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Planning,
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Department of Planning, Industry
& Environment

Report

TRANSITION TO NET ZERO: LOCAL GOVERNMENT ROLE IN GREENHOUSE GAS EMISSIONS REDUCTIONS TO 2030 AND 2050

02 April 2021

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1 Executive Summary

In 2019 NSW set a target of net-zero emissions by 2050 with the Stage 1 plan for the period 2020 – 2030 being released in early 2020. This plan sets a target of 35% emission reductions by 2030. The plan focusses on industry sectors and technologies but doesn't include commentary on the role of local governments in helping achieve these targets. The NSW Department of Planning, Industry and Environment's (DPIE) Sustainable Councils and Communities Program (SCC) commissioned this report to understand what role local government can play in meeting NSW's emission reduction objectives.

1.1 Emissions from council operations

Greenhouse gas emissions in New South Wales were 131,685 kt CO₂-e in 2018 according to National Greenhouse Inventory figures¹. The 128 local councils in New South Wales make both direct and indirect contributions to the State's greenhouse gas emissions.

- Local councils account for 1% of energy-related emissions and 2.14% of all NSW emissions, rising to around 2.52% when non-energy scope 3 emissions are counted.
- Regional councils emit an estimated 75% of all council greenhouse gases, as they operate energy-intensive water and wastewater treatment plants as well as landfills, and service large road networks.
- Several activities of councils lead to significant GHG emissions, including community facilities, water & sewer services, streetlighting and road maintenance, with attendant opportunities for GHG abatement.

1.2 What influence do councils have over community emissions?

With local councils responsible for 1% of energy-related emissions, their communities – residents and business – account for the other 99%. Councils have several levers available to them to help their communities reduce their emissions. These are illustrated below.

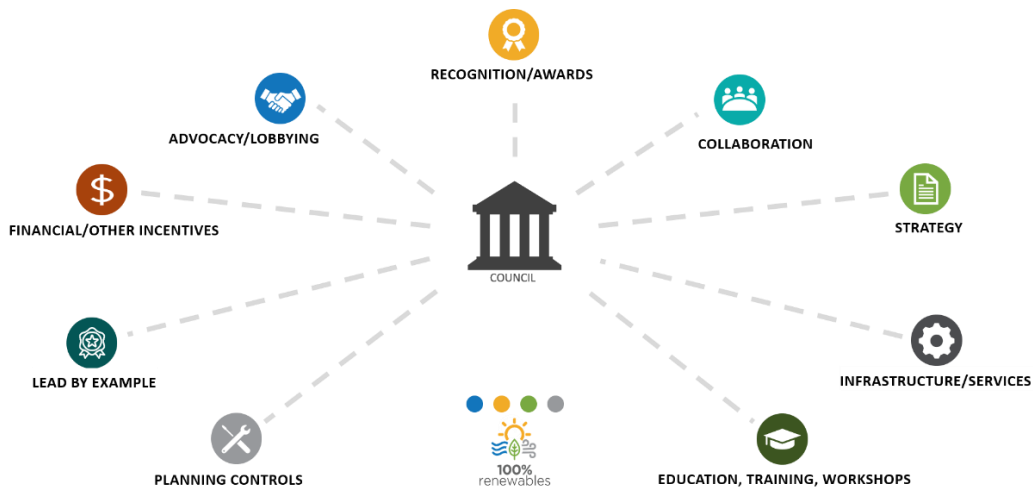


FIGURE 1: LOCAL COUNCIL LEVERS TO INFLUENCE GHG EMISSIONS IN THEIR COMMUNITIES

¹ State and Territory Greenhouse Gas Inventories 2018, Australian Government Department of Industry, Science, Energy and Resources

- Councils’ most direct impact comes from how it acts to reduce its own emissions in its operations, through implementation of planning controls and strategies, through the infrastructure and services it provides within communities, and through collaboration – particularly with other councils to progress significant regional initiatives.
- Councils could encourage their communities to reduce their emissions by encouraging developers to go beyond minimum requirements, through incentives to residents and business, by providing education and engagement services to better inform people, through recognition of community members’ sustainability leadership, and by advocating for action by all levels of government.
- Councils’ ability to influence emissions in their communities can be described as ‘medium’ on the whole, with low ability to influence major abatement such as will occur via grid decarbonisation, high ability to influence emissions from waste, and medium influence on other measures such as sustainable transport, energy efficiency and rooftop solar/batteries, through their abatement action within their own operations, and through education & facilitation of community responses.

1.3 Examples of councils setting and achieving abatement targets

Approximately 28 (out of 128) councils across NSW have set ambitious targets for renewable energy and/or carbon emissions from their operations (at October 2020), illustrated below.

