of production at the farm gate of approximately $3 billion. Dairy is, therefore, a high contributor to the economies of rural and regional Australia.

Australia exports more than 50% of its milk production, and the domestic market is open to imports of dairy products from all parts of the world. As a result, the Australian farm gate price for milk is directly set off the world market prices. World market prices for dairy products are recognised as amongst the most distorted of all world traded commodities. This is due to the use of export subsidies (particularly by the European Union), and through high barriers to imports in most of the major dairy consuming nations of the world.

Therefore, Australian dairy farmers must constantly strive to be worlds best practice dairy farmers operating at world market prices. To remain in this competitive position, Australian dairy farmers need access to their inputs at world competitive prices. Any extension to the current subsidy regime on ethanol production will have severe advere impacts on the competitiveness of Australian dairy farmers against their international competition.

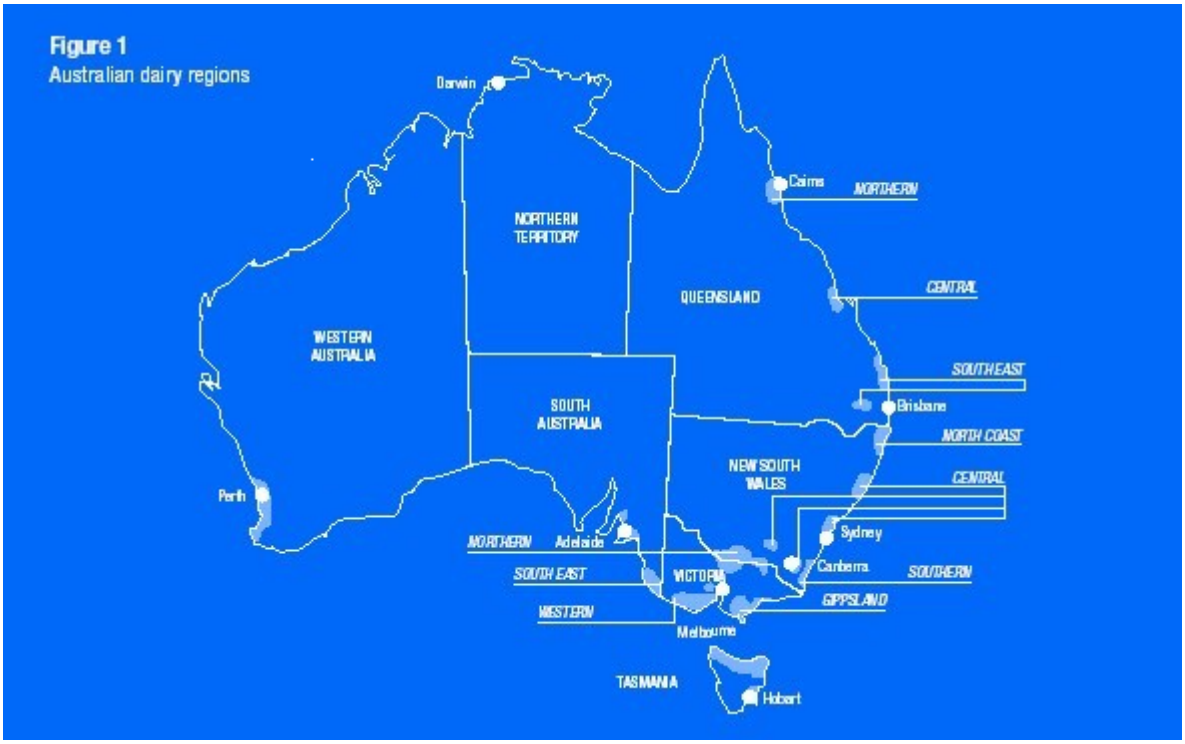
The ADF calls on the Biofuels Task Force to either directly commission, or recommend to Government it commission, an impact analysis to quantify the affects subsidised grain based

ethanol production will have on dairy farmers at both a regional level, the industry nationally, and the dairy industry's competitiveness internationally. ADF understands that ABARE have a model that could be used for this purpose. It is essential that Government and industry understand the impacts of subsidised grain based ethanol production.

It is not acceptable that a subsidy on one industry can disadvantage another world competitive industry such as dairy which has no ability to pass on the cost.

Regional Location of Dairy Farmers

Dairy farmers are significant contributors to the economies of all Australian states and many regional locations throughout Australia. The following map highlights the dairy farming regions.



Victoria produces approximately 64% of national milk production, NSW 12%, Queensland 7%, South Australia 7%, Tasmania 6% and Western Australia 4%. The strong regional location of dairy farmers effectively means the location of any subsidised grain based ethanol plants will have both a direct and indirect impact on dairy farmers ability to access grain at fair competitive prices.

Of the 9,500 dairy farmers, owner-operated farms dominate the Australian dairy industry. There are approximately 100,000 people employed within the dairy industry with the majority being employed in rural and regional Australia. Dairy is one of the largest manufacturing industries operating in rural and regional Australia.

Improvements in herd genetics, pasture management practices and supplementary feeding regimes, have seen average annual yield per cow increase from 2,850 litres to 4,900 litres over the past two decades. Combining this increase in yield per cow with the increase in average herd size, the average milk production per farm has increased from 247,000 litres to 1,048,000 litres over the same period.

ABARE's Farm Survey estimates that dairy farmers have achieved growth in outputs over the decade to 2002/03 of 5.9% a year. However, to achieve these increases, inputs have increased 4.7% a year. The increased feeding of supplementary grains and fodder has been a major factor contributing to the high rate of output growth.

The following table highlights the regional use of grain. There are also significant differences in the types of grain used region by region. Nationally 7.4% of cereal grain used is sorghum, however, all of this use is in NSW and Queensland. In Queensland 55% of the cereal grain used is sorghum and in NSW sorghum represents 27% of cereal grain use. Therefore, sorghum, which is expected to be a major cereal used in grain based ethanol production, will have a signficant and direct impact on Queensland and NSW farmers.

There will also be an impact from wheat, sorghum and other grains used in subsidised grain based ethanol production on all dairy farmers in the eastern states. As the grains used by the grain based ethanol producers are taken out of the dairy supply chain, there will be an increased demand for replacement grain types which will then put upward pressure on demand, and hence price, for all grains. This will inevitably have a flow on affect to all grain supplies throughout eastern Australia at least.

