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BIOENERGY AUSTRALIA SUBMISSION

2020 Review of the Emissions Reduction Fund

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The purpose of this submission from Bioenergy Australia is to how the ERF could enable further carbon abatement by supporting bioenergy solutions in different sectors.

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.

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

OVERALL PERFORMANCE OF THE ERF

- ***How is the ERF performing overall? What parts of the ERF could be improved and how?***

Bioenergy Australia acknowledges the ongoing efforts of the Government to reduce the complexity and red tape associated with the current process of developing methodologies to further increase uptake and gaining approval for carbon projects under the ERF. However, areas that need further reform and streamlining include:

• the dominance of vegetation and flaring abatement methods drives down the ACCU price and does not allow hard to decarbonise industries to transition as their current equivalent carbon prices are higher. While this may appear an efficient allocation of government investment, these industries will take time to transition and investment now, otherwise they will experience a shock when other lower carbon price opportunities are exhausted and they haven't had invectives to invest in innovation or technology. Targeted categories for these methods under the ERF will enable efficient auction-based allocation to be applied to these industries to enable investment.
• industry abatement methods (with the exception of flaring) have positive economic externalities which are important for economic growth (particularly at the moment) and actually the dominant vegetation methods have negative externalities by locking-up potentially productive marginal land for a century. This marginal land could be used to grow native grasses to produce renewable biomethane and similarly flared methane from landfill can be used to do same, but is currently just destroyed. This biomethane could otherwise be injected into the gas network and be utilised to decarbonise hard to decarbonise aspects of the economy, such as heavy transport and industrial heat.
• burdensome transaction and audit costs
• effort for key staff to apply for, and manage carbon contracts
• increase flexibility of growth model assumptions to maximise potential growth parameters and associated carbon
• overly burdensome, make good provisions and risk
• minimal recognition of the scale and complexity of industrial processes

MAINTAINING INTEGRITY AND OPTIMISING GOVERNANCE OF THE ERF

- ***Do you have any views on the operation of the offsets integrity standards and the additionality provisions as key principles supporting the integrity of abatement under the ERF?***

The ERF methods are quite restrictive in terms of the activities that are eligible. Some of these constraints reflect restrictions to ensure integrity of the credits. As the ERF has additionality at the activity level, methods tend to have more restricted eligibility criteria than schemes where additionality is assessed on a project-by-project bases (e.g. VCS). Notwithstanding, while there are not complete gaps in the activities that are covered by the ERF in comparison with other schemes, there may be some options to extend ERF methods to include additional abatement sources.

For example, the sugarcane method under the CDM, 'Avoidance of methane and nitrous oxide emissions from sugarcane pre-harvest open burning through mulching'. While this method exists, and Australia has a significant sugarcane industry, it is unlikely that such a method would meet additionality requirements. There is increased adoption of green cane harvesting in Queensland, trending away from the burning method with 85% of Queensland sugarcane now harvested green. In some areas north of Townsville, the rate of green harvesting is 100% (Bundaberg Cane Growers, 2018). As green harvesting is already common practice, it is unlikely a sugarcane method that incentivises green harvesting would satisfy the ERF's additionality standard.

- ***Do you think the governance structures of the ERF remain fit for purpose?***

Bioenergy Australia supports the current governance structure of the ERF.

- ***What are your views on method prioritisation, method development and method review processes in the ERF? Please include any thoughts on how these processes could be improved, including how the expertise of industry could be better incorporated.***

Bioenergy Australia suggests that clearer guidelines should be in place to guide engagement from stakeholders on method development.

There are some gaps in the current portfolio of methods that may result in significant abatement not being realised. For example, the new greenfield development of a bioenergy plant is currently not captured in any of the existing methods.

Bioenergy Australia invites the Government to:

- revise the limits on energy generation in the IEFE method, to allow for activities that generate electricity greater than the current restriction of 30 megawatts to increase demand for biomass feedstock;
- review the scope of the Renewable Energy Act rules with respect to energy crops, and how this could be revised to bring it in line with the CFI Regulation. Finally, it is important to highlight that the method needs to enable innovation.

MANAGING RISKS TO ABATEMENT

- ***What are your views on the suitability of the permanence period discount?***

The permeance period discount skews the scheme towards abatement projects as can be seen by the current crediting. The permeance period should be method specific and be based on the actual carbon that has been permanently abated. The discount implies that 80% of the carbon is sequestered permanently over 25 years however all of the carbon could be released after that time to no net benefit to Australia's emissions reduction despite the expense.