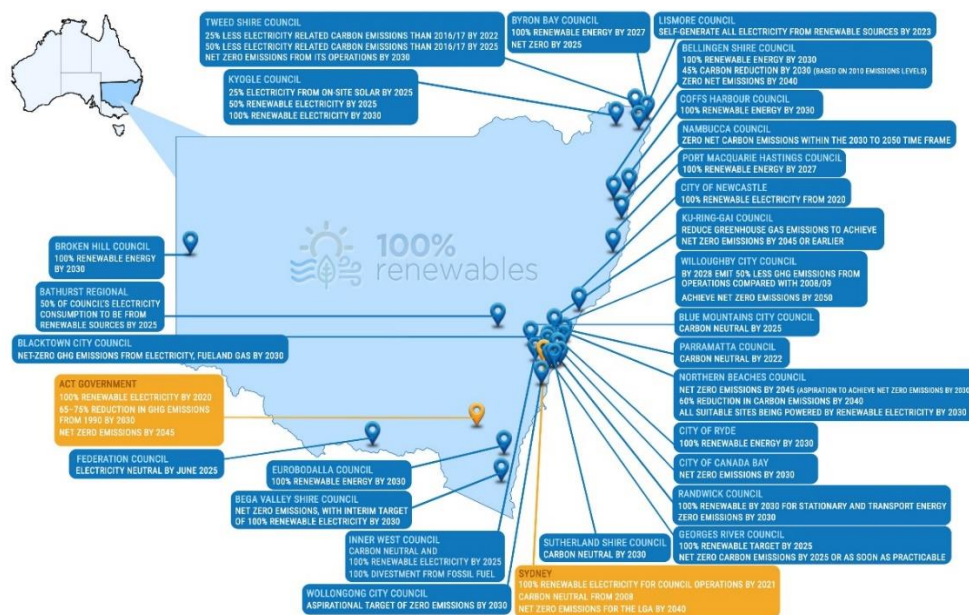


FIGURE 2: AMBITIOUS COMMITMENTS ON RENEWABLES AND GHG EMISSIONS BY NSW COUNCILS, 2020

- Ambition and action to reduce emissions is concentrated in inner metropolitan and large coastal councils who may be better resourced to both set targets and deliver on their plans.
- Cost savings as well as environmental / climate-related concerns are among the main reasons for action by councils.
- Notwithstanding the influence of greater staff resources, individual leaders and communities are also important factors that can drive Councils to act on targets and implementation of action on climate.
- At this time, climate action by councils in their operations is not matched by councils’ efforts to engage their communities to reduce emissions, though there is an emerging trend towards this.

1.4 Pathways for emission reductions for councils and communities

Over the next twenty years the NSW electricity grid will largely decarbonise, with retiring coal-fired power stations likely replaced with renewables. Aside from this the abatement levers available to a council to reduce its operational energy-related emissions include:

- Onsite solar PV and batteries
- Energy efficiency
- Renewable energy power purchasing
- Electric vehicles and, in time other options such as hydrogen fuels

In the long term grid decarbonisation with renewables and a change to electric (or hydrogen) vehicles will be the two most significant factors in reducing a council's operational emissions. However, deep cuts or even beyond-BAU cuts to emissions in the next 10-15 years (depending on the pace of grid decarbonisation) will happen by councils acting themselves.

Renewable energy power purchasing agreements (PPAs) offer the greatest opportunity for emissions reduction. Solar PV and energy efficiency can make moderate contributions to emissions reduction, but important contributions through good financial returns, greater engagement of staff at all levels, and greater literacy around emissions reduction and renewables. Low emissions and electric vehicles offer longer term opportunities in terms of emissions reduction for councils, and the higher priority at this time may be hybrids, EV charging infrastructure and collaboration with State government and neighbouring councils to facilitate this change.

At a community level additional abatement levers need to be considered when developing pathways towards net zero emissions, including emissions reduction from forestry and agriculture, industrial processes, waste management, and potentially community-scale or regional clean energy generation. In addition, communities seeking to achieve deep cuts to their emissions may need to place greater focus on energy efficiency, solar and battery solutions and EVs, with renewable energy power purchasing being more expensive for smaller users at this time.

1.5 Barriers to councils progressing emissions reduction

The top five barriers to action identified by SCC councils in a recent survey include:

- Financial constraints (e.g. low rate base, rate capping, competing priorities for funds)
- Lack of knowledge and internal capacity
- Old infrastructure
- Lack of a plan or strategy
- Lengthy payback periods

However barriers are not the same in their scale and impact, and in many inland regional and some coastal councils in particular these barriers are more acute and a greater barrier to progress than is the case in many metropolitan and large coastal councils. This is reflected in the ambition, resources and achievements of councils across the state.

- Metropolitan councils serving the majority of the NSW population but with just 25% of local government emissions, have the most ambitious targets, better funding and more resources to act on climate than their coastal or inland regional counterparts.

- Inland regional councils have similar emissions from their operations as metropolitan councils (and similar opportunities for abatement), but a fraction of the funds and resources to respond to climate change. Unlike metropolitan and coastal councils there is a lesser call for urgent action on climate (e.g. climate emergency declarations, ambitious targets, peer collaboration). Small, low socio-economic inland regional councils generally have few resources to address emissions reduction opportunities, and levels of success in implementation are similarly low.
- Many coastal councils are actively engaged in action on climate through setting of targets, planning for abatement in their operations and declaration of a climate emergency. Larger coastal councils tend to be better resourced to plan their pathways to renewables and low emissions, whereas smaller councils tend to require greater support from State government to help them plan, set targets and implement.
- Across the state, action on emissions reduction by local councils is largely focused on their operations, and action on the levers that could reduce emissions in their communities is low by comparison across all councils, though more pronounced in regional areas.

