

Renewable energy is more than renewable electricity

Renewable gas and fuel highlighted as key opportunities to put Tasmania on the world stage

Tuesday 22 September, 2020, Tasmania - Consultation has recently closed on the [Tasmanian Government draft Renewable Energy Action Plan](#), which identifies renewable energy as a key economic driver to rebuild a stronger Tasmania in the wake of the COVID-19 pandemic.

But [Bioenergy Australia](#), the peak body for the bioenergy sector made up of industries producing bio-based fuel, gas, heat and power, says Tasmania could be missing a trick by too narrowly focusing on renewable electricity, overlooking the significant opportunities to create clean, local and resilient energy sources to replace natural gas for heat generation and to transition the transport sector away from fossil-based sources.

Bioenergy Australia CEO Shahana McKenzie, said, “Tasmania’s ambition to achieve 200 per cent renewables by 2040 and become a world-leading provider of clean, reliable and affordable energy is highly commendable, and its position as the leading state for renewable energy shows strong leadership and commitment to growing this sector. But with electricity at just 40% of Tasmania’s [total energy usage](#), currently there’s no strong plan for the 60% usage predominately from fossil fuels across the transport sector, such as petrol and diesel, and for residential and industrial natural gas. Tasmania must address these fuel sources to deliver on its ambition.”

Bioenergy Australia is recommending the use of biomethane as a renewable, reliable and locally available energy source to decarbonise Tasmania’s gas network, and for transport, the development of a renewable fuels industry that converts waste and residue into fuels such as biodiesel, renewable diesel and ethanol to achieve the ambition of becoming a world-class renewable energy provider.

Biomethane* (see full application potential below)

Biomethane is a gas with a chemical composition very similar to natural gas, and [provides the lowest cost transition to a decarbonised energy system](#). A [landmark report](#) commissioned by Bioenergy Australia last year identified enough biogas to decarbonise industrial, commercial and residential gas users currently supplied by distributed gas networks across Australia.

Organic feedstocks are used for biogas production, which mainly come from domestic and industrial food and garden waste, sewage sludge and agricultural waste, including piggery manure and food processing products (red meat processing, dairy, cheese whey, breweries and food waste). McKenzie explained with [agriculture the largest contributor to the state’s economy](#), Tasmania is uniquely placed to turn waste into energy, saving waste management fees, unlocking regional economic opportunities and local job creation.

For Australia, this opportunity was estimated at \$3.5 billion to \$5 billion from 2015-2020, with the potential to avoid up to 9 million tonnes of CO₂e emissions each year, according to the [latest report](#) from the Clean Energy Finance Corporation.

[It’s been identified](#) the electricity required to replace the energy provided by the gas network will require vast upgrades to the electricity generation, transmission and distribution infrastructure and further investment in electricity storage.

“So there’s an economic as well as practical argument to utilise existing gas infrastructure to green gas, providing the Tasmanian community with a choice of energy that will ultimately be cheaper for them than if existing gas users had to transition to electricity to decarbonise,” said McKenzie.

Tas Gas is a local Tasmanian business with natural gas networks that complement electricity networks. These networks provide ample opportunity for decarbonisation to contribute further to the state’s renewable energy targets via renewable gas, without the need to fully electrify, which is not as efficient in both energy and financial terms for many industrial customers and the heavy transport sector.

Cameron Evans, Tas Gas CEO, said, "It is in Tasmania's best interest to support decarbonisation in the gas and transport sectors to be truly leading in renewable energy. The development of a biogas industry has the potential to be a significant contributor to the reduction of carbon emissions in Tasmania while providing a sustainable fuel option for Tasmanian industry, business and homes. Tas Gas would welcome government investment and support in the development of a biogas industry in Tasmania in the same way it has supported the development of renewable electricity and the emerging biomass industry as a waste to energy option in Tasmania."

McKenzie said it was important to note that Tasmania has a relatively small gas pipe network that does not cover all suburbs even in Hobart, and misses many regional areas entirely. Much of the gas used in these places is through LPG cylinders for homes, and LNG cylinders for industrial purposes. Because of the need to swap cylinders or have them filled on site, it is often considered more cost effective to swap to biomass - which commonly uses the abundance of wood waste/residues found in Tasmania.

