



ROADMAP TO ZERO

Agricultural Snapshot
Roadmap to Net Zero Emissions Factsheet
Grampians Region

ACHIEVING ZERO EMISSIONS BY 2050

The Grampians New Energy Taskforce (GNET) has set an ambitious goal to reduce the greenhouse gas emissions of the Grampians region to zero by 2050.

The Roadmap to Zero for the Grampians Region (R2Z) identifies that greenhouse gas emissions can be reduced at varying rates, depending on the course of action chosen.

Local action alone can achieve 76.5% of the target by 2050, a 'business as usual' approach would achieve only 23.3% by 2050, while a collaborative action approach would result in zero emissions by 2043. A collaboration approach would reduce emissions from agriculture by 160% by 2050.

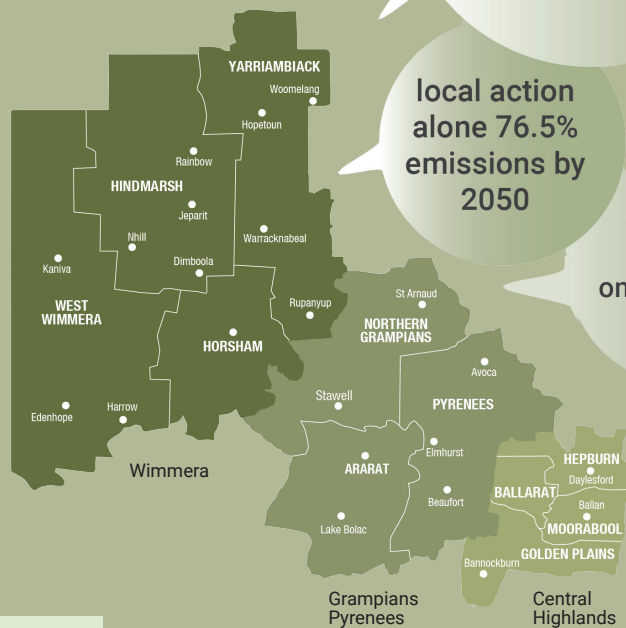
Achieving this level of reduction is reliant on targeted actions within the region, complemented by compelling action from Government and industry.

This factsheet outlines the opportunities for the region to reduce emissions associated with agriculture and provides ideas for how agricultural businesses can make changes to reduce their emissions.

collaborative action results in ZERO emissions by 2043

local action alone 76.5% emissions by 2050

'business as usual' only 23.3% by 2050



Existing Emissions for the Agriculture Sector

With 78% of land area in the region dedicated to agriculture and forestry, this sector is currently the largest source of emissions. Emissions in agriculture primarily result from animal husbandry, use of fertilisers and fuel. Proceeding with 'business as usual', emissions from agriculture and forestry will fall by 4% by 2050 due to current and continuing practice improvements, offset by growth in production. Current techniques such as minimum till cropping, precision farming, crop rotations and switching to permanent pastures with native shrubs boost productivity by conserving soil moisture, increasing soil fertility while minimising costly fertiliser inputs and disease, resulting in less emissions from agricultural production.



Local Action Opportunities

The primary local opportunities to reduce emissions from agriculture include: increasing on farm vegetation and broadacre regeneration; boosting soil carbon; and use of dietary supplements and/or vaccines to reduce ruminant emissions. Moving to electric tractors, reducing the use of diesel will also play a role. More rapid change in agricultural practices and more extensive sequestration of carbon in trees and soils will significantly reduce emissions from agriculture, forecast to be the largest reduction of any sector.

Shifts in land use have a key role to play. Combination farms, or mosaic farming will reduce emissions significantly, as identified in research by CSIRO and others. Mosaic farming relies on

Collaborative Action Opportunities

Agriculture has the potential to transform from the largest net emitter to net negative emissions by 2050. This would require significant changes to current practices, but many of these are already underway. Reaching this optimistic goal will require a collaborative approach reliant on state, federal and even international cooperation. Early and effective action in agriculture to reduce emissions is especially important because early movers will be better placed to capitalise on market opportunities that arise from the transition to zero emissions.

Priority Projects

Based on the findings from the R2Z technical report and input from the community, GNET has initially prioritised a number of projects that are central to achieving a zero emissions target. In the agriculture sector this includes:

- Mosaic farming research
- On farm carbon capture research

WHAT CAN I DO TO HELP THE REGION REACH ZERO EMISSIONS?

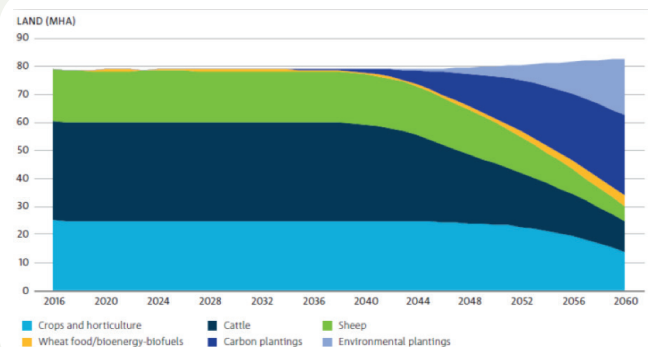
Industry

- Develop a partnership with the region's university and agricultural college and CSIRO to research mosaic farming methods and tools.
- Develop partnerships with CSIRO to trial methane-reducing supplements to facilitate up-take in the region.
- Research the use of native plants and legumes in grazing systems.
- Research breeding to target ewe fertility and feed conversion efficiency.
- Promotion and training on emissions reductions opportunities for farmers and agronomists.

productivity gains and intensified use of the best land, allowing output of crops, meat and wool at, or near, current levels, with outputs of some products increasing. Trees and shrubs are planted on lesser quality land, and along waterways and hills, to sequester carbon and increase ecosystem health. Soil carbon will also be boosted through switching to perennial pasture species, adoption of regenerative agriculture practices such as cover crops and rotations, using legumes, multi-species planting, addition of biochar and other organic material.

Supplements based on red algae have potential to reduce methane by 99% in feedlot environments, although this is less applicable in extensive grazing as used across the region.

Financial incentives to change land allocation and invest in new production systems will be required for wide-scale land use shifts to occur. Regional agriculture leaders could work with state and federal government to co-design and implement new policies and programs to accelerate emissions reductions and carbon drawdown. Governments could prioritise increasing the natural capital in state forest and national parks and reserves, and widening public natural capital by facilitating reforestation on adjacent land. Financial incentives to protect and enhance natural assets will speed the increase in natural capital.



Land use change under CSIRO's Outlook Vision (Cooperative Global Context) Source: CSIRO, 2019

Community

- Pursue opportunities to implement mosaic farming principles including incorporation of agroforestry and soil carbon boosting practices.
- Investigate the option of using electric tractors and vehicles on farm, powered by onsite solar. Councils could work with the State Government to jointly procure e-tractors for their own fleets. this would speed the availability of e-tractors into the Australian market and demonstrate the availability and advantages. Removal of diesel subsidies once e-tractors are near price parity would also speed uptake.
- Use technologies that pinpoint soil moisture and fertility to enable more precise seeding and fertilising rates.