

This report was prepared from the 2018 OECD/IEA World Energy Balances, combined with data and information provided by the IEA Bioenergy Executive Committee and Task members. Reference is also made to national Australian statistics. All individual country reports were reviewed by the national delegates to the IEA Bioenergy Executive Committee, who have approved the content. General background on the approach and definitions can be found in the central introductory report¹ for all country reports.

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BIOENERGY IN AUSTRALIA

Renewable energy support in Australia is highly focused on electricity generation. Renewable energy provided more than 16% of Australian electricity generation in 2016 with bioenergy contributing almost 10% to renewable generation (1.4% to total generation).² The potential to increase the energy produced from biomass relies on different factors, including the feedstock and the resources available to produce bioenergy. These resources are abundant in Australia, but are currently underutilised. Australia is blessed with sustainable biomass resources, which can come in the form of specifically grown crops, or by-products generated in agriculture (slurries/manures) or from industrial applications such as paper, wood, and furniture manufacturing and, more broadly, from municipal solid waste. The majority of bioenergy, however, comes from the combustion of sugarcane bagasse.

Australia has several comparative advantages that increase its potential to develop a sustainable and competitive bioenergy industry, including:

- an abundance of sunlight, flat land and a climate suitable for growing dedicated energy crops,
- world-class expertise in agricultural science,
- a strength in natural resources and infrastructure industry development,
- a first world economy with rule of law and low political risk.

Source: <http://arena.gov.au/about-renewable-energy/bioenergy/>

Within Australia, The Clean Energy Council's Bioenergy Roadmap suggests that by 2020 the contribution from biomass for electricity generation could be 10,624 GWh per year or six times the current generation. It further identifies the long-term potential for electricity from biomass in 2050 to be as much as 72,629 GWh/year, which is approximately 40 times the current level.

Source: <http://www.energyfarmers.com.au/wp-content/uploads/01-Australian-Bioenergy-Roadmap.pdf>

¹ Available at <https://www.ieabioenergy.com/iea-publications/country-reports/2018-country-reports/>

² Source: Australian Energy Update 2017 (<https://www.energy.gov.au/publications/australian-energy-update-2017>)

NATIONAL POLICY FRAMEWORK IN AUSTRALIA

Support at Federal level

The Federal Government has a crucial role in the energy transition in Australia and over the last few years it has strongly supported the use of renewable energy sources, including bioenergy.

Specifically, the Australian Government has introduced effective national schemes, such as the Renewable Energy Target (RET) and the Emissions Reduction Fund (ERF) to facilitate the transition to a greener economy.

The **Renewable Energy Target (RET)** is an Australian Government scheme designed to reduce emissions of greenhouse gases in the electricity sector and encourage the additional generation of electricity from sustainable and renewable sources. The RET mandates that electricity retailers surrender renewable energy certificates in proportion to the amount of electricity they sell to their customers. These certificates need to be surrendered to the Regulator to evidence compliance. Where electricity retailers don't surrender certificates a shortfall charge of \$65 per certificate is required to be paid. This mandate is legislated and regulated via the Renewable Energy (Electricity) Act and its Regulations. This Federal Government policy is designed to ensure that at least 33,000 Gigawatt-hour (GWh) of Australia's electricity comes from additional renewable sources by 2020. The RET was reviewed by the Government and reduced in June 2015 from the previously legislated 41,000 GWh to 33,000 GWh. The deal was a compromise brokered by the Clean Energy Council following 15 months of lost investment confidence caused by the review of the policy.

The RET consists of two main schemes:

- the Large-scale Renewable Energy Target (LRET), which creates a financial incentive for more and larger renewable energy power stations
- the Small-scale Renewable Energy Scheme (SRES), which encourages owners to install small-scale renewable energy systems such as rooftop solar, solar water heaters, heat pumps, and small-scale wind and hydro systems.

Large-scale Renewable Energy Target (LRET)

The LRET creates a financial incentive for the establishment or expansion of renewable energy power stations, such as wind and solar farms or hydro-electric power stations. It does this by legislating demand for Large-scale Generation Certificates (LGCs). One LGC can be created for each megawatt-hour of eligible renewable electricity produced by an accredited renewable power station. LGCs can be sold to entities (mainly electricity retailers) who surrender them annually to the Clean Energy Regulator to demonstrate their compliance with the RET scheme's annual targets. The revenue earned by the power station for the sale of LGCs is additional to that received for the sale of the electricity generated.

