National Farmers Federation

15 June 2020

Australian Renewable Energy Agency
GPO Box 643
Canberra ACT 2601

Dear Sir/Madam

Re: NFF submission to the bioenergy roadmap consultation paper

The National Farmers' Federation (NFF) welcomes the opportunity to respond to the Australian Renewable Energy Agency's (ARENA) bioenergy roadmap consultation paper. Bioenergy remains largely an untapped source of energy in Australia, comprising approximately four per cent of total energy consumption in contrast to the European Union's 10 per cent use, and suggests there is significant scope to expand the market for bioenergy and bioproducts.

The NFF recognises the potential for bioenergy within the agriculture sector, particularly as a renewable energy source that can: enhance regional employment and economic development, enhance energy security as distributed energy sources increasingly penetrate the grid, contribute to the Australia's emissions reduction goals under the Paris Agreement and help diversify farm businesses and therefore improve resilience.

In particular, regions that have existing clusters of industry and access and proximity to reliable feedstock have the greatest opportunities to develop bioenergy capabilities. Processing facilities required to convert feedstock will likely be establish in regional areas to minimise transport costs, and help establish regional hubs.

A number of reports assessing bioenergy, broadly and industry specific, have been conducted and will provide a useful context for the roadmap. The NFF also acknowledges this roadmap will feed into the Government's Technology Investment Roadmap.

Much work has already been conducted to assess and expand the bioenergy sector in Australia:

- ClimateWorks Australia *Decarbonisation Future*.
- KPMG and Bioenergy Australia *Bioenergy state of the nation report* (2018).
- Queensland Biofutures program (2016).
- CSIRO Low emissions technology Roadmap (2017).
- South Australia Bioenergy Roadmap (2015).

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Australian agriculture is well-placed to take advantage of these opportunities due to the abundance of logistically accessible biomass feedstocks and a skilled agricultural industry. Some industries, including the sugarcane industry, plantation forestry, dairy and pork already use bioenergy in their operations.

Further sources that could be utilised for bioenergy production include sugarcane bagasse and trash, intensive animal waste, plantation forestry field and sawmill residues, straws and other residues that would otherwise be burnt or disposed in landfill. The development of “energy canes”, extended harvesting seasons, other high fibre crops and possible additional area under cane or other crops can all produce additional biomass. These are all considered to be reliable feedstock sources. This ensures that most carbon emissions produced can be re-absorbed into the supply chain and support a transition to a low emissions economy.

The Sugar Research Australia funded report ‘Industry priorities for value add & diversification opportunities in the sugar industry’ (SRA report) identified that there were significant resources available in the sugar industry, not all which are used for value add nor diversification activities. The scale of the industry, proximity to feedstocks and feedstocks that are co-located with land provide an opportunity to expand the market.

However, expanding the market requires appropriately targeted investment and policies that incentivise uptake. The NFF believes the main constraints to bioenergy uptake are due to cost, regulatory and market impediments; however, there are opportunities to incentivise uptake. Feedstock conversion technologies are relatively mature and already in operation, including the production of methanol, biogas from anaerobic digestion of waste and electricity from co-firing biomass.

For example, the Australian forestry industry produces biomass from timber processing activities (such as sawdust, timber offcuts and forestry waste). Currently, Australia’s timber industry produces a large amount of sustainable biomass from timber processing and paper manufacturing operations. However, only some of it is being utilised in local or regional bioenergy facilities, or as wood pellets that are exported overseas as a source of renewable energy.

For farmers, successfully establishing a biofuel or bioproducts industry could create a market for managing waste feedstocks and use of under-utilised land, as well as create opportunities for regional development. Currently, the technologies that produce renewable heat from biomass is relatively mature, including co-firing, gasification and pyrolysis.

The creation of a sustainable biofuels industry would provide Australian farmers with a means of generating revenue from waste feedstock and underutilised land. Processing of biofuels is likely to occur locally, thereby providing additional job opportunities in regional areas.

National Policy

A key impediment constraining the uptake and use of bioenergy is the lack of a national policy or regulatory framework that can provide certainty for stakeholders. While the federal government incentivises emissions reduction through the Renewable Energy Target (RET) and the Emissions Reduction Fund

(ERF), there are more opportunities to incentivise uptake. The NFF notes that the 'Animal effluent management methodology' under the Emissions Reduction Fund has been recently reviewed and improved for this purpose.

