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## **BIOENERGY AUSTRALIA SUBMISSION**

### **NSW Biofuels Statutory Review**

**October 2019**

The purpose of this submission from Bioenergy Australia is to provide feedback on the *Biofuels Act 2007* and to support the role of biofuels in the transition to a sustainable transport sector in NSW.

#### **About Bioenergy Australia**

Bioenergy Australia is the National Industry association, committed to accelerating Australia's bio economy.

Our mission is to foster the bioenergy sector to generate jobs, secure investment, maximise the value of local resources, minimise waste and environmental impact, and develop and promote national bioenergy expertise into international markets.

Bioenergy Australia's objectives are to:

*Advocate* - With our members, we anticipate and develop leading positions on issues of concern to the advancement and growth of bioenergy in Australia.

*Campaign* - We raise the profile of the industry within the media and broader community to achieve a greater level of understanding about bioenergy and the vital role it must play to achieve carbon neutrality by 2050.

*Inform* - We publish reports, webinars and articles to help our members keep ahead of industry trends and opportunities. We also manage the Biomass Producer website, an AgriFutures Australia resource showcasing Australian bioenergy projects, expertise, and identifying opportunities for primary producers.

*Connect* - We facilitate knowledge exchange and networking for members through task-specific meetings, our Annual Conference, and Webinars. We link investors with emerging businesses; researchers with technology developers; government with innovators. We also administer Australia's participation in IEA Bioenergy. Our Industry groups bring together specialists in specific fields

## 1. Are the objects of the Biofuels Act and Regulation still valid? Why or why not?

Yes, the objects of the Biofuels Act are still valid because every day harmful emissions from petroleum oil-based fuels cause more illnesses; air quality continues to suffer; and issues related to oil dependence on unstable governments and regimes remain as precarious as ever.

As part of the global transition to a low-carbon transport industry, the uptake of sustainable fuels has significantly increased over the last few years and it is expected to grow in the future as more sustainable fuel sources are sought by the market. Transport biofuel production expanded 7% year-on-year in 2018, and 3% annual production growth is expected over the next five years.

For example, new research carried out by the US Grains Council (USGC) has found that non-beverage ethanol has been the fastest growing US agricultural export over the past five years. Overall exports of ethanol from the 2016/17 marketing year to the 2017/18 marketing year were up 18% by volume, and 14% by value. In total, exports increased by over \$330 million (€299 million) year-on-year.

Following the alarming level of transport emissions in Australia (increased by 22% from 2005 to 2017) and the projected 6% increase from 2020 to 2030, there is a strong need to support low-carbon solutions at Federal and State level.

Biofuels can play a key role in this transition, but they currently have no direct access to the market. As demonstrated in other States, biofuels are not able to have a strong penetration without a mandate, therefore the Act is more relevant now than ever.

By supporting the local biofuel industry, the mandate is not only facilitating the decarbonisation of the transport sector, but it is also creating employment opportunities and providing a good platform for potential collaborations with international developers interested in building new refineries.

In 2014, a Deloitte Access Economics and Corelli Consulting report commissioned by Queensland University of Technology (QUT) investigated the potential impact of the establishment of biorefinery industries in Queensland. The study identified that the growth of biorefinery industries in QLD alone could result in an increase to the Gross State Product of more than A\$1.8 billion per year, and the creation of around 6640 jobs, most of which would be in regional communities. Similar results could be achieved in NSW.

With regards to the specific objectives of the Act, we suggest that the point “Provide consumers with cheaper fuel options” should be altered to state “Provide consumers with *competitively priced and cleaner* fuel options”.

In terms of future perspectives, we believe that the objectives of the Act should be reinforced to create a pathway over an extended time period, to align Australia’s fuel quality standards with European standards.

**2. Are there any other economic, social, environmental and consumer costs and benefits associated with biofuels that Government should further consider to ensure the regulatory regime is effective?**

A strong domestic biofuels industry would bring economic, social and environmental advantages to NSW.

**Economic and social benefits**

- Improved fuel security

Biofuels reduce dependence on foreign oil by producing a reliable source of domestic fuel securing Australia's energy independence.

As an example, the substitution of 10% of Australia's petrol consumption with domestically produced bioethanol would result in a reduction of our reliance on imported fuels by up to 18% and an improvement of Australia's balance of trade by about A\$1 billion annually.

- Improved balance of trade

A strong biofuel industry would limit the outflow of capital from imports, as the dollars spent in the domestic biofuel production would be retained in Australia instead of being sent abroad. The substitution of 10 per cent of Australia's petrol consumption with domestically produced bioethanol has the potential to improve Australia's balance of trade by approximately A\$1 billion annually and reduce petrol imports by up to 18 per cent.