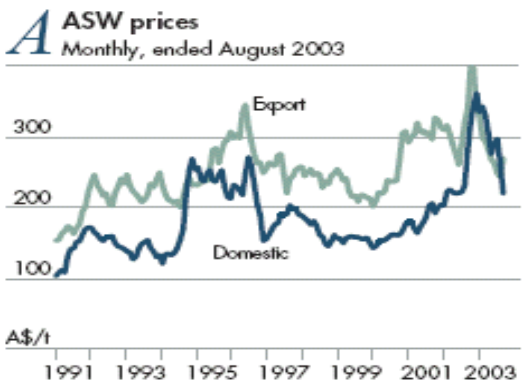
Grain feeding

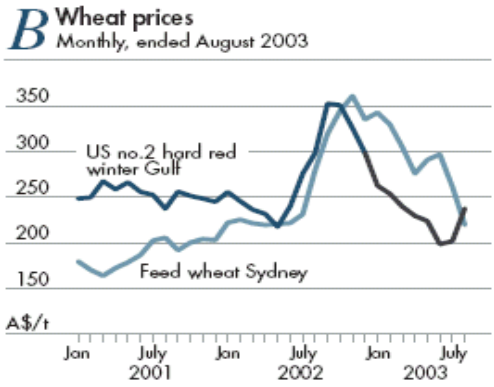
		Average tonnes grain used per farm					
		1991-92	**1993-94**	**1995-96**	**1997-98**	**1999-00**	**2001-02p**
Northern NSW	t	100.6	128.0	145.2	139.8	126.6	150.0
Central and Southern NSW	t	178.4	177.8	223.3	265.3	268.6	288.7
Riverina	t	126.2	113.6	90.5	253.9	295.0	269.0
South West Victoria	t	59.6	84.1	105.8	114.7	196.3	191.6
Murray Goulburn	t	61.7	107.2	112.1	133.2	245.6	250.9
Gippsland	t	41.3	60.1	71.7	76	104.3	141.2
Queensland	t	135.9	141.6	139.8	200.3	238.6	249.3
South Australia	t	100.0	236.1	180.2	233.2	259.6	329.0
Western Australia	t	133.0	147.9	198.7	281.7	344.0	282.6
Tasmania	t	31.8	35.2	52.1	70.0	77.0	118.9
		Estimated population of farms					
Northern NSW	t	830	818	756	706	650	618
Central and Southern NSW	t	951	1013	981	990	859	703
Riverina	t	229	255	250	252	291	276
South West Victoria	t	2197	2305	2170	2192	2088	1786
Murray Goulburn	t	3221	3392	3227	3263	3078	2541
Gippsland	t	2221	2261	2420	2589	2451	2305
Queensland	t	1844	1879	1836	1705	1693	1245
South Australia	t	842	838	802	794	723	591
Western Australia	t	497	515	460	453	402	357
Tasmania	t	760	783	771	755	683	573

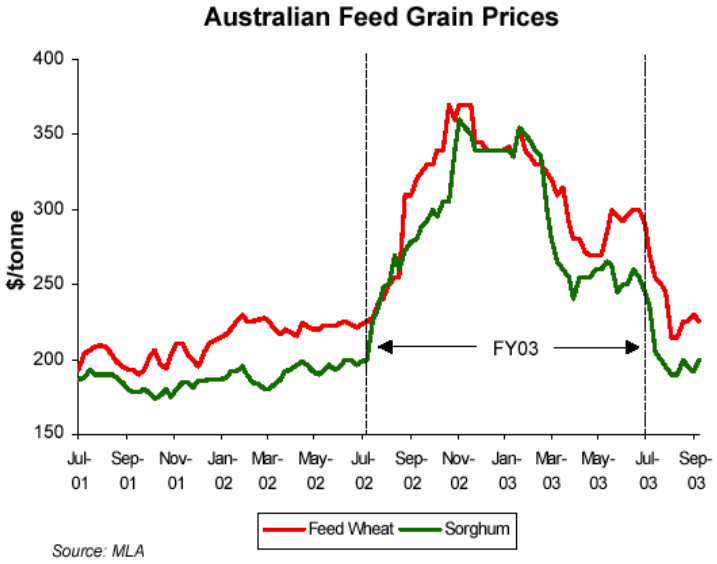
		Aggregate tonnage of grain used					
Northern NSW	kt	83.5	104.7	109.8	98.7	82.3	92.7
Central and Southern NSW	kt	169.7	180.1	219.1	262.6	230.7	203.0
Riverina	kt	28.9	29.0	22.6	64.0	85.8	74.2
South West Victoria	kt	130.9	193.8	229.6	251.4	409.9	342.2
Murray Goulburn	kt	198.7	363.6	361.8	434.6	756.0	637.6
Gippsland	kt	91.7	135.9	173.5	196.8	255.6	325.5
Queensland	kt	250.6	266.1	256.7	341.5	403.9	310.4
South Australia	kt	84.2	197.9	144.5	185.2	187.7	194.4
Western Australia	kt	66.1	76.2	91.4	127.6	138.3	100.9
Tasmania	kt	24.2	27.6	40.2	52.9	52.6	68.1
Australia	kt	1128.5	1574.8	1649.2	2015.3	2602.9	2349.1

Impact of Grain Shortage on Price

Shortages of grain in Australia lead to significant increases in price for grains. There have been occasions in the past when the domestic prices for grain have been above world market prices. This is illustrated in the following graphs which demonstrate that for much of the 2002 – 2003 year the domestic prices were above export prices for feed wheat and that domestic feed wheat prices in Australia were significantly above a world feed grain market price benchmark of US hard red winter wheat.







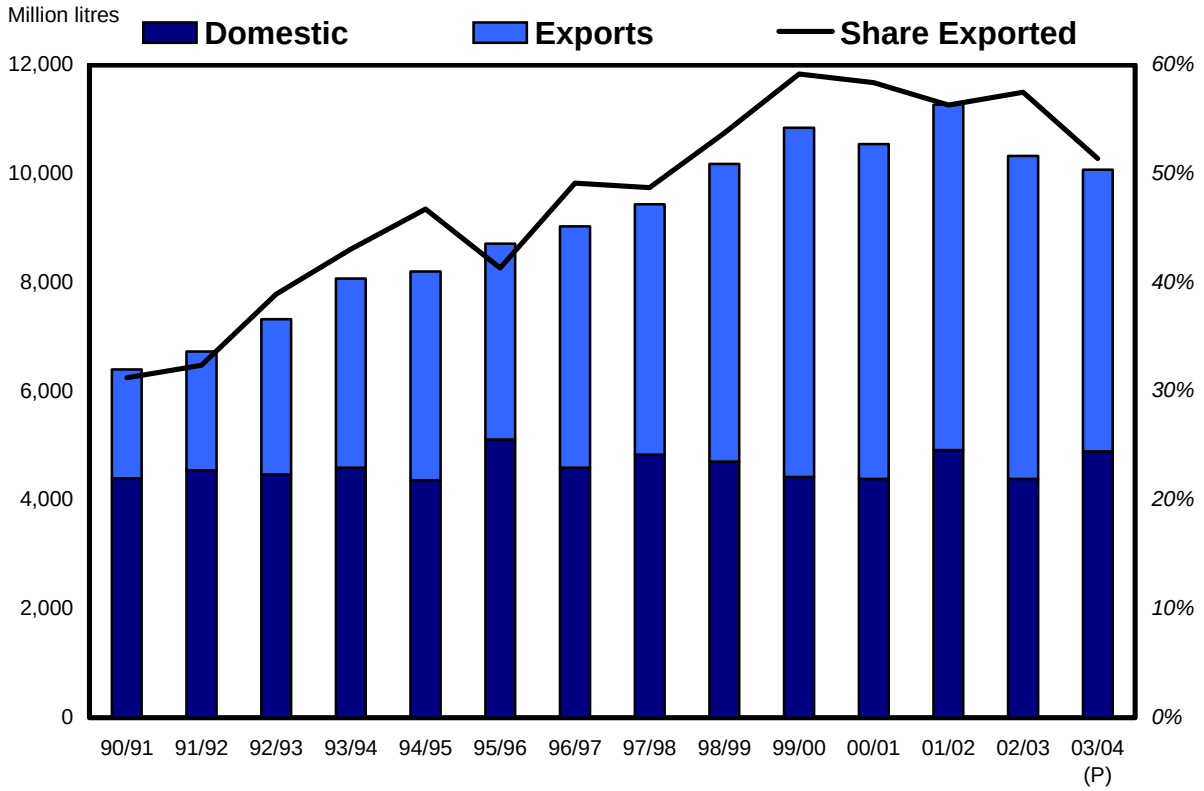
This situation of domestic prices being above export price and world market price benchmark was only able to occur because of the extremely strict quarantine laws in Australia for grain imports. These quarantine restrictions make it virtually impossible to import feed grains for transport to rural and regional Australia. In fact the price decline for domestic feed wheat in January 2003 only started because of a shipment of wheat from the United Kingdom entering Australia for processing close to the port of entry. However, because of the inability to have a protocol for grain imports direct to rural locations, the domestic price remained well above the world market price for several months.

