

**“TOWARDS A CLEAN ENERGY ECONOMY; ACHIEVING
A BIOFUEL MANDATE FOR QLD”**

DISCUSSION PAPER June 2015

SUBMISSION :

BIOENERGY PLANTATIONS AUSTRALIA PTY LTD

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To

DEPARTMENT OF ENERGY AND WATER SUPPLY

PROJECT MANAGER- QUEENSLAND BIOFUEL MANDATE

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SUMMARY OF CONSULTATION QUESTIONS

COMMENTS

A lot can be learned from the early history of biodiesel production in Australia which suffered from instability in government policies and the changes in excise policies whilst a fledgling industry. A new industry with various development and production issues as well as the need to develop customer acceptance and confidence and where it is to compete with established petroleum based fuels markets, was ill prepared to handle the imposition of fuel excise. The introduction of this in effect contributed to a lot of the failures of a number of the biodiesel start-ups. This in turn meant a lot of investors were "burned" in the process making future investment proposals difficult to achieve. Where Australia could have at this early stage lead the way in renewables, it has fallen behind with lack of governmental support at all levels compared to other countries who have seen it as a valuable addition to energy programs and important to fuel security. Whilst support has been available for various sectors such as solar, algae or biomass to fuel programs, all of which have their own technical issues, the logical interim step of biodiesel production from vegetable oil feed stocks was ignored. In the process industries supporting biodiesel production have not been developed to the extent necessary to support a stable biodiesel production industry with reasonable and stable feedstock prices.

Involvement of some of the principals in a biodiesel company which floated in 2005, lead later to the initiation of BPA based on the realisation in 2001/2 that a key to a successful industry was just this: the development of a sustainable and expanding feedstock supply for the biodiesel industry which could develop with demand and was not subject to the wild fluctuations of food based feedstocks such as canola.

Because of the capital and the time frames required for developing these industries investor confidence is a real issue. Availability of capital for long term projects is in short supply. There needs to be bipartisan policies in this regard, such that industry participants know that there is long term stability in the policies not just approximately "3-year terms" and who knows after that. Long term investment cannot function on the short term roller-coaster of fluctuations in governmental policies and strategies which radically effect the bottom line, particularly in the development phase.

Whilst in agreement on the 2% mandate for ethanol to overcome the inertia to its usage, this would also be necessary for biodiesel to give producers certainty in planning for production investment. BPA is in agreement with the BAA and RACQ in setting the level initially at 2% and increasing both mandates to say 3% by 2020. A zero percent mandate would discourage such investment as "more of the same" with regards to the lack of confidence in government policy and whether or not a mandate would ever actually be put in place. Further the development of effective feedstock supplies has a time lag in the case of say Pongamia between investment and production. A mandate offers some certainty to investors in the eternal question regarding proving a market exists. Regardless of one's thoughts on the matter as to choice likelihood, a mandate ensures there is a market in the early unproven stages.

Comment [SM1]:

Given various policy announcements it would seem crucial to kick start the industry immediately. However initially there would need to be leniency in compliance, giving time enough for supplies to stabilise.

THE POLICY AND ENVIRONMENT

1. Use of biofuels by consumers is very much price and quality perception related. A mandate can therefore be useful in overcoming the reticence to try a blend. But the idea of still wanting a choice therefore requires a related quality assurance and education to overcome various perceptions brought about by earlier experiences in the Biofuels Industry. Questions of vehicle warranty are also an issue.
2. The proposed excise on locally produced biodiesel is again an issue affecting the price competitiveness. In this way a mandate starting at about 2% in the early stages to allow the industry to ramp up. There would need to be a penalty free period whilst the production capacity in QLD is established

