

Now is the time to develop Australia's clean future industries

Australia's economy has been hit hard by COVID-19. Reserve Bank governor Philip Lowe has warned Australia is likely to experience its biggest contraction in national output since the Great Depression. 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.

COVID-19 has not occurred in isolation. Australians are still reeling from the most significant bushfire season in living memory, sparking a keen interest to invest in renewable and emission reducing industries. Combine this with external pressures such as China's National Sword policy and it is no wonder Australians are calling for stimulus to be achieved in a way that creates new business opportunities, reduces waste, increases self-sufficiency and contributes to global action on climate change.

This pandemic has highlighted vulnerability in our supply chains and has demonstrated that things we thought were impossible, are indeed possible. We have been presented with an unprecedented opportunity to develop our economy and create a better Australia for the future. This is a significant opportunity for our Government to show strategic leadership and deliver meaningful outcomes for our nation.

A key opportunity to show significant leadership and vision would be to develop a Clean Futures Target and Bio Industries Fund for Australia. These two powerful initiatives are being proposed 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.

These initiatives have been carefully curated, based on successful and well documented international examples. In addition, there is a substantial number of shovel ready projects that can be quickly executed. Now is the time to buoy our nation's battered economy by prioritising Australia's clean future.

Three significant benefits of investing in this industry

Substantial and sustained job creation, especially in regional Australia

The bio-economy is built upon the use of sustainably derived, low-value feedstocks and wastes to produce high-value bioproducts including biofuels, green electricity, biomaterials, biochemicals and bioplastics. The feedstock used for bioenergy-related processes is readily available from rural activities, especially agriculture and can be associated with existing or new manufacturing processes. With a technologically advanced agricultural sector, a nimble and resilient agricultural community and a large amount of biomass available as feedstock, the bioeconomy represents a significant jobs and economic growth opportunity for regional Australia.

As widely demonstrated by the results achieved internationally, the development of a strong bioeconomy can provide skilled employment opportunities to regional areas and stimulate economic development through the delivery of revenue streams outside traditional agriculture, forestry and waste sources. The International Renewable Energy Agency (IRENA) reviews renewable energy and jobs on an annual basis. Its **2019 review** shows the global employment in the bioenergy sector has grown in the last few years, reaching 3.18 million jobs in 2018.

A US Department of Agriculture (USDA) report **“An Economic Impact Analysis of the US Bio-based Products Industry (2018)”** analyses the economic impact of the biobased products industry on the US economy. Results show that an expanding

bioeconomy leads to higher revenues, more jobs, innovative partnerships, and key environmental benefits. The total contribution of the bio-based products industry to the US economy in 2016 was \$459 billion, a 17% increase from 2014, and it was employing 4.65 million workers (direct and indirect), an increase of more than 10% from 2014.

According to the ARENA and CEFC report **“Biofuels and Transport: An Australian opportunity”**, global employment figures suggest an Australian biofuels production target of 20 gigalitres per year could provide long-term employment for up to 250,000 people, mostly in regional areas. In addition to the transport sector, significant employment outcomes can be achieved in all industrial processes that convert residual wastes into a form of energy such as heat, electricity or alternative fuels. The scope of the concept of Waste to Energy (WtE) is very wide, encompassing mature technologies, eg. thermal processing for heat and power, and anaerobic digestion to generate biogas, as well as emerging techniques, such as fast pyrolysis, hydrothermal liquefaction (HTL) and gasification. All of these WtE options bring significant benefits in terms of long-term employment opportunities.

The World Energy Council report **“World Energy Resources - Waste to Energy”** estimates that the typical direct employment for a waste incineration plant of 50,000 tonnes per annum capacity would be 2 to 6 workers per shift as well as additional indirect jobs in administration, feedstock aggregation, transport and storage. For a 24-hour operation, a typical plant would work on a three shifts system. In the United States, the WtE sector employed around 5,350 people nationwide in 2014, working at 85 specific sites. There were also additional 8,600 jobs created outside the sector, or 1.6 extra indirect jobs for every direct employee. These jobs generated by the sector are usually well paid, stable and support the local economy.

