



University of  
**Southern**  
Queensland

# Centre for Agricultural Engineering

## Energy and Bioresource Recycling

### Vision

To provide profitable and sustainable energy and waste management solutions as primary industries and related food processing sectors transition towards energy independence into the future.

### Overview

Increasing energy costs are one of the major challenges facing Australian agriculture and a key driver of energy efficiency.

Our team explores how on farm and off farm energy independence can be created and the extent to which industries can cater for their own energy needs to generate a self-sustaining environment which buffers against fluctuating energy prices and the resulting negative impact it has on farm incomes.

The use of renewable energy and developing equipment which runs on alternative forms such as hybrid technology or biofuels is a growing trend as we move toward more sustainable agricultural systems.

A key area of the research program is the conversion of agro-industrial waste into profitable clean energy with a focus on biogas and biofertilisers.

### Research Highlights

- Our research identifies new opportunities for recovery of high value-added products throughout the supply chain to translate the uptake of novel waste management practices across Australian industries.
- Through the support of our research partners, we have delivered significant benefits to farming and related processing sectors which includes providing industry with alternative energy, waste recovery and energy efficiency options to enable exact assessment that can provide multi-million dollar opportunities and cost savings.





## Research Projects

- Current projects in the intensive livestock and related food processing industries connect with national and international industry and university collaborators including:
  - NH Foods
  - JBS
  - Teys
  - Australian Country Choice
  - Australian Lamb Co
  - Ridley AgriProducts
  - Queensland Urban Utilities
  - Barwon Water
  - Unity Water
  - Queensland University of Technology
  - University of Queensland
  - Queensland Department of Agriculture and Fisheries
- Our projects have received funding from RDCs such as Meat and Livestock Australia, Australian Pork Limited and the Australian Meat Processor Corporation; state funding from the Queensland Government and Federal Government in the form of a Rural R&D for Profit project and Fight Food Waste CRC.

- International linkages have been forged with DBFZ, Germany, through a bilateral joint funded UA-DAAD project and collaboration with 15 countries have been fostered through participation in the International Energy Agency's Bioenergy Task 37: Energy from Biogas.
- In addition to research projects, the research program team also provides consultancy for companies and institutions interested in biogas feasibility studies or to support the operation of an existing biogas plant.

## Research Impact

- Research impact extends to on-farm, intensive feed and processing sectors.
- Red meat, dairy and pork industries produce significant quantities of waste which costs these industries between \$100-200 million per year to manage.
- Converting these wastes into valuable products such as energy products, fertilisers, feeds and chemicals for use in agriculture can capture a market opportunity in excess of \$100 million per annum.
- Research into realising the potential of new revenue streams is being undertaken to understand key information gaps on waste composition and quantities produced by these industries.

**Want to know more?**

07 4631 1871

**Follow us** @caeusq

[usq.edu.au/research](http://usq.edu.au/research)

[cae.admin@usq.edu.au](mailto:cae.admin@usq.edu.au)