1.6 What role could multi-council, regional groupings play?

- Lack of resources means that constrained councils – typically inland regional, small coastal and some outer metro councils – cannot progress rapid action to reduce emissions in their operations.
- Groupings such as Joint Organisations (JOs) may have a greater opportunity to progress action on climate, and key focus areas of some JOs highlight what could be targeted with the right level of resources, including:
 - Renewable energy power purchasing
 - Street lighting upgrades to LED and smart controls
 - Waste management
 - Regional renewable + bioenergy, emissions reduction and climate adaptation planning
 - Coordination of electric vehicle infrastructure rollout
 - Regional education resources and toolkits

With financial limitations and resources being the major barriers to progress, state government support to overcome these barriers in under-resourced councils and regions through groupings of councils (such as JOs but potentially other groupings as well) may be warranted. Some initiatives that could potentially be progressed with additional support to regional groupings include:

- Awareness and education resources – low membership of initiatives such as CPP, few climate emergency declarations and few plans for carbon abatement may highlight a gap in access to information that a JO could coordinate on behalf of its members,
- Provide regional resources to better enable advocacy to state and commonwealth governments,
- Recognise excellence and achievement in climate response at a regional level to raise awareness,
- Having access to energy data and contract information across multiple councils could help to highlight opportunities such as tariff changes, metering contract opportunities, price benchmarking within JOs,
- To the extent that members wish to pursue renewable energy purchasing, aggregation of load and coordination of contract start dates can facilitate this process. It can take a few years for a multi-council opportunity to develop, and a coordinating body pulling this opportunity together would be required if there was sufficient interest,

- Regional renewable energy strategy or plans could more cost effectively target the identification and development of renewable energy and energy efficiency initiatives at larger sites,
- Potential to initiate and coordinate grant opportunities for efficiency and clean energy opportunities, such as community renewable energy, mid-scale solar, community retailer, etc,
- Coordination of regional renewable energy and bioenergy assessments and development of feasible projects,
- Ability to coordinate efforts to work with state government on electric vehicle (EV) initiatives such as charging infrastructure development, consumer information, fleet leasing / procurement, rather than council-by-council progress,
- Potential to develop a form of revolving energy fund (REF) that could help to fund regional clean energy projects, and to explore other financial support measures or incentives (such as special rate variations, fees and charges for environmental assessments, waste levies)
- Ability to develop regional climate risk / resilience and adaptation plans

2 Project scope

The NSW Department of Planning, Industry and Environment's (DPIE) Sustainable Councils and Communities (SCC) Program works with resource constrained councils and Joint Organisations (JOs) across NSW. The program helps councils understand, prioritise, plan and implement energy efficiency and renewable energy upgrades, and set targets for renewable energy and greenhouse gas emissions reduction in their operations and communities. The SCC Program aims to:

- Identify opportunities for councils to save energy, money and increase energy efficiency and renewable energy knowledge among council staff;
- Support councils in using energy data to develop business cases and plans for renewables and efficiency projects and become 'investment ready';
- Increase knowledge and capacity in LGAs through renewable energy and efficiency programs aimed at supporting households, businesses and communities.

This program is designed to overcome a number of barriers reported by smaller local governments in NSW, such as internal resource constraints, a low rate payer base, and high operational costs from large road networks and aging infrastructure. The Sustainable Councils and Communities Program (SCC) commissioned this report to understand what role local government can play in meeting NSW's emission reduction objectives. Key questions that this paper seeks to respond to include:

- What are the total emissions from council operations (*Scope 1, 2 and 3 emissions*)?
 - How big is the regional portion of those emissions?
 - Indicative breakdown by asset type, emissions source of business activity
- What leverage or influence could/do councils have over emissions reductions in their community?
 - What unique or additional influence does local government have over community emission reductions, compared to other sector-based approaches?
- What examples are there of councils setting and achieving emission reduction targets?
- How do councils transition along a spectrum of efficacy in addressing emission reductions?
 - For example; how does a council move from being motivated purely by simple cost savings through energy efficiency and renewables, to setting progressive emission reduction targets in partnership with their community (evidence-based or anecdotally)?
 - What are the stages? How do they occur? Examples?
- What does a model or archetypal pathway to 35% emission reductions (by 2030) and Net Zero look like for a regional council and community?
 - What is the "marginal cost of abatement curve for local government and community"?
- What prevents or slows councils from automatically progressing along this spectrum?
 - What barriers are within council/community control?
 - What barriers are outside of council/community control (e.g. through State and National laws, policies and planning)?
 - What are the opportunities?
- What role could multi-council, regional groupings play?
 - What is the highest value support the NSW Government can provide in assisting and accelerating this transition? Examples?

3 What are the total emissions from council operations?

Greenhouse gas emissions in New South Wales were 131,685 kt CO₂-e in 2018 according to National Greenhouse Inventory figures². The 128 local councils in New South Wales make both direct and indirect contributions to the State's greenhouse gas emissions. These include:

- Emissions resulting from the use of energy in local council operations, amounting to an estimated 1,333 kt CO₂-e (Scopes 1, 2, 3) before accounting for measures such as purchasing renewable energy. This is based on data for 32 councils covering more than 3 million people in NSW, scaled to the State's total population, split into urban and regional councils.
- Many regional councils operate landfill sites for disposal of solid waste generated in their local area or adjacent areas. With statewide solid waste emissions of 3,035 kt CO₂-e, a simple regional population-weighted estimate of 1,079 kt CO₂-e is made for regional landfill emissions. Landfills serving the largest urban populations are assumed to be privately run.
- Many regional councils are also water and wastewater service providers. Statewide wastewater treatment and discharge emissions are 1,147 kt CO₂-e, so a simple regional population-weighted estimate of 408 kt CO₂-e is made for regional wastewater emissions. Water authorities such as Sydney Water and Hunter Water are responsible for emissions from wastewater systems serving the largest urban populations.
- Lastly, there are emissions outside of council operations resulting from council activities (such as flights, professional services, purchased goods – referred to as Scope 3 emissions). These are only quantified by a small number of councils, and a best estimate is that these may amount to around 500 kt CO₂-e of emissions (Scope 3 emissions can be 30-40% on top of energy-related emissions for many Councils).