The Australian Dairy Farmers believe that susidised grain based ethanol production will create a longer term feed grain supply shortage throughout eastern Australia. This, in turn, will create a permanent competitive disadvantage for Australian dairy farmers competing in world markets against competitors which are not disadvantaged by a subsidy on feed grains increasing their costs of production.

This would be an intolerable position for Australian dairy farmers to accept without relief.

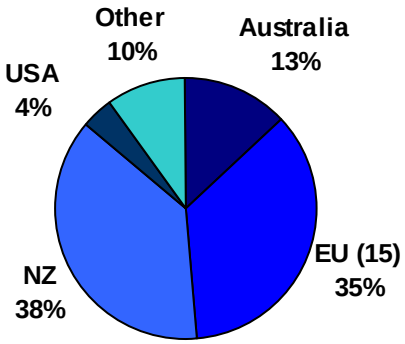
Australian Dairy Production

Australia continues to export more than 50% of the total milk production.



Australia supplies 13% of the world market for dairy products and is the third largest exporter of dairy products behind New Zealand and the European Union. More than 70% of exports are to Asia and the total value is approximately $2.4 billion fob. Dairy is the largest value added exporter of agrictultural products and is Australia's largest processed food exporter.

Exporters Share of World Markets for Dairy Products

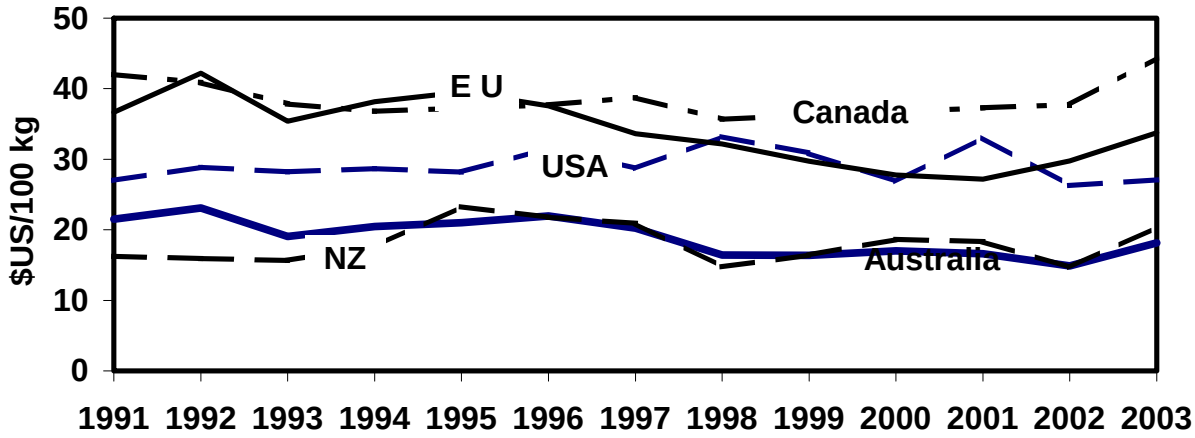


Farm Gate Returns Directly Linked to World Market Prices

Australia has virtually no barriers to imported dairy products. This, coupled with the fact that more than 50% of production is exported, dairy farmer returns are directly linked to world market prices. Australia and New Zealand dairy farmers have the lowest milk returns of all major dairy producing nations in the world. It is the primarily pasture based production system that Australia operates under that provides the competitive advantage for the success of Australian dairy as an export competitive industry. Grain and other concentrated feed consumption are essential elements to maximise the productivity of pasture based production. Therefore, grain consumption in the dairy industry is an important element of its international growth and competitiveness even though grain consumption represents only about 20% of the production output from Australian dairy cattle. Australia has world's best practice dairy farmers.

The following graph of comparisons of farm gate prices demonstrates the significant differences between Australian farm gate returns compared to our major international competitors.

International Farm Gate Prices



However, this competitive position of the Australian dairy industry will be severely eroded, if not removed, through the use of subsidies for grain based ethanol production – such subsidies will lead to increased feed grain input prices to dairy farmers.

Conclusion

The dairy industry is an internationally competitive industry that is a strong contributor to the economic wellbeing of rural and regional Australia and the total Australian economy. The industry does not oppose grain based ethanol production but it strongly opposes the use of Government subsidies of any form that provide a competitive advantage to grain based ethanol production.

The dairy industry will strongly oppose any extension to current subisidies or the application of any new subsidies for grain based ethanol production.

This submission demonstrates that subsidised grain based ethanol production will impact adversely on dairy farmers. However, the Task Force should either directly commission, or

recommend that Government commission, an independent impact analysis to provide greater clarity and objectivity on the adverse affects subsidised grain based ethanol production will have on dairy farmers competitiveness at the regional level, the industry nationally, and the dairy industry's international competitiveness.

June, 2005

9.5 Biofuels Task Force Report (summary)

Chapter 1 Summary and conclusions

Context

The Taskforce has focused its attention on biofuels that are liquid transport fuels and which can be readily produced from existing technology. In this context, biofuels means ethanol and biodiesel, in both pure form and as blends with fossil fuels.

The Taskforce has made its assessment within the context of current Australian Government policy. In that regard, the Taskforce notes that while the government has adopted policies and programmes to assist biofuel production, it has not formally adopted as government policy the target, contained in its 2001 election policy *Biofuels for Cleaner Transport*, of producing 350 ML of biofuels by 2010. Having regard to this and the terms of reference, the Taskforce has focused on, but not confined its examination to, a scenario of achieving 350 ML by 2010. The Taskforce considers that clarification of the government's policy position in relation to the target is desirable.

Costs

Globally, and in the absence of subsidies, biofuels cost more to produce than petroleum fuels. Production costs are coming down, and there are new technologies on the horizon. However, barring unexpected scenarios such as ongoing oil prices over US$47 a barrel at a 65c exchange rate, ABARE analysis suggests that Australian biofuels will generally remain uncompetitive with conventional fuels without continuing assistance in the longer term.[1] Depending on market conditions, exceptions could be biofuels that are produced by existing plants with sunk costs, or biofuels made from wastes.

The government provides assistance to biofuels producers in the form of capital grants and tax concessions. This assistance involves both budgetary and economic costs. On current policy settings, ABARE estimates government assistance to the biofuels industry could cost the budget in foregone excise $118 million p.a. at 2009–10, dropping in steps to $44 million p.a. by 2015–16, assuming the 350 ML target is reached. Costs to the economy of the current policy settings, driven by the biofuels excise advantage, have been estimated by ABARE modelling for the Taskforce at around $90 million p.a. in 2009–10 reducing in steps to $72 million p.a. (2004–05 dollars) in the long term (post 2015). Economic costs arise because government assistance changes the relativities between the activity that is assisted and other activities that add value to the economy.

[1] In assessing the 350 ML scenario, ABARE assumed that all recipients of Biofuels Capital Grants would commence production by 2010, giving 148 ML of ethanol production and 202 ML of biodiesel as ABARE's assumed split of the 350 ML. For reasons given in Chapter 6, the Taskforce concludes that some biodiesel projects are unlikely to be viable in the longer run under current policy settings. The Taskforce considers that, should the 350 ML target be achieved, ethanol will be the principal biofuel produced and so has adopted the split of 290 ML ethanol and 60 ML biodiesel as used in the 2003 350 ML Target Report. The health assessment and costing undertaken for the Taskforce reflect this, as described in Chapter 5.

Benefits

Submissions to the Taskforce identified a number of possible benefits from biofuels:

- improved urban air quality, giving improved public health
- reduced emissions of greenhouse gases
- assisting the Australian economy generally, either through import substitution or kick-starting a new industry
- improved energy security
- regional development.