- ***What are your views on the suitability of the risk of reversal buffer?***

The risk reversal buffer is insufficient to account for the permeance risks. The contracted carbon offtake from these projects should be looked at like any other investment and discounted based on the risk of future returns. The project should either utilize instruments such as insurance to cover the risk to the ERF or require significant discounting.

- ***What are your views on the risks posed to land-based abatement and the adequacy of ERF and project-level risk mitigation measures?***

The ERF is dominated by abatement projects to the detriment of other methods. The purchase of these credits should be looked at as an investment risk mitigation exercise with appropriate discounting based on the risk of the carbon being released in the future. This would enable a level playing field with projects that are providing immediate and permanent reductions by preventing emissions in the first place.

- ***What are your views on the risks to contracted abatement resulting from ERF projects being concentrated geographically and by method type?***

Geographical concentration of ERF projects is a key issue. For instance, the forest regeneration projects which make up around half the current market are concentrated across a reasonably contiguous region of northern New South Wales (centered around the semi-arid region of Cobar) and southern Queensland. This is likely to reflect relatively low returns from grazing in these regions, and perhaps the diffusion of the method through landholder social networks. However, this also subjects them to correlated environmental risks such as drought (and associated fires), which would have a large flow-on impact on the broader market. In this case the 5% buffer is not sufficient.

OPPORTUNITIES FOR ENHANCING OUTCOMES

- ***What role could the ERF play in future economic recovery efforts?***

As Australia transitions out of COVID 19 and embarks on our road to recovery, the Commonwealth Government (in conjunction with the states) needs to consider options to achieve job creation and economic growth, particularly in regional areas; increase Australia's self-sufficiency by strengthening the energy sector and support local industry and manufacturing; reduce Australia's waste and support the conversion of waste into valued products; and achieve a significant reduction in carbon emissions.

The development of a local bio-economy can play a significant role in achieving all the above targets (more information can be found in our Green Economic Recovery Package), but minor amendments to the ERF are instrumental to unlock many bioenergy and circular economy projects.

As an example, we encourage the **purchase of ACCUs under multiple benefit social impact bonds**, where the Government would purchase ACCUs and other specified benefits under forward contracts awarded through a tender process. This could help diversify the types of projects that are brought to market and support projects that generate environmental and social co-benefits, such as bioenergy initiatives. Projects that generate significant co-benefits are generally disadvantaged in the ERF's auction process because they do not receive any payments for the non-climate benefits. The failure to capture these abatement options can increase the economic costs of achieving mitigation targets. A multiple benefits purchasing platform that uses social impact bonds to target projects that generate co-benefits could help overcome this. It could also play a role in supporting the demonstration and commercialisation of new agriculture-related abatement technologies, where there is a need for increased research, development, demonstration and extension (RDD&E).

In addition, Bioenergy Australia suggests the introduction of an **upfront payment of carbon revenue**. Currently payment of carbon revenue is spread over 7-10 years. For high capex projects (such as bioenergy and circular economy projects), a zero-cost amendment to this that would unlock bioenergy projects would be to allow payment of ERF payments upfront to contribute to project capex (rather than over 7-10 years). This could be discounted sufficiently to be no additional cost to government (e.g. 80% of the total value if deemed day 1), could be capped at 50% of project cost to ensure people still have skin in the game), and be backed by delivery guarantees. Carbon abatement projects should be exempt from these payments or at least be eligible for significant discounts.

Finally, we support **auctions by categories**, where bioenergy is identified as specific bidding area.

The ERF can play a key role in unlocking projects and therefore investment, jobs and abatement, by:

- offering flexible "options" contracts for the delivery of abatement by the projects, providing proponents protections from contract breach if an abatement project fails. These contracts were piloted in the last ERF auction.
- Extending the landfill gas, AWT and SSO methodology ACCUs crediting periods to reflect the actual abatement achieved. As long as a facility/project continues to achieve abatement, it is reducing carbon emissions and therefore should be able to generate ACCUs (regardless of whether ERF/CSF is an option for the purchase of these ACCUs).
- Expanding the AWT method to include Energy from Waste (EfW). EfW is currently not covered by any of the existing methodologies, despite achieving the same abatement by diverting organics from landfill.

• Should the ERF more explicitly address climate resilience and impacts? If so, how?

