



LEGISLATIVE ASSEMBLY
FOR THE AUSTRALIAN CAPITAL TERRITORY

STANDING COMMITTEE ON ENVIRONMENT, CLIMATE CHANGE AND BIODIVERSITY
Dr Marisa Paterson MLA (Chair), Mr Andrew Braddock MLA (Deputy Chair),
Ms Leanne Castley MLA

Submission Cover Sheet

Inquiry into Renewable Energy Innovation in the Australian Capital Territory

Submission Number: 21

Date Authorised for Publication: 25 May 2021

BIOENERGY AUSTRALIA SUBMISSION

Inquiry into Renewable Energy Innovation in the ACT

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 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 Committee 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 present how bioenergy technologies can play a key role in driving renewable energy innovation in the ACT.

Opportunities and challenges to boost renewable energy research, technology development and new zero emissions industries in the ACT

Technology and innovation do not represent a challenge in Australia. Instead, there is a strong need for systemic innovation that will create confidence and certainty across the sector to invest in advance solutions. **Economic and commercial feasibility, as well as policy and regulatory readiness are the areas for greatest improvement to enable the uptake and deployment of new technologies.**

For example, in Australia there is broad industry support for biomethane market development that is enabled from injection into gas networks. In a [joint letter](#), over 50 of Australia's leading industry associations and businesses, have outlined the key policy measures required to activate and scale the biomethane market. The ACT government could strongly accelerate the decarbonisation of the gas network by raising awareness of the role of renewable gas in achieving emissions reduction targets, unlocking seed funding to showcase, activate and de-risk the biomethane market, and building market confidence, scale and growth.

Opportunities and challenges to establish the ACT as a national hub for renewable energy technologies and industries including zero emissions vehicles

Bioenergy Australia strongly supports the establishment of a renewable energy hub in the ACT as it would stimulate growth in the local circular economy.

We encourage the ACT government to consider the role of biomass in a renewable energy hub by looking at successful examples across the country, such as Mt Gambier, Mt alexander and Clean Cowra microgrids.

For instance, Clean Cowra's local energy hub encourages small and medium enterprises to collaborate by providing cheaper energy via an embedded network microgrid, while enjoying a reduction in the disposal cost of their waste by-products. Their involvement in the microgrid assures energy security and stability for their enterprise with access to a combination of biomass, solar and traditionally generated energy. The output of the facility significantly exceeds microgrid customer demand providing an opportunity to store excess biogas for discretionary energy conversion to respond to immediate demand. This dispatchable energy can be fed to the grid to assist stability of local supply.

Opportunities and challenges to innovatively finance and/or manage renewable energy in the ACT

Given the Commonwealth Government is making a record level of investment in driving Australia's bioeconomy through funding the development of Australia's first Bioenergy Roadmap and other initiatives, we encourage the Committee to consider the following opportunities to innovatively finance and manage renewable and bioenergy in the ACT.

These initiatives would strongly contribute to the vision of establishing the ACT as a world leading sustainable and biomanufacturing region attracting significant international investment, and creating regional, high value and knowledge-intensive jobs.

Develop a robust transition strategy for decarbonisation of the transport sector in QLD with 25% reduction by 2025, 30% reduction by 2030 and 40% by 2040

We invite the ACT Government to work closely with the Federal Government to increase the uptake of clean fuels through the following mechanisms:

- Introduce a biofuel mandate (similar to NSW and QLD) and a clean fuels target (similar to LCFS)
- Develop a renewable gas certification system and injection tariff
- Introduce substantive incentives written into Government procurement processes to encourage the take up of domestically produced bio and renewable fuels
- Implement policy and legislation to support new carbon offsets projects that are derived from bioenergy (e.g., new ERF methods for biomethane injection and BioCNG usage; extension of carbon credits support to a wide range of feedstock; clear articulation, certification and quantification of sustainability standards of bioproducts)
- Reduce taxes for bio and renewable fuels running vehicles (e.g., extend excise reduction support to renewable diesel, bio compressed natural gas (BioCNG) and bio liquefied natural gas (BioLNG))
- Run an education campaign on benefits and opportunities of bio and renewable fuels

Build demand for a new renewable gas industry in the ACT

Biogas can be upgraded to natural gas quality and injected into the gas grid to provide net zero carbon energy for gas consumers, industry, transport and electricity generation. With abundant natural feedstock, the time is ripe for the ACT to build demand for renewable gas and lead the nation in biomethane injection. In Australia, there is broad industry support for biomethane market development that is enabled from injection into gas networks.

Bioenergy Australia recommends a three-pronged approach to building demand for renewable gas in the ACT:

- Establish a Green Gas Certification Scheme
- Introduce a feed-in-tariff for renewable gas
- Enable monetisation of digestate

Finally, we believe that the government should aim for a higher level of engagement with waste generators and pipeline operators. For example, food processing industries and businesses operating in the agricultural sector should be encouraged to repurpose their waste streams into higher value products, such as biogas and/or biomethane. At the same, incentives should be introduced to support the gas pipeline operators in the development of an affordable grid connection process. This has been done very successfully in France, where the primary gas distribution operator supplies and owns the biomethane grid injection equipment.