These are discussed below, but the Taskforce has concluded that, of these, regional development is likely to be the principal driver of policy. In this regard, the Taskforce notes the emphasis on regional development in the government's 2001 election policy on biofuels. Although an assessment of benefits would ultimately focus on the principal driver, other benefits, such as improved urban air quality and greenhouse gas reductions, should still be taken into account.

Urban air quality and health

Air quality in Australian cities is good for four of the six most damaging pollutants—ozone and particle levels exceed standards in some cities on at least one day each year. As a result of decisions already taken to tighten both emissions and fuel standards, urban air quality is getting better. Current projections for motor vehicles, the principal source of urban air pollution, show emissions of major pollutants continuing to fall until close to 2020, when increased vehicle usage would begin to offset air quality gains.

The Taskforce has reviewed the available science, both Australian and international, on the impacts of biofuels on urban air quality and therefore on health. The main finding is a potentially significant change in relation to particulate matter (PM) emissions from E10.

Results from recent UK and US studies indicate that the assumption of negligible impact of E10 on PM tailpipe emissions in the 2003 350 ML Target Report needs to be revisited. In light of these studies, an indicative value of a 40% reduction in particulate emissions over petrol has been adopted for life-cycle and health calculations in this report. However, the Taskforce does not assert that 40% is a scientifically accepted value. Extensive experimental and monitoring work is needed to evaluate the impact of E10 on particulate emissions from petrol vehicles under Australian conditions, and on secondary particle formation.

Should research confirm that there are significant reductions in PM from the use of ethanol blends, this may present an opportunity to review particle standards. This should be done in the context of the framework for setting air quality standards and achieving them through mechanisms such as fuel quality and motor vehicle emission standards. Any confirmed air quality benefits from biofuels need to be evaluated side by side with the costs and benefits of other approaches to reducing emissions.

Possible benefits from reductions in emissions from the tailpipe with ethanol-blends of petrol would need to be weighed against the increased evaporative emissions of smog-forming organic compounds that come with adding ethanol to fuel. The potential for photochemical smog is location-

specific and, unlike most fuel parameters, evaporative emissions (measured by Reid vapour pressure) are set by the states. The government could consider initiating studies of evaporative emissions, for which there are few data for Australian conditions.

Given the uncertainties surrounding the level of particulate reduction from E10, it is not possible now to quantify the health costs and benefits of E10 use. However, it is useful to give a preliminary indication of the potential health benefits should E10 significantly reduce tailpipe emissions. Under the scenario of 290 ML of ethanol and 60 ML of biodiesel by 2010, the annual health costs avoided could lie somewhere between the $3.3 million or 1.4 cents per litre (c/L) (2003 dollars) found by the 2003 350 ML Target Report, and $90.4 million, or 30.4c/L (2004–05 dollars) using the indicative 40% reduction adopted for the Taskforce's analysis.

Reducing emissions of greenhouse gases

Biofuels can reduce greenhouse gas emissions, compared with petroleum, depending on how they are produced. For E10, these reductions have typically been assessed in the 2–5% range on a life-cycle 'well to wheel' basis. A recent CSIRO study of a particular proposed ethanol facility forecast reductions in the 8–12.5% range[2], but the Taskforce notes that these results depend very much on the specifics of the facility (which remain confidential) and its ability to produce co-products. CSIRO has noted that the outcomes of this study are consistent with its earlier general advice of 2–5% reductions and cannot be extrapolated to all facilities.

The life cycle reductions for biodiesel are much more substantial on a per litre basis, ranging from 23% to 90% compared with straight diesel, depending critically on feedstock. Greenhouse emission benefits are also more substantial for E85 or E100 at around 25–30%, but these fuels require additional capital investment, such as modified engines and dedicated fuel storage and pumps.

In assessing possible greenhouse emission benefits of 350 ML of biofuels, a split of 148 ML ethanol and 202 ML biodiesel has been used. This favours the greenhouse benefits for the purposes of illustration. At 350 ML biofuel market penetration, greenhouse gas emissions would be reduced by 442,000 tonnes of carbon dioxide equivalent (CO_2-e). If greenhouse reductions alone were the rationale for biofuel assistance, given ABARE's finding that GDP would be $90 million lower in 2010 than it would be otherwise, and government expenditure at $118 million p.a. in 2010, the emission reductions would be costed at $204 per tonne in terms of reduced GDP or $267 per tonne as a cost to government. While there is no national emissions market to provide a benchmark, trading schemes provide some guidance for a benchmark value. The $15 per tonne capped value of CO_2-e under the NSW Greenhouse Gas Abatement Scheme suggests a costing of $6.6 million or 1.9c/L. This is comparable with Australian Government greenhouse gas abatement programmes.

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

Other environmental benefits

Biodiesel is biodegradable and non-toxic, making B100 highly suitable for use in or near waterways and other environmentally sensitive places where there is a risk of spills. It also has significantly reduced emissions, except for NO_x, potentially reducing OH&S risks in confined areas such as mines and some construction sites where diesel-powered equipment is used. Likewise, diesohol

[2] The Taskforce believes these numbers should be 7–11.5% — see Chapter 5.

offers significant emission benefits in off-road applications. The government and industry may wish to look at options for encouraging B100 and diesohol use in special applications.

Assisting the Australian economy through import substitution or by kick-starting industry

Some key parameters have changed since the 2003 350 ML Target Report. The long-term forecast price for oil (West Texas Intermediate) adopted by ABARE has risen from US$23/bbl to US$32/bbl. The forecast US$/A$ exchange rate for the period to 2015 has changed from 0.60 to 0.65. Some feedstock costs have increased. The Taskforce commissioned ACIL Tasman to review the methodology and parameters used by ABARE in the 2003 350 ML Target Report to assess industry viability. ABARE took ACIL Tasman's advice into account in conducting a fresh analysis using updated parameters.

The 2003 350 ML Target Report estimated that assisting the biofuels industry to meet a 350 ML target would reduce GDP in 2003 dollars by between $71 million and $74 million in 2009–10. The new modelling by ABARE forecasts a reduction in GDP of $90 million in 2009–10 for 350 ML biofuels market penetration, dropping in steps each year to $72 million in 2015.

On updated ABARE assumptions, the long-term world price of oil would need to average US$42–47 per barrel in 2004–05 dollars (depending on feedstock used) for a new ethanol producer to be viable post-2015 without government assistance. With current government assistance, the required oil price is estimated to be US$25–30 per barrel for viability in 2015. With higher feedstock costs than ethanol, biodiesel producers would require an oil price of US$52–62 per barrel without assistance in 2015, or US$35–45 per barrel with assistance.

Some submissions argued that biofuels benefit the Australian economy by improving the balance of trade. Substituting locally produced biofuels for imported petroleum products could benefit the Australian economy only if they could be produced and sold competitively with imported alternatives without significant government assistance.

Energy security

The government's policy on energy security is articulated in the energy white paper, *Securing Australia's Energy Future*, released in June 2004. At that time, the government concluded that Australia has a high level of energy security and that the level of security in transport fuels was not under threat.

Were the government to consider there was a need to purchase a higher level of fuel energy security, the cost-effectiveness of developing biofuels as a strategy to increase fuel security would need to be considered against other options, such as developing other alternative fuel sources or technologies (such as coal to liquid, shale oil, or gas to liquids), oil stockpiles and measures to encourage greater fuel-efficiency.

The Taskforce could identify no valid arguments to suggest the Australian Government's policy position on energy security is not appropriate.