According to the **IRENA**, the biogas sector represented about 333,000 jobs globally in 2016. China accounted for slightly less than half of these jobs, with 145,000 estimated direct and indirect jobs in that nation’s biogas industry. In the United States, the construction and operation of biogas plants in 2016 supported around 7,000 jobs according to the American Biogas Council.

More information on job opportunities in different bioenergy sectors is provided [here](#).

Increased self-sufficiency and resilience

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. This is particularly relevant in the transport sector, as well as for industry and manufacturing which all demand reliable, low cost, low emissions heat, fuel and power. Australia currently imports the vast majority of its fuel which not only represents a sovereign security risk, but also constitutes a loss of potential economic activity in Australia. A strong biofuel industry can help diversify the sources of transportation fuels and decrease Australia's dependence on petroleum imports, which will 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 could reduce automotive gasoline imports by about 18% annually, and contribute to enhanced domestic fuel security. And we believe that beyond 2025, Australia will be in a position to be more ambitious still and reduce the carbon intensity of transport fuels by 20% in 2030. Government policies are instrumental in supporting the biofuel industry and securing feedstock supply, infrastructure and logistics, promoting access to technology and early stage investment support, and improving demand.

Electricity and heat produced from bioenergy can also provide a robust contribution to strengthening the national energy system as bioenergy can often be dispatchable and ramped up and down to support variable forms of renewable energy.

More information on the role of bioenergy in enhancing energy security is provided [here](#).

Biomass opportunities to enhance Australia's self-sufficiency and resilience are not limited to fuel and energy security. 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 energy supply security.

As an example, due to COVID 19 there has been an unprecedented demand for hand sanitisers and disinfectants. Ethanol is a key component of hand sanitisers (approx. 70-80% of the product) and Australian ethanol producers have pivoted their businesses to increase local supply, keeping our front-line workers safe. This has highlighted how important domestic production and manufacturing is, both now and into the future. If there were no biofuel mandates in NSW and QLD it is highly likely that ethanol would not be produced in Australia at all and we would presently find ourselves in the dire situation of being unable to source this critical product due to global shortages.

Bioenergy is a low cost dispatchable power source that can strengthen the electricity grid and enable further renewable penetration however, so far little attention has been paid to the possible role of bioenergy as an effective, low carbon and low-cost grid management and energy storage option. Bioenergy can play a role in balancing the grid through a wide range of technical options, including:

» **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. Locally produced biomethane can be injected now into the local distribution network 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.

» **Bioliquids**

Liquid biofuels are of interest for grid balancing as they are storable and can be used as required, decoupled from their manufacture.

» **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.

More information on the role of bioenergy in supporting the grid is provided [here](#).

Waste and emissions reduction and conversion of waste to valued products

Bioenergy is typically produced from waste materials such as agricultural and animal residues as well as municipal and industrial waste. This delivers economic benefit from otherwise unusable resources and can reduce landfill and other demands for waste storage.

The 2018 National Waste Report shows that Australia produces 67MT of waste p.a. with 13.8 MT being Municipal Solid Waste (MSW). The bulk of this currently goes to landfill creating poor environmental outcomes and high greenhouse gas emissions.

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 recyclable materials can be extracted economically or environmentally sustainably from residual waste, the production of energy from waste could represent a desirable solution to landfill. In fact, the conversion of waste streams into energy and products delivers economic benefit from what would generally be considered end of life residues and promotes a circular economy approach to using the available resources for their highest order use.

In particular, the utilisation of organic waste to produce energy can play a central role in the national transition to a circular economy. Instead of being thrown out, organic waste could be converted into biogas, which is a renewable, reliable and local source of energy that can be used to produce heat, electricity or 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 using existing infrastructure or injected into the gas grid and can serve several uses for consumers such as heating, industrial power, or fuel for gas vehicles.