The LRET includes legislated annual targets which will require significant investment in new renewable energy generation capacity in coming years. The large-scale targets ramp up until 2020 when the target will be 33,000 gigawatt-hours of renewable electricity generation, and held at that level until 2030.

Small-scale Renewable Energy Scheme (SRES)

The SRES creates a financial incentive for households, small businesses and community groups to install eligible small-scale renewable energy systems such as solar water heaters, heat pumps, solar photovoltaic (PV) systems, small-scale wind systems, or small-scale hydro systems. It does this by legislating demand for Small-scale Technology Certificates (STCs). STCs are created for these systems at the time of installation, according to the amount of electricity they are expected to produce or displace in the future. For example, the SRES allows eligible solar PV systems to create, at the time of

installation, STCs equivalent to 15 years of expected system output.

RET-liable entities with an obligation under the LRET also have a legal requirement under the SRES to buy STCs and surrender them to the Clean Energy Regulator on a quarterly basis.

While it is possible for owners of renewable energy systems to create and sell the STCs themselves, in practice, installers of these systems usually offer a discount on the price of an installation, or a cash payment, in return for the right to create the STCs.

Source: <http://www.cleanenergyregulator.gov.au/RET/About-the-Renewable-Energy-Target>

Beside the RET, the Australian Government has contributed to move toward a greener economy by introducing the **Emissions Reduction Fund (ERF)**. The ERF is a voluntary scheme that aims to provide incentives for a range of organisations and individuals to adopt new practices and technologies to reduce their emissions. Under this scheme, the Government will purchase lowest cost abatement (in the form of Australian carbon credit units) from a wide range of sources, providing an incentive to businesses, households and landowners to proactively reduce their emissions.

A number of activities are eligible under the scheme and participants can earn Australian carbon credit units (ACCU) for emissions reductions. One ACCU is earned for each tonne of carbon dioxide equivalent (tCO₂-e) stored or avoided by a project. ACCUs can be sold to generate income, either to the government through a carbon abatement contract, or in the secondary market.

To ensure these emissions reductions are not displaced significantly by a rise in emissions elsewhere in the economy, the Emissions Reduction Fund also includes a safeguard mechanism, which encourages large businesses to keep their emissions within historical levels.

Source: <http://www.cleanenergyregulator.gov.au/ERF>

A detailed description of all fiscal and non-fiscal supports for bioenergy development is available at: <http://www.iea.org/policiesandmeasures/renewableenergy/?country=Australia>

In addition to the discussed national schemes, some **government-owned corporations** play a key role for the low carbon energy targets. Among all renewable energy sources, bioenergy and its potential are currently not fully understood in Australia, therefore the sustain of these corporations is necessary for a wide distribution of bioenergy policies. In particular, the Australian Renewable Energy Agency (ARENA) and the Clean Energy Finance Corporation (CEFC) play a crucial role in accelerating Australia's bio-economy.

ARENA aims to improve the competitiveness of renewable energy technologies and increase the supply of renewable energy in Australia. ARENA acknowledges that the advanced bioenergy technologies have great potential in the renewable energy sector and recognises that bioenergy could offer considerable economic benefits, such as increasing Australia's energy security, reducing greenhouse gas emissions and stimulating regional development. As a result, ARENA has provided a number of investments in bioenergy projects to date including:

- \$474k for a project which involves Bioenergy Australia, the peak organisation representing bioenergy in Australia, extending its participation in the International Energy Agency's Bioenergy program
- \$146k for a feasibility study for integrated community waste to energy project for Mt Alexander Shire

- \$4 million for a biocatalyst optimisation & deployment project led by Microbiogen for efficient production of biofuels
- \$2.1 million for a bioenergy project at the Southern Meats Facility in Goulburn NSW
- \$5.47 million for a low emission biofuel technology developed by the Curtin University's Fuels and Energy Technology Institute
- \$2.09 million for a project developed by the Queensland University of Technology aiming to utilise biogas in sugarcane production, transport and milling process
- \$4.16 million for an innovative biomass gasification technology developed by the Curtin University's Fuels and Energy Technology Institute
- \$2.65 million for a project involving the development and construction of Australia's first biocrude and biofuel laboratory at the site of the Northern Oil Advanced Biofuels Pilot Plant in Yarwun, central Queensland
- \$296k for a waste to energy feasibility study at the Unitywater's Kawana sewage treatment facility on the Sunshine Coast.
- \$300k for a feasibility study led by AgGrow Energy Resources to supply mine sites in the Pilbara region of Western Australia with renewable electricity from biomass energy