The Taskforce supports the energy white paper conclusion that 'there is currently no case for the government to accelerate the uptake of these fuels on energy security grounds'. In terms of the need to stay abreast of changing circumstances, the Taskforce notes that the government is committed to reviewing energy security every two years and is about to commence such a review.

Regional development

Biofuel production has the potential to affect regional economies by stimulating commodity prices (where these are not set by the world market) and investment in production facilities. Even if increased biofuels production is uneconomic in the absence of government assistance, submissions have argued that increased biofuels production is desirable from a regional development perspective.

To the extent that this production is stimulated artificially by government assistance, there will be other possibly unforeseen regional impacts. For example, an assisted biofuels industry may increase grain prices at a cost to some domestic livestock industries, which are heavily dependent on these feedstocks. This may be especially so around times of shortage due to drought, given the difficulty or cost of importing grain under strict quarantine requirements.

Under current policy settings, the high rates of return that can be obtained by the subsidised fuel-ethanol industry in the short term would allow it to bid strongly against the livestock industry for grain feedstock where necessary.

A full-scale sorghum-to-ethanol plant in a particular locality would try to source around 200,000 tonnes p.a. of sorghum from its locality. The probability that the locality would not have such a surplus is high. Accordingly, the local price may increase as freight costs from further afield get built in and/or growers shift from other crops to sorghum to get a premium driven by the ethanol plant subsidies. Either way, a feedgrain user in the locality may pay more for feedgrain. In poorer than average seasonal conditions, this may be exacerbated.

The Taskforce considers that, on current policy settings, there is real potential for subsidised grain ethanol plants to have a local impact on feedgrain prices in the short to medium term. In the longer term, fuel ethanol rates of return are likely to drop as the policy settings reduce the subsidies—and as ethanol import competition is allowed in 2011. The fuel ethanol industry will then be placed on a more even footing in its ability to bid for grain against the livestock industry.

Even assuming that the distributional benefits to regions of biofuel production outweigh the effect on other industries, there is still the question of whether assistance to biofuels represents the most cost-effective and best-targeted option for assisting regional development. An evaluation of the Commonwealth Dairy Regional Assistance Programme estimated a cost per new job of around $20,000. The Department of Transport and Regional Services advised the Taskforce that this may represent a lower bound cost of employment generation in regional areas. However, no employment-related analysis of other current regional services programmes has yet been undertaken.

ABARE estimated that reaching the 350 ML target could result in 216 direct jobs. A multiplier of two was used to calculate indirect jobs. This multiplier is supported by independent advice from ACIL Tasman. The total number of jobs (direct and indirect) potentially created by current biofuels policy settings to reach the 350 ML target by 2010 is therefore 648. The cost of these jobs (in 2004–05

dollars) would be $182,000 p.a. in government expenditure in 2009–10, or $139,000 p.a. in economic costs. These costs appear high, but could be offset by other benefits such as emission reductions. In 2015–16 the costs (2004–05 dollars) would fall to $68,000 p.a. for government expenditure or a $111,000 p.a. loss to GDP.

The Taskforce recognises that a multiplier of two is conservative, but notes that this may be offset by the fact that jobs may in fact be transferred from other areas and industries in net terms, particularly in a time of near full employment.

The Taskforce notes that an ethanol industry based on sugarcane is unlikely to assist the more marginal areas of sugar production. It would centre on areas of high productivity such as the Burdekin district in north Queensland. In addition, the degree to which a developing ethanol industry would deliver higher returns to cane growers (that is, significantly higher than world parity prices) would depend wholly on income splitting arrangements between millers, ethanol producers and cane growers.

Policy drivers in other countries

Many overseas countries have adopted policies to assist the production and use of biofuels. While national circumstances vary widely, in every case biofuel production has required government assistance.

The reasons given by governments for adopting these policies are essentially the same as the possible benefits for Australia: air quality and greenhouse benefits; economic benefit through import replacement; energy security; and regional, particularly agricultural, support. The Taskforce considers that agricultural support for agriculture is, or becomes so once government assistance is established, the primary driver of biofuel assistance in all cases except for countries with limited capacity to increase agricultural production.

The Taskforce sought to identify reasons why various overseas countries have committed significantly more resources to biofuels than Australia has done to date. Some overseas countries are driven by a much stronger predisposition to subsidise agriculture than in Australia. Others, unlike Australia, are struggling to meet their Kyoto targets and are willing to adopt high-cost measures to mitigate emissions. Still others face a much greater energy security challenge than Australia. Despite declining domestic oil production, Australia will remain a net energy exporter. For some European countries, the Taskforce gained the impression that their biofuel policies are driven by EU decisions that they do not see as being in their immediate national interest. These countries tend to pursue their EU obligations more or less assiduously depending on domestic agricultural interests.

Possible barriers to a viable biofuels market in Australia

Irrespective of whether the costs of assistance to biofuels exceed the benefits, there are existing producers supported by existing government programmes. To maximise the benefits of the programmes, it is important to ensure that existing and potential industry participants are given every fair chance of success.

Consumer confidence and engine operability

Consumer confidence was damaged significantly in 2002–03 after reports of the distribution of high-concentration (20–30%) ethanol blends around Sydney, and widely publicised allegations of

vehicle damage. At the time, the Australian Automobile Association (AAA) and other consumer advocates became concerned about the potential operability and additional motoring costs associated with ethanol-blended fuels. The impacts of ethanol on certain engines, real or perceived, led the government to introduce an E10 limit and an ethanol label, seen by many as a warning label.

The Taskforce considered consumer confidence in biofuels, and assessed that consumer confidence in ethanol, while having marginally improved, is still a fundamental problem for the ethanol industry. Biodiesel does not have the same consumer confidence issues. However, the Taskforce notes that confidence can be fragile and biodiesel producers will need to take care to meet fuel quality standards and ensure users are properly advised on fuel blends

In light of the available studies, the Taskforce concludes that almost all post-1986 vehicles can operate satisfactorily on E10. As was known when setting the fuel standard, E10 is not optimal for vehicles that have carburettors or mechanical fuel injection, mainly pre-1986 vehicles[3], and drivers should seek advice from the manufacturers regarding suitability of fuel types if they are not certain. The Taskforce notes advice from the NSW Department of Environment and Conservation that pre-1986 vehicles now make up about 4% of the Sydney fleet and less than 2% of the vehicle kilometres travelled.

As part of a broader effort to assist in restoring confidence, there would be merit in projects to validate the suitability of vehicles in the current fleet to operate on E10.

The Orbital E10 study of two-stroke outboard and other small engines suggests that E10 may not be suitable for two-stroke engines. The risk of phase separation in ethanol blends, and the resulting risk of these smaller engines stalling, means that use of ethanol blend fuel requires care in a marine environment.

The Taskforce sought legal advice on government labelling regulations. As retailers already have trade practices and commercial law obligations regarding consumer information, the Taskforce considers that the government's current labelling requirements can be simplified. For E10, the label need only identify the fuel as a blend of ULP or PULP (octane specified) with 10% ethanol.

Given that an even higher percentage of cars can use E5 than E10, the information standard for fuel ethanol could be further modified so that labelling is required only above 5% ethanol in petrol, rather than 1% as at present. As in Europe, this would give fuel companies flexibility to use up to 5% ethanol as a fuel extender or octane enhancer, without the costs of dispensing E5 as a separate blend.

Australian fuel and vehicle emission standards are being harmonised with UNECE (European) standards, although the ethanol limit in petrol under the UNECE standard is 5% (unlabelled), while Australia allows 10% (labelled). This alignment with the UNECE is facilitating the use in Australia of the latest engine technology to reduce both emissions and fuel consumption.