- Reduction of vulnerability to oil price fluctuations

Depending upon the prevalent oil price environment, biofuels can reduce the cost of transport fuels. Note that in the current oil price and exchange rate environment bioethanol continues to be a lower cost option. By replacing imported oil derived products, the locally produced biofuels reduce the reliance of NSW in imported petroleum products and the biofuels produced certainly support regional development as evidenced by the Nowra bioethanol facility.

- Creation of advanced biomanufacturing industries

Australia with its large biomass reserves is well-positioned to benefit from the growth of bio-based fuel and chemical sectors. The biofuels infrastructure, from the feedstock supply chain to ethanol production, is a critical element for success and provides an excellent foundation for expansion of the existing biofuels plants into biochemicals production. These plants are situated in rural regions near biomass-rich areas, which ensures that rural areas benefit from job-creation and the generation of significant economic growth.

- Creation of jobs and investment in regional and rural communities

Biofuels are currently delivering jobs, investment and revenue overseas and could do the same for regional communities in Australia and in NSW. Around the world, biofuels industries have created jobs and investment in regional and rural communities. As an example, the EU bio-economy generates revenue of nearly €2 trillion and employs more than 22 million people, accounting for 9 per cent of total employment. The [QUT discussion paper "Biofuels to bioproducts"](#) estimates that the production of ethanol at 10 per cent of Australia's total domestic gasoline consumption would create 2080 direct

jobs and up to 6570 indirect jobs, require A\$1.56 billion of investment, and create more than A\$1.1 billion of revenue per year in regional communities.

- Lower impact on health system

Air pollution is a major contributor to illness and premature death among Australians. In 2011, data indicated it caused the premature death of 2549 Australians—more than the national road toll from accidents—at an estimated economic cost of up to \$11 billion. Numerous studies have therefore concluded that reducing emissions from transport would provide substantial health and economic benefits, particularly in urban areas.

Increased use of biofuels would reduce air pollution and emissions, leading to a lower impact on the national health system. The beneficial health care cost impacts of using biofuels have been principally attributed to reduced particulate emissions, which translate into lower mortality and morbidity associated with lung cancer, cardiopulmonary disease, chronic obstructive pulmonary disease, asthma and cardiovascular disease.

### **Environmental benefits**

Environmentally, the greater the volume of biofuels used in place of fossil fuels the cleaner the air and water will be.

- Reduced GHG emissions

Biofuels represent a real opportunity to contribute to reduce emissions in the short-term and to assist with the transition to a net zero emissions transport system. It has been proven that blending bioethanol or biodiesel with transportation fuels leads to a reduction in greenhouse gas. According to the [QUT discussion paper “Biofuels to bioproducts”](#), the full implementation of an Australia-wide E10 and B10 mandate would correspond to a reduction of, respectively, approximately 2.6 million tonnes and 6.3 million tonnes of greenhouse gas emissions per year.

- Reduced exhaust particulates

Ethanol-blended petrol reduces emissions of harmful carcinogenic substances, such as benzene and 1,3-butadiene and polycyclic aromatic hydrocarbons, by between 30 per cent and 70 per cent; and ultrafine particulates by up to 90 per cent.

### **Benefits for consumers**

- Improvement of vehicle performance

The use of higher-octane fuels allows for the use of higher compression engines which are more fuel efficient. When ethanol is added to petrol the octane level increases. Ethanol is the second highest octane rated fuel behind only methanol. It has a higher octane rating than benzene, toluene or alkane. As cars need to become more efficient, increasing levels of bioethanol in the fuel supply will allow the development of higher-octane fuels that will support higher compression and higher efficiency engines. This will ultimately lead to lower unit consumption and lower fuel costs to the consumer. Similarly, biodiesel has a higher cetane number (higher ignitability) than diesel fuel and combusts more completely. Biodiesel adds significant lubricity to the fuel and it is also a good solvent and will clean out diesel fuel residue left in the fuel tank and lines.

- Valid option to meet international requirements

With the world transitioning to lower emission vehicles, Australia is also required to take steps to ensure compliance with new standards, savings for motorists from more fuel-efficient vehicles and health benefits to the community from cleaner air. Biofuels can play a key role in meeting these requirements and therefore represent a valid option for the consumer.

- Savings to the consumer

Ethanol-petrol blends typically cost less. While there can be an MPG loss from ethanol-gasoline blends, compared to petrol without ethanol, the lower cost per litre or gallon usually more than compensates for the fewer miles. In fact, long-term tests conducted over more than a decade around the world have confirmed that certain higher ethanol-petrol blends (E30 to E50) can result in higher MPG than ethanol-free petrol, even when used in a normal petrol-optimized engine.

