

Biomass crops for energy

Potential benefits

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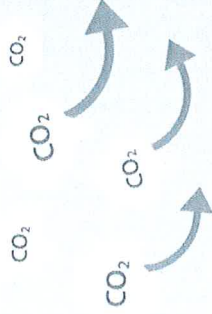
Mr Craig Bugnold
received by

Faith Agbulonwa

Date: 12 / 8 / 24.

Resolved by:

Carbon sequestration



Potentially suitable woody species include mallees, acacias and some traditional forestry species

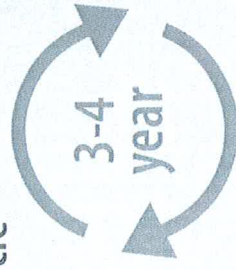
✓ Income diversification

✓ Provision of shelter

✓ Provision of habitat

✓ Land rehabilitation

Harvest cycle

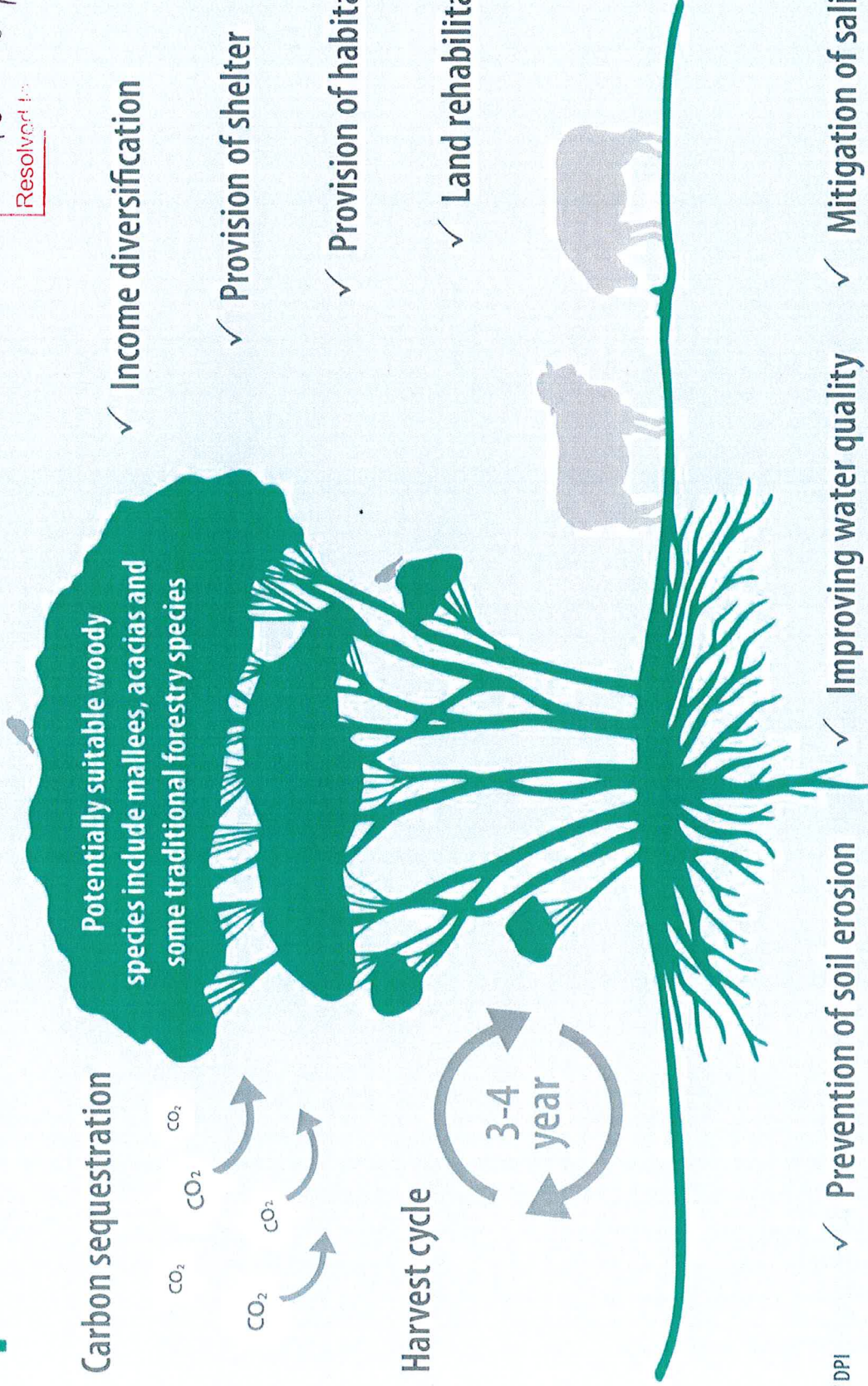


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✓ Prevention of soil erosion