The ERF can play a key role in addressing climate resilience and enabling further carbon abatement by supporting bioenergy solutions in different sectors, including transport, gas, industrial processes and agriculture.

Transport

The replacement of traditional fossil fuels with biofuels in the transport sector is a significant opportunity for carbon abatement. The production of biofuels like bioethanol, biodiesel and renewable diesel have a lower associated embedded carbon production than equivalent fossil-based fuels, according to independent LCA reviews. In particular, the creation of liquid transport fuels using biobased feedstocks can decentralise and reduce the carbon intensity of the fuel distribution network. Rural based biofuel production can use local feedstock which is then converted into the fuels required in these decentralised, sometimes remote, areas.

Road based transport accounts for a greater share of transport pollution in Australia than the global average, at around 85%, and the need for fuel for land transportation is growing very quickly. This high consumption trend causes swift exhaustion of fossil fuel reserves as well as severe environmental pollution. Sustainable liquid and gaseous fuels represent a significant emission reduction opportunity, in particular for large private or public vehicle fleets, heavy vehicles and public transport. 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.

In addition, while electric and hybrid vehicles are expected to be an increasingly popular low carbon option in the light vehicle transport sector, aviation, shipping and long-haul heavy haulage will rely on alternate renewable fuel sources to meet emissions reductions. The report "Biofuels and Transport: An Australian opportunity", recently published by CEFC and ARENA, highlights that biofuels, with their high-density energy, convenient storage and handling properties, and no requirement for change to the existing refuelling infrastructure, are projected to continue dominating the heavy freight, shipping and aviation industries, as they offer a sustainable, lower carbon emission alternative to the currently used fossil fuels. Importantly, biofuels such as bioethanol can not only be utilised in the road transport sector but are precursors to a range of other imported products such as plastics, antimicrobials, jet fuel amongst others. Developing and encouraging a significant biofuels sector will

have the added benefit of economic resilience if international supply chains are interrupted in the future.

As part of the global decarbonisation process, the international aviation industry has committed to reducing its greenhouse gas emissions. 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 CO2 emissions. Worldwide in 2015, 781 million tonnes of CO_2 were produced from flights, indicative of the ongoing and significant contribution to global GHG production. The aviation industry has committed to carbon neutral growth by 2020 and a 50% reduction in CO2 emissions by 2050 (relative to 2005 levels). Biojet fuel is critical to achieving this substantial longer-term reduction. A number of studies have demonstrated that biofuels can decrease the carbon footprint of jet fuel by 80%, based on full life cycle assessment. Given the impact of Covid-19 on the airlines, the Government could play a key role in supporting the industry by providing incentives/subsidies for the utilisation of biofuels.

The maritime industry is facing a similar imperative for transformation. LSF2020 refers to the new 'Low Sulphur Fuel' regulations, which came into effect on 1 January 2020. These regulations are the biggest of a series of steps by the International Maritime Organisation to reduce marine pollution (MARPOL) in response to the threat of climate change. The LSF2020 emission regulations mean ships will have to significantly reduce emissions on the high seas as well as in coastal areas. With Australia bunkering around a million tonnes of marine fuel oil p.a., this is a significant opportunity for the biofuels sector.

In addition to the just mentioned opportunities in the aviation and shipping sector, biofuels are proven to be market-ready and cost-competitive alternatives to fossil fuels heavy haulage as well. International truck companies are already embracing bioenergy as low-carbon fuel for their vehicles and there is no impediment to a similar trend in Australia. As an example, Scania, a world leading provider of transport solutions, has demonstrated that it is possible to operate trucks and buses in Sweden on biofuels and reduce environmental impact cost-effectively. Their strategy involves supplying engines running on all commercially available fuel alternatives, including compressed and liquefied biogas and natural gas, biodiesel and ethanol. The company has recently released an alternative fuel engine option for the new truck generation and Euro 6 emissions standard. The new bioethanol engine delivers a similar thermal efficiency as its diesel counterpart.

ERF for biofuel projects

Bioenergy Australia believes that the problem holding back the development of biofuels projects within the ERF is that the level of financial support provided ($12-14/t CO2e avoided) is too low to drive biofuels substitution.

Here is a look at the level of support provided by the ERF at rate of $12/t CO2e.

1. A transport operator has a project to reduce fuel consumption by 10%. Assuming diesel fuel at $1.50 per litre, they will save $0.15 /litre in fuel cost. The GHG reduction per base case litre is 2.7 kgCO2e/L * 10% = 0.27 kg CO2e * $12/1000 = $0.0032/L. This is an insignificant level of support compared to the basic fuel cost saving, and certainly not enough to justify a complex effort with base data.