In addition, Bioenergy Australia highlights the following opportunities:

- The ability to produce transport fuels in the regions will result in less fuel transport trucks on the road network.
- De-centralization of the existing fuel transport logistics.
- Ability to de-centralized fuel stocks, dispersed through the country. (State).
- More transparent fuel pricing. (Less steps in the process).
- Less reliance of shipping traffic through potential conflict areas (Gulf and South China Sea)
- Greater security of liquid fuel supply lines.
- Mitigate the effects of FOREX.
- Ability to use biofuels as “green” back up electricity generation for solar and wind power.

Finally, it is also important to note that a well-regulated fuel supply regime that gives the consumer different fuel options for their fuel purchases will enhance consumer outcomes. At present, the effective monopoly enjoyed by the oil industry in the distribution of its products is limiting the ability of consumers to utilize renewable and environmentally friendly options in their fuel selection.

### **3. Are there any developments, innovations or emerging trends in the broader transport or fuel industry that Government should consider in assessing the biofuels regulatory regime?**

The International Energy Agency’s (IEA) market analysis and forecast report has identified that globally bioenergy was the source of half of all renewable energy used in 2017 and it is forecast to see the biggest growth in renewable consumption over the period 2018 to 2023. Bioenergy – as solid, liquid or gaseous fuels – will account for 30% of the growth in renewable consumption in this period.

In particular, biofuels are playing a key role in the global decarbonisation of the transport sector, with 140 billion litres of these fuels produced in 2017 (just over 4% of global transportation energy demand). As part of the global low-carbon economy, the biofuel industry is expected to grow, particularly to support sectors where there are limited options to reduce emissions. Key examples are aviation and marine.

In January 2020, the marine industry will undergo one of its greatest changes in recent times with the limit for sulphur in fuel oil used on board ships reducing from the current 3.5% to 0.50% m/m (mass by mass) when operating outside designated emission control areas. This is as a consequence of changes to the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex VI that come into effect on Jan 1 2020. These regulations have seen a progressive reduction globally

in emissions of SO<sub>x</sub>, NO<sub>x</sub> and particulate matter and the introduction of emission control areas (ECAs) to reduce emissions of those air pollutants further in designated sea areas. This will significantly reduce the amount of sulphur oxides emanating from ships and should have major health and environmental benefits for the world, particularly for populations living close to ports and coasts. With very low sulphur levels and low CO<sub>2</sub> emissions, fuels derived from biomass and wastes represents therefore the best option to meet the International Maritime Organization (IMO) requirements.

The aviation industry is facing a similar transformation. At a global level, the aviation industry has committed to reducing its greenhouse gas emissions and has set a target of carbon neutral growth from 2020. To achieve the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) targets, all sustainable fuels will need to be assessed against a robust and consistent Lifecycle analysis (LCA) framework. Unlike the land transport sector, airlines have limited options to materially reduce emissions other than through the use of aviation biofuels, therefore bio-based aviation fuels can significantly contribute to a significant decrease in global CO<sub>2</sub> emissions. Worldwide in 2015, 781 million tonnes of CO<sub>2</sub> were produced from flights. Biofuels can decrease the carbon footprint of jet fuel by 80 per cent, based on full life cycle assessment. An overall reduction in CO<sub>2</sub> emissions of 5 per cent can be expected if biofuel replaces 6 per cent of jet fuel by 2020.

Bioenergy Australia invites the NSW Government to support implementation of commercially proven technologies, as well as potential developments, such as advanced biofuels, in order to achieve higher fuel quality standards.

Advanced biofuels are typically produced from agricultural, municipal and forestry wastes, and the technologies for these fuels are maturing, with recent commercial scale developments around the world. Technologies are constantly under development in Australia to optimise the conversion of a broad range of waste, including intractable plastic waste, into liquid and solid biofuels. Some examples are the Australian technology developer Licella, Mercurius Australia teamed up with Southern Oil Refining, Global Ecofuels Solutions (GEFS) in conjunction with Boral Australia, and the leading Australian company ResourceCo in a joint venture with Cleanaway. Therefore, we invite the NSW Government to consider a wide range of waste, including mixed plastic, as potential resource playing a role in the Circular Economy.