In addition, technologies are constantly under development to optimise the conversion of other types of waste, such as plastic and tyres, into biofuels. Licella has recently formed a joint venture, iQ Renew, to construct an end-of-life waste to fuels plant in Australia that will be able to produce low sulphur fuels for the Australian shipping industry. This follows on from their announcement of collaboration with Neste, the world's leading producer of renewable diesel, and UK-based chemical recycling company ReNew ELP in a development project to explore the potential of using mixed waste plastic as a raw material for fuels, chemicals, and new plastics. Mercurius Australia has teamed up with Australian company Southern Oil Refining, as well as MGC from Japan and KOLON from South Korea to further develop its REACH™ technology converting waste biomass (sugarcane bagasse, wood chips) and biogenic MSW into diesel, jet fuel and renewable chemicals and plastics. Southern Oil Refining is Australia's leading producer of recycled fuels and owner/operator of Australia's only biofuels testing refinery located at Yarwun QLD. Southern Oil has successfully refined a number of post-consumer waste feedstocks into 100%drop-in diesel. Boral Australia is conducting an ARENA-funded feasibility study in the use of GEFS's MECC technology to convert hardwood sawmill residues into renewable diesel. The MECC technology is robust and can utilise forestry and agricultural residues and solid municipal organic waste streams such as contaminated paper and plastic.

More information on the role of bioenergy in the national waste strategy is provided [here](#).

Sustainable management of biomass availability and conversion to bioenergy ensures that most carbon emissions produced in the process are re absorbed into the feedstock supply chain. This supports a transition to a low carbon economy through a reduction in greenhouse gas (GHG) emissions and results in a range of positive environmental and social impacts as well as reducing demand for petroleum based products.

Bioenergy is recognised internationally as a key contributor towards the reduction in carbon emissions. The IPCC has estimated substantial global mitigation potential for bioenergy in its series of assessment reports. IPCC's most recent **report** on meeting a 1.5 degree target (SR1.5) identified bioenergy as a major contributor in all scenarios that would meet the Paris Agreement target of "well below 2 degrees". According to the report, "bioenergy use is substantial in 1.5°C pathways [...] due to its multiple roles in decarbonizing energy use".

As an example, biofuels derived from biomass and other waste sources can be used in the transport sector as a replacement for conventional fossil based fuels, with the opportunity to deliver a significant reduction in GHG emissions and to assist with the transition towards a net zero emissions transport

system. This is because 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.

International programs supporting biofuels have proven to be particularly successful in reducing GHG emissions. As a reference, in 2010 California adopted a 10% reduction in carbon intensity by 2020 under the Low Carbon Fuel Standard (LCFS). Since it was adopted, the LCFS has reduced carbon pollution emissions in California by more than 30 million metric tons, equivalent to removing 6.4 million gasoline-powered cars from the state's roads in one year. The success of this policy has led to a new target of 20% reduction by 2030.

The Renewable Energy Directive (RED II) sets rules for the EU for the years 2021-2030. Member States must require fuel suppliers to supply a minimum of 14% of the energy consumed in road and rail transport by 2030 as renewable energy with many member states currently deciding to significantly exceed the minimum target. Under **The European Green Deal** the EU will likely significantly strengthen its emission reduction targets, revising individual policy ambitions accordingly.

Similar policies could be adopted in Australia to enable a significant emission reduction from the transport sector. The QUT discussion paper **“Biofuels to bioproducts: a growth industry for Australia”** highlights that 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. We believe that Australia has a lot of potential to develop and deploy low carbon fuels and could meet the ambitions of other forward-looking jurisdictions and significantly exceed a 10% share of biofuels in transport from 2025 onwards.

