

AA Submission: Biofuel Bill (1 Feb 2008)

1 February 2008

Clerk of the Committee
Local Government and Environment Committee
Select Committee Office
Parliament Buildings
WELLINGTON

Dear Sir/Madam

**Submission to the
LOCAL GOVERNMENT and ENVIRONMENT SELECT COMMITTEE
On the
BIOFUEL BILL**

Introduction

This submission is from the New Zealand Automobile Association (NZAA). We wish to appear before the committee to speak to our submission. Our contact details are:

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The NZAA is an incorporated society with over 1.2 million members. It represents the interests of road users who collectively pay over \$2 billion in taxes each year through fuel excise, road user charges and GST.

As motor vehicle users, our Members have a strong interest in the fuel specifications and the introduction of alternative fuels or fuel blends which may impact on vehicle operability, vehicle emissions and the cost of motoring.

We have previously circulated details of the biofuel sales obligation and associated information for comment to our 17 elected District Councils. The AA District Councils are representative of the membership and deal with policy issues. Feedback from our District Councils is incorporated in the submission below.

Executive Summary

The NZAA has previously publicly stated its conditional support for the introduction of biofuels for retail sale. In our submission on the Biofuels Sales Obligation discussion document (October 2006), we said that the NZAA “support[s] the progressive uptake of biofuels, led via a sales target mechanism. The NZAA...acknowledge[s] that biofuels can contribute to a reduction in particulate emissions and greenhouse gases, more so for biodiesel than bioethanol.”

However, we also noted that there were several fundamental consumer rights issues, regarding the quality of the biofuels and compatibility with the current vehicle fleet. In particular, we stated that:

“There is an onus on Government and the oil companies to ensure that fuels sold are of merchantable quality and fit for purpose, and that information and an education programme surrounding new fuels leaves consumers clearly informed with regards to vehicle suitability, effects on warranties, fuel consumption and, most importantly, costs.”

It is the NZAA’s considered opinion that oil companies, under the Government’s BSO directive, will have no choice but to retail biofuels, in particular bioethanol-petrol blends, which will not be ‘fit for purpose’. That is because, in order to meet the proposed minimum graduated biofuel sales targets, oil companies will have to blend up to 10% bioethanol in the most common petrol – 91 octane – and eventually in 95 and 98 octane as well.

This is despite the Bill’s explanatory note stating that the final 3.4% obligation level “is set so that companies are not required to sell more than 3% ethanol in all petrol on average.” Oil industry briefings to the NZAA assert that this assumption is incorrect.

This means there will be no 100% mineral (‘neat’) petrol alternative. Yet research by TERNZ¹ shows there are a significant number of older vehicles in

¹ TERNZ (April 2006). *Enabling biofuels: Risks to vehicles and other engines*

the NZ fleet which are assumed to be potentially at risk with bioethanol blends (generally non fuel-injected cars, pre-1986 – which represent 14% of the current fleet), while most of the 1.2 million-strong used imports (53% of the fleet) are not compatible with blends above 3%, according to the Japan Automobile Manufacturers Association (TERNZ estimate one million vehicles are at 'possible risk' with E5; 1.3m with E10, not including pre-1986 models). It's likely that most of these 'possible risk' vehicles will still be in service during the first obligation period of the BSO (2008-2012).

The biofuel sales targets are out of phase with the current and near-future make-up of the NZ vehicle fleet. 5% or 10% bioethanol in all petrol blends may soon be retailed while manufacturers of new domestic cars in Japan (which will enter the NZ fleet in seven or so years time) still do not endorse blends above 3%. Even those models which are compatible with higher blends may take a decade before they enter the NZ fleet, well beyond the conclusion of the first biofuel obligation period.

Although agencies like EECA may argue that there is no clear evidence that 'incompatible' vehicles would be rendered inoperable under a higher E5 or even E10 blend (primarily because no testing has yet been carried out on the domestic fleet), neither EECA nor any other Government agency are prepared to guarantee that no damage will occur, or take responsibility for such damage if it does occur. The NZAA would be prepared to consider modifying our position if such a guarantee was in place.

The Bill's explanatory note estimates typical fuel system repairs for an incompatible Toyota could be in the region of \$295 for parts and another \$500 for labour. For the estimated 1 million vehicles at a possible risk of using E5, let alone E10, the potential net cost to society is as much as \$800m. While it would be highly unlikely to be this high in actuality, the potential for damages and associated costs is unacceptable.

The NZAA believes it is unacceptable for the Government to potentially compromise the operability of the national vehicle fleet in this way, and to risk such high costs on motorists.

