

All about Bioenergy

Why we need clean energy

Australia's stationary energy sector, which includes electricity derived from coal-fired power, is responsible for around 50 percent of our greenhouse gas emissions. Australia's environmental, economic and energy security is at risk from climate change unless we can compete in a low carbon world. Any successful climate change solution must first target the energy sector specifically.

Australia has some of the world's best clean energy resources, many of which are already powering our homes and businesses. Our superior renewable sources, like bioenergy, have the capacity to meet Australia's growing energy needs while providing a clean powered, sustainable economy.

Bioenergy – how it works

Bioenergy is renewable energy such as electricity or thermal energy made from biomass (organic matter).

The technology produces clean, low-emission electricity from biomass sources such as agricultural crop wastes, plantation wood waste, urban garden and food waste, sugar cane residues (known as bagasse), sewage and animal wastes.

There are a range of bioenergy conversion technologies each tailored to various available resources. For more information visit www.cleanenergycouncil.org.au/bioenergy

Greenhouse gas savings

Bioenergy is a clean energy source that creates little or no net greenhouse gas emissions depending on the type of biomass and conversion technology used. It is also capable of being carbon negative if carbon capture and sequestration is employed.

In Australia

Australia has an abundance of sustainable biomass resources that are currently underutilised. Bioenergy supplies less than 1 per cent of Australia's total electricity supply. The installed capacity for the bioenergy sector amounts to around 767 megawatts (MW).

Did you know? *Australia's sugar industry has used bioenergy to meet its electricity and heat requirements for over 100 years.*

Bioenergy resources are located across all the states of Australia, with most regions engaged in agriculture, forestry and food production, producing substantial waste biomass that could be used to create electricity.



Potential

Bioenergy technology is a proven and mature technology able to commence displacing fossil fuels both industrially and commercially. Already, the USA and Europe are using bioenergy to generate substantial quantities of power but Australia is yet to realise its potential.

Detailed analyses by the International Energy Agency, the UK Government, the European Commission and within Australia have shown that bioenergy can play a significant role in future electricity supply.

The Clean Energy Council conducted an Australian biomass resource appraisal in 2008, finding that bioenergy has the capacity to deliver at least 11,000 gigawatt hours (GWh) of electricity annually to 2020.

Employment

The diversity, applicability and scalability of bioenergy technologies allow them to be highly decentralised, providing significant rural and regional employment and economic benefits. In addition to the skilled practitioners required to construct and manufacture local bioenergy plants, bioenergy provides significant ongoing employment opportunities, such as biomass feedstock production, sourcing and transportation, plant operation and ongoing plant maintenance.

The bioenergy industry offers permanent fulltime employment which is unlike the seasonal employment in most agricultural sectors. This means that labour is more likely to be permanently retained in rural and regional communities.

Global View

Bioenergy has been embraced internationally in many countries. In the US, the sector generates close to 60,000 GWh of electricity, while the European Union is aiming to double bioenergy's contribution by 2010. Already, bioenergy supplies over 20,000 GWh in Germany, contributes 14 per cent of Finland's energy needs, 6 per cent in Denmark and delivers 5 per cent in Sweden.

Current Issues

Bioenergy has the potential to make a significantly increased contribution to clean electricity generation in Australia. Technologies required to implement bioenergy production already exist here and the industry is faced with the challenge of raising awareness of the potential benefits of bioenergy for Australia. Small scale bioenergy power plants below 1MW are almost non-existent and require support mechanisms to encourage uptake and growth.

About the Clean Energy Council

The Clean Energy Council is the peak industry body in Australia, creating a united strategy built on strong policy and direction in the clean energy sector.

We aim to find solutions that deliver abundant and affordable clean energy and efficiency solutions to Australia, as quickly as possible. For more information please visit www.cleanenergycouncil.org.au

