



Biofuels Association  
of Australia

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8 August 2014  
The Research Director  
State Development, Infrastructure and Industry Committee  
Parliament House  
George Street  
BRISBANE QLD 4000  
[sdiic@parliament.qld.gov.au](mailto:sdiic@parliament.qld.gov.au)

Dear Sir/Madam,

### ***Re: Proposed Amendment to the Liquid Fuel Supply Act 1984***

On behalf of its members, the Biofuels Association of Australia (BAA) appreciates the opportunity to provide comment on the options presented in the *Liquid Fuel Supply (Ethanol) Amendment Bill 2014*.

As background, The Biofuels Association of Australia ('BAA') is the peak industry body representing biofuel producers, marketers, retailers and others with the purpose of providing leadership and facilitating the building of a sustainable and economically viable Australian biofuels industry, consistent with national and community interests and environmental standards. Formed in 2006, the BAA is proud to have major Australian industry participants as members, providing valuable input and insight across the supply chain.

The BAA works closely with its members and broader stakeholders to identify opportunities to advance the uptake of biofuels in Australia's liquid fuel market, and to lead the way in helping to educate consumers about biofuels, their use and benefits.

The BAA supports the objective of the Bill to amend the *Liquid Fuel Supply Act 1984* to require minimum ethanol content in relation to the total volume of motor spirit sold in Queensland. The BAA believes that the adoption of a mandated ethanol volume in fuel will assist the state to achieve the following:

- Leverage Queensland's agricultural base to create value adding options for farmers
- Improve air quality as a result using oxygenated fuels resulting in more complete combustion
- Take some important first steps in improving Queensland's fuel security by developing alternative fuels in the wake of the announcements of oil reefing closures
- Position Queensland as a global player at the forefront of an emerging advanced biofuel industry
- Take a leadership position in advocating for clean energy

An Australian biofuels industry has broad societal benefits in the areas of economic development, health, environment, innovation and energy security and a brief summary of these benefits is attached in Appendix 1 for your reference.

### ***BAA Comments on the Liquid Fuel Supply (Ethanol) Amendment Bill 2014***

#### ***Setting the minimum ethanol content - 2%***

The BAA believes that it is very important that the industry grows in a sustainable manner and the targets set be achievable. To this end the BAA are in agreement with the RACQ that the level for a mandate in Queensland be set initially at 2% in 2016 and then be increased to 3% by 2020.

Queensland’s car fleet current consists of just over 2.5 million vehicles of which over 90% are now compatible with ethanol fuels. By setting the level at 2% and growing to 3% over the next few years, Queenslanders will retain choice at the pump. In the past 3 years, since the government indicated that it would not follow through on implementing a mandate, ethanol availability has reduced in Queensland with the blend percentage falling from 2.2% in December 2010 to just less than 1%, removing the choice for consumers of a cleaner fuel that supports the state’s farming sector. In December 2010 Queensland was hit by statewide floods which caused an interruption to ethanol supply in the state for about 3 months. Major oil companies took this opportunity, in many cases to reconfigure their petrol station forecourts and remove ethanol blended fuels, as they saw the commitment from the then government waning with respect to implementing a mandate.

As the flow of fuel to the consumer is controlled in the main by the major oil companies, the market cannot be considered as a free market. As the Major oil companies are not involved in the manufacture of biofuels, they have no commercial incentive to offer cleaner biofuels products to the market as they do not derive profits from the whole value chain, as they do when selling petroleum. It is this reason, coupled with the benefits to regional economies and the lessening of the negative externalities associated with the burning of fossil fuels, that countries all over the globe have resorted to implementing mandates as the central policy for promoting the development of cleaner fuels (refer appendix 2).

### Ethanol and the Consumer

In introducing a mandated level for ethanol, the BAA believes that it is imperative that a public education process be undertaken for both the motoring public and in particular, car salespeople and motor mechanics.

Consumers are often confused as to what fuel they should or can put in their vehicle. For example often people are choosing premium octane fuel for their vehicle, unaware that they cannot gain the benefits of the higher octane fuel flow through to consumers with high compression engines. Similarly with Ethanol, people are often confused as to whether the fuel is compatible for their vehicle and avoid the fuel as a result the benefits to the community from using oxygenated fuels are not realised.