In 1996, unleaded petrol was mandated for the New Zealand market without proper preparation or education. The result was a huge fall in consumer confidence in the new fuel. The public were concerned that unleaded petrol would cause fuel leaks and vehicle fires. The media exacerbated these concerns even though it was subsequently found that the number of vehicle fires was less than average during the introduction period. Introducing bioethanol with no testing and no manufacturers warranty is a recipe for another loss of consumer confidence and long-term damage to the public's acceptability of biofuels.

The NZAA has previously stated our conditions for supporting the introduction of biofuels, which included that there must be no increase in the cost of motoring or a reduction in vehicle performance, and an unblended neat petrol continue to be widely available for owners of incompatible vehicles or other combustion engines (such as boats or garden machinery to name but a few). According to industry estimates, this will not be possible under the Bill's stringent biofuels sales targets.

Therefore, the NZAA submits that we cannot support the Biofuels Bill in its current form. We urge that the BSO targets be revised downwards to the levels originally proposed by the MoT, and to guarantee the availability of alternative mineral petrol blend(s) through to 2012 and beyond.

We address these points more fully below.

NZ at odds with current international thinking

1. International opinion is moving away from supporting Government mandates that encourage sales of first-generation biofuels. While it is generally accepted that there is a place for biofuels – and in time motorists will come to appreciate an environmental alternative to mineral fuels – it is not with first-generation biofuels.
2. There have been numerous developments concerning 'first generation' biofuels (sourced mostly from food crops) in recent months, generated largely from the European Union, which suggest that plans to mandate

sales of first-generation biofuels are misguided, and are now falling out of favour in the OECD (see *Appendix A*).

3. In his speech introducing the BSO, Minister for Climate Change Issues David Parker noted “there are legitimate concerns that some biofuel production causes the destruction of rainforests, or competes unduly with food production. We have included in the legislation a clause to enable standards to be set which ensure that all biofuels used in New Zealand come from sustainable sources. We want to take care not to create a new environmental problem as we are trying to fix another.”
4. The international developments follow various research into the true life-cycle costs of first generation biofuels. Previous efforts to work out how environmentally-friendly such biofuels (such as those expounded in the MoT’s Biofuels Sales Obligation discussion document) were only focussed on the amount of greenhouse gases emitted when a fuel is burned. The latest studies take into account total environmental impacts – such as loss of habitat or food-producing land.
5. The reports suggest that the NZ Government may have moved too quickly to introduce a BSO which will encourage the supply and sale of first-generation biofuels. The same reports are however enthusiastic about the possibilities of cellulosic (‘second generation’) biofuel technology, although they require considerable public and private investment to develop.
6. These findings are important because, although the final BSO target was largely predicated on domestic feedstock supplies, the reality is that much of the biofuels will need to be imported – using sources that are increasingly considered to be unsustainable.
7. Consequently, the developments outlined above bring into question the viability of the BSO, and the NZAA urges that both its aims and sales targets be reviewed before the Bill is passed.

The Biofuels Sales Obligation

8. The following paragraphs explain in detail the concerns we have with the planned mandatory biofuel sales targets and obligation dates.
9. There are a number of factors that have conspired to make the BSO targets difficult to achieve in the short term. Amongst these include the requirement for storage tanks dispensing bioethanol to be double-skinned in order to avoid the risk of contamination of soil or ground water. While ERMA have relaxed this requirement for much of the country, two of NZ's biggest regional markets – Auckland and Canterbury – will require double-skinned tanks according to the decision which retains this requirement for Zone A locations.²
10. Oil company data shows more than 224 tanks will require replacing, out of a total of 1,300 nationwide (based on data from three of the big four oil companies; data from one was unavailable). This retrofitting may take until 2020 to complete as the local infrastructure and skill base to perform such upgrades is limited. As a result, the NZAA is advised that not all service stations will be permitted to retail bioethanol-petrol blends during the BSO obligation period, and consequently, it will need to be blended in 91 octane throughout the remainder of the country, and probably at a 10% blend, in order to comply with the BSO target.
11. There are also substantial costs associated with this double-skinning requirement and associated infrastructure upgrades (224 tanks at \$105,000³ = \$23.5m plus, not including infrastructure at ports), costs which are expected to be in the order of 2-5 cents per litre.
12. According to the Bill's explanatory note, the BSO targets were raised from those originally proposed in the September 2006 discussion document "to reflect known sources of New Zealand feedstock of tallow and whey". There was clearly an expectation that much of the biodiesel would be sourced

² ERMA defines Zone A as "*Highly sensitive areas - areas where there is a high risk that any leakage from an underground petroleum storage system will contaminate an aquifer which is used or has been identified for future use as a source of supply for a reticulated potable water system.*" Much of Auckland and Canterbury are expected to fall into these zones because of the porous nature of their soil and high water tables.

