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BIOENERGY AUSTRALIA SUBMISSION

Vulnerable Supply Chains

Bioenergy Australia is the national industry association, committed to accelerating Australia's bioeconomy. 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 is a cross-sector solution, which can support the state in overcoming environmental and socioeconomic challenges. Bioenergy Australia has recently developed a number of reports to highlight the key opportunities of the development of a national bioeconomy, as well as some recommendations to support the growth of the bioenergy industry. These are listed below, and we encourage the Clean Energy Regulator to review these in conjunction with our submission.

- Bioenergy Australia submission to the Australian Bioenergy Roadmap
- Bioenergy Australia Economic Recovery Proposal
- Shovel Ready Sample of Bioenergy Projects Across Australia
- KPMG Bioenergy State of the Nation Report
- Biogas Opportunities for Australia Report

The purpose of this submission from Bioenergy Australia is to highlight how the development of a bioeconomy could support Australia's resilience to global supply chain disruptions.

Executive summary

- Vulnerable supply chains represent a threat for Australia mainly due to its dependence on international fuel and manufacturing
- Bioenergy options, including biofuels, biogas, renewable heat and power, and bioproducts, can support Australia's resilience to global supply chain disruptions, as well as its international trade opportunities
- The Government can show significant leadership in managing supply chain risks by supporting the development of a strong bioeconomy in Australia

Vulnerable Supply Chains

In the first half of 2020, Australia faced a perfect storm of severe events that put a spotlight on supply chain vulnerabilities. From bushfires and ransomware attacks to the COVID-19 pandemic, Australian companies and their supply chains have been inundated with a growing number of disruptions, fuelled

by mega trends such as globalisation, technological advancements, and climate change. This year has again begun with a series of extreme weather events. Future prosperity will require finding new ways to manage these major unexpected disturbances. This is particularly relevant in the transport sector, industry and manufacturing, as well as for the international trade.

» Transport sector

Australia currently imports the vast majority of its fuel. In 2018 the Department of Environment and Energy emphasised Australia's dependence on overseas fuel supply as a strategic vulnerability, with the country holding only 18, 22 and 23 days of consumption cover for petrol, diesel, and jet fuel, respectively. In addition, with the decline in domestic refining in Australia, and the closure of 3 refineries in the last decade, Australia has been left with 4 refineries in operation and the majority of fuel being imported. Australia's reliance on imports is therefore due to a lack of domestic crude oil and refining assets. This leaves the national fuel industry vulnerable to the international energy market and its price fluctuations and stresses the country's reliance on unpredictable relationships with international partners.

As an example, the Australian economy is heavily dependent on diesel, consuming around 30BL of diesel per annum, however 69% of this fuel is imported, meaning that Australia is almost completely dependent on international diesel. A cessation of the supply of diesel to Australia would be extremely damaging to our economy and strategic interests.

Also, Australia has consistently had to manage issues relating to aviation jet fuel supply and availability. As an example, in 2016, Melbourne airport experienced a severe jet fuel shortage following disruptions to jet fuel deliveries from a number of terminals across the city. Less than 2 million litres of aviation fuel were available at the country's second busiest airport, meaning that less than 10 A380 planes had enough fuel for a long-haul flight.

More generally, Australia would be exposed to catastrophic challenges should there be disruptions to the main shipping line to Australia. Limited retail stockholdings would impact all Australians: at an individual level, in our businesses and in Government services. Without an adequate supply of liquid fuels, we could not access health services; food production and distribution would be severely curtailed; most businesses could not operate; our personal and much of the public transportation system could not function; and our Defence Forces could not operate. This not only represents a sovereign security risk, but also constitutes a loss of potential economic activity and wellbeing in Australia. The recent rise of oil prices due to the traffic block in the Suez Canal is a good example of how the vulnerability of supply chains can strongly affect the Australian economy.

