



Department of  
Primary Industries

# Zero Waste in Primary Industries



Fabiano Ximenes – DPI Forestry – 2050 Spark Forum

# Waste and Primary Industries

- Waste occurs across all primary industries and at various stages of supply chain
- Key sources: agricultural cropping; forestry, livestock
- Although much already used, potential to do more or find better uses
- Process efficiencies continuously improved
- Waste will always be generated





# Focus on waste

- National level – raised public awareness
- National Waste Policy
- NSW – waste strategy; circular economy policy



## NSW Circular Economy Policy Statement

Too Good To Waste  
February 2019



# Waste policy

- NSW waste strategy
- Four key principles:
  - Generate less waste
  - Improve collection and sorting
  - Plan for future infrastructure
  - Create end-markets
- Focus on end of life waste
- <https://yoursay.dpie.nsw.gov.au/20-year-waste-strategy>





# Waste and the circular economy

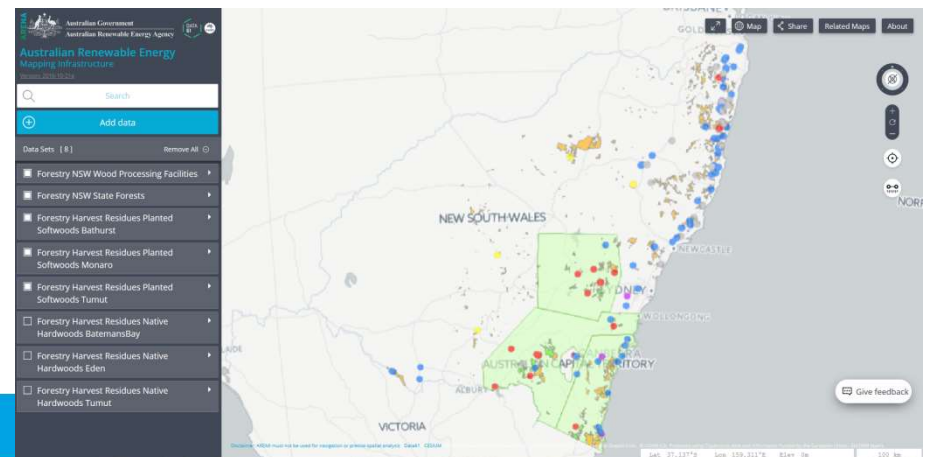
- NSW circular economy policy
- “A circular economy values resources by keeping products and materials in use for as long as possible. Maximising the use and value of resources brings major economic, social and environmental benefits. It contributes to innovation, growth and job creation, while reducing our impact on the environment.”
- Seven key principles, but little on “upstream” waste use opportunities
- <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/response-to-china-national-sword/circular-economy-policy>





# ABBA (Australian Biomass for Bioenergy Assessment)

- Volume and availability: forestry, agricultural, municipal waste, etc...
- AREMI: <http://nationalmap.gov.au/renewables/>
- Multi-layered: energy infrastructure, power utilities, population, land use data
- Aim to catalyse investment in the sector

