The Hunter Pilot Biorefinery

Geoff Doherty[1,2], Russell Reeves[1,3], Tony Banks[1], Andrew Reeves[1,3]

[1]Ethanol Technologies Ltd (Ethtec), [2]The University of Newcastle, [3]Apace Research Ltd

Background

The Traditional Bioeconomy

- US$2 trillion worth of products are traded globally each year, accounting for 13% of world trade
- Advances in engineering and biotechnology are rapidly unlocking further value from existing biomass resources

The Knowledge-Based Bioeconomy

- Value-add existing biomass resources while simultaneously protecting the traditional bioeconomy
- Address food security
- Balance land and water use
- Promote innovative cropping and harvesting techniques

Using advances in engineering and biotechnology to unlock further value in agricultural and forestry sectors

Australia

- Huge biomass resources in both agriculture and forestry
- Strong biotechnology, engineering and advanced manufacturing skills

But no Knowledge-Based Bioeconomy!!

- No renewable chemicals
- No advanced biofuels
- Modest 1st gen. ethanol production (400ML/annum)
- Therefore there are huge opportunities for growth

Mining and the Knowledge-Based Bioeconomy

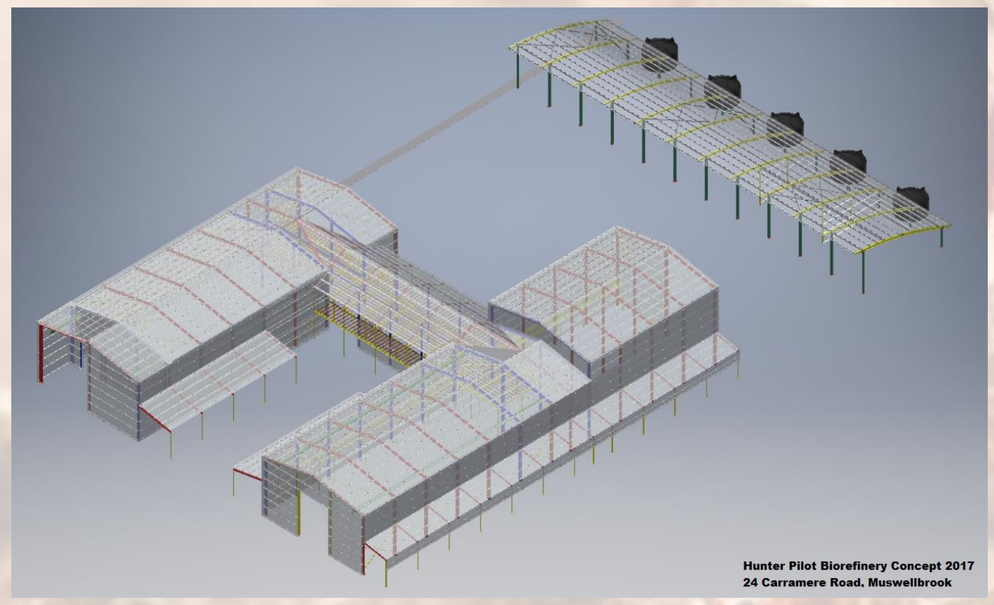
Mining offers a unique opportunity to develop a bioeconomy:

- Large under-utilised buffer lands for biomass production
- Creating a market for fibre will underpin the economics of rehabilitating land impacted by mining
- Skilled manufacturing base
- Advanced logistics
- Off-take potential for biofuels and biochemicals

The Hunter Pilot Biorefinery (HPB)

What is it?

- A $30M open-access pilot-scale biorefining R&D facility located in Muswellbrook
- Approximately 4000m² of space comprising feedstock processing, PC2 large-scale fermentation, office space and fabrication workshop
- Aims to reduce barriers to commercialising biorenewables research by directly reducing the capital costs of pilot-scale infrastructure



Ethanol Technologies Ltd (Ethtec)

- Ethtec is developing a process to convert plant fibre to ethanol and renewable chemicals
- Ethtec will conduct their $42M Cellulosic Ethanol Pilot Plant Project within the HPB and will make process equipment available to HPB users
- Broadly applicable equipment, including:
  - feedstock drying
  - feedstock granulation and size classification
  - storage hoppers
  - chemical reactors
  - filter presses
  - fermentation vessels
  - distillation systems
  - fully integrated analytical chemistry and microbiology laboratories

Project Partners

apace

THE UNIVERSITY OF NEWCASTLE AUSTRALIA | nier

muswellbrook shire council

ethtec

ARENA
Australian Government
Australian Renewable Energy Agency