A Beyond Zero Future for South East NSW

# Climate Action in Goulburn Mulwaree

## About Goulburn Mulwaree — Gundungurra Country

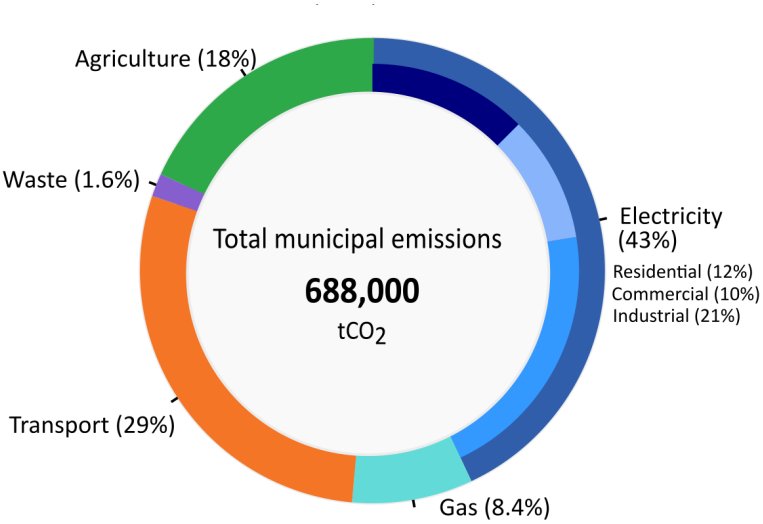
Population—**31,132 (Snapshot), 22.1 t $CO_2$ per person p.a.**

Number of Residences (2019 estimated)—13,254, 7.3 t **$CO_2$ per residence**

Industries— health care & social assistance, public administration & safety, retail, construction

### Current energy profile (from Snapshot)

- 43% of emissions from electricity use, most from industry and retail
- 29% of emissions from transport, primarily cars
- 18% of emissions from agriculture, primarily grazing
- Home solar installs to 2020—3,661
- New installations 2020—459




## Tackling Energy First

Community energy provides more resilient networks, local ownership of generation and cost savings.

Zero by 2050 targets require at least halving our $CO_2$ emissions by 2030. This means:

- Increasing current residential rooftop PV installations from 459 to 895 installs p.a to reach 89% of residential roofs by 2030.
- Increase commercial & industrial installations to 770 by 2030 (370 in 2021)

Payback period for residential solar is 4 to 6 years, saving about $1000 p.a. — much more with an electric vehicle.

Clean Energy Council publishes consumer guides: choose approved local retailers and accredited installers.

## Home Energy Retrofits

An average retrofit without roof-top solar costs $11,000:

- Cuts bills and emissions by 40%
- Pays back within 7 years
- Makes you $23,000 better off over 20 years

Adding a 5kW roof-top solar costing $5,000 to this retrofit:

- Cuts emissions by 65%
- Makes you $27,000 better off over 20 years

The most effective measures are roof-top solar, low-flow showers, reverse cycle heating/cooling, heat pump hot water, ceiling insulation and draught sealing.

Retrofitting 5% of homes in the area each year would see a 50% cut in total residential energy use by 2030.

## Transport—Electric Vehicles are Great to Drive

- Running costs up to 85% lower than a conventional car
- Roof-top solar plus EV will typically save you $4000 a year
- See NSW Electric Vehicle Strategy for more incentives
- EVs have been more expensive than their petrol/diesel equivalent but this gap is closing fast
- Fast charging infrastructure is growing

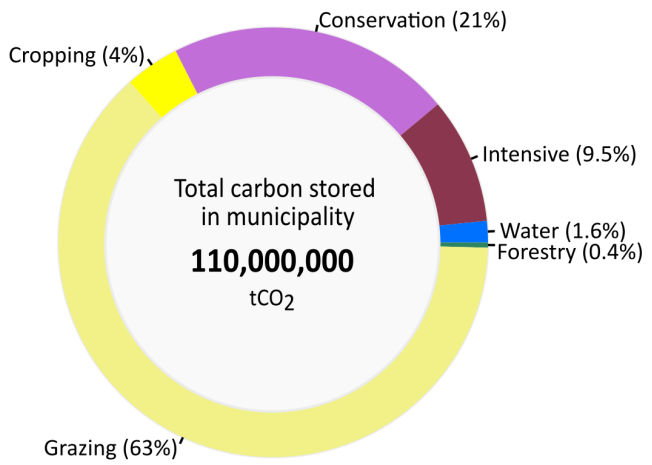
E-bikes are great for distances up to 15km.