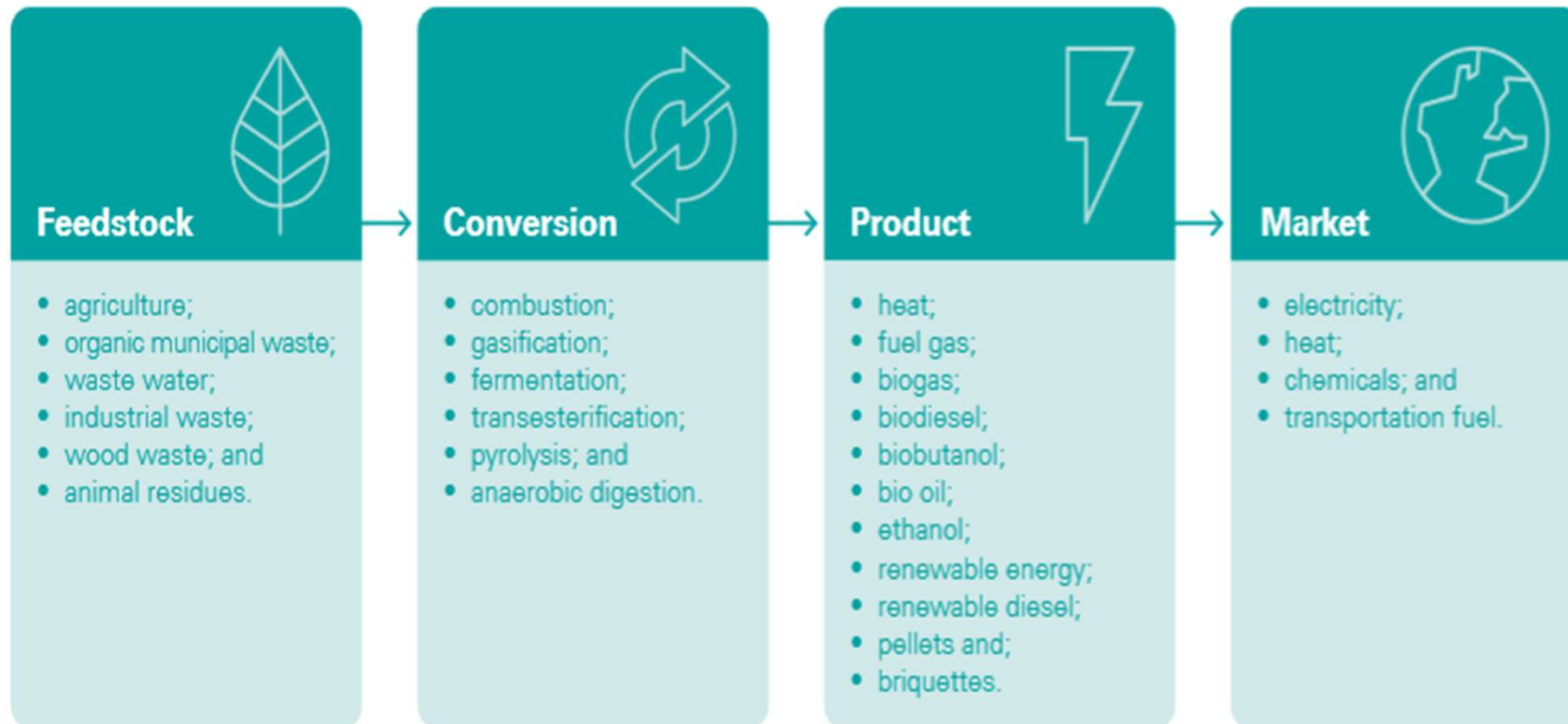


# Residues from NSW primary industries

Feedstock type	Tonnes
Cropping	12,200,000
Forestry	2,250,000
Livestock	1,260,000
Horticultural (nuts only)	159,000
<b>Total</b>	<b>15,869,000</b>
Organic landfill waste	6,590,000



# Biomass pathways



Plus biochar, green chemicals, nano-cellulose...

Source: [Bioenergy State of the Nation report](#)



# Biomass in NSW - Challenges

- Regulation – difficulties in getting projects through; leading investment away
- Costs of transport
- Social perceptions – sustainability concerns; food vs fibre; impact on communities
- Clear policy guidance – e.g. QLD



# MSM Milling– Manildra

Biomass Fuel Switch Project involves replacing current LPG fuelled boilers with a 5MW biomass fuelled boiler using locally sourced timber residue (cypress pine) as a fuel source (within 120 km from the facility).

Project will save around 4,000 tCO<sub>2</sub>-e per annum and over 80,000 tCO<sub>2</sub>-e for the project life.