The NFF agrees with the CSIRO Low Emissions Roadmap that a national regulatory framework that governs the use of biomass, imposes widespread sustainability criteria as well as effective economic incentives is critical to the development of the biofuels industry. Ideally, this should align with international standards. A clear framework will certainty required for greater investment; however, consideration is required to ensure policies target bioenergy and do not inadvertently favour other forms of energy, including renewable energy.

States also have responsibility over a number of relevant policy areas that affect the ability for bioenergy uptake. Ideally, states should have a clear regulation with regard to the approvals process, as well as what is classified as waste material. For example, there is a lack of clarity on regulation for digestate, which can be classified as a waste, biosolid or as compost, and is preventing industries from maximising its use.

Other examples include:

- The cotton industry identified cotton gin trash as an emerging feedstock to generate electrical or thermal energy, particularly in-situ for gins. However, the requirements the regulator proved to be a barrier. A previous gasifier pilot by Namoi Cotton was halted due to the vagaries of NSW EPA requirements over the potential chemicals being present in the trash or released from the trash. This came after considerable financial investment to reach the trial stage, including involvement of university level expertise.
- The forestry industry has identified limitations with current RET. Renewable heat from the combustion of biomass is currently excluded from the RET and therefore has no incentive to participate in energy production. The RET has emphasised renewable electricity rather than renewable heat and other cogeneration opportunities. Without the price signal offered by the RET, renewable heat has not been incentivised to compete in the market.

Policy development needs to be flexible to support a potentially broad range of bioenergy-based opportunities from small co-generation facilities located in small regional areas to large facilities located in cities and other industrial centres.

The NFF recommends the Federal and State Governments to review current regulations to ensure they are fit-for-purpose and do not inadvertently restrict uptake. This could include clarifying definitions and conditions, streamlining approval processes, as well as revising existing tax incentives and levies to target bioenergy sources. Federal Government should also consider support national policy for energy from waste projects.

Incentivising uptake

Uptake of bioenergy can be increased by improving existing support mechanisms including the ERF and the RET. Currently, the Emissions Reduction Fund 'Animal Effluent Management' methodology provides an opportunity for piggeries and dairies to capture methane and generate energy. While biogas technologies have a number of advantages for the dairy and pork sector, including reducing farm

odour, and renewable energy, the capital cost of anaerobic digestion technology has constrained uptake to mostly larger farming systems that have the capacity to make the investment and justify the cost whereas small- and medium- sized farms are typically locked out of the scheme.

The 2020 King review of carbon opportunities and Climate Change Authority's 2020 review of the ERF both seek to further incentivise uptake of the ERF. The King review made several recommendations that focused on uptake by smaller landholders, as well as decreasing the burden of reporting and auditing costs. As technologies mature and become commercial, they should be considered as part of the ERF framework.

The King review also identified that the incentives offered by the ERF were misaligned with the timing of the costs incurred. The upfront capital costs of anaerobic digestion technology and the timing of payment confers greater project risk to the project proponent, and disincentivises uptake. The NFF supports the review recommendation to award carbon credits on a compressed timeframe which will lower the risk. Furthermore, the government could also consider capital grants to reduce the cost of upfront investment. Inevitably, further uptake of biogas or other technologies, including biomethane, will depend on cost and scale.

The NFF also believes that incentives should also consider broader economic development, social and environmental outcomes to ensure broader community outcomes can be achieved. The voluntary market in the ERF is one market framework that considers co-benefits or multiple benefits from ERF projects. There is scope to use this framework to incentivise uptake of bioenergy projects that provide multiple benefits.

There is also scope to improve uptake of renewable heat generated from the combustion of biomass. Co-generation systems are relatively mature and operate in some industries in Australia, including the sugarcane and forestry industry.

The NFF recognises emerging opportunities in the energy systems that are likely to become more viable in the future, including micro-grids and other stand-alone power systems (SAPS). The NFF believes there is an opportunity for bioenergy to play a role in complementing these systems, particularly in rural and remote areas. However, there are significant regulatory challenges being considered across the network, including SAPS. The NFF supports the three-tiered framework proposed by the Australian Energy Market Commission that weighted regulation against the size of the proposed microgrid. The NFF cautions against unwarranted and unnecessary regulation would disincentivise uptake of SAPS.