Biofuels can also contribute to the decarbonation of the aviation and marine industry. The CEFC report **“clean energy and infrastructure: pathway to airport sustainability”** confirmed that sustainable aviation fuels can reduce the carbon footprint of aviation fuel by up to 80%. Similar outcomes can be achieved in the shipping sector. As an example, German carrier Hapag-Lloyd has embarked on the use of biofuel as marine fuel as part of the company's efforts to reduce emissions of carbon dioxide (CO₂) from its ships. Hapag-Lloyd said it has tested a blend of 80% low sulphur fuel oil (LSFO) and 20% biodiesel (based on cooking oils and fats) to create a so-called B20 fuel, used for the first time on the 4,402-teu Montreal Express. The biodiesel generates up to 90% less CO₂ emissions than conventional bunker fuels.

Biomass also represents a key opportunity to decarbonise the gas network. 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. The technology is well established in Europe with over 1000 operational plants. Biomethane has the potential to rapidly decarbonise a number of hard to decarbonise sectors rapidly, as they are already connected to existing gas infrastructure. These sectors include:

1. Industry – natural gas is widely used for industrial processes and biomethane is lowest cost option for most applications
2. Heavy transport – CNG is an established fuel used for many heavy vehicles across Australia. Batteries due to their range and recharging time are not viable for heavy vehicles. BioCNG from biomethane is available now, proven and well established in Europe.
3. Dispatchable energy – gas is increasingly important to create a stable and affordable electricity system. Biomethane through existing gas connections to peaking plants can provide dispatchable renewable electricity when the sun isn't shining, or wind isn't blowing.

More information on the role of a potential bioeconomy in decarbonising Australia's energy mix is provided [here](#).

Australia's Clean Futures Target

A Clean Futures Target would embody the opportunity for decarbonisation of the national transport, gas and heat sectors. Such a program would deploy a similar approach to the Renewable Energy Target which was highly successful in supporting decarbonisation of the electricity sector.

The proposal would be to implement:

1. A Clean Fuels Target with a 10% reduction in transport related GHG emissions relative to 2020 levels by 2030, with individual annual and fuel type targets to be set after appropriate modelling. Reference program: Low Carbon Fuel Standard (LCFS). Since 2011 the LCFS in California has helped drive over US\$1.6 billion in investment in California's clean fuel economy¹.
2. A Renewable Heat Target. The Large-Scale Renewable Energy Target (LRET) has only recognised the renewable energy benefits from electrical energy (such as the replacement of coal with renewable biomass feedstocks used to produce electricity). A significant renewable energy opportunity is currently being missed and this recommendation is that the use of renewable biomass should similarly extend to the generation of heat energy (eg. process steam for drying in papermaking or sawmills). Inclusion of renewable heat in the RET (or any alternative carbon policy mechanism) has significant potential and could contribute the equivalent of several thousand GWh in renewable energy per annum from the wood and paper products industry in Australia. Reference program: Renewable Heat Incentive (RHI). The UK government aimed for 12% of UK homes to be renewably heated by 2020 and currently looks set to achieve 8-10%. The UK Committee on Climate Change wants to radically up the ante and have 15m UK homes with heat pumps or hybrid heat pumps by 2035.
3. A Green Gas Target. A comparison of renewable gas with renewable electricity incentives shows that there are key elements missing for encouraging a transition to renewable gases, such as a national target that will drive investment, and mechanisms that allow renewable gas project developers to participate in Australia's renewable energy markets. To raise Australia's policy development for renewable gas up to international standards, this recommendation is that the Government consider establishing a near-term aspirational target for cost-effective renewable gas injection into the gas networks by 2030. The target should be informed by a cost-benefit analysis that looks at the use of renewable gas to decarbonise the use of natural gas. Reference: Denmark has a target to supply the gas grid with 100% green gas by 2035.
4. Net Zero Organic-to-Landfill Target. In accordance with the waste hierarchy, waste should be recovered for its highest order use wherever it is economically feasible to do so. Therefore, instead of being disposed to landfill, this recommendation is for organic waste to be collected and converted through anaerobic digestion into higher-value products, such as biogas or biomethane. This target would significantly contribute to the national transition to a more circular economy, as discussed in the IEA report "**Anaerobic Digestion of Food Waste for a Circular Economy**", by supporting industry's energy needs, co-producing valuable organic fertilisers for farmlands and capturing precious water through land application of digestate. In addition, the injection of biomethane into the gas network would decarbonise the gas supply for households. This recommendation therefore proposes to introduce a target for the complete diversion of organic waste from landfill. The target should be supported by a ban. Reference program: in Finland, a ban on diverting organic waste to landfill came into effect in 2016. Belgium, Denmark, Netherlands and Switzerland have achieved "zero waste to landfill" with only 1% of municipal waste going to landfill with development and integration of organics processing and energy from waste infrastructure.