<https://arena.gov.au/projects/msm-milling-biomass-fuel-switch/>



# Connecting research with industry

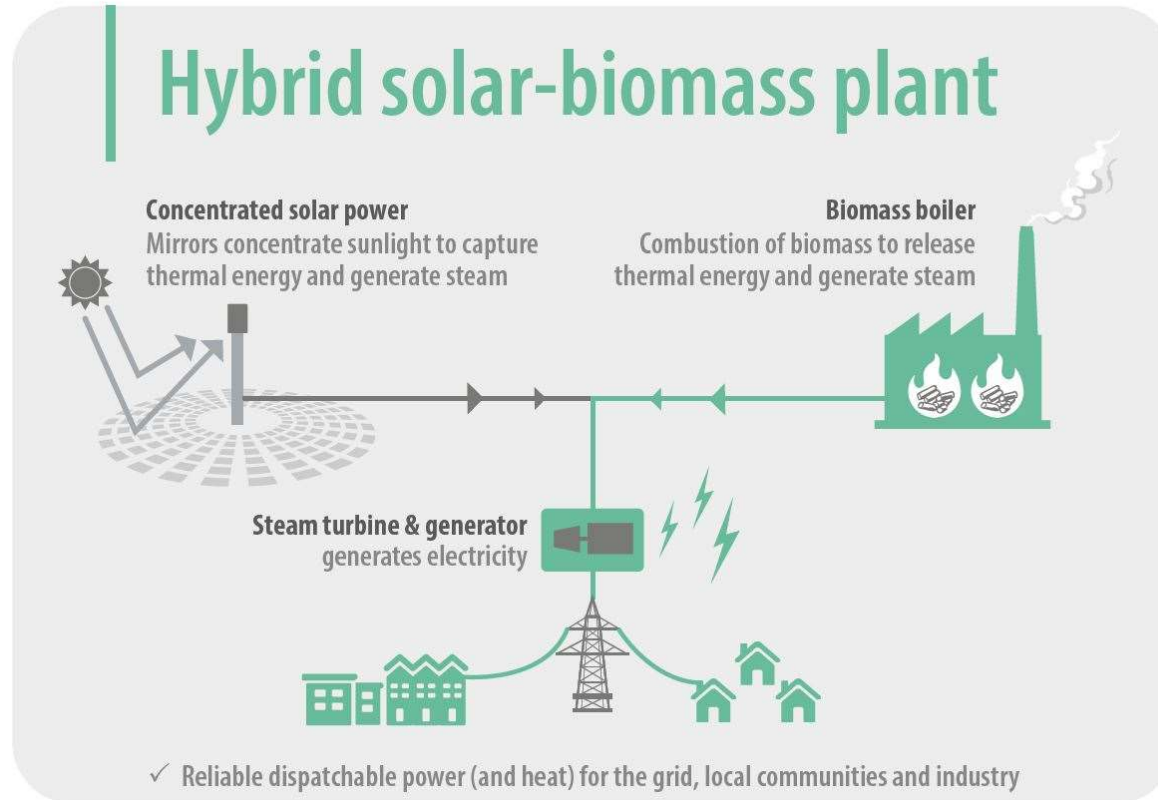
- Biomass for bioenergy - DPI Climate Change Research Strategy
- Investigating options for better biomass utilisation across NSW with focus on energy
- Current case study – Northern Meat Cooperative (Casino)
- Abattoirs are very energy intensive (electricity and heat)
- Opportunity to use livestock residues (bio-gas); woody biomass in boilers; and look at innovative hybrid systems with concentrated solar power