Furthermore, the NFF supports further regulatory reform in the electricity sector to better integrate behind-the-meter technologies, including bioenergy, with the network. Other incentives that could encourage uptake include feed-in tariffs.

Mandates are another option to incentivise uptake. Currently, NSW has a 6 per cent mandate of petrol sales and E10, Qld has a 4 per cent mandate while Victorian has a voluntary target, but they have been relatively ineffectual. The NFF acknowledges the role of targets in the market that are carefully calibrated to ensure they do not cause unnecessary distortionary impacts. Economic incentives

can be adjusted over time as bioenergy moves towards competitiveness with fossil fuel counterparts.

The NFF notes that policy should also consider trade-offs between land use and end uses of product. The NFF envisages feedstock opportunities for bioenergy purpose to be sourced from agricultural waste, or as a by-product from existing products as a means of diversification and that could provide complementary benefits. There may also be opportunities for purpose grown crops that do not create market distortions or other perverse outcomes and make economic sense.

The NFF recommends that:

- Governments recognise the potential of emissions reduction benefits provided by agricultural industry through bioenergy projects.
- Government improve existing mechanisms including the ERF and the RET.
- Governments consider enforceable mandates for energy projects to be sourced from bioenergy.
- Governments consider capital grants to de-risk investment in existing and emerging technologies.

Research and Development
Industry growth will require adequately funded Research & Development (R&D) that can eventually be commercialised. Most innovation is occurring overseas (e.g. lignocellulose biomass an energy source) than in Australia and there is an opportunity for international research to be harnessed in Australia. The NFF suggests expanding international R&D collaboration making the best use of Australia's national competencies, to expand the bioeconomy.

Growth in the bioenergy sector will require commercialisation of a number of technologies. As technologies are developed, they will need to be supported to ensure they can be market ready. Institutions including the CSIRO, CEFC, and ARENA have provided supported technologies to overcome key risks in development; however, gaps have been identified in the support for key technologies and sectors at the demonstration, deployment and commercialisation phase.

The SRA report also found that, in the sugarcane industry, commercialisation of technologies was a key limitation to expanding the industry. Hundreds of millions of dollars have been spent domestically and internationally with approximately 900 companies around the world seeking to commercialise their technologies to no avail. They identified that:

1) Many technologies are effectively stuck in the laboratory. They achieve good technical results at that scale but fail to make it to a pilot scale.
2) Anecdotally, equity investors are unlikely to invest in projects prior to the demonstration scale, with a pilot scale plant required to prove technical viability.
3) Buyers and financiers typically require at least one commercial scale reference plant before buying or investing in a technology. This requires the technology and market risks be reduced to an acceptable level for investment.

4) Many of the technologies already at commercial scale have failed to work commercially. E.g. the yields are too low, the market doesn't support viability or other risks, potentially in combination.

As part of its Biofutures roadmap, the Queensland Government established its Biofutures Commercialisation Program to attract national or international bioindustrial expertise to partner with Queensland researchers and/or businesses to scale-up and test new or improved bioindustrial technologies and processes at the pilot or demonstration scale in Queensland.

ARENA also provides a similar function and has proven effective in facilitating commercialisation or technologies. The King review recommended that ARENA and CEFC could be provided an expanded, technology-neutral remit to support key technologies across all sectors, including bioenergy. The NFF believes that the existing architecture of ARENA can be leveraged to efficiently support commercialisation of bioenergy technologies.

However, the NFF understands that ARENA is likely to allocate the last of its grant funding in the 2020 calendar and won't be able to sustain its role thereafter. The NFF believes the Government should be have an ongoing role in driving innovation and has called for the Government to support the future of ARENA. Specifically, the NFF has recommended:

- The Government commit at least $3.6 billion over 10 years to ARENA; and
- The Government expand the remit of ARENA to address challenges, create opportunities and meet broader Government goals, in reducing emissions. Energy innovation investments in the 2020s should include investment in R&D and demonstration of new technologies.

Otherwise, the Government should establish a national commercialisation program to support this industry.

Overall, the NFF supports the development of the bioenergy roadmap. If implemented appropriately, bioenergy opportunities could improve economic development in regional communities. However, Government must ensure adequate resources are allocated to properly implement the roadmap.

Should you require any further information, please contact Warwick Ragg, General Manager Natural Resource Management, on 02 6269 5666 or wragg@nff.org.au.

Yours sincerely

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