2. A transport operator has a project to substitute biodiesel or renewable diesel for fossil diesel. The GHG reduction per base case litre substituted (Tank to Wheel basis) is 2.7 kgCO2e/L and the support provided is 2.7 kg CO2e * $12/1000 = $0.032/L. This is unlikely to be enough to make a biofuel project attractive, given the small scale of early development.

A higher level of support is therefore necessary to enable a material impact on the transport sector and we invite the Authority to revise the upper limit on the ACCU prices when there are significant abatement opportunities.

Bioenergy Australia would like to point out that the support related to GHG reductions available to the transport sector via the ERF is much smaller compared to the one provided by RET in the electricity sector.

While the cost of RET Large Generator Certificates (LGCs) has fallen recently, for much of 2017, they traded at between $80-90/ MWh. As a MWH of renewable electricity tends to displace black and brown coal fired generation at 0.9-1.0 tCO2e per MWh, this is equivalent to a financial support level of around $80-$100/ tCO2e avoided. This is much higher than the $12/t CO2e support provided by the ERF and has underpinned the large scale roll out of renewable electricity.

As transport energy use represents one of the three largest sources of Australian GHG emissions (along with electricity and stationary energy use), the supporting mechanism for the transport sector should be revised to achieve support levels commensurate with what has been afforded to the electricity sector.

Gas network

While there has been strong investment in recent years in transitioning electricity production from fossils fuels to renewable electricity generation, there has been slower progress in transitioning other sources of energy consumption, such as gas used for thermal processes, to lower emissions.

Biogas is a renewable, reliable and local source of energy. Biogas is a source of energy that can be converted into heat, electricity or used as a transport fuel. Biogas can also be upgraded into biomethane: a gas with a chemical composition very similar to natural gas. Biomethane can be used directly on-site or injected into the gas grid and serve several uses for consumers such as heating, industrial purposes or fuel for gas vehicles.

The biogas production process is a proven technology, which is widely adopted internationally. The biogas market in Europe has experienced strong growth; between 2009 and 2015, the number of installations almost tripled (~6,200 in 2009 to 17,400 plants in 2015). Germany, the United Kingdom (UK) and France are among the leaders in terms of European biogas production. According to the IEA Bioenergy Task 37 Country Report Summaries 2019, the annual biogas production is around 120 TWh (432 PJ) in Germany, 25 TWh (90 PJ) in the UK and 9 TWh (32.4 PJ) in France.

The report "Biogas opportunities for Australia", prepared by ENEA for Bioenergy Australia, examined the potential for the use of biogas energy in Australia and found that it could represent a multi-billion dollar investment opportunity for Australia, with the potential to offset natural gas use in transport and could be used for heat and/or electricity generation and injection into the existing gas network.

According to the Deloitte report "Decarbonising Australia's gas distribution networks", biogas blending/injection is currently the cheapest option for decarbonisation of energy provided by gas networks. Enough biogas potential exists to meet all residential and commercial gas demand on the East Coast: the cheapest form of biogas feedstock (urban waste, livestock residue and food waste), is currently sufficient to meet around 14% of energy used from gas in that area.

Australia has a target for renewable electricity production, including electricity generated from bioenergy. However, there is currently no similar level of support for the generation of renewable gas and its injection into the gas grid. Biomethane production, grid injection and use as a vehicle fuel is

not specifically allowed for in the ERF, as well as the RET. In fact, the RET has steered all current biogas capture and production to electricity rather than being used for Gas. We would strongly recommend that a similar level of support is provided for decarbonisation of the gas network as biogas production does not only support decarbonisation of the gas network, it also represents a fantastic opportunity for additional income for farmers and regional communities, production of fertilisers to assist in soil regeneration, waste reduction and improved water quality.

As recommended by Energetics in the report "Renewable gas for the future" for Energy Networks Australia, a target for the generation of renewable gas should be established and the ERF mechanism should be extended to a wider market such as biomethane produced from renewable sources.

Industrial processes

Biomass can be used to produce heat & power for industrial processes. Biomass used for energy production generally comes from waste streams. For example, forestry (e.g. tree pruning, timber harvest and sawmill residues), municipal solid waste (MSW), commercial and construction waste, and agriculture (e.g. bagasse, crop stubble, straw, manure, poultry litter, oilseeds, nut shells).

