

## Climate Emergency

### Emissions reduction and sequestration actions

#### Key messages:

Switching to renewables: Emissions from fossil fuel-based electricity and transport are Tweed Shire Council and the Tweed community's most significant source of greenhouse gases. Council can play a direct role in shifting its own source of power, but has limited direct influence over others to do the same. Individuals', state and federal government actions are also needed to improve energy efficiency and shift fuel sources to renewables.

Drawdown: The current extent and future opportunities for carbon sequestration through revegetation and building up soil carbon is currently unquantified. This is a key area of research needed to describe the environmental economic implications for the Tweed.

#### Overview

A range of Council's existing work programs actively contribute to reduced greenhouse gas emissions and drawing down atmospheric greenhouse gas emissions such as Roads & Stormwater, Fleet, Water & Wastewater, Resource Recovery and the preparation of a Zero Waste Strategy; Coastal Management, Biodiversity, Waterways, Pest Management, Land & Economic Development, Parks & Active Communities, Sustainability and Sustainable Agriculture.

The following 37 actions highlight Council's key existing and new priorities and, where emissions impacts can be estimated, could reduce up to 29,000 tonnes of greenhouse gas emissions and sequestered carbon dioxide, equivalent to approximately 3% of the total annual estimated greenhouse gas emissions across the Tweed local government area.

\$3.4M funding for emissions reduction actions include eight 'Ongoing' actions and new actions with an estimated potential to reduce greenhouse gas emissions by up to 2,750 tonnes of CO<sub>2</sub>-e/year, with 90% of those emissions reductions estimated to deliver a positive return on investment.

ID	Emissions reduction action summary	Action details	Can we have a direct impact?	Total tonnes of emissions avoided or sequestered per annum	Cost and funding source	Funding status	Certainty that action can be delivered
<b>Ongoing</b>							
GHG 1 Eng	Bulk changeover of streetlights to LED	Consultation with service provider to switch existing street light technology to more energy efficient and less maintenance intensive LED	Direct	1,255 tonnes of CO <sub>2</sub> -e avoided each year	\$2.7M from infrastructure reserve	Funded	High
GHG 2 Eng	Banora Point WWTP 604kW ground mounted system	Design, contract and install 'behind the meter' solar	Direct	674 tonnes of CO <sub>2</sub> -e avoided per annum	\$880,000 from Water & Wastewater Reserve	Funded	High
GHG 3 Eng	Aeration control and Return Activated Sludge (RAS) pump optimisation at wastewater treatment plants	Aeration optimisation control works have already been completed on most treatment plants.. RAS pump replacement will be completed at Banora next year. Largest potential saving is with intermittent aeration. This option requires further investigation and testing.	Direct	200 tonnes CO <sub>2</sub> -e/year as a result of approximately 5% savings of all WWTP energy use	Costs have not been determined but may be close to zero if no additional electrical soft starters or mechanical fixings changes required. Wastewater Reserve	Funded	High
GHG 4 Eng	Hybrid vehicles	Increase the proportion of hybrid vehicles in Council's light vehicle fleet.	Direct	50 tonnes of CO <sub>2</sub> -e/year avoided with 31 hybrids in Council's current fleet	Cost neutral or slight cost saving, can be funded through current fleet budgets	Funded	High
GHG 5 GM	For large events, seek to encourage 'carbon neutral certified events'.	Provide guidance to large event organisers about how to calculate related greenhouse gas emissions, and find ways to reduce or offset those emissions.	Indirect	Event dependent	Nil	Funded	Low
GHG 6 P&R	Small Sustainable Village	Undertake an assessment and concept design of an affordable housing project on Wardrop Valley Road, Wardrop Valley.	Indirect	Review of viability		Funded	Medium
GHG 7 P&R	Holistic approach when conducting inspections. Not only focus on public health	Collaboration with other units to reduce amount of inspections required. Ability to collect information, evidence for other units in Council or identify issues.	Direct	5.4 tonnes CO <sub>2</sub> -e avoided per year \$4,300 saved in petrol costs	Staff training costs, nil	Funded	Medium