Source: <https://arena.gov.au/projects/?technology=bioenergy&project-value-start=0&project-value-end=500000000&view=list>

CEFC was established to facilitate increased flows of finance into clean, renewable and low emission technologies. CEFC recognises that bioenergy and energy from waste market can be a vitally important part of Australia's energy mix into the future. In their Australian bioenergy and energy from waste market report, they estimate a bioenergy investment opportunity of up to \$5 billion by 2020, potentially doubling the current level of installed capacity. The report shows that Australia's current installed bioenergy generation capacity significantly lags the OECD average, and delivering on this market potential will leverage Australian strengths in R&D, agriculture, water and land, and provide significant rural and regional jobs, firm renewable electricity, renewable heat and gas and biofuels. CEFC has provided a number of bioenergy and waste investments to date including:

- \$90 million to Australian waste management company Cleanaway for a range of projects to accelerate moves away from traditional landfill solutions with technologies and practices that will help achieve better environmental, social and economic outcomes
- \$30 million to leading resource recovery company ResourceCo to transform selected non-recyclable waste streams into Processed Engineered Fuel (PEF).
- \$100 million towards the Australian Bioenergy Fund, to invest in bioenergy and energy from waste projects
- A \$10 million commitment to Landfill Gas Industries to expand bioenergy at landfill sites in Central and Southern Queensland
- Finance to enable major Australian garden products supplier Richgro to harness ground-breaking waste-to-energy technology to meet all its power needs by recycling organic waste
- An investment with JBS Australia, the country's largest meat processor and exporter, to capture and use biogas at its Dinmore, Queensland facility to reduce dependence on grid-connected natural gas by about 50 per cent

Source: <https://www.cefc.com.au/where-we-invest/bioenergy/>

Support at State level

The engagement of the Government in the development of a bio-economy in Australia has been even more evident at State level. State Governments have in fact introduced specific programs/policies dedicated to renewable energy sources, including bioenergy. Following the most relevant ones:

- Advance Queensland Biofutures 10-Year Roadmap and Action Plan.

The Queensland Government has made a commitment to a future biofuels and bioproducts industry with this plan, which outlines its strategy of working with Queensland's agricultural and waste industries to create a biofutures sector worth A\$1 billion by 2026. One of the outcomes of this commitment has been the construction and commissioning of a A\$16 million advanced biofuels pilot plant in Gladstone, by Southern Oil Refining Pty Ltd. The plant aims to produce one million litres of advanced biofuels in the next three years, using sugarcane bagasse, other non-food plant biomass, and waste tyres as feedstocks to produce bio-based diesel and aviation fuels. If successful, a A\$150 million commercial refinery will be built to produce up to 200 million litres of advanced biofuels per year. These biofuels will be suitable for military, marine, aviation and other heavy transport industries. It is likely that Queensland's early biofutures success stories will come from biofuels and its associated supply chain given the mature market for transport fuels in Queensland. However, the Queensland Government acknowledges that this is only an early platform for diversification into other bio-based products, as the industry matures and associated technologies and processes advance.

Source: <https://advance.qld.gov.au/biofutures>

- NSW Renewable Energy Action Plan

In September 2013, the NSW Government released the NSW Renewable Energy Action Plan to guide NSW's renewable energy development and to support the former national target of 20% renewable energy by 2020. The NSW Government's vision is for a secure, reliable, affordable and clean energy future for the state. The Plan positions the state to increase energy from renewable sources at least cost to the energy customer and with maximum benefits to NSW. The strategy is to work closely with NSW communities and the renewable energy industry to increase renewable energy generation in NSW.

Source: <https://www.energy.nsw.gov.au/renewable-energy/renewable-energy/renewable-energy-action-plan>

- SA Energy Plan - Renewable Technology Fund

The Renewable Technology Fund was established as one of the key components of South Australia's Energy Plan announced in mid-March 2017. The main objective of the Fund is to fast-track South Australia's energy transformation and improve electricity market competition. Specifically, the Fund is aiming to "catalyse private sector investment to support further integration of renewable technologies (including battery facilities, pumped hydro, solar thermal, biomass and hydrogen) and demand management technologies in South Australia".

