BIOENERGY IN AUSTRALIA

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CEO BIOENERGY AUSTRALIA
WHAT IS BIOENERGY

Figure 1: Biomass to bioenergy process

**Feedstock**
- agriculture;
- organic municipal waste;
- waste water;
- industrial waste;
- wood waste; and
- animal residues.

**Conversion**
- combustion;
- gasification;
- fermentation;
- transesterification;
- pyrolysis; and
- anaerobic digestion.

**Product**
- heat;
- fuel gas;
- biogas;
- biodiesel;
- biobutanol;
- bio oil;
- ethanol;
- renewable energy;
- renewable diesel;
- pellets and;
- briquettes.

**Market**
- electricity;
- heat;
- chemicals; and
- transportation fuel.
FEEDSTOCKS?

- Enhanced energy security through domestic biofuel production & diversification of base load power
- Regional employment, investment and economic development
- Greater utilisation of waste streams

Figure 2: Biomass fuel sources

- **Agricultural**
  - Sugar (bagasse); and oils.

- **Organic Municipal Waste and Agro-Industrial Waste**
  - Residential and industrial waste.

- **Waste Water**
  - Recycled waste water containing biodegradable organic matter.

- **Wood Waste**
  - Wood scrap, bark, sawdust and other common forms of wood waste.

- **Animal Residues**
  - Primarily waste from intensive livestock operations.
DOMESTIC DRIVERS
THE TECHNOLOGY INVESTMENT ROADMAP & BIOENERGY ROADMAP
DOMESTIC DRIVERS – RENEWABLE GAS

• THE RACE IS ON TO DELIVER BIOMETHANE INTO THE AUSTRALIAN GAS INFRASTRUCTURE NETWORK

• FRANCE HAS 59 SITES INJECTING

• AND 297 ON THE WAITLIST FOR CONNECTION. AUSTRALIA HAS ZERO.

• JOINT LETTER ISSUED BY 24 ORGANISATIONS LAST MONTH

• RENEWABLE GAS ALLIANCE
Australia's oil refineries under demand evaporates

DOMESTIC DRIVERS, FUEL SECURITY & TRANSPORT EMISSIONS

For our free coronavirus pandemic coverage, learn more here.

By Nick Toscano
April 6, 2020 – 6.14pm

Caltex's temporary shutdown of one of its refineries raises concerns about the industry's viability.

Australia has significant fuel security issues

90% reliance on imported oil
How American Recycling Is China’s National Sword

NICOLE JAVORSKY  APR 1, 2019

Times have been hard for U.S. recycling since China tightened contamination standards, and local programs are trying to adapt.

“This facility is our version of Willy Wonka & the Chocolate Factory,” said Kao.

That’s how Eileen Kao described Montgomery’s recycling center on a tour. Kao, who is in charge of recycling in the county’s Department of Environmental Protection, said the county has been forced to seek new markets for its recyclables.
Spirits to Sanitiser

Coronavirus: hand sanitiser manufacturing keeping distillers, brewers in business

When a hand sanitiser shortage threatened to close Centrelink offices on the eastern side of Australia, a Canberra distillery – and comedians driving vans – helped to save the day.

Underground Spirits has produced 40,000 litres of hand sanitiser for frontline medical staff and government agencies in the past six weeks, owner and head distiller Dr Toby Angstmann said.

A new gin distillery in Darwin has only been making hand sanitiser since it launched.
DOMESTIC DRIVERS – REGIONAL TRANSITION STRATEGY

The Climate Institute commissioned leading energy sector consultants, McLennan Magasanik Associates (MMA), to assess the potential contribution of renewable energy, such as wind, solar, and bioenergy power stations, to regional employment in Australia. MMA’s analysis covers all existing commercial renewable energy installations, as well as those which are committed and planned. The assessment covers permanent employment (operation and maintenance) as well as construction jobs and the contribution to other indirect jobs like manufacturing and engineering.

Where possible MMA has used information sourced from the owners and operators of the renewable energy facilities. This provides an accurate estimate of job numbers, drawing on the experiences of real companies working on real projects, rather than relying just on economic modelling.
GLOBAL DRIVERS
AVIATION & MARINE

The shipping sector is finally on board in the fight against climate change
BIOENERGY GLOBALLY

Modern bioenergy: the overlooked giant of renewables

Figure 8: Total primary energy source from bioenergy, per capita
## State Performance

<table>
<thead>
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<th>Evaluation criteria</th>
<th>QLD</th>
<th>NSW</th>
<th>VIC</th>
<th>SA</th>
<th>WA</th>
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<th>TAS</th>
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Figure 6: Operating bioenergy projects by state and feedstock, as at September 2018.

<table>
<thead>
<tr>
<th>State</th>
<th>Municipal waste</th>
<th>Agricultural residue</th>
<th>Animal residues</th>
<th>Wood waste</th>
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<td>WA (22)</td>
<td>68%</td>
<td>18%</td>
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<td>QLD (49)</td>
<td>57%</td>
<td>27%</td>
<td>10%</td>
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<td>ACT (3)</td>
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<td>TAS (8)</td>
<td>67%</td>
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<td>NT (1)</td>
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<td>NSW (63)</td>
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<td>23%</td>
<td>17%</td>
<td>2%</td>
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<td>VIC (35)</td>
<td>71%</td>
<td>17%</td>
<td>9%</td>
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<tr>
<td>SA (10)</td>
<td>80%</td>
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THANK YOU