While retaining choice is currently important, as can be seen in the chart below, nearly all of the cars sold today are compatible with ethanol blended fuels, meaning that over time the amount of incompatible vehicles on the road will drop further.

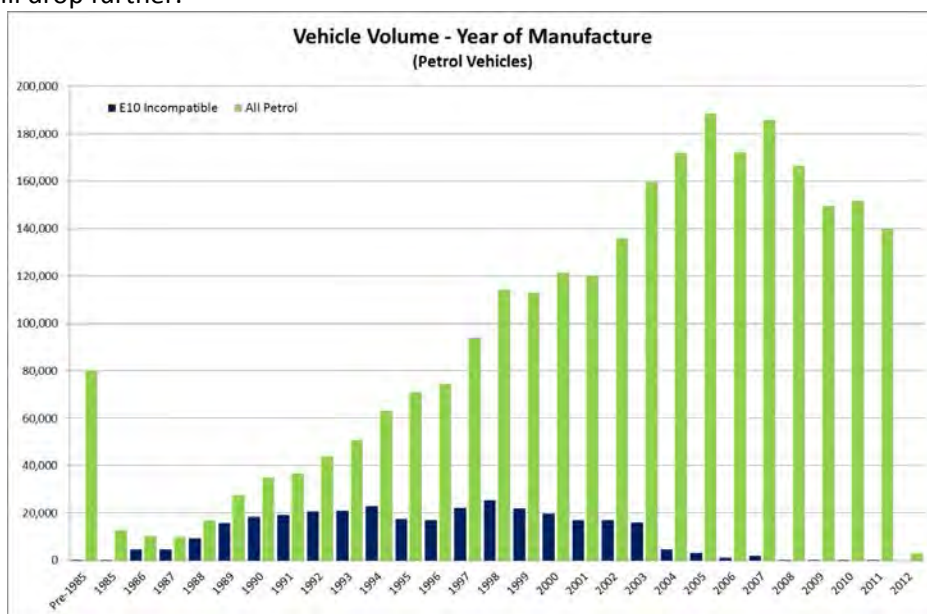


Figure 1: Compatibility of vehicles produced to 2012

(Source: BAA Report on the E10 compatibility of the New South Wales and Queensland vehicle fleets 2013)



Vehicle manufacturers worldwide have responded to the characteristics of ethanol blended fuels. Utilising adaptive engine management control units to adjust engine timing and fuel air ratios, modern vehicles are delivering improved fuel economies and lower emissions. Because most countries have adopted policies like the one currently under consideration by the Queensland parliament, have responded.

Ensuring that mechanics and car retailers are equipped with the facts about ethanol will assist consumers as this sector is looked to by the consumer for advice.