Source: <https://virtualpowerplant.sa.gov.au/sites/default/files/public/attachments/energy-investment-guidelines.pdf>

- Victoria's Renewable Energy Action Plan

This plan outlines decisive action that the Victorian Government is taking to encourage investment in our energy sector and to ensure Victorians continue to benefit from a renewable, affordable and reliable energy system into the future. The Renewable Energy Action Plan invests \$146 million across three focus areas: i) Supporting sector growth; ii) Empowering communities and consumers; iii) Modernising our energy system.

Source: <https://www.energy.vic.gov.au/renewable-energy/victorias-renewable-energy-action-plan>

Transport sector

Among other energy sectors, transports have drawn much attention over the last few years and the Government, as well as private companies, are looking at renewable energy sources to move towards better fuels as part of the decarbonisation process.

In particular, biofuels can play a major role in meeting the Australia's renewable energy target. First generation biofuels, such as rapeseed biodiesel and wheat ethanol, are slowly gaining traction in the Australian transport sector. There are currently three commercial producers of bioethanol in Australia, with five more proposed facilities at varying stages of development. There are several small producers of biodiesel in Victoria, New South Wales, Queensland and Western Australia.

In Australia, the production of biofuels is supported by the following mandates

- NSW Biofuels Act

The Biofuels Act, introduced in 2007, establishes the biofuels mandate which requires volume fuel retailers to ensure: i) a petrol-ethanol blend (E10 or E85) is made available at volume fuel service stations; ii) petrol-ethanol blend is made at least as accessible as regular unleaded petrol at volume fuel service stations; iii) ethanol is at least 6% of all petrol sold; iv) biodiesel is at least 2% of all diesel sold.

- QLD biofuel mandate

The mandate commenced on 1 January 2017 and sets minimum requirements for the sale of ethanol-blended regular unleaded petrol and bio-based diesel. The Act requires that 3% of the total volume of regular unleaded petrol sales and ethanol-blended fuel sales by liable retailers must be bio-based petrol (ethanol). From 1 July 2018, the bio-based petrol mandate will increase to 4%. The bio-based diesel mandate requires 0.5% of all diesel fuel sold to be bio-based diesel.

Second generation biofuels deriving from lignocellulosic crops, organic municipal wastes and agriculture residues and third generation biofuels, coming from algae, are also under development, but require different technologies, which are currently maturing in Australia.

Source: [QUT report "Biofuels to bioproducts: a growth industry for Australia"](#)

TOTAL PRIMARY ENERGY SUPPLY (TPES) AND THE CONTRIBUTION OF BIOENERGY

According to the Australian Energy Update released in 2017 by the Australian Energy Statistics, Australia's total primary energy consumption in 2015-2016 was 6,066 petajoule (PJ), while overall production was far greater, at 17,321 PJ.

According to OECD/IEA statistics, the total primary energy supply of Australia in 2016 amounted to 5,540 PJ, and is still overwhelmingly dominated by fossil fuels (93%). This includes 1,832 PJ coal products, 1,803 PJ oil products and 1,446 PJ natural gas. Renewable energy sources have a share of 6.4% or 347 PJ – 3.9% bioenergy and 2.5% other renewable energy sources.