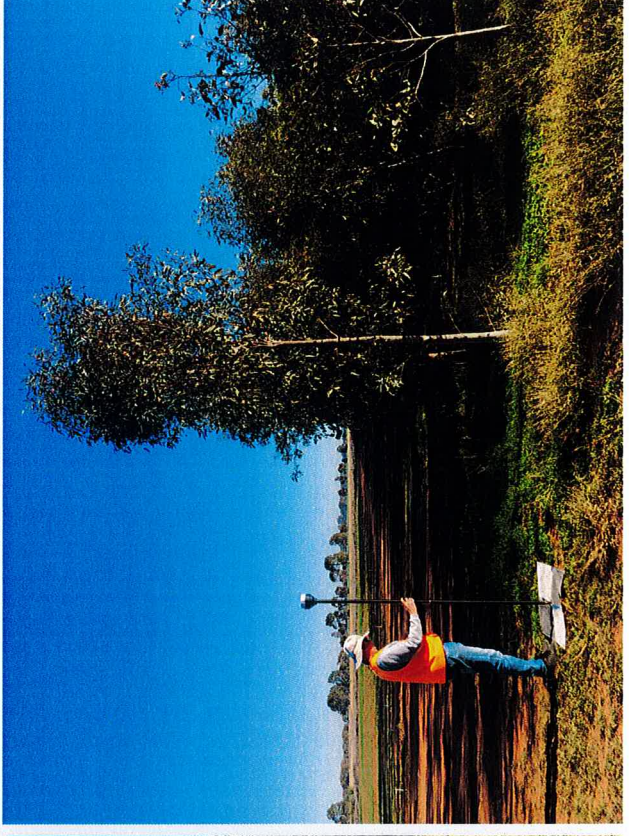
✓ Improving water quality

✓ Mitigation of salinity



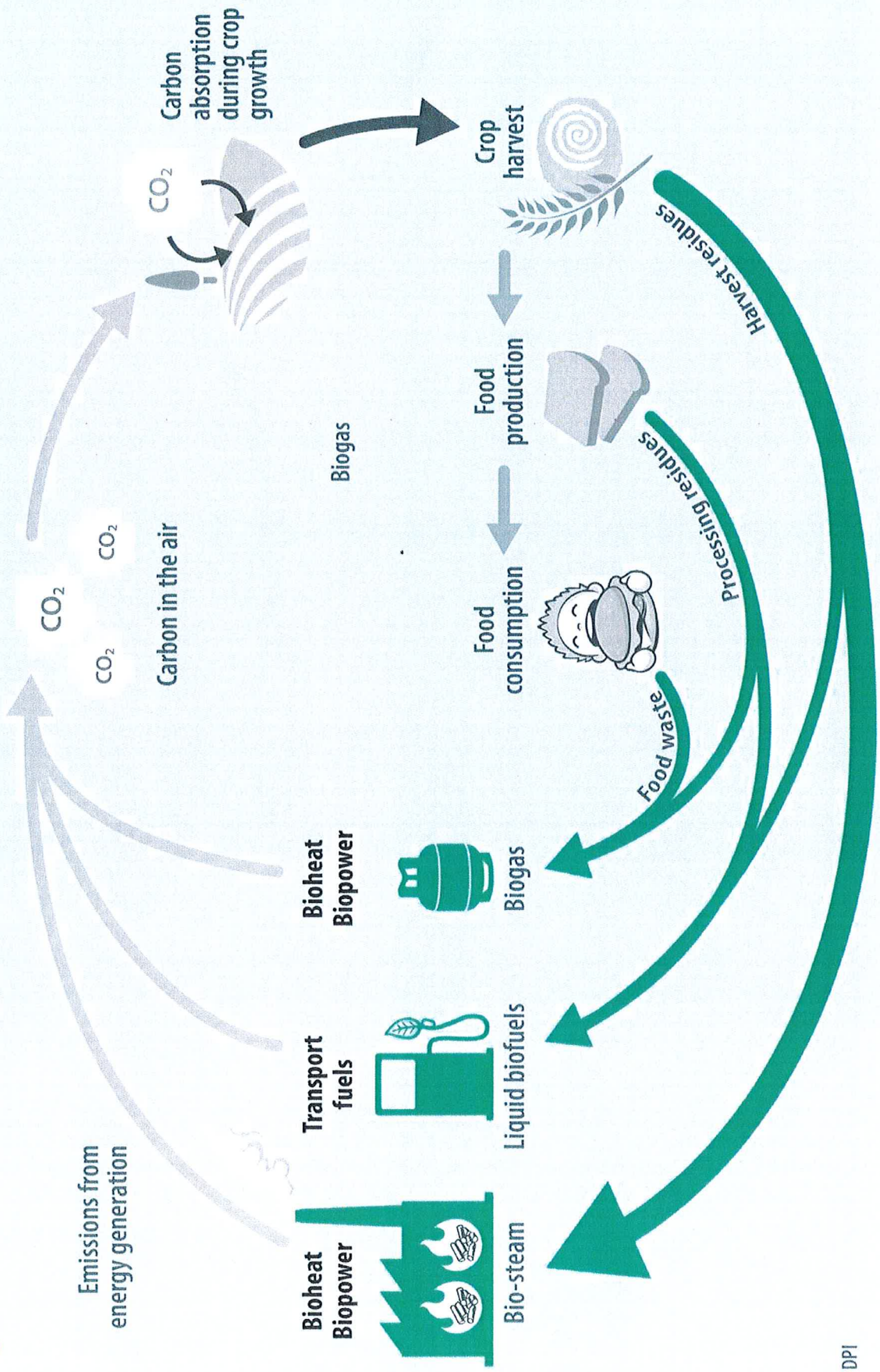
NSW DPI Biomass for Bioenergy Project – Trangie Field Trial Site (May 2024)