### Queensland Fleet

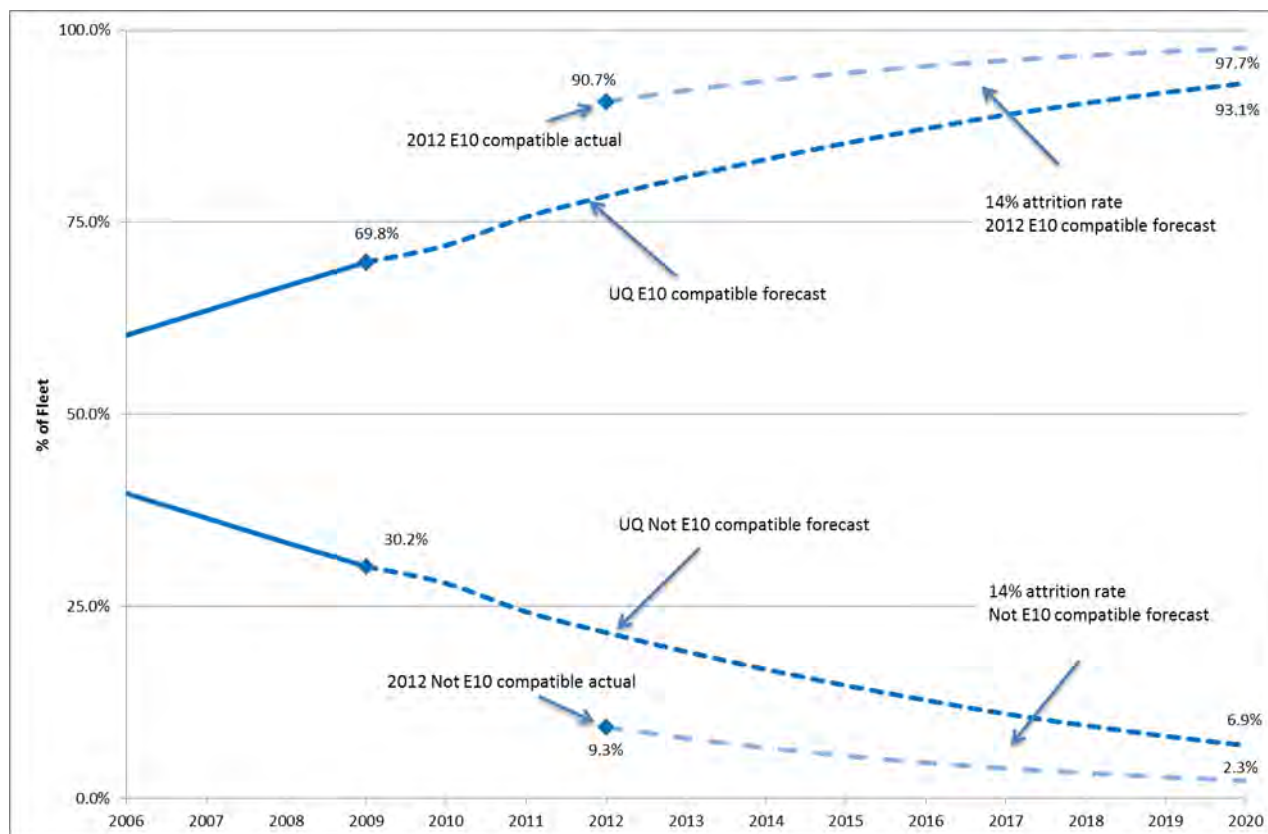
In 2014, the BAA commissioned a report on the ethanol compatibility of the Queensland and NSW car fleets which shows that in 2014 we have over 91% of vehicles that can E10.

**Table 1: E10 compatibility of the NSW and Queensland petrol fleet**  
 \*Note: QLD Metro includes Gold Coast Region (Source: BAA Report 2013)

Region	Total Vehicles	Vehicles not E10 Compatible	Percentage of vehicles not E10 Compatible
<b>QLD Metro*</b>	1,679,243	155,916	9.3%
<b>QLD Regional</b>	1,826,765	160,137	8.8%
<b>QLD Total</b>	3,506,008	316,048	9.0%

Research previously conducted by the University of Queensland in 2011, forecast that only 83.2 percent of vehicles would be compatible with ethanol at this time, but the attrition rate of vehicles has been much higher than previously anticipated. The BAA now forecasts that by 2020 there will be only 2.3% of ethanol incompatible vehicles on the road in Queensland.

**Table 2: Attrition rate of E10 incompatible vehicles and percentage of compatible vehicles: University of Queensland 2010 E10 Compatibility report and current forecast (Source: BAA Report 2013)**



## Implementation

The BAA believes that it is important that some of the lessons learned from the NSW implementation be applied in the application of a mandate in Queensland.

It would be ideal if the requirement for meeting the mandated percentage was applied at the retail level rather than the wholesale level. By placing the onus on the retailer, this would then provide incentive for all retailers to provide ethanol blended fuels rather than engage in anti-ethanol marketing strategies like the ones seen in NSW which had the effect of destabilizing the consumers trust in the product.

The administration of this process could be set up quite simply, where every litre of E10 sold would also carry blender credits. Retailers would then be required to remit credits equivalent to at least 2% of petroleum sales each period. Using this type of system equally spreads the responsibility of a mandate across the sector. Those retailers who choose not to offer E10 fuel would then be required to purchase credits off those retailers who have accumulated excess credits in a simple trading system that could be administered by the blender. Furthermore, those retailers that choose not to offer an E10 product could have 1% ethanol blended into their base petroleum grade as this level of blend meets the current Australian Fuel Quality standards.

In the event that the mandate position was not met in a period then additional credits could be purchased from the state government with the revenues used to fund consumer education and marketing campaigns.






The BAA would be happy to work with both government and industry to design and implement a process that is cost effective and is not administratively complex but rather leverages existing reporting systems that are already in place.