The Federal Chamber of Automotive Industries (FCAI) argued that, because the latest high technology engines rely on exacting fuel standards and increasingly need PULP 95, the limit for

[3] The Taskforce has used the term 'pre-1986 vehicles' to describe those vehicles (made mainly before 1986) that have a carburettor or mechanical fuel injection. Most post-1986 vehicles have electronic fuel injection.

ethanol in PULP in Australia should be reduced from 10% to 5%[4]. The Taskforce considers that the option of E10 blend in PULP should be retained because it would be labelled as such and because the evidence suggests almost all post-1986 vehicles can operate satisfactorily on that blend. Also, Europe is entering a debate that may see fuel standards there amended to provide for E10 blends.

The Taskforce considers that there is no reason to reduce the maximum ethanol limit in petrol from 10% to 5%, as proposed by the FCAI.

There is also a small number of post-1986 vehicles for which the manufacturer advises against the use of E10. In some cases this advice has been given out of caution in the absence of actual test data. Manufacturers are not likely to commission the expensive testing of older models that would give data to reconsider their advice. As part of an awareness campaign, the FCAI vehicle list could be revised into a simplified format and confined to clearer statements about the suitability of vehicles to use ethanol blend fuels. Fuel suitability information should be presented by automotive manufacturers to consumers in a less confusing manner.

The Taskforce considers that a greater focus on industry-based information dissemination and marketing/promotional activity may improve consumer confidence in ethanol blend fuels.

As B5 meets the diesel fuel standard, no label is needed. Labelling higher biodiesel blends is a necessary piece of consumer information but could be relatively straight-forward in line with a simplified ethanol label.

As with E10, there appears to be limited testing of the suitability of biodiesel for use in engines. The Taskforce notes, however, that there is no diesel engine manufacturing capacity in Australia and that, as a result, engine manufacturers will need to be guided by overseas testing and practice. The government could work with the Australian fuels and transport industries to settle on B5, B20 and B100 as the standard forms of biodiesel, in part through developing a standard for blends above B5.

Fuel consumption

Fuel consumption is another factor which may impede consumers purchasing ethanol blend fuels if they are sold at equivalent prices to petrol. Some consumers in the 2003 and 2005 ANOP surveys who were not happy to buy ethanol blends specifically cited fuel consumption as the reason for their concern. The government-mandated ethanol label advises that ‘the fuel may cause a small increase in fuel consumption’. The APACE and Orbital Reports found increased fuel consumption for test vehicles using E10 ULP in the order of 2.6–2.8%, close to the predicted increase. While this may seem small, from the consumer point of view it should translate into a price reduction of several cents at the pump based on current prices. Pricing strategies reflecting this would assist in encouraging uptake of ethanol blend fuel.

High levels of commercial risk

A key barrier cited by stakeholders is the high level of commercial risk associated with market entry, particularly for ethanol. Low consumer confidence in ethanol means low demand, especially with no significant price advantage to the consumer. Consequently, the oil majors are reluctant to enter off-take contracts with ethanol suppliers. Without such contracts, prospective producers cannot get

[4] The underlying principle for the FCAI is aligning Australian standards to Europe. In Europe, 95 RON PULP is the standard petrol fuel; this fuel is expected to become the main petrol blend in Australia in the next decade.

investment backing. The majors also have first mover concerns—the first company making a significant commitment to E10 could be seriously disadvantaged if confidence issues are not resolved.

This 'chicken and egg' market entry issue also makes it difficult to establish reliable and multi-source supplies of ethanol, another important aspect for the majors.

Pricing and establishment costs are other risks. Some biofuel producers seek fixed price supply contracts, leaving the risk with the buyer. Alternatively, a biofuel price pegged to a terminal gate price (TGP) of petrol puts petrol-related risk onto biofuel producers. On costs, Mobil has put infrastructure costs to supply ethanol blends at
$5–$10 million per terminal and $15,000–$20,000 per service station.

The Taskforce considers there are real and significant commercial risks associated with market entry, facing both fuel suppliers and biofuel producers.

For the oil majors, the Taskforce considers that, at present, there is little commercial incentive for them to develop a mainstream bulk market for ethanol blend fuel and, in the absence of some form of intervention designed to improve confidence and reduce commercial risks, there will be at best, continuation of small, trial-based marketing of fuel ethanol by the oil majors.

For small independent fuel retailers, the Taskforce considers fuel ethanol could represent an attractive market segment if confidence improves.

There are a number of relatively low cost options which the government could consider in this area if it wished to intervene without affecting current market structures. For example, stakeholders have suggested small grants could offset infrastructure costs and assist independent fuel retailers enter the embryonic E10 market and that consideration of biofuel use in the Australian Government fleet would send a strong positive signal.

Impact of fuel taxation reforms, particularly on capital grant recipients

Some submissions have argued that the government's fuel taxation reforms are potentially inconsistent with its alternative fuel policies, particularly the government's decision to provide alternative fuels with a 50% fuel tax concession and capital grants to encourage industry development. The Taskforce notes that the benefit of the 50% fuel tax concession is preserved in all fuel markets for blends of biodiesel that meet the diesel fuel standard (5% biodiesel blends). However, this concession is reduced in the heavy vehicle business market and lost in the off-road market.

The Taskforce also notes that changes to fuel taxation arrangements have been announced progressively in an environment in which the Australian Government has been actively encouraging significant industry investment in biofuels capacity expansion. The complete package of fuel tax reforms was not announced until the release of the government's energy white paper. The interaction of the fuel tax changes is quite complex, and the government has only recently (in May 2005) released the Fuel Tax Credit Reform Discussion Paper outlining the proposed legislative framework to implement the reforms.

The Taskforce considers it reasonable to conclude that, due to the complexity and staged announcement of fuel tax reforms, several biofuel project proponents may not have factored in the full implications of these reforms, at least until the Fuel Tax Credit Reform Discussion Paper was released. While biofuels still receive fuel tax concessions, the net effect of fuel tax reform is to substantially implement a fuel taxation system which transitions to become competitively neutral and

applied in a consistent and transparent way to all relevant fuels and fuel users, noting that private and business biofuel use (in vehicles under 4.5 tonnes) will continue to receive a fuel tax advantage.

To encourage new entrants to the biofuels industry, the government announced the $37.6 million Biofuels Capital Grants Program in 2003. Grants were subsequently announced in 2004. The Taskforce notes that the programme decisions to fund biofuel plants were made, at least in part, before the announcement of the full package of the government's fuel taxation reforms and before the release of detailed information outlining the proposed implementation path for these reforms. While reforms were announced in the Energy White Paper in June 2004, detailed implementation plans were not available until May 2005 in the Fuel Tax Credit Reform Discussion Paper. The Taskforce notes that the longer term commercial viability of some grant-funded projects may be questionable in light of the full suite of fuel taxation changes and ABARE's analysis of the prevailing market conditions.

Lack of access to infrastructure

Access to the existing fuel distribution network was also identified as an impediment to the uptake of Biofuels. The Independent Petroleum Group noted difficulties associated with the oil majors accepting trucks pre-loaded with ethanol for blending and many submissions also cited the 'no ethanol' signs as evidence of discrimination against biofuels.

The Taskforce received advice from the Australian Institute of Petroleum that its member companies will not allow in-compartment blending of motor spirit and ethanol at their loading facilities to create E10. This is on the basis of unacceptable risks to people, the facility, and the environment. The AIP also notes, however, that some member companies are prepared to load to 90% tankers that can then be taken to other facilities to have ethanol added.

In relation to concerns raised by some independents about access to petroleum at 'reasonable' prices for ethanol blending, the Taskforce notes that branded retail sites are more likely to be on term contracts for fuel supply and therefore not purchasing at the prevailing TGP. The Taskforce considers that it is not anti-competitive for an oil company to sell fuel at a more competitive price to an aligned site operator on a term contract than to a 'spot' buyer.