5. ERF/CSF Jobs Target: There is the potential to make minor amendments to the existing and already funded ERF/CSF program to unlock many bioenergy and circular economy projects and jobs.
- Up Front 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 (eg 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.
 - Bioenergy Carbon/Payment Multiplier: For projects which generate other significant benefits such as circular economy outcomes, jobs, and provision of lower cost renewable heat to underpin Australian manufacturing operations, a multiplier could be applied to carbon generated to allow for increased payments and therefore accelerate projects. The use of multipliers in certificate-based policies has precedent overseas.
 - Technology categories: CSF auctions could be undertaken in categories, with higher minimum ACCU values allocated to categories that achieve additional benefits, such as circular economy, jobs and renewable heat.



Australian Bio Industries Fund

In addition to the Clean Futures Target, the Bio Industries Fund would align to the outcomes of the Commonwealth Government Bioenergy Roadmap and would ensure that projects can progress immediately. There are a range of ways the fund could be created and delivered, and we would welcome the opportunity to discuss this further with the Government. The Australian Bio Industries Fund would provide opportunities for support across the following:

1. **Upgrading existing facilities to increase productivity, reduce costs or emerge into new industries.** Existing bioenergy projects in Australia have an opportunity to upgrade their infrastructure to implement new and emerging technologies. This recommendation is anticipated to result in expanded feedstock processing, increased and enhanced outputs and increased efficiencies resulting in reduced emissions and running costs, increased employment and new product applications.

As an example, glycerol (also known as glycerin) is a major by-product in the biodiesel manufacturing process. There are various outlets for utilisation of the crude glycerol generated by biodiesel plants. For example, it can be refined into a pure form for use in food, pharmaceutical, and cosmetics industries. Given its moisturising properties, glycerol plays a key role in the production of hand sanitisers and global supply is currently not meeting demand. This recommendation would enable Australian biodiesel refiners to expand their current refineries to produce this valuable product and recreate a domestic industry in Australia, supporting both local jobs and local production.

Another example would be the support of a current producer of biomethane to connect into the existing national gas infrastructure network.

2. **Undertake feasibility assessments for converting low-value residues into new energy products under a circular economy approach.** Feasibility analysis is an important method of exploring the commerciality of new opportunities to extract value from end-of-life residues. Consider the example of the hardwood residue bio-refinery feasibility study completed by Boral Timber. The study, supported by ARENA, explored the technical and financial viability of building a second-generation hardwood residue bio-refinery to convert this residue into renewable liquid fuels. The hardwood residue bio-refinery feasibility project also explored the potential regulatory hurdles to developing bio-refineries in rural New South Wales. The study found that sawmill and forest residues account for a major under-utilised resource in the hardwood industry.
3. **Undertake new project development of replicable low cost, high value projects such as anaerobic digestors for local councils, food and agriculture processing facilities and waste water treatment.** This recommendation is modelled on the Bioenergy Roadmap Program funded by the South Australian Government. The Program is envisaged to enable businesses and industry groups to identify and develop commercially-ready bioenergy projects. Blue Lake Milling was one of the first companies in South Australia to take advantage of the Program and is consequently now able to convert oat husks into biomethane that generates power for the mill, with the remainder injected into the state's grid. This recommendation is for a similar program to be delivered at national level as part of the Green Futures Fund.

Additional stimulus mechanisms

In addition to our main policy recommendation, we also propose five additional ways the Government can support Australia's emergence from COVID-19 into a clean, sustainable and economically dynamic future.