THE ETHANOL PERCENTAGE

3. Agree that 2% is a reasonable starting point because there is no real incentive for larger fuel companies to include renewables in their retail options, and as their involvement is crucial to the general uptake, a mandate is necessary and appropriate. It may be more difficult for smaller companies to initially be involve due to their lack of the same buying strength and the need for some additional infrastructure
4. Agree with RACQ and BAA suggestion to increase the mandates for these fuels to 3% in 2020, with sufficient flexibility to suit feasible production milestones. It would be necessary for monitoring of the uptake and the production capacity to ensure issues can be addressed. This will be a necessary outcome of reporting procedures.
5. Similarly the mandate for biodiesel should be set at 2% also. Inclusion of biodiesel at this level is below the B5 blend which under the Australian Fuel quality standard is actually considered diesel, and will have essentially no effect on consumers whilst providing a boost to the biodiesel industry in Queensland
6. Timeframe to meet the requirements: **case of** biodiesel from oils adequate feedstock at a stable price is the issue in the long term and this needs to be addressed also. Hence flexibility in compliance with the mandate is initially required.
7. When will mandate be no longer necessary: Noted is the reference to a 10 year sunset clause which seems too short to establish a stable industry particularly in the biodiesel sector from oils not competing for foods. For example in the case of Pongamia pinnata an oil seed bearing tree ideal as a feedstock, ticking all the environmental "boxes". We look at about 8 years to full production of a plantation. Given there is currently only one small but commercial sized plantation in Queensland (Origin Energy , Spring Valley) and a few smaller trial or research plantations, these need to be developed for long term feedstock stability for reasons previously stated. The time frame of 10 years is not favourable to the investment in land and plantation required and the wait time to production for this supply industry. It would only have had relatively few years of good production about the time the mandate is dropped. In discussions with parties from other countries it is evident that many have a long term views. With the investment required this is needed to justify the capital outlays. Would 20 years be more realistic to give a decent trial period and stabilisation, with reviews in the process to look at how the industry is progressing? Does the mandate need to be dropped?

Comment [SM2]:

Aside from the commercial issues health and environmental issues are a major factor in the development of biofuels. Research by various organisations such as IRAC (International Agency for Research on Cancer) has categorised diesel exhaust fumes as group 1 in production of cancer in humans, It is known that the fumes contain , aside for the carbon compounds , some of the most potent cancer producing chemicals. There may be by that stage the voluntary increase in the blend percentage as industries refine their processes and in this case the mandate could form a floor in the production market.

LIABLE PARTIES

8. Class of retailer: In the case of ethanol where there may need to be expensive infrastructure changes it seems reasonable. In the case of biodiesel initially the supply may not be adequate to cover all the major retailers. There may need to be therefore a sliding scale for ramping up to the expected percentage based on turnover at sites as this will determine the economics of any changes to infrastructure that may need to be made. Whilst larger retailers may be expected to come on stream earlier there would need to be consideration given to the volume of the turnover also. That way retailer outlets in less favoured areas for sales (even if part of a major chain) may not be disadvantaged which inevitably flows on to the customer serviced by that outlet.
9. As above- trade volume at sites seems to be more equitable such that remote retailers and therefore customers are not penalised

REPORTING REQUIREMENTS

10. This type of information would be something the retailers are likely to keep tabs on and should be relatively easy to report on ?
11.
12. The data would be a useful guide to customer acceptance of the various blends and a necessary marketing tool or indicator of the effectiveness of any education program. It may allow assessment of various strategies and indicate whether or not the mandates are effective or other measures that need to be introduced to assist.

EXEMPTIONS

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14. ,.....

PENALTIES

15. 16.17 The appropriateness or otherwise of the penalties is closely related to the set exemption structure or sliding scale of realistic time frames allowed to reach compliance related to the size of the enterprise. A little like speeding fines: if you are on a low wage the penalty for a lapse in attention leading to a speeding fine is far more damaging than if your income is substantial. In the former case it may mean you & the family don't eat for a week, in the latter it may be a commercial decision that it is irrelevant because of say time constraints. This is particularly important in borderline situations where the cost of infrastructure changes may just be economic if everything goes to plan. Are there other options that can more closely relate

penalties to relative turnover so that they are economically meaningful “incentives “ to compliance?.