## Regional Development

Queensland currently has a number of projects in the early stages of development for future production of ethanol and other biofuels. The table below highlights a number of projects that could be unlocked if clearer signals regarding a secure market for biofuels, resulting in new investment the creation of regional jobs for Queensland. In addition to this, employment growth in existing producers like Dalby BioRefinery, Wilmar Bioethanol and Ecotech Biodiesel would be likely as they ramp up to capacity and potentially invest in further expansions.

Table 3: Queensland proposed projects (Source: Queensland Government)

Project name	Company and website	Feedstock	Products	Proposed annual product volume	Location
AgriFuels	AgriFuels <a href="http://agrifuels.com.au">agrifuels.com.au</a>		 	12 000 L/Ha 15 T grain/Ha	Isis Shire (near Bundaberg)
AustCane Energy	AustCane Energy Ltd <a href="http://austcane.com.au">austcane.com.au</a>		 	100 ML ethanol 49 MWH	Burdekin Shire (near Townsville)
BioEnergy Plantations	BioEnergy Plantations <a href="http://bioenergyplantations.com.au">bioenergyplantations.com.au</a>		 	160 ML biodiesel	Elimbah and Spring Gully
Boeing-CSIRO Sustainable Aviation Fuel Project	Boeing, CSIRO and partners <a href="http://www.boeing.com.au">www.boeing.com.au</a>		 	500 ML jet fuel 2000 ML diesel	Fitzroy Basin (near Rockhampton)
Brisbane BioPort	Virgin Australia, Brisbane Airport Corp, SkyNRG <a href="http://virginaustralia.com">virginaustralia.com</a>	Various	 	5% of Virgin Australia's annual jet fuel demand	Various
Etheridge Integrated Agricultural Project	Integrated Food and Energy Developments <a href="http://i-fed.com.au">i-fed.com.au</a>	 	  	100 ML ethanol 346 000 MWH 400 000 T grain	Etheridge Shire (near Georgetown)
North Queensland Bio-Energy	NQBE Ltd <a href="http://nqbioenergy.com.au">nqbioenergy.com.au</a>		 	100 ML ethanol 85 MWH	Ingham (near Townsville)
RD Australia	RD Australia <a href="http://rdaust.com">rdaust.com</a>	 		100–1000 ML ethanol	Burdekin/Pentland (near Townsville)

**Feedstock legend:**  Sorghum  Sugarcane  Pongamia Pinnata  Woody biomass (native regrowth)  Guar bean

**Products legend:**  Ethanol  Renewable diesel  Bio diesel  Renewable jet fuel  Electricity  Stockfeed

## ***Biodiesel***

The BAA also request that the proposed amendment be expanded to include a 2% biodiesel mandate. Diesel as a fuel is growing in popularity nationwide. Diesel also accounts for the majority of particulate emissions from our transport sector. The International Agency for Research on Cancer (IRAC), a World Health Organisation body, recently categorised diesel engine exhaust as a group 1 carcinogen. Carcinogens are classified as group 1 when there “is sufficient evidence of carcinogenicity in humans”. Research conducted by IRAC observed “statistically significant increasing trends in lung cancer risk with increasing cumulative REC” with REC representing *respirable elemental carbon*, the content measured to determine carcinogenicity.

Biodiesel due to its higher oxygen content reduces particulate emissions much in the same way Ethanol does in petroleum. Not only, therefore, will a move towards biodiesel fuels reduce the prevalence of emissions that cause asthma, reduced lung function, respiratory disease and cardiovascular disease but also cancer.

Targeting a 2% inclusion of biodiesel will have no effect on consumers as blends of biodiesel up to B5 (5%) are actually considered diesel under the Australian Fuel Quality standards.

## ***Summary***

The BAA supports the objective of the Bill to amend the *Liquid Fuel Supply Act 1984* to require minimum ethanol content in relation to the total volume of motor spirit sold in Queensland. The BAA believes that the adoption of a mandated ethanol volume in fuel will assist the state to achieve the following:

- Leverage Queensland’s agricultural base to create value adding options for farmers
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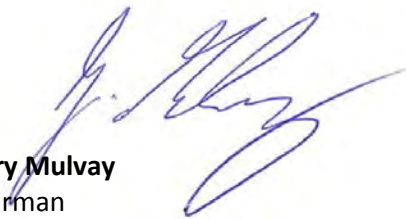
The BAA also believes that expanding the bill to include a 2% biodiesel would further strengthen the objects of the bill.

