



A Beyond Zero Future
for South East NSW

Climate Action in Wingecarribee

About Wingecarribee— Gundungurra Country

Industries— retail, healthcare & social assistance, accommodation & food services, construction, manufacturing, education & training

Population—51,134. Emissions—22t CO₂ per person p.a.

Residences (2019 estimated)—22,522. Emissions per residence—8.4t CO₂ p.a. Current emissions profile (from [Snapshot 2019](#))

- 59% of emissions from electricity use in industry (34%) and households (15%), 24% of emissions from transport, mostly cars, 11% from gas of which most from industrial use.
- Home solar installs to 2020—5,760 (new in 2020—1,050)

Tackling Energy First*

Community energy provides more resilient networks, local ownership of generation and cost savings. Consider supporting and investing in community solar projects for businesses and householders including:

- Building community photovoltaic (PV) solar installations
- Facilitating commercial installations and energy efficiency

In Wingecarribee, Zero by 2050 targets require halving our CO₂ emissions by 2030. This means:

- Increasing current residential rooftop PV installations from 1,050 to 1,490 p.a. to reach 86% of residences by 2030. Wingecarribee has higher than average rates of home ownership. Solar PV installations return strong cost benefits to home owners and purchasers.
- Increase commercial & industrial installations to 2655 by 2030 (650 in 2020). ZeroSE Affiliate Repower is working with installers, Council and business to get power savings and create jobs.

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: use these to choose approved local retailers and accredited installers.

Home Energy Retrofits

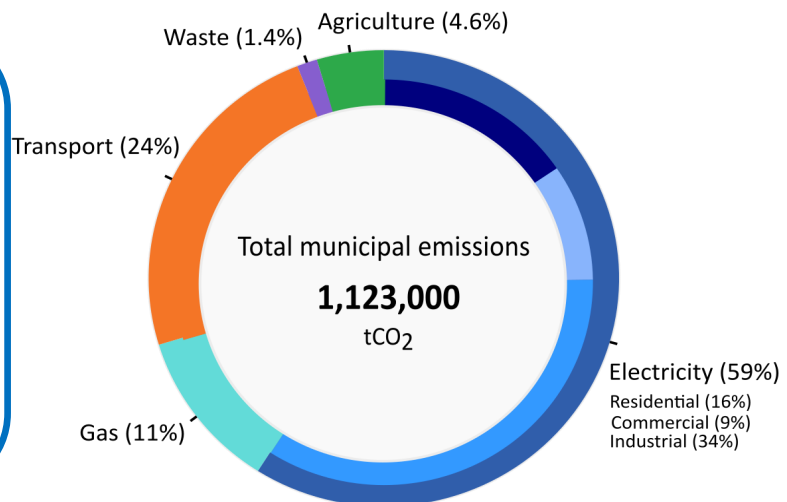
An average retrofit without roof-top solar costs \$11,000 and:

- 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

30/03/2022 *Estimates are indicative only. Always seek independent advice



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 Wingecarribee 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

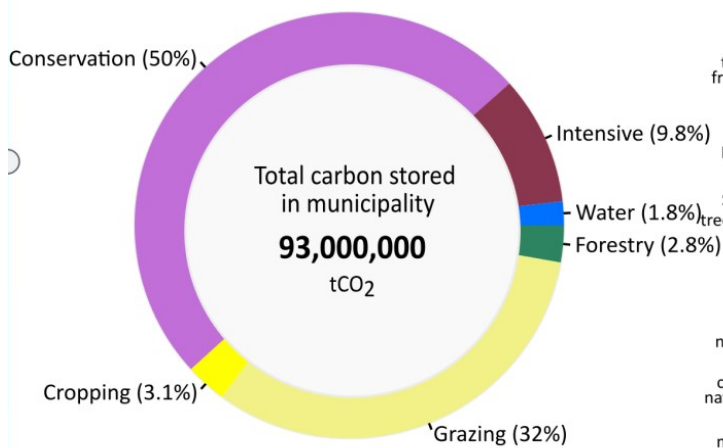
E-bikes are great for distances up to 15km.

What Else is Needed?