# The power of waste

- Potential –generate electricity for a large regional town

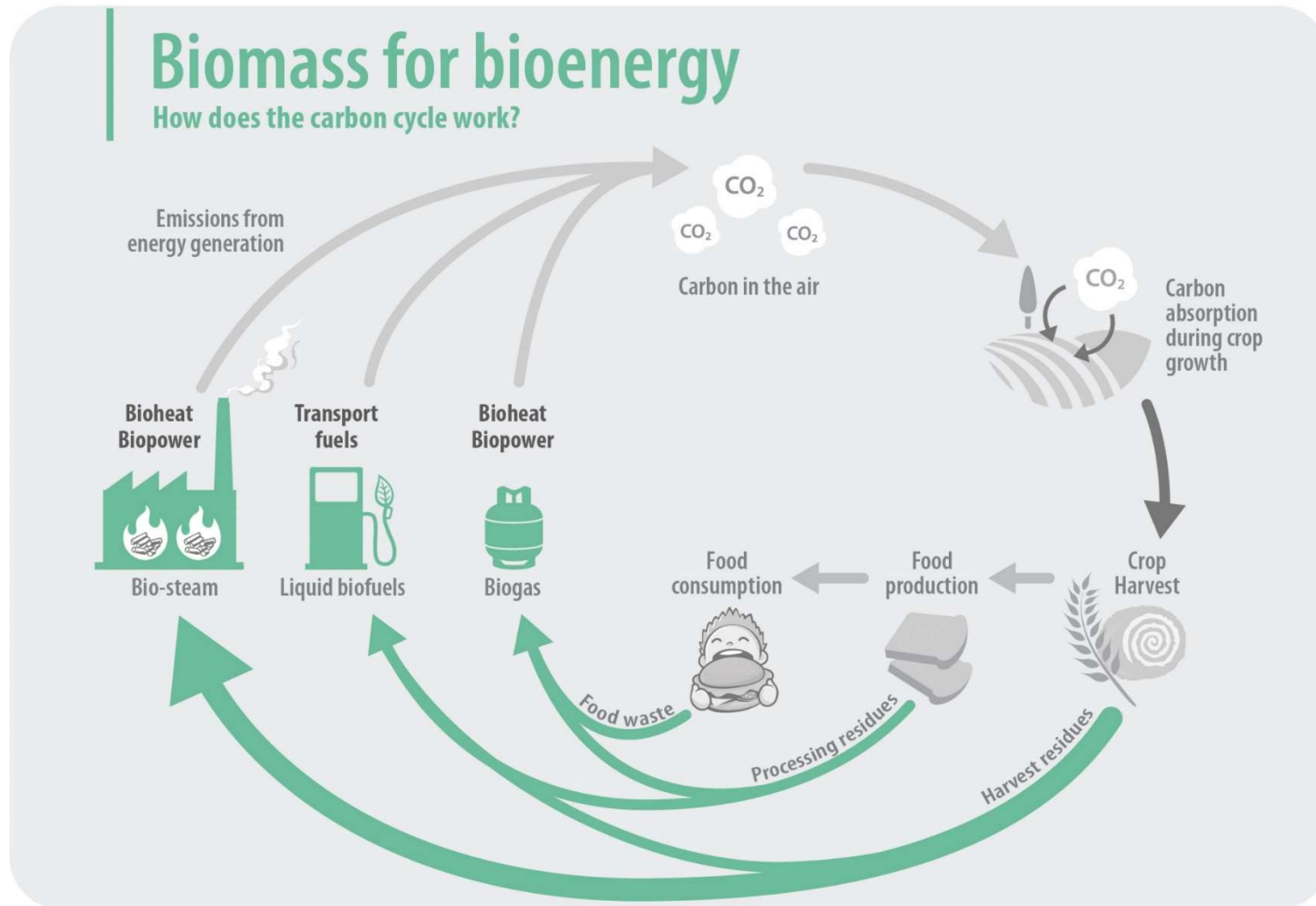


30 MW facility - 33,000 homes

Example? Los Borge, Spain

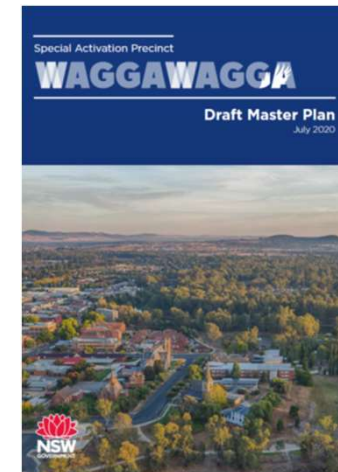
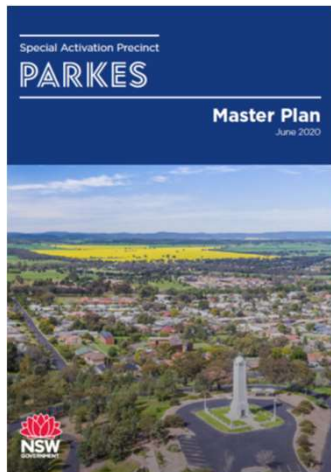