16. Are there any possible actual commercial incentives for compliance- say for example tradable carbon credits or some other form of benefit for compliance?

17.

EXPERT PANEL /IMPLEMENTATION BOARD

18. If there is to be an expert panel and implementation Board then it should hold a fair cross section of representation from the various biofuel sectors from feedstock producers, the small as well as the large biofuel producers, retailers, government agencies etc. We all tend to have a biased view and for this to work an even handedness is needed. Each sector has its own benefits and issues best understood by those close to the coal face who can therefore contribute substantially to the process.

19.

PROTECTING THE ENVIRONMENT

20. Whilst the sustainability principles are appropriate it is their implementation in a realistic approach that is often the issue. People on one side or the other may often think environmental and economic are mutually exclusive.

21. To 23 We all have our particular biases. There is always a balance between production and sustainability and a sliding scale for the settings between unfettered production economics ignoring environmental consequences and “sustainability “ with an extreme view essentially hobbling production and often even damaging to the environment. For example preventing cool burning or grazing in a woodland, due to the fuel build up may then allow a highly intense wildfire which destroys excessive amounts of wildlife, vegetation and neighbouring settlements due to its intensity. Both extremes lead to imbalances. It is striking the balance that is difficult. For example, if you want to produce biofuel feedstock without encroaching on agricultural land for food production, then there is a need to allow a certain amount of additional land development as a percentage of the remaining ecosystems. It is possible to develop effective areas without threatening the entire ecosystem. So this would need considerable thought and discussion free of political biases and with a realistic look at the GHG position of the cases in question and the overall quantum relative to what are the existing ecosystems. If we are serious about both protecting the environment and about sustainable production to support our population and economy a rational well thought through approach is needed. Neither of the two aims need be mutually exclusive. If there is balance and it can be seen as based on a rational approach by the parties, then the need for heavy handed enforcement is reduced.

22. ...see above

23. ...see above

MAINTAINING CONSUMER CHOICE

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25. Probably the chief issue is that consumers, unless there is a very effective educational (addressing all the concerns including compatibility and in particular warranty and performance issues) , promotional campaign and perhaps a price incentive may be slow to change their preferences over to the biofuel blends. This seems to have been an issue in the ethanol industry. Even though it is overall volume rather than % per litre, if the change is slow retailers may find the turnover of the blends too slow to meet compliance targets or there may be an economic impost. Quality control is also important as was learned in the fledgling stages of biofuels production.

26.

27.Educational campaign should include targeting the misinformation about biofuels relating to the effects on engines etc and deal with the issues so people understand its use. The issue on engine warranties, effect on seals of biodiesel so that cars of a certain vintage cannot use high blends, engine modifications and kits to enable use of biodiesel in cold climates (in preference to additives) and aspects of benefits (health, environmental etc) should be covered. The information needs to be credible, not just perceived as a promotional campaign, with backup of the research. But like all campaigns, people will still not always make choices based on reason in the same way some smokers, despite the horrific disease images on their cigarettes still smoke. It is that mentality and the unwillingness to change that sometimes takes a bit of shifting. So their needs to be emotional mileage in the change also.

ENSURING CONSUMER PROTECTION

28. To 31 Consumer protection. The same mechanisms apply as for petroleum based fuels. The biodiesel standard should ensure quality. Consumers are sensitive enough to pricing that an unrealistic margin will not be feasible for biodiesel for example. As competition comes into the market the price will regulate itself from competition within the groups of either ethanol or biodiesel producers as will its need to compete with petroleum fuel pricing which can be an issue in "price wars" as we have seen. Given fairly high per litre production costs of biofuels relative to petro-based fuels competition will be tough enough to keep pricing down. Larger companies will obviously be able to buy better than smaller ones as is currently the case.