## What Else is Needed?

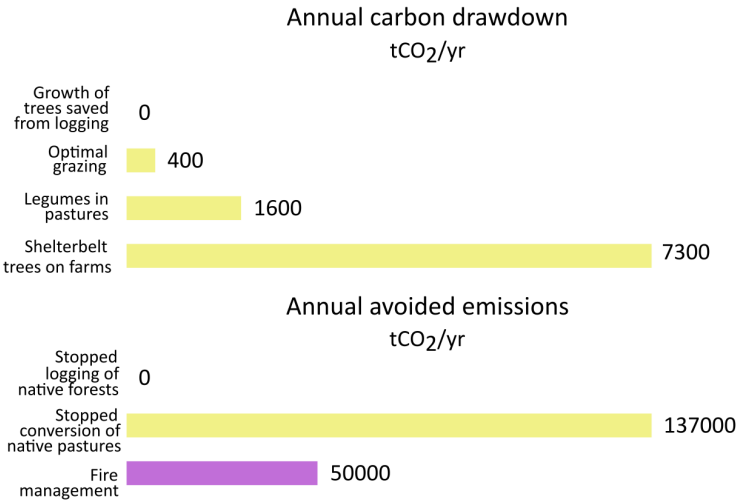
Commercial and industrial installations of rooftop PV are the biggest local growth opportunity for renewable energy.

- Join local groups like the Grow Goulburn Farms and Gardens Project and ZeroSE that organise activities to support climate action.
- Get behind the #RePowerOurCommunities campaign
- Ask federal, state and local government to enable community scale projects - solar farms, batteries and microgrids
- Expect clear targets for emission reductions and technology uptake, & hold governments & companies accountable
- Share information and stories about the benefits of transitioning to a low carbon economy
- Look for business & job opportunities in local clean energy technologies

## Goulburn-Mulwaree - Current Land Use




## With 1% Land Use Change




## Carbon Wealth in Farms and Trees

Agriculture is key to solving the climate crisis. South East NSW is well placed to implement solutions including drawdown of carbon through changed farming practices and retaining the vast store of carbon in soils and trees. Goulburn Mulwaree (GM) is rich in trees with 43% forest or woodlands.

## Livestock

Methane ($CH_4$) emissions from burping livestock are a major contributor to world greenhouse gases. In GM, 8% of all emissions are from livestock, primarily sheep, with some beef production.

If 10% of GM graziers supplemented their animals' diet with *Asparagopsis* seaweed, 4,700 tonnes of $CO_2$ would be avoided annually, worth $400,000 on the international carbon market.

## Soil

Soil contributes to climate solutions through carbon drawdown into organic matter and avoiding disturbance.

If 10% of GM farmers oversow perennial pastures with legumes and practise optimal grazing methods, this would draw down 19,100 tonnes of $CO_2$ each year and earn $1.5 M per annum on the international carbon market.

Retaining 1% of GM's perennial pasture each year would avoid 137,000 tonnes of $CO_2$ emissions.

## Planting Trees

One hectare of farm land planted with trees draws down 3.7 tonnes of $CO_2$ p.a.

GM has 200,000 hectares of cleared farm land available for trees. If 10% of this was planted with trees in shelterbelts, ridgelines and creeklines, (1% p.a. for 10 years), it would draw down 67,100 tonnes of $CO_2$ into trees and another 5,500 tonnes into soil, earning farmers $5.8million p.a. on the international carbon market and injecting 140 local jobs for 10 years.

## Keeping Trees

Keeping healthy trees in the ground is a powerful strategy for carbon storage. Mature trees store far more each year than even rapidly growing saplings, particularly the largest species. That means leaving trees on farms, in the forest and in towns and villages is an essential part of a carbon wealth strategy.

## What are the Barriers?

- Low domestic carbon price of $16/$tCO_2$, well below international price of $80/$tCO_2$
- Lack of strong regulatory frameworks, tax incentives and subsidies for participation in the carbon market
- Lack of just transition funding for forest industry restructure from logging to carbon trading
- High start-up costs for tree planting on farms
- Complexity and cost of carbon marketing
- For methane emissions, limited current availability of *Asparagopsis* supplement

## More Reasons to Act Now

- Environmental benefits of moisture retention, soil health, erosion-proofing, animal well-being, biodiversity, sustained productivity and drought resilience
- Diversification of on-farm income
- On-farm long-term financial dividends and investment in 'natural capital'
- Business & job opportunities in carbon drawdown, conservation and nature-based tourism