



A Beyond Zero Future  
for South East NSW

### About Hilltops—Wiradjuri and Ngunawal Country

Industries—agriculture & forestry, health and social assistance, retail, construction

Population—18,617. Emissions—47t CO<sub>2</sub> per person p.a.

Residences—8,902 (2020). Emissions per residence—99t CO<sub>2</sub> p.a.

Current emissions profile (from [Snapshot 2019](#))

- 64% of emissions from agriculture
- 17% of emissions from residential electricity use
- 16% of emissions from road transport

Home solar installs to 2020—2,533 (new installs in 2020—344)

### Tackling Energy First

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

In Hilltops, Zero by 2050 targets require halving our CO<sub>2</sub> emissions by 2030. This means:

- Keep installing about 350 residential rooftop PV p.a. to move from 30% to over 50% of roofs with solar by 2030
- Increase commercial and industrial use of solar, and investigate waste methane capture and use

Join the Hilltops Climate Action Group ([link?](#)) and work with your community to deliver solutions across the Shire. Their current priorities include water shortage, green canopy and energy efficiency.

### 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

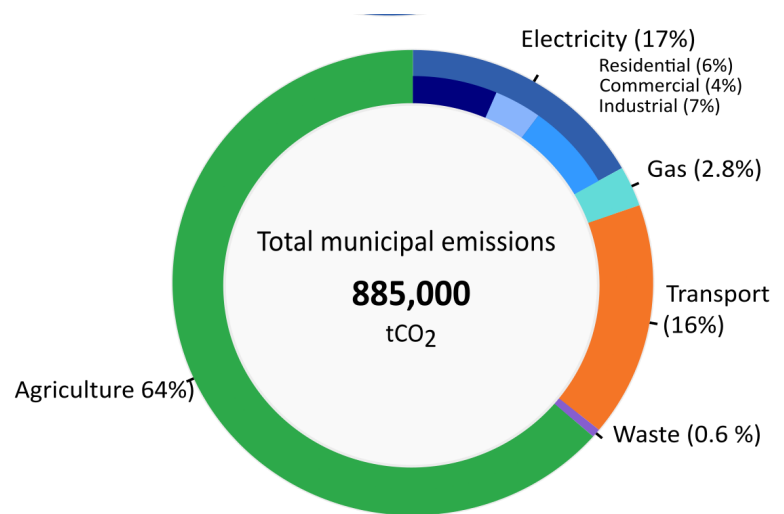
Adding a 5kW roof-top solar costing \$5,000 to this retrofit:

- cuts emissions by 65%
- makes you \$27,000 better off over 20 years

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

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

## Climate Action in Hilltops



[Clean Energy Council](#) publishes consumer guides: choose approved local retailers and accredited installers.

Retrofitting 5% of homes in the Hilltops 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

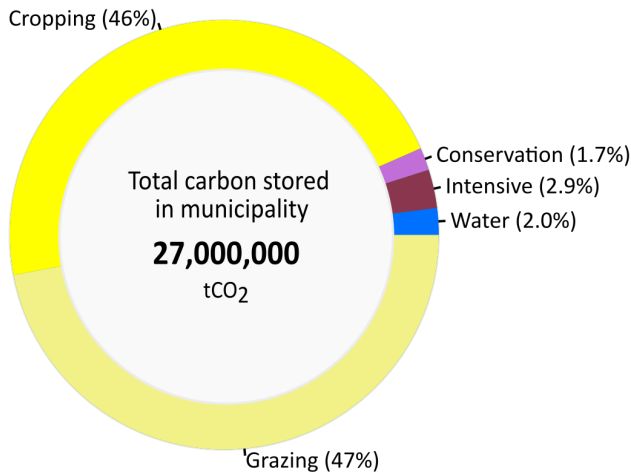
E-bikes are great for distances up to 15km.

### What Else is Needed?

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

- 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, and hold governments and companies accountable.
- Share information and stories about the benefits of transitioning to a low carbon economy.
- Look for business and job opportunities in local clean energy technologies.

## Hilltops - Current Land Use



### 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. Hilltops is rich in trees—25% is forest or woodlands, most on agricultural land.

## Livestock

Methane (CH<sub>4</sub>) emissions from burping livestock are a major contributor to world greenhouse gases. In Hilltops, 3% of all emissions are from livestock.

If 10% of Hilltops farmers supplemented their animals' diet with *Asparagopsis* seaweed, 2,500 tonnes of CO<sub>2</sub> emissions 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 Hilltops farmers oversow their perennial pastures with legumes and practise optimal grazing methods, this would draw down 10,800 tonnes of CO<sub>2</sub> each year and earn \$864,000 p.a. on the international carbon market.

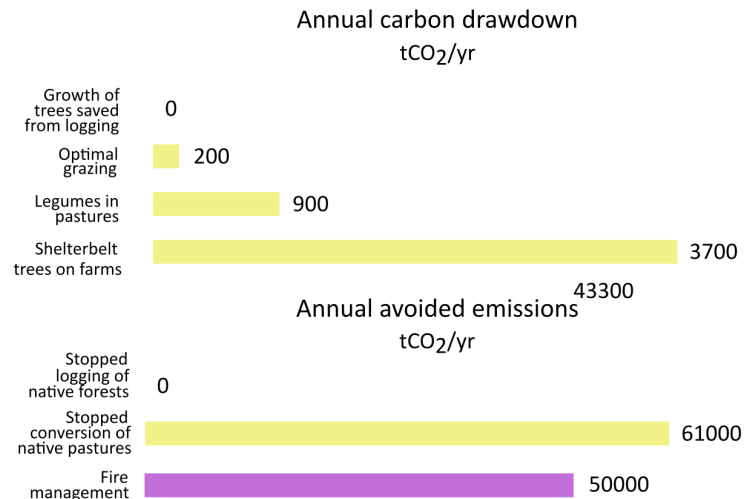
Retaining 1% of Hilltops perennial pasture (that is, not converting native pasture to improved pasture) each year would save 61,000 tonnes of CO<sub>2</sub>.

## Planting Shelterbelt Trees

One hectare of farm land planted with trees draws down 3.7 tonnes of CO<sub>2</sub> p.a. Hilltops has 121,000 hectares of cleared farm land available for trees.



## With 1% Land Use Change



If 10% of this was planted with trees in shelterbelts, ridgelines and creeklines, (1200 ha p.a. for 10 years), it would draw down 3,400 tonnes of CO<sub>2</sub> into trees and soil, earning local farmers \$3 million on the international carbon market and injecting 90 local jobs for 10 years.

## Keeping Trees

Scattered paddock trees are valuable assets that boost farm productivity and profitability. These older trees store large amounts of carbon, and provide shade and shelter to stock, crops and workers. Keeping these isolated trees in good condition, and recruiting new trees to replace those that are lost, is a major contribution to farm value and carbon storage. (sustainablefarms.org.au)

## What are the Barriers?

- Low domestic carbon price of \$16/tCO<sub>2</sub>, well below international price of \$80/tCO<sub>2</sub>
- Lack of strong regulatory frameworks, tax incentives and subsidies for participation in the carbon market
- Lack of just transition funding for forest industry restructuring from logging to carbon trading
- High start-up costs of trees 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 and job opportunities in carbon drawdown, conservation and nature-based tourism