Taken together greenhouse gas emissions resulting from activities of local councils in NSW may account for 3,319 kt CO₂-e, or 2.52% of the State's GHG emissions (2,819 kt CO₂-e or 2.14% without non-energy scope 3). Within this, energy-related operational emissions account for 1% of the State's emissions.

3.1 Regional v urban GHG emissions

Regional areas emit a disproportionately high fraction of local council GHG emissions on a gross and a per-capita basis. There are three primary reasons for this:

- Many regional councils operate landfills and are responsible for management of associated emissions.
- Many regional councils operate water and wastewater services, which are energy-intensive to operate, and lead to direct emissions through the treatment and discharge of effluent.
- Regional councils cover large land areas with significant road networks that are usually managed by the local council. This leads to large fuel emissions for heavy trucks and road plant, and longer distances travelled in pool and leaseback vehicles by staff.

Overall, it is estimated that regional councils account for 75% of local council emissions, or 2,475 kt CO₂-e. Urban councils are estimated to account for 25% or 844 kt CO₂-e.

² State and Territory Greenhouse Gas Inventories 2018, Australian Government Department of Industry, Science, Energy and Resources

3.1.1 How energy is used by councils

Data from 32 councils across regional and urban areas were reviewed at a high level and scaled to NSW total population to develop an estimate of emissions associated with various energy-using activities within council operations. This yields the following:

TABLE 1: LOCAL COUNCILS ENERGY USE BY ACTIVITY – URBAN AND REGIONAL

Activity (energy-using)	Energy	Urban council kt CO ₂ -e	Regional council kt CO ₂ -e	% of total
Offices, parks and community facilities	Electricity, gas	243,380	189,907	33%
Water & Sewer Services	Electricity	-	316,512	24%
Streetlighting ³	Electricity	162,253	126,605	22%
Road operations	Fuel	70,904	185,217	19%
Passenger transport	Fuel	17,726	20,580	3%
All energy-using activities		494,263	838,820	100%

Key observations

- Local councils account for 1% of energy-related emissions and 2.14% of all NSW emissions, rising to around 2.52% when non-energy scope 3 emissions are counted.
- Regional councils emit an estimated 75% of all council greenhouse gases, as they operate energy-intensive water and wastewater treatment plants as well as landfills, and service large road networks.
- Several activities of councils lead to significant GHG emissions, including community facilities, water & sewer services, streetlighting and road maintenance, with attendant opportunities for GHG abatement.

³ It is noted that streetlights are owned by electricity network operators, but energy and maintenance costs are paid by councils. For simplicity this is referred to as a council activity here.

4 What influence do councils have over community emissions?

With local councils responsible for 1% of energy-related emissions, their communities – residents and business – account for the other 99%. In its January 2020 report tracking the net zero ambitions of local government, **ClimateWorks Australia**⁴ reports that:

Australian councils are responsible for urban planning, land use and building approvals, waste management and the provision of community infrastructure and services. That makes them among Australia’s most significant infrastructure owners and managers, with collective responsibility for over \$380 billion in infrastructure and land.

Councils can collectively deliver a substantial reduction in Australia’s greenhouse gas emissions. By providing facilities and infrastructure; incorporating sustainability criteria into planning approvals; and implementing programs to change behaviour, councils can encourage uptake of renewable energy, minimise the use of fossil fuelled transportation, limit emissions from landfill and encourage greater energy efficiency in homes and businesses.

In our experience working with NSW local councils, we have identified nine levers that councils have to influence emissions in their communities, both directly and indirectly, and consistent with CWA reporting. These are illustrated below⁵.

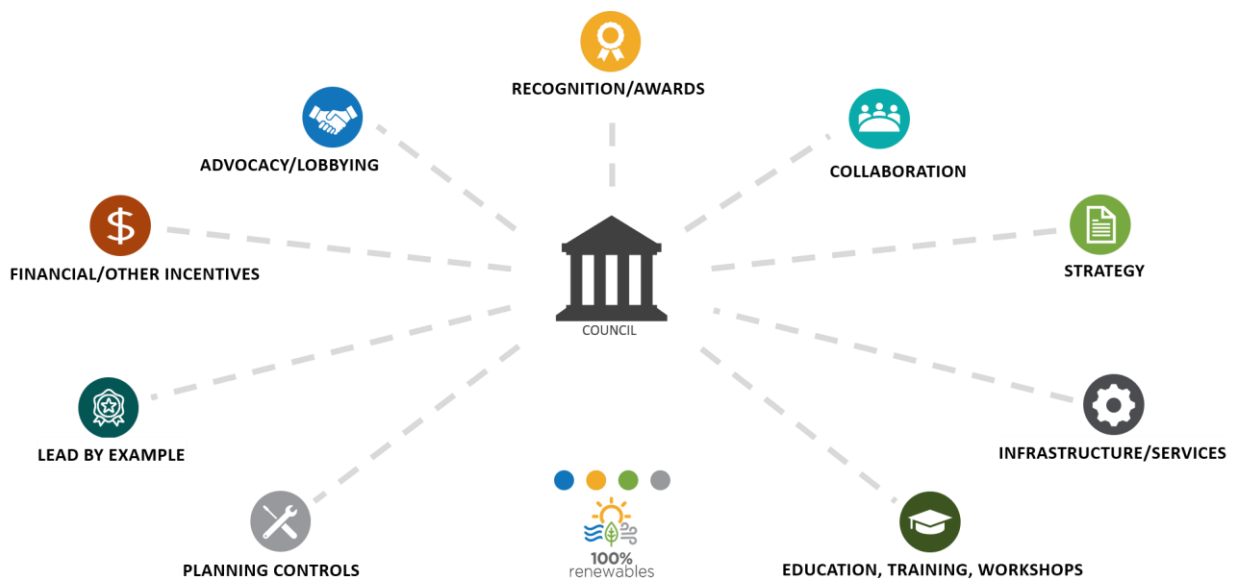


FIGURE 3: LOCAL COUNCIL LEVERS TO INFLUENCE GHG EMISSIONS IN THEIR COMMUNITIES

Below we provide examples of each of these levers and highlight how these can influence greenhouse gas emissions abatement. Appendix A highlights case examples from regional and urban councils that evidence the use and effectiveness of the abatement levers described.