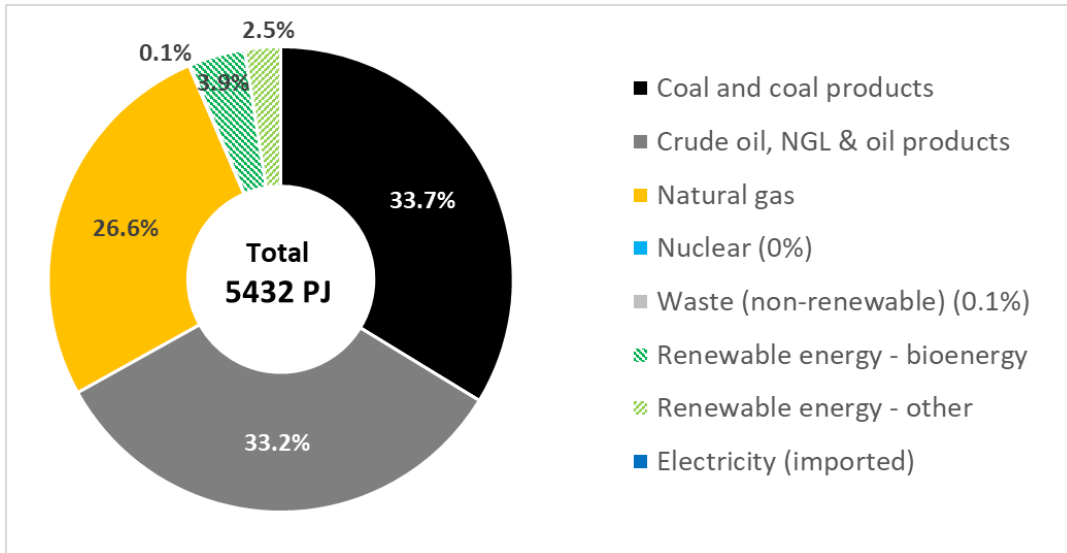


Figure 1: Total primary energy supply in Australia in 2016 (Source: World Energy Balances © OECD/IEA 2018)

Compared to 5 years earlier (2011) the share of coal products has gone down from 37.5% to 33.7%, and the share of oil products also slightly decreased from 33.7% to 33.2%. On the other hand, the share of natural gas increased from 23.3% to 26.6%. In the same period the share of renewable energy increased slightly from 5.4% to 6.4%.

Most of the total primary energy supply of renewable energy sources is covered by bioenergy (212 PJ), followed by hydropower (54 PJ), wind energy (44 PJ) and solar energy (37 PJ).

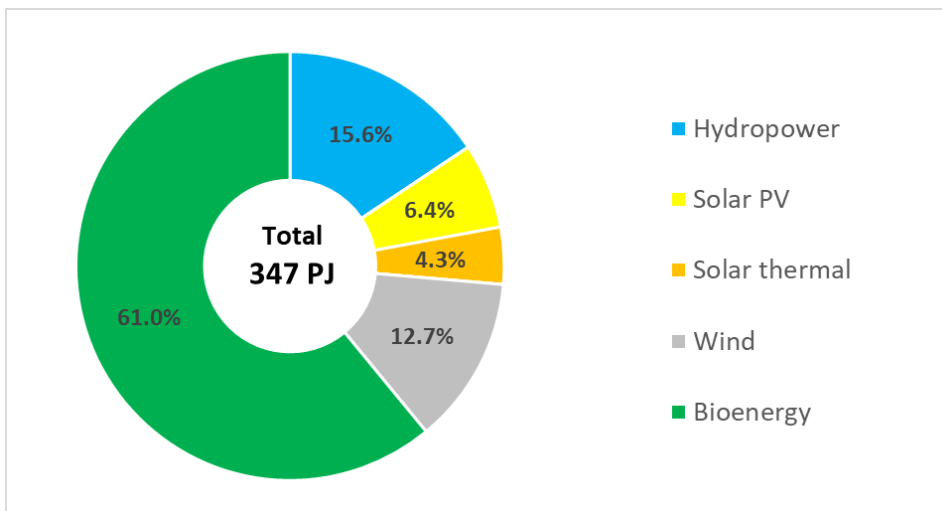


Figure 2: Total primary energy supply of Renewable Energy Sources in Australia in 2016 (Source: World Energy Balances © OECD/IEA 2018)

Most bioenergy in Australia is from solid biomass (187 PJ), which include fuel wood, wood chips, bark and sawmill. Around 50 PJ solid biomass is used in the residential sector. The other bioenergy sources are biogas (17 PJ), biogasoline (4.8 PJ) and biodiesel (2.0 PJ).