When biomass is combusted, the energy is released as heat and CO_2 is released back to the atmosphere. As long as plants are regrown after harvest, this cycle is renewable and carbon neutral. In contrast, burning fossil fuels takes carbon that has been sequestered in long term in geological formations as coal, oil or natural gas, and transfers it to the atmosphere, releasing additional non-contemporary carbon dioxide to the atmosphere.

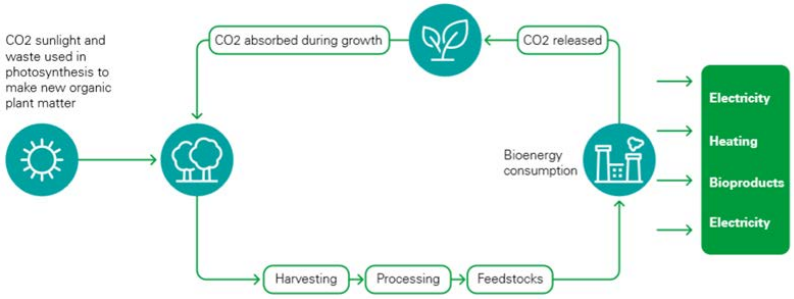

Fig.1 Carbon neutral lifecycle (Bioenergy Australia & KPMG Bioenergy State of the Nation report).

Biomass can produce process heat well-suited to industrial processes that would otherwise use fossil fuels such as LPG, LNG or coal. For instance, the conversion of a solid biomass fuel in a boiler can deliver the same quality of thermal energy as is generated by a natural gas boiler, but often at a significantly lower cost per unit of energy delivered (average reduction of the energy costs between 60 and 70% compared to natural gas in the East Coast).

As an example, MSM Milling is one of the first examples of a large Australian agricultural company reducing its costs and environmental impact by using biomass for thermal energy. The project involved the installation of a 4.88MW boiler to generate the steam needed for the canola processing operation using local renewable wood waste. The boiler is currently delivering a 70% reduction in their thermal energy costs and will result in net emissions reductions of more than 80,000-tonnes of carbon dioxide equivalents during the life of the project (the equivalent of removing 1500 cars from the road each year).

The ongoing support of heat generation from biomass under the ERF is therefore crucial for the industry's carbon abatement.

Agriculture

As demonstrated in the international scenario, biogas generation is a significant opportunity for the agricultural sector, as it can reduce greenhouse gas emissions and improve farm productivity for intensive livestock farmers and manufacturers processing large amounts of wastewater.

For instance, the development of the French biogas sector is associated with a desire to involve the agricultural sector, by providing farmers with an additional activity and source of income. Similar to Germany and the UK, France has implemented several support mechanisms:

• Feed-in-tariffs (FiT) schemes for electricity export and biomethane injection into electricity and gas grids. To support the agricultural sector, biomethane FiTs include a premium for units using a minimum quantity of agricultural residues as feedstocks. The FiTs are also higher for small-scale units, encouraging on-farm project development.

• Various support for investment, such as capital grants and soft loans from the national energy agency (ADEME) and local councils.

• Different targets for biogas and biomethane

• Certificates ensuring the traceability of biomethane exchange between producers, retailers and consumers (Guaranties of Origin) and providing complementary revenues for the purchase of biomethane.

Given Australia's vast agriculture and food processing sector, the introduction of similar support mechanisms would offer new opportunities in targeted industries such as agriculture.

With a biogas generation system, large volumes of liquid waste are digested under low-oxygen conditions to produce biogas that is subsequently combusted to destroy methane and produce heat or electricity.

The destruction of methane will increase farm viability by attracting ACCUs under the ERF. The ERF has four approved methodologies for the destruction of methane by pork and dairy farmers, which include covered anaerobic ponds and engineered bio-digesters.

Bioenergy Australia is supportive of any intensive animal industry available to participate in the ERF and we invite the Government to expand the scope of the methods to allow the inclusion of a wider range of feedstocks.

- ***Is there a need for enhanced guidance on how to manage ERF projects for multiple benefits? If so, should this be part of the ERF or complementary programs and policies?***

As mentioned in the previous question, we support an ACCU multiplier within the ERF for projects with multiple benefits, such as bioenergy projects.

Thank you for the opportunity to provide this submission.

Yours sincerely

Shahana McKenzie, CEO Bioenergy Australia