⁴ 2020, Monash University, Monash Sustainable Development Institute and ClimateWorks Australia, Net Zero Momentum Tracker, Local Government Sector, January 2020. www.netzerotracker.org

⁵ Note that this assessment encompasses mitigation responses to climate change. Councils have high ability to influence adaptation to climate change in their region, and many councils’ strategies for asset management, biodiversity, coastal and river / estuary management and others already recognise this.

TABLE 2: SUMMARY AND EXAMPLES OF LOCAL COUNCIL ABATEMENT LEVERS AND INFLUENCE ON EMISSIONS

Lever	Examples	How this could influence GHG emissions abatement
Planning controls	<p>Councils are responsible for urban planning, land use and building approvals⁶. They aim to ensure that required standards are met (e.g. BASIX, Section J of the BCA) and may be able to encourage and incentivise developers – for e.g. via floor space ratio (FSR) increases – to go beyond minimum requirements for efficiency, such as higher Green Star & NABERS ratings⁷.</p> <p>Through Local Strategic Planning Statements, councils have individually set out their 20-year vision for their cities and regions, many including a clear recognition of climate risks and required responses to adapt to climate change and to reduce GHG emissions. The extent to which these Statements can influence low-emissions outcomes for new buildings, given the constraints of BASIX and Section J, may warrant further analysis.</p>	<p>Low energy buildings lead directly to lower emissions, and effective urban, land use and infrastructure planning can lessen the impacts of climate change and lead to lower transport emissions.</p>
Lead by example	<p>As outlined above, local councils are significant emitters of greenhouse gas emissions, directly from their operations as well as indirectly through their supply chains. Many councils have worked to reduce their energy use, energy cost and associated greenhouse gas emissions. In doing so, they generate bottom-line cost savings for ratepayers and provide visible demonstrations of the feasibility of energy efficiency and renewable energy. Prominent examples include LED streetlights and solar panels on local council offices and community facilities.</p> <p>Councils are also prominent in demonstrating new technologies and innovative approaches that help to increase literacy on renewable energy and climate action. Examples include the <i>Farming the Sun</i></p>	<p>Councils implementing energy efficiency and onsite solar reduce their emissions directly and lower their operating costs.</p> <p>Choosing to be supplied with renewable energy through electricity supply agreements significantly lowers GHG</p>

⁶ Per ClimateWorks Australia. It was noted in comments that planning reforms in NSW took much of the planning control out of Council hands so the extent of Council’s influence here may be limited – e.g. to encouragement, incentivising ‘beyond-BAU’ and the like, as well as advocating for continuous improvement to these standards.

⁷ 2018 forums hosted by City of Sydney highlighted a number of possible incentives, including FSR increases, lower developer contributions, reduced council rates for energy efficient buildings, expanding low interest loans such as the Environmental Upgrade Agreement scheme to new builds, and providing tax incentives for net zero developments (2018, Creating a Planning Pathway to Net Zero Buildings Forum 1 Outcomes Report, Elton Consulting (with input from City of Sydney), 23 August 2018). A recent example of proposed incentives is City of Sydney’s proposed LEP 2012 amendments for a development proposal in Glebe NSW: 2020, Planning Proposal 17-31 Cowper Street and 2A-2D Wentworth Park Road, Glebe. Amendment to Sydney Local Environmental Plan 2012, City of Sydney, October 2020.

Lever	Examples	How this could influence GHG emissions abatement
	<p>initiative that saw Lismore City Council implement both floating solar and community-owned solar within their city, and the City of Sydney, Hawkesbury City Council, City of Newcastle and Southern Sydney Regional Organisation of Councils (SSROC) renewable energy power purchase agreements (PPAs). Councils are also increasingly introducing hybrid and electric vehicles into their fleet, helping to reduce barriers and demonstrate new technologies in their communities.</p> <p>Some councils have also implemented measures to reduce GHG emissions from waste, such as landfill gas flaring, Food Organics & Garden Organics (FOGO) composting, energy generation from biogas and programs to divert waste from landfill.</p>	<p>emissions for council operations and offers long term price certainty.</p>
<p>Financial/other incentives</p>	<p>Some councils provide financial assistance to implement actions in their communities. In some cases, Special Rate Levies have been approved and are used to fund sustainability initiatives. Willoughby City Council’s sustainability levy – e.restore is a good example, with the third round of the e.restore program continuing works that have been underway since 2000 while introducing a new focus on responding to climate change. This is consistent with the city’s <i>Our Green City 2028</i> plan developed in consultation with the community, which aims to:</p> <ul style="list-style-type: none"> • Reduce carbon and greenhouse gas emissions • Promote sustainable lifestyles and practices • Enhance, protect and respect waterways, bushland, nature, wildlife and ecological systems • Reduce energy, water and resource waste and encourage reuse and recycling <p>Incentives are also provided by councils to residents and business in the form of targeted programs aimed at waste management, energy efficiency, solar and the like. This could be aimed at business, apartments, or free-standing homes, and can take the form of information programs, workshops/engagement, audits, financial subsidies, grant applications or other assistance.</p> <p>For example in November 2020, Randwick City Council launched its <i>Sustainability Rebates</i> program, which supports houses, units, and businesses in Randwick to implement energy and water saving initiatives. Eligible activities include energy assessments, hot water systems, insulation, lighting, pool</p>	<p>Financial incentives are used to provide direct support to implement carbon-saving projects in local communities.</p>