Furthermore, recent technology and policy advancements are leading to commercial-scale production of low-oxygen, bio-based drop-in fuels that can be used in the aviation, marine and military sectors. Of the various drop-in biofuels that are currently being produced, renewable diesel is, by far, the largest volume product, with a global production of about 5 billion litres annually, and it is very likely that it will remain the most significant source of drop-in fuels in the near term. Accordingly, renewable diesel should be classified as defined product in the Act.

**4. Are there any entities that should be included in or excluded from the Act? If so, which entities and why?**

N/A

**5. Are the definitions of volume fuel retailers and primary wholesalers adequate? If not, how could the definitions change?**

N/A

**6. Does the Act appropriately balance the interests of small businesses with the broader objectives of the mandate? Please provide comments.**

As the majority of fuel retailers in NSW are now compliant in terms of parity in relation to the pump, the Government should now be assisting these retailers to sell the fuel by supporting strong advertising and consumer awareness programs.

**7. Should the prescribed mandate for ethanol and biodiesel sales remain at the current rate? If not, how should it change and why?**

Bioenergy Australia supports developing a realistic target for the industry to achieve. We believe there is capacity for NSW to achieve the 6% however this would require a more rigorous exemption scheme.

In addition, the mandate should be flexible to apply to additional renewable fuels such as renewable diesel and biogas should the supply levels support this.

**8. Are the biofuel sustainability standards adequate? Please provide comments.**

Bioenergy Australia has the following suggestions:

- All fuels should undertake a Life Cycle Assessment (LCA) and should be compared against a base standard (e.g. fuel made primarily from crude/raw fossil fuel). The Government should state this standard and review it biannually.
- The primary objective should be to move towards a lower fossil (input) based carbon fuel source.
- Sustainability needs to include fuel reliability and collateral effects.

**9. Are there emerging industry standards or developments that should be taken in to account when assessing and defining sustainability?**

The analysis of the Life Cycle Assessment (LCA) is the main approach for assessing the sustainability of a bioenergy system. It is used to quantify the environmental impacts of products or services and it includes all processes, from cradle-to-grave, along the supply chain of the product or service. The LCA approach applied to bioenergy systems is well explained in the IEA report [“Using a Life Cycle Assessment Approach to Estimate the Net Greenhouse Gas Emissions of Bioenergy”](#).

Bioenergy Australia encourages the NSW Government to support existing schemes, such as the Roundtable on Sustainable Biomaterials (RSB) standard, already utilised in QLD. The RSB is an internationally recognised sustainability certification, which many stakeholders, including NSW businesses, have already embraced and are adhering to.

In addition, Bioenergy Australia would like to highlight that the reliability of supply of the fuel and associated infrastructure and its source should be taken into account in the sustainability assessment. As an example, in the sustainability evaluation of the electric vehicles (EVs), the following parameters should be considered: battery materials sourcing, electricity generation for charging and end of life battery disposal.

The sustainability issue needs to be better nuanced. A better solution attainable now is preferred to a perfect solution available in a few years. Sustainability should be seen as a transition and journey, not a destination.

**10. Is the exemption process for not meeting the minimum biofuels requirements adequate? Should the factors that the Minister must take in to account before granting an exemption change?**

Bioenergy Australia believes that the exemption process for not meeting the minimum biofuels requirements is currently not adequate.

Before granting an exemption, the following factors should be taken into account:

- Previous exemptions
- Rectification Plan and timeframe
- Verified supporting documentation

We also would like to highlight that an extended transitional period has been provided to the industry for infrastructure upgrades, therefore, exemptions should be tightened and granted only in exceptional circumstances.

For barriers such as old tanks that cannot hold ethanol the Government should support the removal and replacement of these tanks as it is highly likely they are causing significant environmental impacts.

With respect to the biodiesel mandate, the exemption process for not meeting the minimum biofuels requirements is also not adequate. Historically it appears that exemptions are too readily given based on:

1. Product not being available or
2. The product being too expensive and therefore not economically viable

Currently the biodiesel industry is operating well below its production capacity despite the fact that we have ample, suitable feedstock in the form of used cooking oil, canola oil and tallow all of which are being exported to Asia and Europe.