³ Hale & Twomey (March 2006). *Enabling Biofuels – Biofuels Distribution Options*, p. 9

from local tallow feedstocks, and that there would be enough to blend in all retail diesel at 5%, thus reducing the amount of bioethanol that needed to be blended in petrol (to no more than 3%).

13. Unfortunately, these “known” feedstocks have failed to materialise. For various reasons, tallow is proving a difficult feedstock to blend with mineral diesel and remain “fit for purpose”, namely due to its propensity to clog at moderately low temperatures (and even if it weren’t, the majority of domestic tallow is committed for other uses). As a consequence, it is likely that most biodiesel will be imported (at higher cost), and/or blended at below 5%, therefore increasing the amount of bioethanol that needs to be blended in petrol to meet the overall BSO targets.
14. In any case, the minimum bioethanol blend is likely to be at least 5% (E5) due to the phase separation that occurs at lower percentages like 3%.⁴ As a consequence, the oil companies deem an E3 blend as unsaleable.
15. To complicate matters further, several companies, such as LanzaFuels, which had shown a strong interest in growing or refining bioethanol feedstocks locally have withdrawn from the market as the venture proved uneconomic, even at the current retail price of petrol. Thus it is expected that most of NZ’s bioethanol will also be imported, possibly at greater cost than earlier estimated.
16. While it is probable the major oil companies will postpone complying with the BSO in the first year of obligation (2008), and possibly defer some of their obligation in the second year, as permitted in the Bill, by 2010, they must be selling at least 1.67% of their obligation engines fuels as biofuels, or approximately 3.82 petajoules in total.
17. According to industry estimates, to achieve this target would require blending bioethanol in all 91 octane petrol. These suggest that the maximum permitted 5% biodiesel blend, combined with sales of bioethanol

⁴ As ethanol is anhydrous, at lower blends it will mix with any water in petrol tanks (service stations or vehicles) and split, but a larger volume of ethanol allows any water to fully disperse in the fuel.

in only 95 or 98 octane petrol would not be enough to meet the target in this third year. Hence it must be blended in the most common fuel. 91 octane (80% of all retail automotive petrol sales) is used by the majority of the NZ light vehicle fleet, and especially used-imports.

18. Worse, in order to meet the BSO in 2010, the bioethanol percentage in 91 octane will need to be 10%, far greater than the manufacturer's permitted levels for much of the fleet. By 2012, when the BSO target has doubled, bioethanol will need to be blended in all three petrol octane's, if it is to be met.
19. This is because the oil companies don't expect all retail diesel to include a 5% biodiesel component, as it is unsuitable for use in the agricultural sector (due to cold performance issues). This caps predicted biodiesel volumes, placing more emphasis of bioethanol-petrol blends to achieve the BSO target.
20. Two of the NZAA's conditions for supporting biofuels are that costs not increase for motorists, and that an alternative unblended petrol continues to be available for those vehicles with engines that are not compatible with bioethanol-blended petrol.
21. The revised BSO target is expected to impose additional costs on motorists. International opinion suggests neat biofuels are unlikely to cost less than neat mineral fuel, even with subsidies or, as in NZ, the removal of excise. Even if biofuels were less expensive, this is offset by the lower energy content of neat biofuels, requiring slightly more blended fuel to be purchased to travel the same distance.
22. The analysis above shows that, over time, bioethanol will need to be blended in all petrol, while the need to import most biofuels or feedstocks will increase costs further. Worse, the likelihood of 10% ethanol blends is very likely to result in additional maintenance and repair costs for owners of older cars that are incompatible, or compatible with only 3% blends.

23. The worse case scenario is that a proportion of the one million vehicles, identified by TERNZ as not compatible with blends above 3%, may incur fuel system repair costs quoted in the Bill's introductory note of \$800 if damaged by the compulsory use of biofuels. If every car was affected, that would amount to \$800m! By comparison, the expected carbon offset of the BSO between 2008-2012 is just \$18m in total⁵.
24. Furthermore, there is no standard requiring replacement components to be biofuel-compatible. So even if vehicles are repaired, there is no guarantee the fuel systems won't fail again, nor does the owner have any way of knowing if the repairs are compatible.
25. The Government is mandating the introduction of biofuel blends, untested in NZ operating conditions for use in the NZ's unique vehicle fleet. Despite Ministry-commissioned reports acknowledging that not all internal combustion engines are biofuel-compatible, the Government is effectively requiring its blending in virtually all fuels within a short time period, without offering any recompense to owners whose vehicles could be damaged by using biofuel blends.