The BAA would appreciate the opportunity to discuss the matters raised in further detail with you, and we hope that this may be possible in the coming weeks.

Yours sincerely,



**Gavin Hughes**  
CEO  
Biofuels Association of Australia



**Garry Mulvay**  
Chairman  
Biofuels Association of Australia

## **Appendix 1: Benefits of an Australian Biofuel Industry**



## *Economic Development*

Today more than 98 percent of the energy used in Australia's transportation industry still derives from fossil fuels. With Australia facing significant change in terms of the make-up of industries that once drove our economy, the burgeoning biofuels industry is a relatively new player, which if fostered can contribute future investment and jobs.

The BAA recently commissioned Deloitte Access Economics to undertake a study on the economic contribution of the Australian Biofuels Industry. The interim results of this report show that, net of the Cleaner Fuel Grants and Ethanol Producer Grants paid, the industry generated an economic contribution of approximately \$427 Million and provided for about 3,180 FTE jobs as a result of the industry's activities and that this could grow to \$554 Million and 4,002 FTE jobs should the industry utilise its installed capacity. Given that the biofuels industry represents just 1% of fuel sales, we believe this demonstrates the significant economic potential that this industry has to contribute to Australia's future.

The Australian biofuel production supports investment and jobs in regional Australia in communities including: Dalby, Sarina, Narangba, Barnawartha, Largs Bay, Picton, Nowra, Maitland, Cressy and Tom Price. A number of projects are under consideration for the future and Australia's biofuels demand and policy settings will be key factors influencing their commercialisation. Additionally, the BAA believes that there is an opportunity for a domestic biofuels industry to provide an alternative revenue stream for the agri-sector, allowing it to strengthen its resilience to ever changing environmental and economic conditions.

## *Export*

Globally, biofuels is a growth industry with making up about 10% of the global supply. Today, Australia exports biofuels to destinations including the US and Asia, and we are increasingly being considered by overseas investors interested in establishing facilities for future export. This activity underlines the industry's international competitiveness when markets are not distorted. The potential future trade growth is not restricted to the fuels alone – there will also be opportunities for Australia to export its significant scientific and research skills, technology developments and human talent.

## *Health benefits*

Ethanol and biodiesel blends can have a beneficial impact to air quality, and as a result human health due to the reduced pollutant gas emissions relative to fossil fuels. Air quality, particularly in and around our major cities, ports, tunnels and airports could be improved and there is opportunity for increasing uptake of biofuels to have a positive impact on health outcomes and reduce national and state health budget costs. The Australian Medical Association noted in its submission to the 2013 Senate Inquiry into the "Impacts on Health of Air Quality in Australia" that the costs associated with motor vehicle emissions alone are estimated to be between \$600 million and \$1.5 billion per annum.

In particular, a significant risk to human health is posed by vehicle particulate emissions, especially fine particles known as PM2.5. Many economies have taken direct action in setting their fuel standards to limit particulates through requiring biofuels to be part of the standard fuel blends.

A CSIRO and Orbital study in 2008, "Evaluating the Health Impacts of Ethanol blend Petrol", concluded that there would be a "health benefit to Sydney and the Urban Australian population (taken as Sydney, Melbourne, Brisbane and Perth) arising from a move from neat ULP to ethanol blends in spark-ignition vehicles", noting that the "overall quantified health benefit of using ethanol blends is overwhelmingly dominated by reductions in particulate matter".

Biodiesel use in underground mines could also be a significant opportunity for improved OH&S outcomes. In a CSIRO paper titled, "Biofuel: potential use in the mining industry for the reduction of greenhouse gas and particulate matter emissions", it was noted that "the occupational exposure to particulate matter from diesel exhaust can be significantly higher among underground mine workers than it is for their above-ground

counterparts.” While a number of strategies are available to reduce exposure to vehicle exhaust or equipment emissions, not all may be suitable. As a result, the use of biodiesel as a “drop-in” replacement for diesel use in underground mining operations provides a viable option for companies to reduce the exposure of their people to harmful particulates and other toxic emissions.

Overall, the BAA believes that the net public health benefit of using blended fuels is positive and should be a significant consideration when analysing future policy settings to advance the uptake of biofuels in Australia.