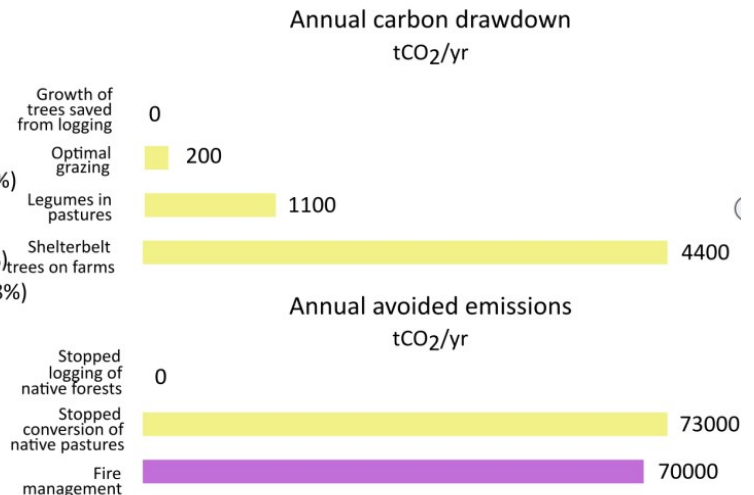
Commercial and industrial installations of rooftop PV are the biggest local growth opportunity for renewable energy. Wingecarribee has higher than average rates of home purchasing/ownership (73% compared to state average of 63%) which supports strong uptake of home solar. Residents can also:

- Join Wingecarribee Net Zero Emissions (WinZero Inc), ZeroSE or other organisations seeking climate action
- Get behind the [#RePowerOurCommunities](#) campaign
- Ask government to support community scale projects - solar farms, batteries & microgrids
- Expect clear targets for emission reductions and technology uptake, and hold governments and companies to account
- Look for business & job opportunities in local clean energy technologies

Wingecarribee - Current Land Use



With 1% Land Use Change



References

Carbon Wealth in Farms and Trees

Agriculture is key to solving the climate crisis. South East NSW is well placed to implement solutions including draw-down of carbon through changed farming practices and retaining the vast store of carbon in soils and trees. Wingecarribee is rich in trees with 60% forest or woodlands.

Livestock

Methane (CH₄) emissions from burping livestock are a major contributor to world greenhouse gases. In Wingecarribee, 3% of all emissions are from livestock.

If 10% of Wingecarribee farmers supplemented their animals' diet with *Asparagopsis* seaweed, 2,900 tonnes of CO₂ would be avoided annually, worth \$200,000 on the international carbon market.

Soil

Soil contributes to climate solutions through carbon draw-down into organic matter and avoiding disturbance.

If 10% of Wingecarribee farmers oversow perennial pastures with legumes and practise optimal grazing methods, this would draw down 12,800 tonnes of CO₂ each year and earn \$1 M per annum on the international carbon market.

Retaining 1% of Wingecarribee perennial pasture each year would avoid 73,000 tonnes of CO₂ emissions.

Planting Trees

One hectare of farm land planted with trees draws down 3.7 tonnes of CO₂ p.a.

Wingecarribee has 85,000 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 40,500 tonnes of CO₂ into trees and another 3,300 tonnes into soil, earning farmers \$3.5 million on the international carbon market and injecting 60 local jobs for 10 years.

Keeping Trees

Accessible urban green spaces are essential for well-being, contributing to improved mental health, reduced cardiovascular morbidity and mortality, obesity, type 2 diabetes, and improved pregnancy outcomes. (*Urban green spaces and health. Copenhagen: WHO Regional Office for Europe, 2016.*) Mature trees in such spaces make a major contribution to CO₂ capture and storage, particularly the largest trees. They also combat the urban heat island effect.

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 for tree planting on farms
- Complexity and cost of carbon marketing
- For methane emissions, limited current availability of *Asparagopsis* supplement

More Reasons for Wingecarribee to Act Now

- Wingecarribee is an important water catchment
- Preservation of biodiversity, including critical wildlife corridor to Great Eastern Ranges
- Environmental benefits of moisture retention, soil health, erosion-proofing, animal well-being, biodiversity, sustained productivity and drought resilience
- Increased farm income and capital value
- Business & job opportunities in carbon drawdown, conser-