Some of the oil majors have also identified access to infrastructure at retail petroleum sites as a barrier to the uptake of biofuels. The major oil companies have noted that, in many service stations, there is typically sufficient infrastructure to deliver two or possibly three grades of petroleum. Some independents see the phase-out of lead replacement petrol, and the resulting freeing up of capacity, as an opportunity to market ethanol.

The Taskforce concludes that access to infrastructure and to petroleum for blending are not artificial barriers to the uptake of biofuels.

Reid vapour pressure

Regulated fuel volatility, measured as Reid vapour pressure (RVP), has the potential to be a barrier to uptake of ethanol blends. This is because E10 raises volatility in summer unless the producer uses more-expensive low volatility blendstock. To date, NSW and Queensland, the only states where ethanol blends are sold in any quantity, have increased the RVP levels to allow E10, after conducting scientific modelling.

The Australian Government is currently in dialogue with the states on how to regulate fuel parameters, including RVP, that are not part of the national fuel standards. The government could,

as part of this dialogue, discuss approaches to RVP that are transparent, nationally consistent and take full account of the latest information on the impacts of ethanol blends on air quality. This will create optimal circumstances for suppliers to make commercial decisions about supplying ethanol blends. Given the lack of data and the fact that most states have yet to consider an RVP limit for E10, and to ensure that decision-making is based on the best available science, it may be necessary to commission further data gathering.

Future technology

A new generation of technology offers the prospect of producing biofuels competitively and from more readily available lignocellulosic feedstocks such as wheat straw, grasses and wood waste. Given these prospects, and the International Energy Agency's (IEA) forecasts for a significant and continuing increase in global demand for biofuels, there would be value in a closer examination of this technology as a platform for a potential new industry for Australia.

In addition, the Taskforce suggests that, given the potential for lignocellulosic ethanol to impact materially on the economics of the biofuels industry in the coming decade, further policy interventions based on current industry technologies and feedstocks should be limited, without a close assessment of the potential impact of ethanol made from lignocellulose.

Summary of conclusions

Chapter 3 – Biofuels in Australia

Conclusion 1: *The Taskforce notes the potential for lignocellulosic ethanol technology to impact materially on the economics of the ethanol industry in the coming decade. Policy interventions based on current industry technologies and feedstocks should be limited without further assessment of the impact of lignocellulosic technology.*

Conclusion 2: *There are currently no mechanisms in place for comprehensively measuring and reporting trends in production, sales, stocks, imports and exports of biofuels. Such a mechanism would assist in measuring the success or otherwise of policies to promote biofuels in the Australian transport market.*

Conclusion 3: *While biofuels still receive fuel tax concessions, the net effect of fuel tax reform is to substantially implement a fuel taxation system which transitions to become competitively neutral and applied in a consistent and transparent way to all relevant fuels and fuel users, noting that private and business biofuel use (in vehicles under 4.5 tonnes) will continue to receive a fuel tax advantage. Due to the complexity and staged announcement of fuel tax reforms, several biofuel project proponents may not have factored in the full implications of fuel taxation reforms and the commercial impact of these reforms on their projects' viability.*

Conclusion 4: *The Taskforce notes that the longer term commercial viability of some Biofuel Capital Grants Programme-funded biodiesel projects may be questionable in the light of the full suite of fuel taxation changes and prevailing market conditions.*

Conclusion 5: *The Taskforce considers that clarification of the government's policy position in relation to the target of 350 ML of biofuels in the fuel supply by 2010 is desirable.*

Conclusion 6: *The Taskforce considers that there are real and substantial barriers to achieving the 350 ML target by 2010, and that it is unlikely to be met under current circumstances.*

Chapter 4 – Biofuels internationally

Conclusion 7: *The Taskforce notes that many countries have adopted policies to assist the production and use of biofuels. While national circumstances vary widely, in every case biofuel production has required significant government assistance. The reasons given by governments for adopting these policies are essentially the same as the possible benefits for Australia: air quality and greenhouse benefits; economic benefit through import replacement; energy security, and regional, particularly agricultural, support.*

Conclusion 8: *In the assessment of the Taskforce it is regional, particularly agricultural, support that emerges as the primary driver of biofuel assistance in all cases except in countries with a very limited capacity to increase agricultural production.*

Conclusion 9: *For some European countries, the Taskforce gained the impression that their biofuel policies are driven by EU decisions that they do not see as being in their immediate national interest. This tends to explain differentiated uptake of biofuels within the EU.*

Chapter 5 – Environmental and health costs and benefits

Conclusion 10: *The Taskforce considers that a properly designed Australian in-service vehicle emission (tailpipe and evaporative) study, combined with an air quality monitoring programme and health risk assessment, would be required to assess the air quality impacts of biofuels more effectively.*

Conclusion 11: *Results from recent UK and US studies indicate that the assumption of negligible impact of E10 on PM tailpipe emissions in the 2003 350 ML Target Report needs to be re-visited*. *An indicative value of 40% has been adopted for life-cycle and health calculations in this Report. However, the Taskforce does not assert that 40% is a scientifically accepted value.*

Conclusion 12: *The Taskforce considers that comprehensive experimental work should be carried out to evaluate the impact of E10 and E5 on PM emissions from petrol vehicles under Australian conditions.*

Conclusion 13: *Secondary particles formed in the atmosphere make up about 30% of all particles in Australian cities and more smog-chamber research is needed to understand properly the effect of adding ethanol to petrol on secondary organic aerosol formation.*

Conclusion 14: *The findings on life-cycle analyses for CO, HC and NO_x have changed little since the 2003 350 ML Target Report. Emissions of CO are reduced under E10 compared with neat petrol; there is little change in VOC emissions, and NO_x emissions are increased.*

Conclusion 15: *On life-cycle analysis, savings in greenhouse gas emissions from E10 over neat petrol are generally from 1–4%, depending on feedstock. However, the Taskforce concludes that a recent life-cycle analysis for a proposed ethanol plant has suggested that savings of between 7 and 11.5% can be achieved with optimum use of non-ethanol co-products.*

Conclusion 16: *The impact on air toxic levels in the atmosphere from the use of E10, relative to petrol, is difficult to assess. Combustion of E10 results in lower tailpipe emissions of some toxic compounds (e.g. benzene and 1,3-butadiene), but higher levels of others (e.g. the aldehydes).*

Conclusion 17: *Assuming robust modelling, the Taskforce considers it is reasonable to conclude that ozone formation arising from waived RVP limits associated with E10 blends is not currently a concern in the Sydney airshed.*

Conclusion 18: *The benefits of the 5% biodiesel blend (B5) diminish against increasingly lower sulphur diesel, with PM emissions even increasing slightly over XLSD (to be introduced in 2009). However, on life-cycle analysis pure biodiesel (B100) has significant benefits over XLSD for CO, VOC and PM (especially with waste cooking oil as the feedstock), but NO_x emissions increase by between 16% and 30%.*

Conclusion 19: *On life-cycle analyses, B100 from waste cooking oil produces 90% less greenhouse gas emissions than XLSD. Biodiesel from tallow or canola reduces emissions by 23% and 29%, respectively. There are negligible benefits for canola or tallow derived B5 against XLSD, though waste cooking oil achieves a 3% reduction.*

Conclusion 20: *The Taskforce notes the emission benefits of diesohol and biodiesel and their potential for specialised fleet and off-road applications. Given the significant volume of diesel used in these applications, there would be value in a closer examination of opportunities to encourage uptake of biodiesel and diesohol.*

Conclusion 21: *There are insufficient data at the present time to assess the air toxic emissions from biodiesel.*