### *Environment*

The environmental benefits of biofuel use have been widely documented as is the potential for biofuels to impact positively on reducing GHG emissions. While there have been concerns due to the use of food crops as feedstocks in some countries, in Australia producers are using environmentally sustainable feedstocks from waste streams such as used cooking oils, tallow, wheat starch, molasses and sorghum. These feedstocks do not impact the affordability or availability of food within Australia.

Whilst the notion of first and second generation fuels once was central to the debate, ‘Advanced Biofuels’ has finally become the centre of attention, requiring fuels to be defined by their potential for lifecycle GHG abatement and their conformance to a set of sustainability criteria. Indeed, the issue of sustainability is of paramount concern to the Australian industry, and the BAA is the lead participant in Australia’s involvement in the development of an ISO Sustainability Criteria for Bioenergy.

### *Technology and Innovation*

The biofuels industry is an incubator for innovation and is the basis on which to foster new technology and R&D. Our local producers are constantly looking for ways to improve the efficiencies within their processes, via research into new enzymes or treatments to improve the yields and quality of the biofuel they produce.

Looking to the future of advanced biofuels, several Australian Universities and CSIRO have active research programs and many are at the forefront of research into new feedstocks, such as algae, cyanobacteria, sorghum, lignocellulose, pongamia and mallee. Importantly, the issue of how to manage biomass aggregation to allow cost effective processing of these feedstocks into fuel is also a critical area of required study. Leveraging Australian industries that already aggregate biomass of course is a short pathway to piloting these new technologies.

The development of a sufficient supply of renewable feedstocks is of particular interest to the aviation industry, both in Australia and globally. The key challenges remain the cost and availability of feedstocks and refining capability. The global industry is keen to find ways of producing sustainable quantities of renewable jet fuel, at an acceptable cost. This is an area where there is strong customer demand for the product, and globally, many countries are urgently looking at ways that they can take advantage of what could become a significant industry in future. Australia is well positioned to take a lead in the development of pathways to renewable jet fuel and this is evidenced by investment in local initiatives such as the Australian Initiative for Sustainable Aviation Fuel (AISAF) and Queensland Sustainable Aviation Fuel Initiative (QSAFI), along with partnerships between companies such as Qantas and Shell, and Virgin Australia, Brisbane Airport Corporation and SkyNRG (Brisbane Bio port).

For Australian biofuel production, increased investment in the development of advanced, renewable economically viable feedstocks is critical to the growth of the industry.