» Industry and manufacturing

The Coronavirus pandemic has highlighted vulnerabilities in Australia's supply chains to outside shocks and has revealed a need to pursue national self-sufficiency and enhanced energy security. As an example, before the COVID-19 pandemic, Australians used approximately 20 million litres (ML) of hand sanitiser each year, with supply approximately evenly divided between domestic and international manufacturers. COVID-19 resulted in a significant increase in demand for hand sanitiser. With international supply chains also disrupted, hand sanitiser and its inputs were temporarily in short supply. Ethanol is a key component of hand sanitisers (approx. 70-80% of the product) and without biofuel mandates in NSW and QLD, is it highly unlikely that ethanol would be produced in Australia at industrial scale, and we would presently find ourselves in the dire situation of being unable to source this critical product due to global shortages.

» International trade

While there is a surge of international action around green trade, climate diplomacy, and low-carbon investment, Australia's global competitiveness of manufacturing, agricultural exports and commodities is at risk due green tax policies from international trading partners. These industries potential face increased costs to export goods into countries that are proposing from partners that are aiming for net zero emissions. Therefore, demand will move to products that have produced with less carbon intensity and there is a possibility that Australia ends up with a weaker trade position, stuck behind the pack in the global economy, unless substantial decarbonisation strategies are adopted.

The role of bioenergy in supporting Australia's resilience to global supply chain disruptions

As highlighted in the report "Bioenergy & Sustainability: bridging the gaps", bioenergy plays a key role in enhancing national resilience and energy security. In particular, locally produced bioenergy can support national security and Australians' wellbeing through a wide range of technical options, including:

» Liquid biofuels

A strong biofuel industry would help diversify the sources of transportation fuels and decrease Australia's dependence on petroleum imports, which would reduce the risk of supply constraints during times of international or regional geopolitical upheaval. According to The Queensland University of Technology (QUT) report "Biofuels to bioproducts: a growth industry for Australia", the implementation of a nation-wide mandate for 10% ethanol blending in petrol alone, as has been achieved in the US, could reduce automotive gasoline imports by about 18% annually, and contribute to enhanced domestic fuel security. Similarly, local production of bio- and renewable diesel, as well as sustainable aviation and marine fuels, would strongly support the security, reliability and operations of our heavy-vehicles, aviation, and marine industries. Australia has a natural advantage in the development and deployment of biofuels because the territory offers abundant biomass feedstock that can be efficiently converted into energy. However, these resources are currently underutilised and some of them, such as used cooking oils and wood chips, are being exported. A higher utilisation of these resources to produce fuel for domestic consumption would not only increase fuel security, but also generate jobs and regional growth.

» Biogas upgraded to biomethane

International demand for gas exports from eastern Australia is continuing to put pressure on local fossil-based gas supply and prices. Meanwhile, Australia has strong existing biogas capture (e.g., around 12,000,000 GJs of current landfill biogas capacity) with the potential for significant further biogas sector growth from a range of technologies. Locally produced biomethane from biogas could be injected into the existing local distribution network now. With the right policy measures, biomethane could be readily used to improve domestic supply whilst providing net zero carbon energy for gas consumers, hard to decarbonise industrial processes, heavy transport, and gas peaking stations for dispatchable renewable electricity. In particular, BE-CCS (Bioenergy conversion combined with Carbon Capture and Storage) routes for the production of biomethane allow the reduction of global CO_2 concentration in the atmosphere. These technologies are therefore likely to be required to meet climate targets. Locally produced biomethane can also be upgraded to bio compressed natural gas (bio-CNG) and used to displace diesel in remote towns that rely on imported diesel. This helps provide a more robust supply chain for essential services in these communities. Finally, biomethane could play a key role in strengthening Australia's role as an exporter, as it can be exported to overseas markets

using existing LNG supply chains. These markets could provide access to higher value environmental attributes (carbon and green certificates) which could also underpin a new bioenergy export industry.

» Solid biomass

Solid biomass is mostly used in stationary heat and power generation, especially in relation to combined heat and power generation. Solid biomass can be used as co-feed along with other fuels or in boilers capable of firing up to 100% biomass. Under a favourable policy environment, Australian biomass, including wood and paper products, could contribute the equivalent of several thousand GWh in renewable energy per annum in dispatchable form, reducing reliance of non-renewable sources and provide greatly needed "peaking" services.