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SECURING FOOD SUPPLIES

32. The increase in production and investment on the farm is ongoing due to refining of farming practices and efficiencies. However there is a limit to increasing production without the capacity to increase the area farmed.

33. BPA selected *Pongamia pinnata* as a potential biofuel feedstock as it is non edible and therefore the price of oil should track more closely the price of petro oils. This was one of the key requirements of a biodiesel producer to enable a relatively stable price without the wild fluctuations of food based oils such as canola which could make production unviable very quickly if prices spiked due to production factors. Further being a tree, producing seed, it should be relatively more stable in production and less subject to extreme variations seen in annual crops. Though it can never be said that any bio production has a guarantee, the thoughts were to at least stabilise production to some extent to enable contiguous production at an economic level. If research has shown that a 2%mandate will not unrealistically distort the markets (likewise should be the case for biodiesel) then will it put any more of a floor in the market than currently exists for feed grains by normal consumption and including feedlotting ? Again the issue of distortions due to drought brings us back to the advantage of a non food biofuel stock. I note the *Pongamia* meal after oil extraction could be used amongst other things for ethanol production should that be required so that in a sense also helps level the demand fluctuations.

Comment [SM3]:

BIOMANUFACTURING – A NEW APPROACH

34. Role of QLD government: creation of a stable investment environment where investors can have confidence the goal posts won't keep moving and clearing the legislative roadblocks. Commencing a new industry is tough enough with all the practical issues and always many "unforeseens" without an unstable politically induced environment including excise uncertainties and the lack of bipartisan coordinated effort to create a good biofuels environment in Australia that can be relied upon in reasonable long term. (e.g in the context of the time it takes to develop alternative feed stocks such as tree crop Pongamia pinnata and to amortise the substantial capital input) . Australian policies, investment attitudes and general thinking tend to be comparatively short term. Investment issues include often that financiers want offtake agreements to fund projects. Or proof that there is a guaranteed market. Offtake agreements can be a high risk activity as in for example the tree crop where commercial economies production is 5-8 years away. A mandate at least gives some strength to the argument that there is a definite market. Low interest loans would be an advantage to a start-up where investor risk adverseness is an ongoing issue.
35. The mandate is one way the government can contribute provided it is not so unwieldy in the compliance area as to make it unworkable particularly for smaller players.
 - a. Setting a reliable mandate percentage starting at 2% for both ethanol and biodiesel and increasing to 3% 2020 .
 - b. Flexibility in the initial compliance period in relation to the size of the retail unit and the availability of the biofuel
 - c. Penalties in proportion to the enterprise size and economics so that smaller businesses are not disproportionately affected as compared to larger units
 - d. Incentives to encourage compliance rather than reliance on penalties only.
36. Opportunity to operational project? As above. No business model can ever give a guarantee. The government can build the highway (smooth the legislative pathways to make them realistic and practical) but it should not be expected to build and run the vehicles.
37. See above
38. Initially major ports eg Mackay, Townsville, Gladstone, Cairns, Brisbane. This serves the dual purpose relating to the Premiers' discussions regarding the use of Biofuels by the US Navy and placement should take advantage of current distribution systems initially
39. Most industries require an ongoing research basis to develop and refine processes, develop new products and gain a greater understanding. Whilst developing a fledgling industry often funding is restricted until production commences. Perhaps greater government involvement in research to fill in the gaps in early production stages. This may occur through the set up of industry based research programs for research that will benefit the industry as a whole.(as was the case with CSIRO and other organisations)

Bioenergy Plantations Australia has always had a keen interest in the development of the biofuels industry in Australia and the supporting industries. It would appreciate the opportunity to discuss further the policies and issues.

There are multiple benefits from such an industry including on social, health, economies of remote areas, environment, energy security to name a few. Please find attached an annexure to a previous

Submission in August to the State Development, Infrastructure and Industry Committee outlining some of these benefits.

George Muirhead
Bioenergy Plantations Australia Pty Ltd

Attachment: 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.