## *Energy Security*

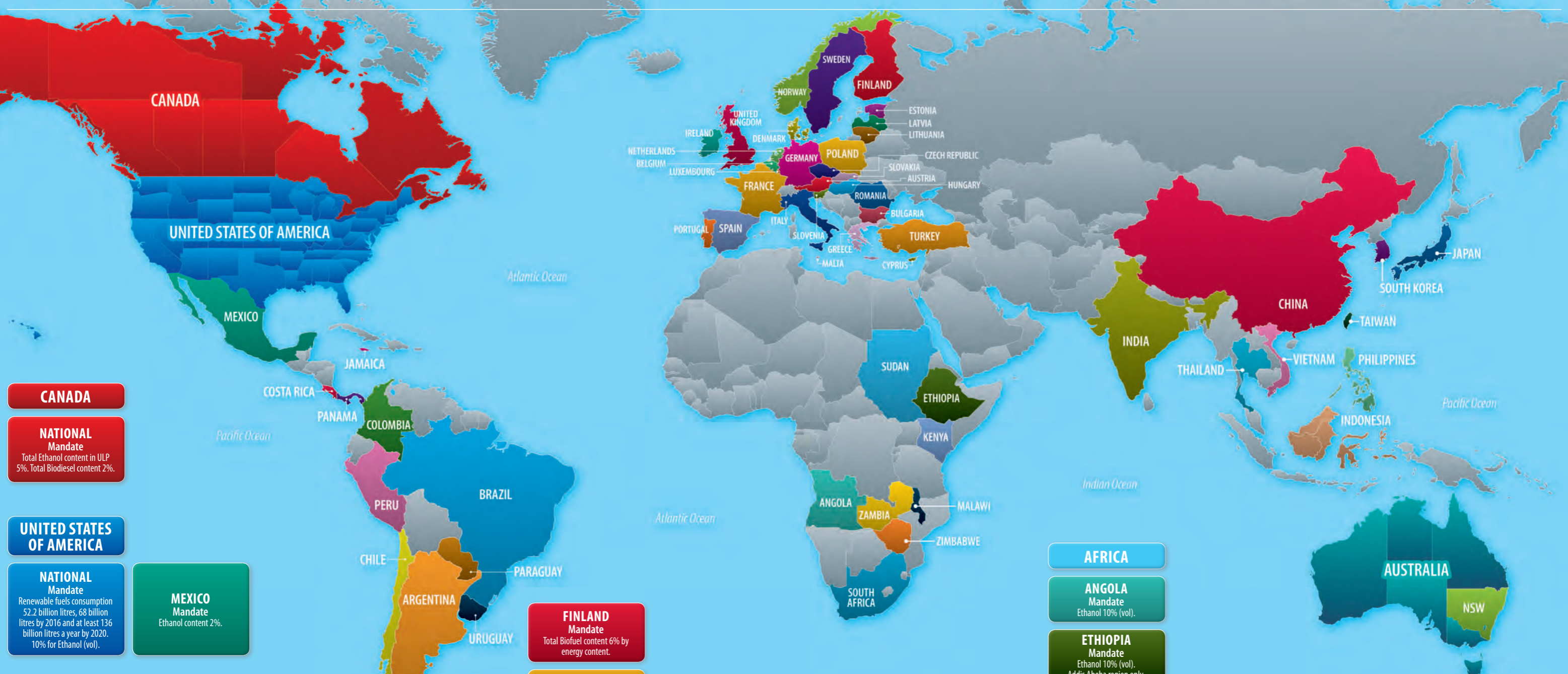
An established industry can contribute to energy security as blending extends Australia's fuel reserves. Indeed, energy security concerns have driven many countries to introduce policies to actively encourage the development of their biofuels industry. Biofuels capability in Australia is also an area being closely watched by Defence personnel, particularly as our US allies are moving to significantly increase the use of renewable fuels in Navy vessels. Interoperability is a key factor to consider for the Australian Navy, as often shared supply chains are used for fuel.

Given the recent announcements of oil companies to cease producing petroleum in a number of capital cities, supporting biofuel production is one way Australia can ensure that it continues to have some indigenous fuel production capability. Biofuels and in particular the prospect of advanced biofuels from biomass offer a genuine opportunity for scale production into the future and a pathway to a secure supply of lower cost fuel for all Australians.

## Appendix 2 – World Ethanol Mandates



# 2013 WORLD BIOFUELS' INCORPORATION RATES



**CANADA**

**NATIONAL Mandate**  
Total Ethanol content in ULP 5%. Total Biodiesel content 2%.

**UNITED STATES OF AMERICA**

**NATIONAL Mandate**  
Renewable fuels consumption 52.2 billion litres, 68 billion litres by 2016 and at least 136 billion litres a year by 2020. 10% for Ethanol (vol).