26. **Recommendation**

As we have previously stated, the NZAA cautiously supports the introduction of biofuels. However, in light of the above evidence it is our considered opinion that the lower BSO targets from the initial 2006 discussion document should be adopted for this Bill, namely:

Proposed Obligation Levels⁶					
	2008	2009	2010	2011	2012 onward
Percentage of total combined petrol and diesel sales (p.a.)	0.25%	0.75%	1.50%	2.25%	2.25%
Estimated obligation in petajoules (based on projected sales)	0.5	1.6	3.2	4.9	4.9

⁵ Ministry of Transport (March 2007), Regulatory Impact Statement regarding the BSO final policy

⁶ Ministry of Transport (September 2006), *Biofuels Sales Obligation* discussion paper (p. 10)

This would allow for lower biofuel blends and/or provision of a non-biofuel alternative for motorists.

Yours sincerely

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New Zealand Automobile Association

APPENDIX A: Summary of current international opinion on biofuel sales targets and first-generation biofuels

- a) The European Union admitting that it did not foresee the problems that would be raised by its policy of sourcing 10% of Europe's road fuels from plants by 2020. European Commission environment minister Stavros Dimas said that the environmental impact of boosting biofuel production was greater than originally thought;
- b) The British House of Commons calling for a moratorium on the increased use of biofuels. A report by the Commons Environmental Audit Committee⁷ warned that "biofuels are too expensive, environmentally damaging and making a negative contribution to cutting greenhouse gases." The committee said the British government and EU should rethink its biofuels policy;
- c) An article published in *Science* magazine in August 2007, warning that the European biofuels policy was a "mistake"⁸. It said a goal of 10% of petrol and diesel by 2020 being from renewable sources was less effective in curbing carbon emissions than restoring forests and protecting existing habitats. The report concluded that the quantity of CO₂ absorbed by forests over 30 years was greater than the emissions avoided by using biofuels sourced from crops planted on the same parcel of land;
- d) An OECD report⁹ concluding that the environmental benefits of biofuels are smaller than expected, and **unlikely to be delivered by current policies**. The report also notes that **first-generation biofuels** threaten to damage biodiversity and cause food shortages, whilst government policies supporting them are not cost-efficient (for example, the cost of obtaining a unit of CO₂-equivalent reduction through subsidies to bioethanol ranges from US\$244-4520/tonne compared to US\$25/tonne for a CER. Further, the authors state that policies mandating biofuel usage "do not distinguish among biofuels according to their feedstocks or production methods...implying governments **could end up supporting a fuel that is**

⁷ House of Commons Environmental Audit Committee (Jan 2008). *Are biofuels sustainable?*

⁸ Michael W. Palmer, David Pimentel, Rattan Lal and Donald Kennedy (August 2007). *Biofuels and the Environment*. *Science* magazine, vol 317, issue 5840

⁹ OECD Round Table on Sustainable Development (September 2007). *Biofuels: Is the cure worse than the disease?*

more expensive and has a negative environmental impact than its corresponding petroleum product”;

- e) The OECD report (above) recommends that **“National governments should cease to create new mandates for biofuels and investigate ways to phase them out, preferably by replacing them with policies such as carbon tax”**¹⁰;
- f) Greenpeace Executive Director, John Sauven, quoted as saying “as things stand biofuels could be worse than useless at combating climate change”;
- g) A report by the Swiss Empa Research Institute¹¹ concluding that 12 of 26 biofuels studied had greater total environmental impacts than fossil fuels. These included biofuels derived from US corn, Brazilian sugarcane, and palm oil, which may very well be the so-called ‘sustainable’ biofuels imported to meet the NZ biofuels sales target;
- h) A warning by The Royal Society that “opportunities to reduce greenhouse gas emissions from biofuels...may be missed with **existing policy frameworks and targets**...there is a risk we may become locked into **inefficient biofuel supply chains** that create harmful environmental and social impacts”¹².

¹⁰ OECD Round Table on Sustainable Development (September 2007). *Biofuels: Is the cure worse than the disease?*, page 9

¹¹ Jorn P. W. Scharlemann and William F. Laurance (January 2008). *How Green are Biofuels?* *Science* magazine, vol 319, issue 5859

¹² The Royal Society (January 2008). *Sustainable biofuels: prospects and challenges*