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		Use Facetime for inspections, where applicable.					
GHG 8 P&R	Air quality: Enforcement of the Clean Air regulation, air monitoring program and education to the public.	Review Council approach in relation to air quality. Refine information available to the public. Work in collaboration with other regulatory authorities. Community education.	Direct	400 tonnes CO <sub>2</sub> -e avoided per annum, at a cost of \$12.50 per annum by avoiding burning of 500 tonnes of green waste (0.82t CO <sub>2</sub> -e for every 1t of biomass burnt).	\$30,000 annually ongoing. Potential funding from Environmental trust.	Unfunded	Low
GHG 9 P&R	Design guide brochure	Guide local development and produce housing stock that is environmentally sensitive.	Indirect	Reduced electricity use for the lifetime of the housing stock	Minimal	Funded	Medium
GHG 10 SC&E	Sustainable design principles applied during Council facility upgrades	Owner's consent process embeds sustainability considerations into facility improvements.	Direct	Energy efficiency improvements have not been measured	Nil cost for facility reviews	Funded	High
GHG 11 SC&E	Convert all sport field lighting to LED	Convert sports field lighting to LED to reduce power consumption and on going maintenance requirements	Direct	10 tonnes CO <sub>2</sub> -e/year	\$100,000 to \$250,000 depending on capacity for retrofit or full replacement	Partly funded	High
GHG 12 SC&E	Complete remaining Renewable Energy Action Plan (REAP) Phase 1 projects	Contract and deliver solar at Kingscliff Library, Kingscliff Pool, Tweed Heads Depot, Tweed Heads Admin Office, Murwillumbah Civic Centre. Complete facility lighting and HVAC upgrades.	Direct	700 tonnes of CO <sub>2</sub> -e/year	\$375,000 from Council General Fund, Water and Wastewater reserves and grants	Funded	High
GHG 13 SC&E	Promotion of Council's green organics collection service to businesses with food waste	10 cafes reduce food waste to landfill as a result of Council collaborating with NEWaste -Waste Warriors to increase green bin collection services in food businesses.	Indirect	10 tonnes of CO <sub>2</sub> -e/year if 10 cafes reduce food waste to landfill	Allocated within existing program	Funded	High
GHG 14 SC&E	2 yearly Sustainable Living Expo	One stop shop of inspiration and local suppliers of sustainable living solutions	Indirect	100 tonnes CO <sub>2</sub> -e/year as per energy efficiency workshops, although no emissions or adaptation impact currently measured.	\$10,000 from participating Council programs	Funded	High
GHG 15 SC&E	Energy efficiency and renewable energy workshops	Information to help households reduce electricity use and switch to renewables	Indirect	100 tonnes CO <sub>2</sub> -e/year based on participant pledges	\$1,500 from the Sustainability Program budget	Funded	High
GHG 16 SC&E	Support the adoption of regenerative agricultural practices	Promote and facilitate the adoption of regenerative agricultural practices including minimal till, diverse cover crops, on-farm fertility (no external inputs), no synthetic fertiliser or pesticide use	Indirect	Up to 150 tonnes CO <sub>2</sub> -e/year sequestration and avoided emissions assuming up to 1.5t CO <sub>2</sub> e-/ha/yr sequestration and avoided emissions on up to 100 ha.	Up to \$25,000 in Sustainable Agriculture Grants	Partly funded	Medium
<b>New</b>							
GHG 17 Corp	Prioritise video and teleconferencing for distance meetings and recruitment interviews	Introductory meetings and interviews to be conducted via video and teleconferencing	Direct	140 tonnes of CO <sub>2</sub> -e avoided per year from driving and flying emissions, based on 2 online video conferences per week with contributors from South Coast NSW, Sydney, Sunshine Coast and Tweed.	Nil	Funded	Medium
GHG 18 Eng	Renewable power purchase options (REAP Phase 3)	Purchase power from renewable sources in Council's large site electricity contract	Direct	17,900 tonnes CO <sub>2</sub> -e/year	Same or lower cost of existing electricity contract	Funding available	Medium
GHG 19 GM	Supporting the creation of a manufacturing Food Hub at Pottsville to reduce food transport emissions	Undertake an options report for the provision of wastewater services	Indirect	Not calculated	Council has recently endorsed the expenditure of \$500,000 to undertake an options report for the provision of wastewater services	Funded	Medium
GHG 19 P&R	Assisting with advocacy of design principles of housing to reduce the need for cooling and heating	Easy to use and understand resources/check list for duty planners and DAP to guide applicants on passive design principles for their projects,	Indirect	Calculate what the reduction in energy consumption would be if new homes increased their BASIX rating	Staff resources - potential student project?	Funded	Medium