Lever	Examples	How this could influence GHG emissions abatement
	<p>pumps, rainwater tanks, rooftop solar, solar batteries, solar health checks and water fix solutions. Up to \$3,000 in total rebates can be claimed.</p>	
<p>Advocacy / lobbying</p>	<p>Local councils lobby and advocate for action on climate in numerous ways. Typically a mandate to push for urgent action – at policy and at legislation/regulatory levels – comes from Community Strategic Plans (CSPs), with many explicitly recognising the need to act and calling on local councils to act locally and nationally to respond to this challenge.</p> <p>Prominent examples of local council advocacy on climate are seen in the rising number of councils adopting targets for emissions reduction and commitments to work with their communities to adapt to climate change, and the rising number of councils recognising or declaring a <i>climate emergency</i> often in response to pressure from groups within their local community. At the end of 2020, 96 Australian councils had declared a climate emergency, covering more than 8.9 million Australians, including 34 councils in NSW. A primary function of these actions is to publicly urge all levels of government as well as individuals and companies to act to limit global warming to within acceptable limits.</p> <p>Councils, their communities and potential buyers of high-efficiency / low-emissions dwellings also lobby and advocate for change on issues that are more tangible locally, such as for changes to BASIX that will lift the sustainability performance of buildings in their local area.</p>	<p>Indirectly, councils recognising a climate emergency lifts the issue of climate change and the need for climate action to all levels from federal government to local communities and encourages action to respond.</p>
<p>Recognition/ awards</p>	<p>Recognition for action on sustainability is common to highlight achievement, recognise excellence and encourage others to act. In the same way that State-level awards initiatives such as Green Globes recognises the successes and leadership of individuals and organisations participating in State-funded programs like Sustainability Advantage, many local councils recognise contribution, leadership and success at a local level.</p> <p>A good example is Inner West Council’s Business Environment Awards. Held every two years these recognise local businesses that are changing their business practices to be more sustainable, save money and reduce their footprint.</p>	<p>Recognition provides businesses and individuals with motivation to act and directly reduce their emissions, and provides them with a point-of-difference to their competitors. Their actions and success, in turn, inspires others or motivates others to act to remain competitive.</p>

Lever	Examples	How this could influence GHG emissions abatement
Collaboration	<p>Collaboration between local councils, and between local councils and community groups/representatives is a core part of how councils operate.</p> <p>Across NSW there were 17 Regional Organisations of Councils, groupings that served to act on services or areas where there is a common interest among the participants. With transitions to Joint Organisations (JOs) this collaboration continues, with focus on energy/climate a common theme. A good example is the Riverina and Murray Joint Organisation (RAMJO) which has identified that a Regional Energy Strategy would create opportunities for collaboration via:</p> <ul style="list-style-type: none"> • Auditing, benchmarking and collating patterns of Council energy use (including costings), identifying opportunities (e.g. waste-to-energy) and role-modelling efficient energy use and retrofitting buildings to reduce energy costs and increase resilience • Identify common areas of concern (affordability, ageing infrastructure, planning regulations, etc) and progress areas of change that Council can influence • Allow for future-proofing Councils and community energy use (e.g. solar PPA⁸, community-owned energy generation). <p>A further example is the Central NSW Joint Organisation, which works collaboratively with its 11 member councils to deliver 5 key regional energy activities:</p> <ul style="list-style-type: none"> • Southern Lights: an enabling infrastructure project designed to deliver better, safer, cheaper lighting and smarter, connected communities. • Energy Management Program: CNSWJO works with member councils to procure electricity for council sites, which includes large market sites, mass market sites and streetlighting. 	<p>Collaboration between local councils can accelerate and give scale to opportunities that can shorten the time to achieve outcomes and achieve better price and higher return for participants. Renewable energy power purchasing and LED streetlighting are excellent examples of how scale through collaboration has helped to drive outcomes that reduce emissions.</p>

⁸ One of the earliest regional emissions reduction strategies was developed by ISF for SSROC councils in Sydney, which put forward the idea of partnering with a regional council or group of councils to develop a renewable energy project in regional NSW that land-poor metropolitan councils would purchase power from. The growth in large-scale renewables since this report (2010?) has allowed many councils to purchase renewables without need for this type of collaboration, however this or a similar opportunity is still feasible, and City of Sydney’s 100% renewable electricity PPA includes output from a community solar farm in the Shoalhaven region. This or similar types of metro-regional collaboration can be highlighted and built on in future.