**MEXICO**

**Mandate**  
Ethanol content 2%.

## SOUTH AMERICA

**ARGENTINA**

**Mandate**  
Biodiesel 10% content, Ethanol 5% content by volume.

**BRAZIL**

**Mandate**  
Ethanol content in ULP 25%. Biodiesel 3%, increasing to 5% by 2013.

**CHILE**

**Mandate**  
E5 Ethanol and B5 Biodiesel.

**COLUMBIA**

**Mandate**  
Ethanol content 10%.

**COSTA RICA**

**Mandate**  
Ethanol content 7% by volume and B20 Biodiesel.

**JAMAICA**

**Mandate**  
Ethanol content 10% by volume.

**PANAMA**

**Mandate**  
Ethanol 2% (vol) as of Sept 2013.

**PARAQUAY**

**Mandate**  
Ethanol content 25% by volume.

**PERU**

**Mandate**  
Ethanol content 8% by volume.

**URUGUAY**

**Mandate**  
Ethanol for 5% (vol).

## EUROPE

**AUSTRIA**

**Mandate**  
Total Biofuel content 5.75% by energy content (3.4% for Ethanol content).

**BELGIUM**

**Mandate**  
10% for Ethanol (vol).

**BULGARIA**

**Mandate**  
Biofuels market share of 5.75% by energy content.

**CYPRUS**

**Mandate**  
Total biofuel content 2.5% by energy content.

**CZECH REPUBLIC**

**Mandate**  
Total Biofuels market share 5.75% based on energy content. Ethanol 4.1% by volume. Biodiesel 6% by volume.

**DENMARK**

**Mandate**  
Total Biofuel content of 5.75% based on energy content.

**ESTONIA**

**Mandate**  
Biofuels market share of 5.75% by energy content.

**FINLAND**

**Mandate**  
Total Biofuel content 6% by energy content.

**FRANCE**

**Mandate**  
7% biofuels market share by energy content. 7% for Ethanol (vol).

**GERMANY**

**Mandate**  
Biofuels quota 6.25% increasing by 0.25% annually until 2015. Minimum obligation Ethanol 2.8% by energy content. Biodiesel 4.4% by energy content.

**GREECE**

**Mandate**  
Total Biofuel content 5.75% by energy content.

**HUNGARY**

**Mandate**  
Total Biofuel content 5.75% by energy content. Min 4.4% for Ethanol (vol).

**ITALY**

**Mandate**  
Total Biofuel content 5% based on energy content.

**IRELAND**

**Mandate**  
Total Biofuel content 6.25% based on energy content.

**LATVIA**

**Mandate**  
Total Biofuel content 5.75% by energy content. 5% for Ethanol (vol).

**LITHUANIA**

**Mandate**  
Biofuels 5.75% (vol).

**LUXEMBOURG**

**Mandate**  
Biofuel content 2%.

**MALTA**

**Mandate**  
Total Biofuel content 1.25% by energy content.

**NETHERLANDS**

**Mandate**  
Min 3.5% for Ethanol (vol).

**NORWAY**

**Mandate**  
Biofuel content 7%.

**POLAND**

**Mandate**  
Total Biofuel content 7.1% by energy content.

**PORTUGAL**

**Mandate**  
Biodiesel content 6.75%, 5.5% for Ethanol (vol).

**ROMANIA**

**Mandate**  
Total Biofuel 5% by volume. 6% for Ethanol (vol).

**SLOVAKIA**

**Mandate**  
Total Biofuel content 5.75% by energy content. 3.2% for Ethanol (vol).

**SLOVENIA**

**Mandate**  
Total Biofuel content 6.5%.

**SPAIN**

**Mandate**  
Total Biofuel 6.2% by energy value. 3.9% for Ethanol (vol).

**SWEDEN**

**Mandate**  
Total Biofuel content 5.75% by energy content. 6.5% for Ethanol (vol).

**TURKEY**

**Mandate**  
2% Ethanol content by January 1, 2013. Increasing to 3% in 2014.

**UNITED KINGDOM**

**Mandate**  
Biofuels 4.5% (vol) increasing to 5% by May 2013.

## AFRICA

**ANGOLA**

**Mandate**  
Ethanol 10% (vol).

**ETHIOPIA**

**Mandate**  
Ethanol 10% (vol). Addis Abeba region only.

**KENYA**

**Mandate**  
Ethanol 10% (vol).

**MALAWI**

**Mandate**  
Ethanol 10% (vol).

**SOUTH AFRICA**

**Mandate**  
Ethanol 2% (vol). Legislation approved for minimum 2-10% (vol) for fuel ethanol. E10 blends introduced.

**SUDAN**

**Mandate**  
Ethanol 5% (vol).

**ZAMBIA**

**Mandate**  
Ethanol 10%, Biodiesel 5% (vol).

## ASIA

**CHINA**

**Mandate**  
10% Ethanol (vol) in nine provinces only.

**INDIA**

**Mandate**  
Ethanol mandate 5% content.

**INDONESIA**

**Mandate**  
Ethanol 3% (vol), Biodiesel 2% (vol), gradually increasing to 10%.

**JAPAN**

**Mandate**  
3% Bioethanol mandate, currently reviewing option to increase to 10%.

**PHILIPPINES**

**Mandate**  
Minimum Ethanol content of 10% total volume. E10 is mandated.

**SOUTH KOREA**

**Mandate**  
B2 Biodiesel mandate.

**TAIWAN**

**Mandate**  
B1 Biodiesel mandate.

**THAILAND**

**Mandate**  
Currently E10 mandated. Ethanol 20% compulsory in all ULP by 2016.

**VIETNAM**

**Mandate**  
Ethanol 5% (vol).

## AUSTRALIA

**NEW SOUTH WALES**

**Mandate**  
6% ethanol content by volume.