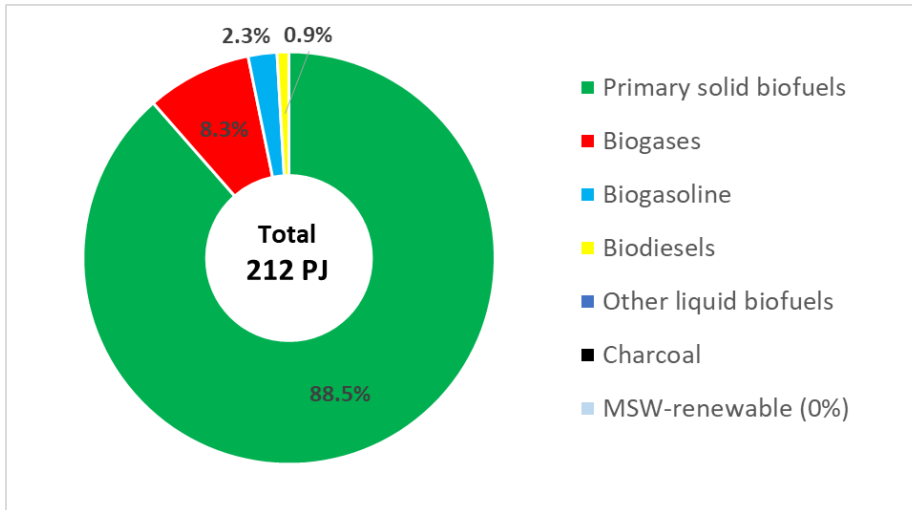


Figure 3: Total primary energy supply from bioenergy in Australia in 2016 (Source: World Energy Balances © OECD/IEA 2018)

The share of bioenergy in TPES in Australia is relatively stable around 4%. In 1990 bioenergy exclusively came from solid biomass and accounted for 158 PJ. The use of solid biomass has increased to 200 PJ in 2000, but stabilized afterwards. After 2010 there was a drop, and the use of solid biomass is slightly recovering to the level reached in the period 2000-2010. Biogas doubled between 2005 and 2010, and continued to grow at modest rates in the past years. Liquid biofuels saw a substantial growth between 2005 and 2010; their consumption has stabilized around 10 PJ from 2012. Energy from renewable MSW is not significant.

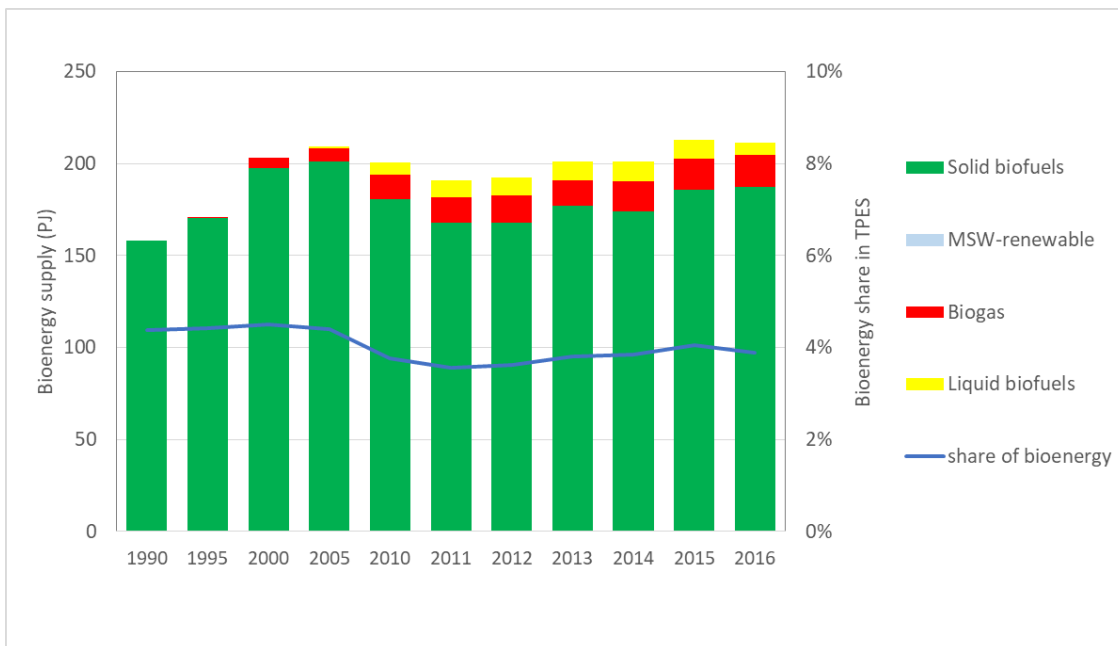


Figure 4: Development of total primary energy supply from bioenergy in Australia 1990 – 2016 (Source: World Energy Balances © OECD/IEA 2018)

Table 2 expresses the 2016 TPES figures per capita, considering Australia’s population of 24.5 million people. Compared to the other 22 member countries of IEA Bioenergy (expressed per capita), Australia ranks in the middle for solid biofuels and biogas, and in the low end for liquid biofuels. Energy from renewable waste is underdeveloped in Australia.