1. Mandate a portion of clean fuels across fleet and procurement contracts for the Commonwealth Government

- **Government role:** Policy development
- **Industry readiness to act:** Immediate
- **Jobs created:** Supports the 10,000 + jobs created by the Clean Fuels Target

This proposal is to introduce a biofuel requirement for the Australian Defence Force and Government Fleet, as well as for all Government awarded tenders for the works performed under the contract (e.g. roads upgrades, rail infrastructure, bridges, etc.).

Reference program: Great Green Fleet. As an initiative of the US Federal government, the US Dept of the Navy developed a scheme to establish the Great Green Fleet in 2016. The program was created to provide the US Navy with half of its fuel and power from clean, fossil-alternative sources by 2020, with biofuels as a significant portion of the alternative fuel mix.

2. Excise reduction support extended to renewable diesel & BioCNG

- **Government role:** Policy development & tax modification
- **Industry readiness to act:** Immediate
- **Jobs created:** Supports the 10,000 + jobs created by the Clean Fuels Target

It is proposed to allow an excise reduction for renewable diesel and bio compressed natural gas (BioCNG). This recommended simple change requires an update to the existing tax schemes to support new renewable fuels currently being developed in Australia and globally by levelling the playing field with existing renewable fuels. Renewable diesel and BioCNG are fuels that will have a significant impact in sectors such as marine and are a substantial opportunity for job creation and regional growth in Australia.

Reference program: the proposed excise reduction would operate in a similar fashion to the Ethanol Production Grants Program and the Cleaner Fuel Grants Scheme, which provide a full excise rebate on domestically-produced ethanol, and biodiesel produced in or imported into Australia.

3. Provide funding for the development of the Clean Fuels Challenge & Clean Fuels Network

- **Government role:** Direct funding (up to \$300,000)
- **Industry readiness to act:** Immediate
- **Jobs created:** Supports the 10,000 + jobs created by the Clean Fuels Target

With the world transitioning to lower emission vehicles, Australia is also required to take steps to ensure compliance with new standards, cost savings for motorists from more fuel-efficient vehicles and health benefits to the community from cleaner air. Due to their low sulphur and aromatic content, biofuels offer a sustainable, low-carbon alternative and, when blended with low PPM sulphur fuel, are the perfect solution for **Euro 6 emission vehicles**.

The Clean Fuels Challenge and Network proposes to identify outlets selling fuel that is Euro 6-compliant, to recognise significant fuel users who commit to cleaner fuels and to support the development of the local biofuels industry, resulting not only in a lower level of emissions from the transport sector, but also in an enhanced national fuel security.

4. Develop a renewable gas certification system

- **Government role:** policy development
- **Industry readiness to act:** Immediate
- **Jobs created:** Supports the creation of 1000 new jobs

This proposal is that each kWh of biomethane injected to the grid is labelled electronically with a unique identifier (certificate) containing information describing where, when and how the biomethane was produced. When consumers buy green gas, the certificate is their guarantee that the renewable claim to the gas is of standardised quality and manufactured in Australia.

Reference program: certificates from the two British biomethane schemes – **Green Gas Certificate Scheme (GGCS)** issuing Renewable Gas Guarantees of Origin (RGGOs) and **Biomethane Certificate Scheme (BMCS)** issuing Biomethane Certificates (BMCs).

5. Develop a renewable gas injection tariff

- **Government role:** Feed in Tariff
- **Industry readiness to act:** Immediate
- **Jobs created:** Supports the 10,000 + jobs created by the Clean Fuels Target

This proposal is to introduce feed-in-tariffs (FiTs) to provide biogas producers with a purchase guarantee at a fixed price for 20 years.

Reference program: in 2013, the Italian Government re-oriented its biogas policy from electricity generation (except for small plants) to biomethane production and set up a FIT for biomethane production for natural gas vehicles, high-efficiency co-generation and grid injection.