This is already happening in places like Smithton, at their Indoor Sports Centre with a biomass boiler selected over LNG and under consideration at several other sites in Tasmania.

Biofuels

McKenzie said, "Tasmania currently imports the vast majority of its transport fuel, which not only presents a security risk in times of crisis, but also results in a loss of potential economic activity."

"A strong biofuel industry can help diversify the sources of transportation fuels and decrease dependence on petroleum imports, which will reduce the risk of supply constraints during times of international or regional geopolitical upheaval, or a global health crisis, as we've seen during COVID-19."

According to a [QUT report](#), the implementation of a nation-wide mandate for 10% ethanol blending in petrol alone could replace about 18% of automotive gasoline imports annually and contribute to Australia's sovereign domestic fuel security.

McKenzie said the intention for Tasmania to convert government fleet vehicles to electric was positive, but locally produced clean fuels should be considered as a viable alternative.

"Government policies are instrumental in supporting the biofuel industry by securing feedstock supply, infrastructure and logistics, promoting access to technology and early stage investment support and improving demand. Government procurement policies in particular are powerful levers in directing the energy and transport industry towards the country's sustainable resources, paving the way for Tasmania to fulfil its admirable ambition as a global renewable energy leader," concluded McKenzie.

ENDS

Available for Interview:

- Shahana McKenzie, CEO, BioEnergy Australia
- Jamie Warr, Civil Engineer, Smithton Indoor Sports Centre

Visual assets of speakers and projects are available on request.

About Bioenergy Australia

Bioenergy Australia is 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. Australia lags behind the world when it comes to bioenergy, and we aim to change that. We empower, share knowledge, and connect Australian bioenergy producers, investors, researchers, and users to make Australia's bioeconomy world-class. <http://www.bioenergyaustralia.org.au>

Biogas

Biogas is produced from the anaerobic (oxygen free) digestion of organic matter. It can be made from a large variety of organic resources, including industrial waste, agricultural waste, energy crops, sludge from wastewater treatment and biowaste (co-digestion or mono-digestion of food waste and other types of biowaste).

In addition to energy production, anaerobic digestion also produces digestate – the material remaining after anaerobic digestion of biodegradable feedstocks. Digestate is a nutrient-rich material that can be used as a fertiliser and applied on agricultural land instead of chemical fertilisers.

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

***Biomethane** can:

1. Provide a complimentary reliable and flexible supply to gas power plants, supporting increasing variable renewable electricity - with immediate opportunities to scale up
2. Be delivered through connections to existing equipment in heavy industry
3. Use existing domestic networks and appliances to enable residential gas customers to decarbonise energy use in the home
4. BioCNG delivered through the gas network can start reducing emissions from heavy vehicles

Biofuel

Biofuels can be used to reduce emissions and improve Australia's energy security. Australian biodiesel has the potential to reduce emissions by over 85 per cent in comparison to diesel, and Australian bioethanol can reduce emissions by approximately 50 per cent. Liquid biofuels are the only viable low-carbon technology for heavy transport, freight, aviation, defence and shipping applications.

Aviation fuels from biomass offer a huge opportunity for airlines who have committed to adopting sustainable aviation fuels as part of their plans to reduce greenhouse gases. Qantas, Virgin, Jetstar and Air New Zealand are just a few of the airlines already running commercial biofuel flights, and Virgin Australia is planning to regularly use biofuels on flights out of Brisbane.

Global biofuels production in 2014 was 126 billion litres and has grown at an annual rate of 15 per cent since 2000. Australia has successful bioethanol and biodiesel plants, and several pilot projects are underway to increase the production of the next generation of biofuels.

Bioenergy

Bioenergy is generated from the conversion of solid and liquid biomass products for use as dispatchable electricity, heat, gas, liquid fuels and bio-based products.

The benefits of bioenergy are multi-faceted and cover the following four key areas:

- Enhanced energy security through domestic production of biofuels and diversification of electricity and heat fuel sources
- Greater utilisation of waste streams through higher recycling and reuse of waste from agricultural, industrial, commercial and domestic activities
- Regional employment, investment and economic development as the feedstock used for bioenergy often stems from rural and agricultural activities, through new or existing manufacturing processes
- Reduction in greenhouse gas emissions as sustainably sourced biomass is carbon neutral