Drive diversion of residual waste from landfill to bioenergy and promote a higher value use of waste

In accordance with the waste hierarchy, waste should be recovered for its highest order use wherever it is economically feasible to do so. Therefore, once the point is reached where no more recoverable value can be extracted economically or environmentally sustainably from residual waste, the recovery of energy from waste (EfW) is a desirable alternative to landfill without bioenergy recovery, because it reduces methane emissions, which are 28 times more potent than carbon dioxide. EfW is a commercially viable solution that demonstrates how a circular economy functions, recovering resources at their highest order use. This technology has been used around the world for more than 50 years and has continuously improved in the intervening years. In Australia some EfW technologies are well established, and others are under development to optimise the conversion of organic residues, in conjunction with inorganic wastes, such as plastic and tyres, into renewable fuels and other value-added products. We note the two projects in construction in Perth, Avertas in Kwinana and East Rockingham RRF in East Rockingham. Both projects are scheduled for commissioning in 2022.

The ACT government should encourage processing of residual waste to higher value products.

Policy interventions, such as an increase in the waste disposal levy to align with NSW at around \$150/t and appropriate differentiation for landfills with anaerobic digestion bioenergy recovery, would encourage diversion of organic materials from landfill without bioenergy recovery.

Meanwhile, expanding waste collection to a minimum of three bins (organics, recyclables, residual waste) will support highest order use of waste offering energy, heat and nutrient recovery opportunities.

Strategies to address limitations to collaboration and innovation between renewable energy stakeholders

The government should support a collaborative approach between different renewable energy stakeholders. The current impact of the Covid-19 pandemic has provided insights into the risks to the global economy of interruptions to global supply chains and has shown that there is no “silver bullet” able to drive recovery alone.

All renewable sources have a role to play and the over-reliance on a single source of energy technology is not the best approach. **The expansion of biomass for renewable power, gas, and fuels is an essential diversification that can support other technologies in achieving the ACT’s ambitious targets.**

The effectiveness of administration and funding of Australian Capital Territory Government policy and regulatory settings relating to renewable energy, climate action and emissions reduction

We congratulate the ACT government on its commitment to date in driving forward its renewable energy sector. Having achieved its 100 per cent renewable energy target, ACT is an exemplar jurisdiction, which supported several renewable energy projects, mainly focused on wind and battery network.

However, it is time for the ACT to invest in a biofuture that contributes not only to climate action, but also to support regional economies, convert waste to valued products, and increase self-sufficiency and energy security. As part of this strategy, **we urge the ACT government to reconsider its plan of phasing out all gas use by 2045.**

Gas is an essential part of the energy mix and plays a strong role in providing reliable energy to Canberra residents. When derived from biomass, it can strongly support the decarbonisation of the gas network. Biogas is a renewable, reliable, and local 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.

From an economic perspective, a full-electrification approach is not the best strategy because switching all customers to electricity would significantly increase demand on the network, which would consequently need to be upgraded, resulting in a high cost to consumers. According to the Deloitte report [“Decarbonising Australia’s gas distribution networks”](#), biogas is currently the cheapest option for decarbonisation of energy provided by gas networks. AGIG has recently undertaken a study with Deloitte on [Decarbonising Victoria’s Gas consumption](#) and it was found that using renewable gas to decarbonise natural gas consumption in Victoria is 40% less expensive than full electrification. Similar results can be achieved in the ACT.

As described in the report [“Biogas opportunities for Australia”](#), prepared by ENEA for Bioenergy Australia, biogas represents a significant decarbonisation opportunity for the Australian gas and transport sectors. The report estimated that the biogas potential in Australia is 103 TWh (371 PJ), which is comparable with current biogas production in Germany. Australia’s biogas potential is equivalent to almost 9 per cent of Australia’s total energy consumption of 4,247 PJ in 2016-2017. Considering the current average size of biogas units in Australia, this could represent up to 90,000 biogas units.

Current policies such as the Renewable Energy Target (RET) favour the use of biogas for electricity generation rather than injection into the gas network, however 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.

International demand for gas exports from Eastern Australia is continuing to put pressure on local gas supply and prices. Locally produced biomethane injected into the local distribution network can improve domestic supply whilst providing net zero carbon energy for gas consumers.

Renewable gas is a solution to many of our current challenges such as waste management, production of bio-fertiliser, generation of a renewable energy, emission reduction, improved water quality and economic development. Therefore, we hope the ACT government will reconsider its position.

Opportunities and challenges in battery storage including neighbourhood-scale batteries and vehicle-to-grid technologies

We acknowledge the key role of electric and hydrogen vehicles in the decarbonisation of the transport sector and appreciate that in the next several decades an increase of these vehicles into the global passenger vehicle fleet is expected. However, energy storage systems, such as batteries or fuel cells, are required for electric or hydrogen fed devices and their deployment is currently limited due to economic and technological challenges. For example, these technologies are currently not a viable solution for sectors like aviation, shipping and long-haul heavy haulage, which will still rely on alternate fuel sources to meet emissions reductions in the near future.

On the other hand, **bio and renewable fuels are market-ready and cost-competitive alternatives to fossil fuels, which can support the decarbonisation of the whole transport sector.** The report [“Biofuels and Transport: An Australian opportunity”](#), recently published by CEFC and ARENA in 2019, highlights that biofuels, with their high-density energy, convenient storage and handling properties, and no changes to the existing refuelling infrastructure, are projected to continue dominating the heavy freight, shipping and aviation industries, as they offer a sustainable, low-carbon alternative to the currently used fossil fuels.

Biofuels can also support and be complementary to other low-carbon technologies. For example, alcohols, including ethanol and methanol, can be used in fuel cells. Direct alcohol fuel cells are indeed an attractive power source for portable applications because the design of these systems is simple, the operating times are extensive, the fuels can be easily produced from biomass and they can be easily stored and transported.

Thank you for the opportunity to provide this submission.



Yours sincerely
Shahana McKenzie, CEO Bioenergy Australia