» Bioproducts

According to KPMG's "Bioenergy state of the nation report" 2018, the global market for bioproducts is expected to reach over A$1 billion by 2022 as biomass is increasingly utilised in the production of a range of chemical and industrial applications. In Australia, the development of this industry would significantly increase national security and the prospect of revenues from new manufacturing. A key example is the pivot recently taken by the Australian biofuels industry to support supply of ethanol into hand sanitiser production during the peak of the COVID pandemic in Australia.

In addition, a higher deployment of bioenergy in our agriculture, manufacturing and mining sectors would increase the availability of low-carbon products intended for export. This would strongly support Australia in climate diplomacy, international trade, and our competitiveness on the global stage.

Broadly, bioenergy supports more than 3.1 times more jobs than conventional renewable energy (IRENA, 2019, *Renewable Energy and Jobs. Annual Review* 2019). These jobs are largely located in regional areas and provide blue collar workers employment and career opportunities. The global pandemic has illustrated the importance of having a strong labour market and self-sufficient supply chain.

The role of government in managing supply chain risks

This pandemic has highlighted vulnerability in our supply chains and has demonstrated that things we thought were impossible, are indeed possible. Right now, Australians are looking to the Commonwealth Government (in conjunction with the states) for solutions and leadership as we transition out of COVID 19 and embark on our road to recovery. Australians are looking for new industries, increased domestic manufacturing and value adding, for reduced reliance on imports and enhanced self-sufficiency. Complementing these needs, under the National Waste Policy 2018, Australia is committed to pursuing a 'circular economy' where the value of our resources is retained for as long as possible, and pollution and waste are minimised. Several states have released reports highlighting the potential for tens of thousands of jobs in each jurisdiction from embracing more circular approaches.

The achievement of these outcomes can be facilitated by a strong national bioeconomy, therefore a key opportunity for the Government to show significant leadership and vision would be to support the development of this industry. Government policies would be instrumental in supporting the significant expansion of the domestic bioenergy sector by securing feedstock supply, infrastructure, and logistics, promoting access to technology and early-stage investment support, and improving demand.

In particular, the following mechanisms would be powerful levers in directing the energy, agriculture, mining and transport industry towards the country's sustainable resources:

1) A Clean Futures Target, including:
- Clean Fuels Target
- Renewable Heat Target
- Green Gas Target
- Target for the complete diversion of organic waste from landfills without anaerobic digestion bioenergy recovery
- ERF/CSF Jobs Target

2) An Australian Bio Industries Fund, including for:
- Upgrading existing facilities to increase productivity, reduce costs or evolve into new industries
- Undertaking feasibility assessments for converting low-value residues into new energy products under a circular economy approach
- Undertaking new project development of replicable, high value projects such as anaerobic digestors for local councils and other waste service providers, food and agriculture processing facilities and wastewater treatment

3) Additional stimulus mechanisms, including:
- Mandating a portion of clean fuels across fleet and procurement contracts for the Federal Government
- Extending excise reduction support to renewable diesel, bio compressed natural gas (BioCNG) and bio liquefied natural gas (BioLNG)
- Funding for the development of the Clean Fuels Challenge & Clean Fuels Network
- Developing a renewable gas certification system
- Developing a renewable gas injection tariff
- Creating new ERF methods that support bioenergy and a reduction in Scope 1 emissions for our export industries
- Allowing companies to report a reduction in their scope 1 emissions to their international trading partners (via NGERs and/or CERT)
- Implementing certification and guarantee of origin schemes, similar to the recently proposed CERT
- Streamlining the regulatory process related to bioenergy projects (e.g., digestate disposal, gas injection guidelines, etc.)

More information on the proposed mechanisms is available here.

Thank you for the opportunity to provide this submission.

Yours sincerely
Shahana McKenzie, CEO Bioenergy Australia