A strong enforced mandate is the most effective way to encourage the uptake of biodiesel. A mandate needs to be enforced regardless of the cost of procuring the biodiesel, even if the biodiesel needs to be imported due to lack of supply from local biodiesel producers. Local biodiesel producers and prospective investors need a mandated market for their product to ensure initial and ongoing investment to build biodiesel plants with the scale and technology to compete in the market. Opponents of enforced mandates will argue that it gives the biodiesel producer the power to price their biodiesel at excessively high levels which will increase costs to end-users. Proponents of enforced mandates will argue that prices will be capped at import parity and that if biodiesel margins are excessive then other investors will enter the market, increasing capacity, increasing competition and lowering prices toward export parity. Surely the latter is the long term goal of introducing a mandate in the first place. Furthermore, with a mandate of only 2 percent, if biodiesel were to cost \$0.50 per litre more than diesel the cost to the end-user would be only \$0.01/litre, less than the daily fluctuation seen in the diesel market. Australia and indeed NSW has sufficient feedstock available, in the form of tallow, canola oil, used cooking oil and potentially grease trap waste, to support biodiesel production to meet a 2 percent mandate. Currently and increasingly the majority of that feedstock is being exported to Singapore and Europe to be converted into biodiesel to be sold in countries (Europe & USA) where strong mandates and significant biodiesel subsidies exist. An enforced mandate in NSW

would allow local biodiesel producers to compete for feedstock, convert it into biodiesel for sale to end users in NSW.

Furthermore, currently biodiesel produced in NSW is being transported to QLD where it is being blended and sold to help fuel distributors (the same ones that operate in NSW) meet the mandate enforced by the QLD State government. This would suggest that fuel distributors can pay more for biodiesel relative to the cost of diesel if they are required to meet a mandate, i.e. it is economically viable.

**11. What is the process like to seek an exemption? Are there any changes that could be made to ensure the process is as seamless and as user-friendly as possible?**

N/A

**12. Is the Biofuels Exemption Framework and Guidelines document easy to understand and comply with? Should any of the matters outlined in the Guidelines be included instead in the Biofuels Regulation to ensure abundant legal clarity?**

N/A

**13. Are the current registration, return and record keeping requirements adequate? Please provide comments.**

N/A

**14. How much time approximately does it take primary wholesales, volume fuel retailers and other operators of service stations to provide the return to NSW Fair Trading?**

N/A

**15. What other reporting and financial regulatory requirements are primary wholesalers, volume fuel retailers and other operators of service stations required to comply with? For example, at the Commonwealth level.**

N/A

**16. Are IPART's functions and role adequate to help achieve the objectives of the Biofuels Act? Please provide comments.**

N/A

**17. Are there any other functions, research or role could IPART take in the biofuels regulatory regime?**

N/A

**18. What information and data would be useful in ensuring regulation fosters a competitive biofuels industry?**

N/A

**19. Is the current compliance and enforcement approach working well? Please provide comments.**

Bioenergy Australia believes that the lack of enforcement of penalties for non-compliance is a significant issue for the NSW mandate.

**20. Is the current approach appropriate and should any changes be made (such as to penalty amounts) to make the compliance and enforcement approach more effective?**

There should be a consistent penalty for companies who do not comply with the mandate, while with the current approach no penalties have been applied.

**21. Is the role and composition of the Biofuels Expert Panel still valid? Please provide comments.**

N/A

**22. Do you have any other general comments on the biofuels regulatory regime? Please provide further detail**

Bioenergy Australia would like to highlight that all governments that have implemented a successful sustainable fuel program have started with mandates (a list of existing biofuel mechanisms is provided in Appendix 1). The United States of America and Brazil account for 70 per cent of the total amount of biofuels produced globally and supply both domestic and export markets. In these countries, biofuel producers operate in established markets, supplying more than 95 billion litres per year.

Similarly, we would like to see an enforced biofuels mandate in NSW that would allow producers to invest in production capacity and drive new investment and competition throughout the State.

To encourage the demand for biofuels, the NSW Government should undertake an education campaign and leading by example in its own fuel use by implementing a requirement that all drivers of Government vehicles refuel using biofuel blends where practical.

In addition, we would like the NSW Government to take action from a marketing perspective. The creation of brand names for fuel has created a confusing market place for consumers. It is important for motorists to clearly and quickly identify the fuel they need, not the fuel the petrol station wants to them purchase. The creation of brand names is being used by petrol stations to drive motorists to purchase the most expensive "premium" fuel, without motorists having a level of awareness of the fuel required for their vehicle. There is a movement within the marketing of fuel to use marketing techniques to confuse motorists in order to persuade them that they need premium fuel when this fuel is only required for a very limited percentage of the vehicle fleet.

Finally, with regards to the Discussion Paper, we suggest that the BACKGROUND section should be updated to include recent technology changes and the amendments the Automotive Diesel Determination (Fuel Quality). There are emerging technologies which use additional biogenic feedstocks and produce fuels which will not require blending.

Thank you for the opportunity to provide this submission.

Yours sincerely



Shahana McKenzie, CEO Bioenergy Australia

APPENDIX 1 – 2019 World Biofuels' incorporation rates (Source: Manildra)

