



A Beyond Zero Future
for South East NSW

Climate Action in Upper Lachlan

About Upper Lachlan — Wiradjuri Country

Population—8,059

Number of residences—4,268.

Emissions per residence 87.4 tCO₂ p.a.

Industries— grazing, local government, aged care

Current energy profile (from Snapshot 2019)

- 73% of emissions from agriculture
- 14% of emissions from on road transport
- Solar installations to 2020— (residential) 666
- Installations new in 2020— (residential) 54

The Upper Lachlan is a hub for renewable energy with proximity to the Snowy Mountains Hydro-Electric Scheme, Gullen Range Wind Farm and Woodlawn Bioreactor. Council and residents are responding to the challenges of climate change, natural hazards, emergency response and sustainable water supplies for settlements.

Tackling Energy First

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

In Upper Lachlan, emissions have trended downwards since 2019, due to changes in land use and the pandemic. If current trends continue, Upper Lachlan will be able to meet the Zero by 2050 target which requires halving CO₂ emissions by 2030. This means:

- Double current rate of residential PV installations to reach 53% of residences by 2030

Home Energy Retrofits

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

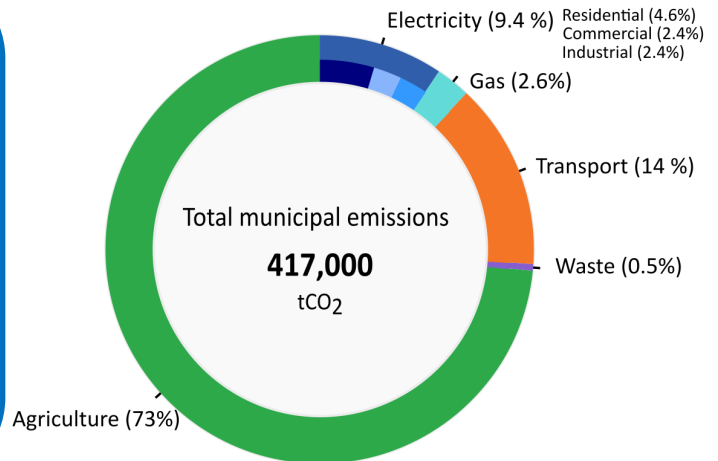
- cuts bills and emissions by 40%
- pays back within 7 years
- makes you \$23,000 better off over 20 years

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 Upper Lachlan each year



would see a 50% cut in total residential energy use by 2030. Payback period for residential solar is 4 to 6 years, saving about \$1000 p.a. — much more with an electric vehicle. The [Clean Energy Council](#) publishes consumer guides: use these to help choose approved local retailers and accredited installers.

Transport—Electric Vehicles are Great to Drive

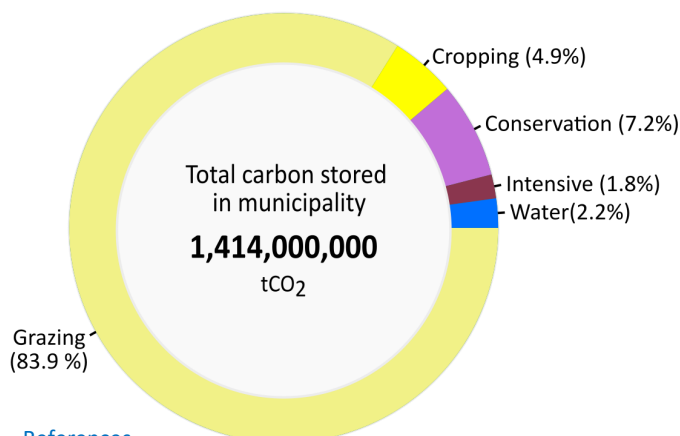
- Running costs up to 85% lower than a conventional car
- Roof-top solar plus EV will typically save you \$4000 a year
- See [NSW Electric Vehicle Strategy](#) for more incentives
- EVs have been more expensive than their petrol/diesel equivalent but this gap is closing fast
- Fast charging infrastructure is growing (although regional areas are not yet well served with fast chargers)

E-bikes are great for distances up to 15km and could be used to increase active transport in villages.

What Else is Needed?

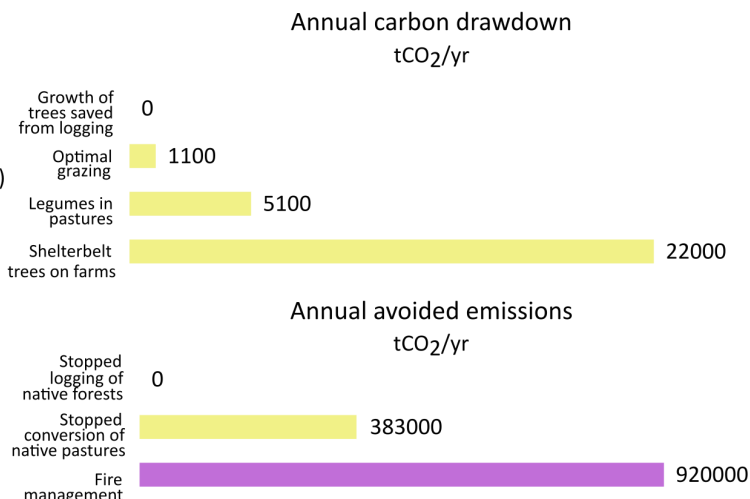
- While there are several wind farms in the Upper Lachlan Shire, they are not stimulating the local economy. The next step is to explore local benefit options, such as through community ownership of renewables and community benefit funds, and small scale renewable energy generation— wind, hydro, biomass and hydrogen.
- 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 & technology uptake, and hold governments & companies accountable
- Share information and stories about the benefits of transitioning to a low carbon economy
- Look for business & job opportunities in www.zerose.space

Upper Lachlan - Current Land Use



[References](#)

With 1% Land Use Change



Carbon Wealth in Farms and Trees

In Australia, agriculture is one 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. The Upper Lachlan is primarily agricultural, with 73% of annual carbon emissions coming from agriculture.

Livestock

Methane (CH₄) emissions from burping livestock are a major contributor to world greenhouse gases. In the Upper Lachlan, 41% of all emissions are from livestock.

If 10% of Upper Lachlan graziers supplemented their animals' diet with *Asparagopsis* seaweed, 14,500 tonnes of CO₂ would be avoided annually, worth \$1.2M on the international carbon market.

Soil

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

If 10% of Upper Lachlan farmers oversow perennial pastures with legumes and practise optimal grazing methods, this would draw down 62,300 tonnes of CO₂ each year and earn \$5.0M per annum on the international carbon market.

Retaining 1% of Upper Lachlan's perennial pasture each year would avoid 383,000 tonnes of CO₂ emissions.

Planting Trees

One hectare of farm land planted with trees draws down 3.7 tonnes of CO₂ p.a. The Upper Lachlan has 600,000 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 203,400 tonnes of CO₂ into trees and another 16,600 tonnes into soil, earning farmers \$17.6M on the international carbon market and injecting 420 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/tCO₂, well below international price of \$80/tCO₂
- Lack of strong regulatory frameworks, tax incentives and subsidies for participation in the carbon market
- High start-up costs of tree planting on farms
- Cost and complexity 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