Conclusion 22: *The only significant negative impact of biodiesel blends on air quality is the increased tailpipe emissions of NO_x, which could contribute to an increase in ozone production.*

Conclusion 23: *Additional care should be taken with the handling and storage of ethanol blended fuel, as studies have shown that E10 increases the risk of groundwater contamination.*

Conclusion 24: *Under the scenario of 148 ML ethanol and 202 ML biodiesel by 2010, it is estimated that 442,000 tonnes of CO_2-e will be saved p.a.. At a greenhouse gas abatement value of $15 per tonne, this gives a value of $6.6 million or 1.9c/L.*

Conclusion 25: *Depending on cost-effectiveness, governments could consider tightening the framework of air quality/fuel quality/vehicle particulate emission standards, with the objective of gaining public health benefits.*

Chapter 6 – Economic costs and benefits of biofuels

Conclusion 26: *Reflecting the combined effect of high world oil prices and government assistance to the industry, the rates of return potentially obtainable from fuel ethanol and biodiesel production are currently very high. However, these rates appear likely to fall significantly in the long term as world oil prices moderate, and as assistance to producers is reduced over the period 1 July 2011 to 1 July 2015 and fuel ethanol producers face full import competition at 1 July 2011.*

Conclusion 27: *The likely long-term trajectory for world oil prices is highly uncertain. However, a reasonable consensus range for the long term world trade weighted average oil price (in 2004 dollars) appears to be US$25-45/bbl. The long-term West Texas Intermediate oil price of US$32/bbl (2004 dollars) assumed in ABARE's revised analysis is conservatively placed within the consensus range of world oil price projections.*

Conclusion 28: *At a long-term exchange rate of US65c, the long-term world price of oil (West Texas Intermediate) would need to average US$42-47/bbl in 2004 dollars (depending on the feedstock used) for new ethanol producers to be viable post-2015 without assistance. With assistance, however, the required oil price is estimated to be US$25-30/bbl. Biodiesel producers would require an oil price of US$52-62/bbl without assistance for ethanol, or US$35-45/bbl with assistance provided by current policy settings.*

Conclusion 29: *The Taskforce considers that, on current policy settings, there is real potential for subsidised grain ethanol plants to have a local impact on feedgrain prices in the short to medium term. In the longer term, fuel ethanol rates of return are likely to drop as the policy settings reduce the subsidies—and as ethanol import competition is allowed in 2011. The fuel ethanol industry would then be placed on a more even footing in its ability to bid for grain against the livestock industry.*

Conclusion 30: *The conclusion that the expansion of the Australian biofuels industry will result in costs on particular industries, regions, and the national economy rests on the proposition that much of the industry expansion now being proposed is unlikely to be viable in the long term without continuing assistance. ABARE modelling indicates that the costs likely to be imposed on the national economy through assisted expansion of the industry to 350 ML would be $90 million in 2009–10 and $72 million a year (in 2004–05 terms) in the long term.*

Conclusion 31: *The Taskforce supports the energy white paper conclusion that 'there is currently no case for the government to accelerate the uptake of these fuels on energy security grounds'.*

Chapter 7 – Consumer confidence and engine operability issues

Conclusion 32: *Almost all post-1986 vehicles can operate satisfactorily on E10. As was known when setting the fuel standard in 2003, E10 is not optimal for vehicles that have carburettors or mechanical fuel injectors, mainly pre-1986 vehicles. Drivers should seek advice from manufacturers regarding suitability of fuel types if they are not certain about their particular model.*

Conclusion 33: *As part of a broader campaign to assist in restoring confidence, further testing could usefully validate the suitability of vehicles in the current fleet to operate on E10.*

Conclusion 34: *The Taskforce notes that whilst the 2003 E20 Orbital study was important in determining the ethanol limit and the suitability of certain engines for using ethanol, it is now of limited relevance to an assessment of vehicle operability at 10% ethanol blends. The E10 study of two-stroke outboard and other small engines suggests that E10 may not be suitable for two-stroke engines. The risk of phase separation in ethanol blends, and the resulting risk of these smaller engines stalling, means that use of ethanol blends requires care in a marine environment.*

Conclusion 35*: For post-1986 fuel injected cars using E10 ULP, fuel consumption increases in the order of 2–3%. Pricing strategies reflecting this would assist in encouraging uptake of ethanol blend fuel.*

Conclusion 36: *As part of an awareness campaign, the FCAI vehicle list could be revised into a simplified format and confined to clear and accurate statements about the suitability of vehicles to use ethanol blend fuels. Fuel suitability information should be presented by automotive manufacturers to consumers in a less confusing manner.*

Conclusion 37: *The Taskforce considers that there is no reason for a reduction in the maximum ethanol limit in petrol from 10% to 5%.*

Conclusion 38: *Responsibility for consumer information about the fitness of fuel for its intended purpose rests mainly with fuel retailers and suppliers. In the light of that, the current fuel ethanol information standard could be simplified primarily to require notification that the fuel contains ethanol at up to 10%.*

Conclusion 39: *Given that an even higher percentage of cars can use E5 than E10, the fuel ethanol information standard could be further modified so that labelling is required only above 5% ethanol in petrol, rather than 1% as at present. As in Europe, this would give fuel companies flexibility to use up to 5% ethanol as a fuel extender or octane enhancer, without the costs of dispensing E5 as a separate blend.*

Conclusion 40: *Greater focus on industry-based information dissemination and marketing /promotional activity may improve consumer confidence in ethanol blend fuels.*

Conclusion 41: *As B5 meets the diesel fuel standard, there is no need to label B5 blends. Labelling at higher biodiesel blends is a necessary piece of consumer information but could be relatively straightforward as with the simplified ethanol label suggested previously.*

Conclusion 42: *The government could work with the Australian biodiesel industry to suggest B5, B20, and B100 as the standard forms of biodiesel, in part through fuel standards for biodiesel blends over B5.*

Conclusion 43: *As for E10, there appears to be limited testing of the suitability of biodiesel for use in engines. The Taskforce notes, however, that there is no diesel engine manufacturing capacity in Australia and, as a result, engine manufacturers will need to be guided by overseas testing and practice.*

Chapter 8 – Other market uptake barriers

Conclusion 44: *The Taskforce considers there are real and significant commercial risks, associated with market entry, facing both fuel suppliers and biofuel producers.*

For the oil majors, the Taskforce considers that, at present, there is little commercial incentive for them to develop a mainstream bulk market for ethanol blend fuel and, in the absence of improved confidence and unless first mover risks are managed, there will be at best, continuation of small, trial-based marketing of fuel ethanol by the oil majors.

For the independent fuel retailers, the Taskforce considers fuel ethanol could represent an attractive market segment if confidence is restored.

There are several relatively low cost options which stakeholders have suggested the government could consider in this area without affecting current market structures. For example, stakeholders have suggested small grants to offset infrastructure costs and so assist independent fuel retailers enter the embryonic E10 market and/or consideration of biofuel use in the Australian Government fleet may be beneficial.

Conclusion 45: *The Taskforce concludes that lack of access to infrastructure and petroleum for blending are not artificial barriers to the uptake of biofuels.*

Conclusion 46: *The Taskforce notes the potential for further damage to fragile levels of consumer confidence if consumers fail to understand the nature of octane claims made by some fuel retailers.*

Conclusion 47: *The Australian Government is currently in dialogue with the states on how to regulate fuel parameters, including RVP, that are not part of the national fuel standards. The government could, as part of this dialogue, discuss approaches to RVP that are nationally consistent and take full account of the latest information on the impacts of ethanol blends on air quality. Given the lack of data and the fact that most states have yet to consider an RVP limit for E10, and to ensure that decision-making is based on the best available science, it may be necessary to commission further data gathering.*