Table 1: Total primary energy supply per capita in 2016

	GJ/capita
Total energy	221.6
Bioenergy	8.6
Solid biofuels	7.6
Renewable MSW	0.0
Biogas	0.7
Liquid biofuels	0.3

Source: World Energy Balances © OECD/IEA 2018

Role of bioenergy in different sectors

Australia has a modest share of 15% renewable electricity; 40% of it is related to hydropower, 30% to wind energy, around 10% through electricity from biomass.

The share of biofuels for transport is still relatively low, with around 0.5% in 2016.

Overall, the share of biomass for heating in the different sectors is around 15%. In the residential sector biomass represents about 22% of fuel/heat consumption.

Table 2: Role of bioenergy and renewable energy in electricity production and transport in 2016

Sector	Share of bioenergy	Share of renewable energy	Overall production/consumption
Electricity production	1.5%	14.5% (hydro: 5.9%) (Wind: 4.8%)	256 TWh (923 PJ)
Transport energy (final consumption)	0.5%	0.7%	1,378 PJ
Overall fuel and heat consumption³	15.3%	16.7%	1,092 PJ

Source: World Energy Balances © OECD/IEA 2018

³ This includes final consumption of fuels and heat in industry, the residential sector, commercial and public services and agriculture/forestry. Transport fuels are excluded. Energy used for transformation and for own use of energy producing industries is also excluded.

Australian statistics show somewhat higher figures for renewable electricity, up to 16.3% of total electricity generation (instead of 14.5%), with the main differences in hydro and solar energy. The table below indicates the generation of electricity in 2016 by different renewable resources, according to Australian sources.

Table 3: Renewable electricity generation in Australia in 2016

Technology	Generation (GWh)	% of renewable generation	% of total generation	Equivalent n° of households powered over course of the year
Hydro	17,925	42.7%	6.95%	2,523,840
Wind	12,973	30.9%	5.03%	1,826,599
Household and commercial solar <100 kW	6,847	16.3%	2.65%	964,128
Bioenergy	3,713	8.8%	1.44%	522,734
Large scale solar	564	1.3%	0.22%	79,383
Geothermal	0.2	0.0%	0.00%	28
TOTAL	42,022	100%	16.3%	5,916,712

Source: Department of the Environment and Energy Australian Energy Update 2017

Table 4: Bioenergy Capacities Accredited under the Renewable Energy Target as at May 2018.

Fuel Source	Number of accredited power stations	Capacity in megawatts (MW)
Black liquor	2	84
Wood waste	16	127
Bagasse	28	541
Landfill gas	68	686
Sewage gas and biomass-based components of municipal solid waste	24	52
Agricultural waste and food waste	22	83
TOTAL	160	1,573

Source – Clean Energy Regulator

RESEARCH FOCUS RELATED TO BIOENERGY

Research is conducted on many aspects of bioenergy, ranging from production and supply systems, conversion processes (advanced biofuels, pyrolysis, hydrothermal liquefaction, biogas...), sustainability criteria, life cycle climate impacts and input into policy. It is undertaken by state government agencies and universities. A national bioenergy Research, Development and Extension strategy for the primary industry sector has been established in Australia.

AREMI - The Australian Renewable Energy Mapping Infrastructure (AREMI) project is a powerful tool to share mapping data and information with the renewable energy industry, developed by National ICT Australia (NICTA), Australia's Centre of Excellence in Information and Communication Technology Research and Development. This platform maps and shares renewable energy information, such as the location of untapped biomass resources through to existing electricity infrastructure to help make it easier for developers and investors to get renewable energy projects off the ground by finding the best locations for them. This one stop shop solution is critical to help speed up the shift to decarbonise our energy economy and drive further investment in renewables innovation. AREMI can strongly benefit stakeholders by increasing knowledge sharing around the renewable energy opportunities, reducing time and costs associated with early stage project planning and promoting their projects nationwide. A recently announced AUD 6 million project will see bioenergy resource information integrated into the AREMI platform. See more at www.nationalmap.gov.au/renewables.