Biomass for Bioenergy Project (nsw.gov.au)



Biomass for bioenergy

How does the carbon cycle work?



What role can biomass play for electricity generation in NSW?



1 | Field trials with native woody biomass crops across NSW (productivity in tonnes/ha)

Biomass crop trials

- Mallees, acacias, traditional forestry species

2 | Techno-economic assessments (co-firing, hybrid solar-biomass)

- Is it feasible to use biomass in NSW for grid-scale electricity generation?
- Can biomass be used to stabilise the electricity grid?

Hybrid solar-biomass plant

4 | Contribution to emissions reduction (tCO₂-e/kWh)

Primary energy supply for 1.5 °C

Greenhouse gas emissions

5 | Community perceptions of bioenergy

- Case studies, incl. Griffith and Hunter Valley
- Understanding key factors influencing public perception on bioenergy

B | Communication materials for bioenergy projects

- Improving the public understanding of bioenergy with factheets, infographics

A | Assessment tools for stakeholders

- Tools that improve confidence in investments in bioenergy
- A spatial tool to determine climate & other implications of renewable energy options for electricity generation in NSW

PROJECT PARTNERS:



FOR FURTHER INFORMATION:
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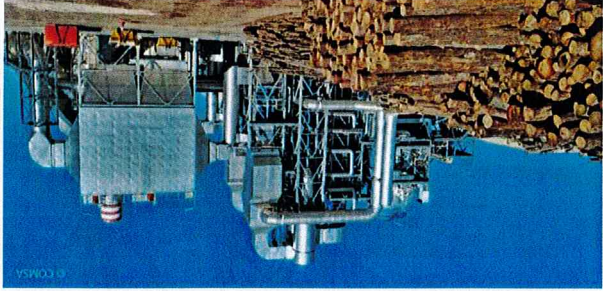
BIO MASS FOR BIOENERGY

Demonstration of potential for bioenergy to contribute to energy system transformation in NSW

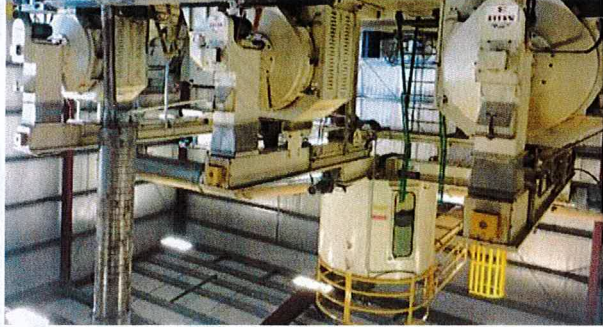


Biomass is a renewable storable feedstock that can be utilised in many applications including electricity generation, where it can provide dispatchable power and create stability that allows the expansion of intermittent renewables (solar and wind) without the need for expensive storage solutions. Bioenergy could therefore play an important role in supporting transition to a low-carbon energy system, required to meet net zero emissions.

There are significant opportunities for displacing fossil fuels currently used for electricity generation in NSW with the use of biomass. However, this needs to be supported by robust science and realistic techno-economic assessments of the varying scales considered for specific regions, at reducing the uncertainty for potential investments in the sector.



Hybrid solar-biomass plant in Spain © COMSA



Pellet mill at Altus Renewables, Maryborough, QLD

Key Goals

- Identifying and testing the suitability of native woody crops to supply biomass for bioenergy;
- Determining the feasibility of electricity generation from biomass in co-generation with coal and solar options, and as stand-alone biomass power stations;
- Determining the potential contribution of bioenergy to emissions reduction in NSW, including an understanding of community perceptions around bioenergy.

Key Benefits

- Demonstration of diversification opportunities for landholders across NSW, with biomass production from energy crops, and associated co-benefits (carbon sequestration, soil improvement, greater biodiversity);
- Identification of hot spots for grid-scale electricity generation from biomass in NSW;
- Provision of robust information to inform policy development in NSW, assisting with climate, energy and socio-economic goals.



Bioenergy crop trial seedlings © DPI