Lever	Examples	How this could influence GHG emissions abatement
	<ul style="list-style-type: none"> • Electric Vehicles Policy and Toolkit: councils are working on a variety of projects to support and encourage the uptake of electric vehicles in Central NSW. • Solar Panel and Battery Innovation: A regional procurement process for solar and batteries on council buildings is planned in the future. • Innovation in energy market opportunities: CNSWJO member councils have a strong interest in investigating renewable energy opportunities, through their standard electricity contracts, the installation of solar panels, as well as other innovative approaches as they arise. <p>Councils also collaborate on regional issues such as waste. For regional councils in particular this has a direct impact on their efforts to reduce emissions from landfill, and allows them to provide one voice when advocating for changes in the management and treatment of waste in future.</p> <p>Collaboration also occurs between local councils⁹ and local groups such as climate action committees and business’ chambers, providing forums, financial support (and often facilities) for issues to be discussed and actions to be initiated and progressed, such as community solar projects.</p> <p>Collaboration and leadership by councils also occurs via participation in one or more of the many local and global initiatives that recognise the important role of local government in the transition towards net zero emissions. Many NSW councils are active members of several initiatives, such as:</p> <ul style="list-style-type: none"> • The Cities Power Partnership (CPP) which has a buddy program between members • New South Wales Government’s Sustainability Advantage Program • Global Covenant of Mayors (GCoM), and • C40 councils 	

⁹ We are aware of informal links / ‘buddy’ arrangements between some metropolitan councils and regional counterparts, and in recent experience with the SCC Program this was tapped in to for Temora Shire Council, who have links with Randwick City Council. The nature and frequency of interactions, and whether this arrangement is widespread were not assessed as part of this work.

Lever	Examples	How this could influence GHG emissions abatement
Strategy	<p>The need to act to reduce greenhouse gas emissions is reflected in the key strategic plans for most local councils, including Community Strategic Plans and Local Strategic Planning Statements.</p> <p>For many councils, emissions-focused responses to this takes the form of a Climate Action Strategy or Renewable Energy Strategy that identifies opportunities for abatement and climate adaptation, presents business cases and recommends targets for renewable energy and/or carbon abatement, which are progressed via Delivery Programs and Operational Plans¹⁰.</p> <p>A range of other strategies that Councils develop will also be relevant from an emissions reduction and climate adaptation perspective. These include waste management, fleet strategies, asset management strategies, biodiversity plans, sequestration plans including wetlands restoration and urban forest plans, coastal management plans, river and estuary management, and so on.</p>	<p>Having a mandate to act via the CSP, and developing strategies to respond directly to climate risks with targets and resourced action plans is critical for councils to reduce their own emissions and to work closely with their communities to help them reduce their impact.</p>
Infrastructure / services	<p>Local councils provide a wide range of infrastructure and services that can directly influence carbon abatement and climate adaptation. Prominent examples include:</p> <ul style="list-style-type: none"> • Cycling and active transport networks that reduce traffic congestion and emissions from fuel. • Some councils are installing or collaborating to help implementation of electric vehicle charging infrastructure. For example many of the NRMA’s DC rapid chargers across NSW are installed on council-owned land that is publicly accessible. • A wide range of resource recovery, recycling and other initiatives help to increase recycling and divert waste from landfill, while waste collection services may recover green waste and other organics for composting. • Some local councils work with partners to develop and trial low carbon road materials such as geopolymers, crushed glass and the like, leading to lower emissions in construction and maintenance of road networks. Collaboration at State Government level is important here 	<p>More active transport, easy access to EV charging, resource recovery, low-carbon road materials and capacity to respond to climate risks have clear and obvious impacts on GHG emissions and on community adaptation to climate change.</p>

¹⁰ CWA’s Net Zero Tracker report for local government highlights that of 57 councils tracked (covering 52% of the population), 33 have a net zero target for operational emissions and four are already carbon neutral (Net Zero Momentum Tracker 2020, Local Government Sector, ClimateWorks Australia, January 2020)

Lever	Examples	How this could influence GHG emissions abatement
	<p>to ensure that road materials comply with relevant requirements, and to provide a focus for testing and discussion around new materials and techniques.</p> <ul style="list-style-type: none"> Increasing urban street canopies helps to reduce heat island effects in communities and cities and can lead to lower energy demand through shading. Councils are at the forefront of adapting to climate change through the need to develop infrastructure and services to respond to emerging issues such as increased hot days, increased bushfire risk, coastal erosion and sea level rise / storm surges. 	
Education, training, workshops	<p>Councils are well placed to help their communities become informed about and able to take sound decisions on efficiency and renewable energy opportunities through their business licencing and environmental assessments processes, information resources, workshops, training events, supplier expos, partnerships with local business, sustainable energy partners and State Government programs. Local councils are likely to be seen as an independent resource when people or businesses are looking for low carbon solutions.</p>	<p>More and better informed communities can take decisions to be more efficient and install solar that reduce their costs and their GHG emissions.</p>

Another way to look at the influence of local councils on emissions in their community is to examine their role in helping to deliver abatement across key abatement categories, compared to the relative influence of other stakeholders in their communities. This was carried out for a regional local council in 2020 as part of the Sustainable Councils and Communities program, and is repeated below.