RECENT MAJOR BIOENERGY DEVELOPMENTS

A difficult financial environment, policy uncertainty and grid connectivity issues cause that bioenergy uptake in Australia remains fairly slow. However, there are numerous large sustainable biomass resources across the country that remain underutilised. Given more favourable financial conditions and better policy support, bioenergy has the potential for extremely strong growth over the coming decades.

Source: <http://www.cleanenergycouncil.org.au/>

2017 was a year of great achievements for bioenergy in Australia:

- In a joint media release, PM Malcolm Turnbull and the Hon. Josh Frydenberg MP Minister for the Environment and Energy announced that coal, gas, hydro and biomass will be rewarded for their dispatchability while wind, solar and hydro will be recognised as lower emissions technologies but will no longer be subsidised.
- Biomass has been rewarded in the National Energy Guarantee (NEG), indicating the Government understands Australia's continuing energy crisis and the underutilised benefits of renewable bioenergy.
- Research from NSW Department of Primary Industries has shown the NSW North Coast has untapped bio-power potential through forests and sawmills with enough residue that would power 200,000 homes a year. This highlights the opportunity for Australia to provide dispatchable electricity generation through regional areas.
- Plotting a path for greater bioenergy use, the IEA "Technology Roadmap: Delivering Sustainable Bioenergy" provided the technology milestones and policy actions needed to unlock the potential of bioenergy in line with a long-term low-carbon and sustainable global energy mix.
- The Deloitte report "Decarbonising Australia's Gas Distribution Networks" released by Energy Networks Australia announced that decarbonising gas in Australia by 2050 is achievable with the use of hydrogen, biogas and carbon capture and storage (CCS) applied to Australia's extensive gas

network infrastructure. The report acknowledges the substantial biogas potential around the country to build and maintain a highly reliable energy system.

- In the transport sector biofuels reached significant achievements:
 - o Qantas and Virgin Australia are actively trialing sustainable aviation fuels (bio-jet) to reduce emissions;
 - o Ethtec announced a \$48m project in NSW to convert cellulosic waste to ethanol;
 - o demand for ethanol is forecast to increase in 2017 – the first time since 2011.

Bioenergy Australia, a nation-wide government-industry-research alliance representing bioenergy in Australia, is committed to accelerating Australia's bioeconomy and will keep putting effort to foster and facilitate the development of biomass as a source of sustainable energy to generate heat, power, liquid fuels, and other value-added bio-based products.

Source: <https://www.bioenergyaustralia.org.au/home/>

It is predicted that Australia's overall energy consumption will continue to grow slowly over coming decades, with one major review suggesting average growth of 1.4 %/year to reach a total primary energy consumption of 7,715 PJ/year by 2029-2030. Bioenergy production is expected to grow at a faster rate and progressively provide a greater proportion of Australia's electricity and transport fuel needs. Work by ABARE, CSIRO, the Clean Energy Council, and the Australian Business Roundtable on Climate Change describes the potential for increased production of bioenergy. These reports suggest that, in the longer term, bioenergy could provide 20% or more of Australia's electricity or transport fuels.

Such increased bioenergy use can be supported in particular by:

- The development of large resources of sustainable biomass around Australia that are not currently being used for bioenergy. Particular opportunities involve existing agricultural residues, and future tree planting on farms for biomass and other environmental benefits (such as belts of mallee trees).
- The commercial development of multiple technologies for conversion of biomass into biofuels.

LINKS TO SOURCES OF INFORMATION

The following websites provide useful information and data on national Australian bioenergy policy and production.

The Clean Energy Council is a peak body for the clean energy industry in Australia:

<http://www.cleanenergycouncil.org.au/>

Australian Government- Department of the Environment and Energy:

<https://www.environment.gov.au/climate-change/renewable-energy-target-scheme>

<https://www.energy.gov.au/publications/australian-energy-update-2017>

Bioenergy Australia: <http://www.bioenergyaustralia.org.au>

Australian Renewable Energy Agency: <http://arena.gov.au/about-renewable-energy/bioenergy/>

Clean Energy Finance Corporation: <http://www.cleanenergyfinancecorp.com.au>

Western Australia University-Bioenergy research group: <http://uwa.edu.au/bioenergy>

Clean Energy Regulator: www.cleanenergyregulator.gov.au/

Biomass Producer Website: <http://biomassproducer.com.au/>