# Zero waste and carbon neutrality



# Opportunity - related developments

- Special Activation Precincts: Parkes, Wagga, Moree, Snowy Mtns, Williamtown



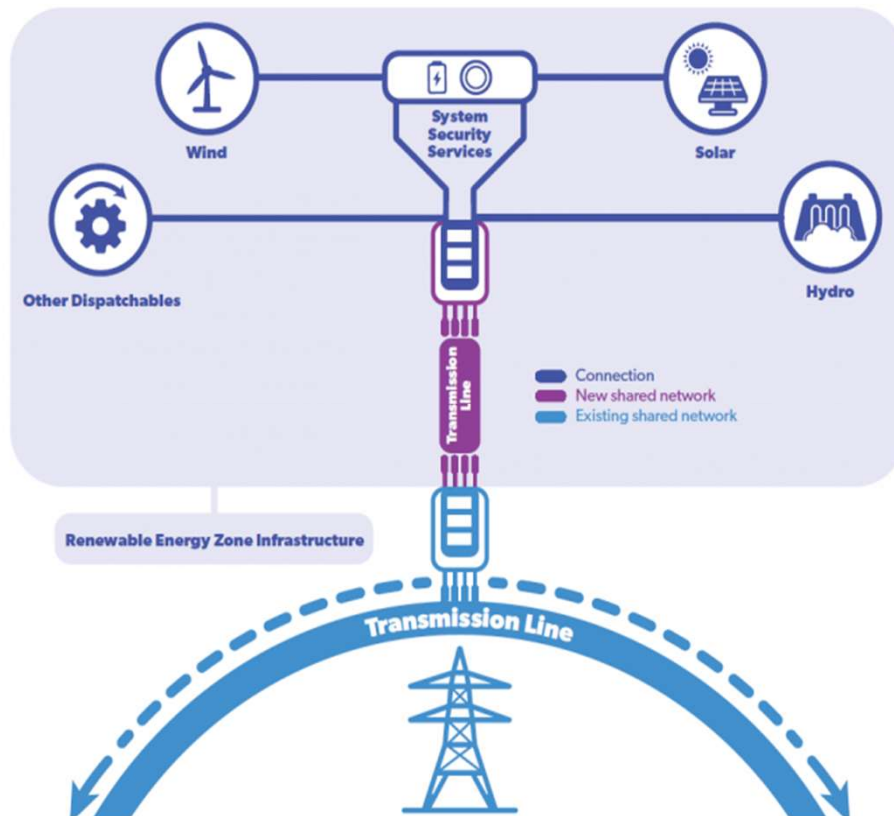
- <https://www.nsw.gov.au/snowy-hydro-legacy-fund/special-activation-precincts>





# Opportunity – Renewable Energy Zones

- Renewable Energy zones (Central-west; South-west and New England)



<https://energy.nsw.gov.au/renewables/renewable-energy-zones>





# Opportunity – Forestry Hubs

- Forestry Hubs: Comm. Govt initiative to drive growth in forest industries in regional Australia
- NSW - (South-west slopes; Central-west; North-east)
- Key actions
  - Assessment of resources, processing capacity and infrastructure needs
  - Unlock potential timber supply from farm forestry and private forestry owners
- <https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/forestry/national-forest-industries-plan.pdf>



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# DPI Leadership Role

- We are uniquely placed to make a contribution
- Internal expertise in primary production; waste use (e.g. bioenergy)
- Extensive networks with industry
- Clear driver - 2050 Priorities



# DPI Leadership Role



*WHAT CAN WE DO AT DPI TO HELP  
UNLEASH THE “WASTE POTENTIAL” FROM  
PRIMARY INDUSTRIES IN NSW?*