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	expenses	based on <a href="https://www.tweed.nsw.gov.au/DesigningAHome">https://www.tweed.nsw.gov.au/DesigningAHome</a>		from x to y as a result of Council's advice			
GHG 20 P&R	Include climate change in the Let's Chat program		Indirect	0.7 tonnes CO <sub>2</sub> -e avoided per annum at a cost of \$800 per tonne and \$556 saved in petrol costs.	\$10,000 to develop a communication campaign, material, EHO time. Potential grant funding via the Environment Trust.	Unfunded	Low
GHG 21 SC&E	Use locally sourced stone masonry for burial headstones	Proactively source stone products from within Australia and promote their use to customers.	Direct	Each local headstone will avoid transport emissions from Norway/South Africa/China where existing marble originates.	May cost about 30% more to customers	Unfunded	Medium
GHG 22 SC&E	Encourage low emissions innovation options in the next Tweed resource collection tender	If feasible, based on feedback by other councils, waste industry and contractors, invite contractors to describe innovation options (e.g. truck options to use low emissions fuels) in the next tender.	Direct	63 tonnes CO <sub>2</sub> -e per year (SA example) through electric collection trucks	Contractor costs e.g. \$550k purchase price for electric truck, projected to save \$220k over its 7 year life	Funded	Low
GHG 23 SC&E	Investigate current versus in shire transport for waste and organics	Promote details of reductions once organics facility is in place and organics processed within shire.	Direct	To be calculated	To be confirmed	Funded	High
GHG 24 SC&E	Conduct separate audit of rural properties with 2 Bin System	Undertake audits of red bin at rural properties (random sample)	Indirect	To be calculated or targeted	To be confirmed	Funded	High
GHG 25 SC&E	Carbon smart land management	Design and deliver integrated land management projects on 2-3 sites inclusive of increased soil and vegetation carbon sequestration, increased production values, and improved water quality and biodiversity condition.	Direct	Method to be confirmed and baseline data to be collected	Cost TBC, funding through existing programs (Biodiversity, River Health & Sustainable Agriculture grants, Koala Plan of Management implementation)	Funded	Medium
GHG 26 SC&E	Support the increased use of biochar in agriculture	Demonstrate low cost, 'do it yourself', biochar making processes to farmers through education events and on-ground support.	Direct	400 tonnes CO <sub>2</sub> -e/year in avoided emissions from burning of crop or farm waste (0.82t CO <sub>2</sub> -e for every 1t of biomass burnt)	\$5,000 per workshop or demonstration site, would require grant funding	Not funded	Medium
GHG 27 SC&E	Conduct a managed cattle grazing trial	Design and conduct a managed grazing trial across 60ha using the soil key renovator, pasture improvements and rotational grazing to increase soil carbon and explore opportunities to register such projects under the Australian Government's Emissions Reduction Fund	Direct	120 tonnes CO <sub>2</sub> -e/year assuming 1-2 tonnes CO <sub>2</sub> e-/ha over 60 ha	\$50,000	Funded	Medium
<b>Aspirational</b>							
GHG 28 SC&E	Cardboard coffins	Source and offer cardboard coffins as part of an eco burials service	Indirect	6 tonnes of CO <sub>2</sub> -e per year assuming 1/10 cremations opt for a cardboard coffin and therefore 2/3 reduction in cremation gas use per person.	User pays	Not funded	Medium
GHG 29 SC&E	Re-assess the business case for more solar and battery projects at Council facilities (REAP Phase 2)	Review and revise costings and building readiness.	Direct	1,883 tonnes CO <sub>2</sub> -e avoided per annum	\$3.7M, source to be confirmed pending business case review	Not funded	Medium
GHG 30 SC&E	Purchase offsets to reduce Council's corporate emissions footprint to zero	Invest in projects, activities or products that reduce emissions or sequester carbon dioxide from the atmosphere	Direct	~4,000 tonnes CO <sub>2</sub> -e per annum, assuming the offsite PPA goes ahead and residual corporate emissions are confirmed in a third party audit in line with our existing calculations.	\$30,000 - \$240,000 per annum, Climate Change Fund	Not funded	High
GHG 31 SC&E	Investigate barriers and opportunities	Research scenarios for Tweed residential	Indirect	206 tonnes CO <sub>2</sub> -e could be avoided	\$30,000 ARENA Grant?	Not funded	Low

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	to increase solar uptake for residential, commercial and industrial properties in the Tweed	renters, owner occupiers, commercial tenants and large industrial electricity users to increase use of renewable		if current rate of rooftop solar across the Tweed could be doubled e.g. 60,000kW to 120,000kW			
GHG 32 SC&E	Zero emissions electricity independence in the social housing sector	100 solar and battery systems on social housing units	Indirect	581 tonnes CO <sub>2</sub> -e/year	\$2 million + project management costs, state & federal governments through reallocation of benefits	Not funded	Low
GHG 33 SC&E	Ensuring Council's corporate emissions calculations are accurate.	Review Council's electricity, transport, waste and wastewater emissions data sources to ensure they are accurate and reported in line with best practice	Indirect	Accurate emissions reporting data	\$8,500, Climate Change Fund	Not funded	High
GHG 34 SC&E	Improved use of fertiliser in broadacre agriculture	Investigate potential for improved nitrogen use in broadacre crops such as sugar cane, sweet potato and dairy by working with a 1 or 2 growers from each sector to review current fertiliser use and application methods and identify opportunities for improvement.	Direct	Method to be confirmed and baseline data to be collected	Not determined	Not funded	Low
GHG 35 SC&E	Reduce methane emissions from livestock	Promote and facilitate the use of supplementary feeds that are known to reduce emissions from ruminants (cattle)	Direct	150 tonnes for 100 head of cattle assuming certain feed supplements can reduce the 1.5t CO <sub>2</sub> -e emissions from each head of livestock by 95%	Cost is undetermined but likely to be high due to high cost and limited availability of suitable feed supplements	Not funded	Medium
GHG 36 SC&E	Trees for farms program	Establish a tree planting program on farms to support the integration of native vegetation establishment in agricultural systems including agroforestry, silvopasture and multistrata planting to sequester carbon.	Direct	Potential for 2.5 - 7t CO <sub>2</sub> e-/ha/year	\$40,000/ha	Partly funded	Low