TABLE 3: SUMMARY OF KEY STAKEHOLDER INFLUENCE ON ABATEMENT POTENTIAL IN LOCAL COUNCILS

Abatement Category	Summary of GHG abatement potential in an LGA	Influence of key community stakeholders in achieving abatement potential					
		Individual residents & businesses	Business representative groups	Community climate action, sustainability groups	Councils	NSW Government	Commonwealth Government
Grid de-carbonisation	Very high – in the medium to long term the NSW grid may be largely or wholly supplied with renewable energy	Very low – individuals and businesses can participate in processes that call for public submissions	Low – business representative groups can participate in processes that call for public submissions	Low – community groups can participate in processes that call for public submissions	Low – Councils can participate in processes that call for public submissions and advocate for local participation and jobs where applicable	<i>Very high – State Government policies to create Renewable Energy Zones and target Net Zero emissions, and membership of AEMO, can facilitate investment in large-scale renewables</i>	<i>Very high – Commonwealth Government climate policies, cooperation on energy policy with the States and membership of AEMO can facilitate investment in large-scale renewables</i>
Buying clean energy	Medium – energy users can elect to buy renewable energy, but price premiums will limit uptake	Medium – large energy users may be able to negotiate a renewable energy power agreement at a favourable rate, small users are less able to achieve this outcome	Low – business groups can share information with their members and advocate for market changes to make access to affordable renewables easier	Low – community groups can share information with their networks and advocate for market changes to make access to affordable renewables easier	Medium – Councils, as large energy users, can enter into a renewable energy PPA to supply some or all of its power needs, and encourage others to do likewise	<i>High – State Government, as a very large energy user, can enter into a renewable energy PPA to supply some or all of its power needs</i>	<i>High – Commonwealth Government, as a very large energy user, can enter into a renewable energy PPA to supply some or all of its power needs</i>
Community-scale clean energy generation	Low – the overall abatement scope for this is low but the education and regional renewable energy literacy benefits are high	High – individuals and businesses can participate as hosts, buyers and/or owners of renewable energy generated from local projects	Low – business groups can share opportunities to host or participate in community renewables with members	High – many local renewable energy projects are initiated and developed by climate action groups & partners	Medium – Councils may be able to provide information, meeting space, help with planning, and potentially host a community renewable energy project	<i>High – State Government has supported the development of guides, and projects with grant assistance</i>	<i>High – Commonwealth Government has supported the development of projects with grant assistance</i>
Behind-the-meter solar	High – APVI modelling indicates scope for solar	Very high - houses and businesses can use solar to meet	Medium – business groups can share information with	Medium – community groups can share	Medium – Councils can install solar on their	<i>High – NSW Government Net Zero Plan aims to</i>	<i>Very high – incentives provided by the Renewable Energy</i>

Abatement Category	Summary of GHG abatement potential in an LGA	Influence of key community stakeholders in achieving abatement potential					
		Individual residents & businesses	Business representative groups	Community climate action, sustainability groups	Councils	NSW Government	Commonwealth Government
	energy that exceeds energy demand for most local areas	daytime energy demand, store excess solar and in future power electric vehicles	their members and advocate for incentives for batteries and EV cars and charging infrastructure	information with their networks and advocate for incentives for batteries and EV cars and charging infrastructure	buildings, and can help ratepayers with information on solar, batteries, and signal their goals in planning documents	<i>continue to reduce barriers to solar and batteries (e.g. DA threshold). Financial incentives for batteries will help to accelerate uptake</i>	<i>Target (RET) legislation continue to lower the cost of installing solar</i>
Energy efficiency	High – efficiency improvement of ~30% would significantly lower energy costs for residents and businesses	Very high – houses and businesses can install LEDs, buy efficient appliances, install efficient air conditioning, motor and control systems to reduce energy use and cost	Low – business groups can share information with their members and link them to programs and incentives for energy efficiency	Low – community groups can share information with their networks and link them to programs and incentives for energy efficiency	Medium – Councils can improve their energy efficiency, can help ratepayers with information on energy efficiency, and influence efficiency through its planning process, and by advocating for more stringent efficiency provisions	<i>Very high – NSW Government can significantly influence the efficiency of new build through changes to BASIX and participation in NCC / BCA changes. It can incentivise existing buildings and industry to be more energy efficient</i>	<i>Very high – Comm Government can significantly influence the efficiency of new build through changes to NCC / BCA changes. It can incentivise existing buildings and industry to be more energy efficient</i>
Sustainable transport	Medium – electric vehicles (if supplied with renewables) will reduce emissions in the medium term, abatement from larger vehicles will take longer	Medium – in the period to 2030 purchase of new EVs will reduce GHG emissions mainly when supplied from renewables, electrification / greening of off-road and heavy vehicles will occur over the long term	Low – business groups can share information with their members and link them to programs and incentives for electric vehicles, EV charging infrastructure and regulatory changes	Low – community groups can share information with their networks and link them to programs and incentives for electric vehicles, EV charging infrastructure and regulatory changes	Medium – Councils can lead by moving their passenger fleet to hybrid and electric vehicles, can provide information to residents and business, and can support EV charging infrastructure	<i>Very high – State Government EV support through the Net Zero Plan will help to accelerate uptake of EVs, and support to develop a hydrogen economy may help to build the case for H₂ as a fuel for heavy vehicles in future</i>	<i>Very high – the 2020-2025 Future Fuels Fund, support to EV manufacturing and potential future initiatives can significantly influence EV vehicles costs and uptake</i>

Abatement Category	Summary of GHG abatement potential in an LGA	Influence of key community stakeholders in achieving abatement potential					
		Individual residents & businesses	Business representative groups	Community climate action, sustainability groups	Councils	NSW Government	Commonwealth Government
Waste Management	Low – emissions from waste are low relative to other sources	Medium – management / lowering of waste and separation of waste streams by individuals and businesses helps to reduce emissions	Low – business groups can share information with their members and link them to programs and incentives for waste management	Low – community groups can share information with their networks, initiate and develop local re-use cooperatives and link people to programs and incentives for waste management	High – as operator of landfill and wastewater treatment facilities regional Councils can influence emissions through technology and waste collection / treatment. Metro councils will have different levers but can seek to influence where waste is sent and how it is treated through procurement.	<i>Very high – NSW Government’s Net Zero Plan targets zero emissions from organic waste, and policies, incentives and technologies will be required to see this achieved by 2030</i>	<i>The National Waste Policy and associated Action Plan, and support to initiatives such as the Fight Food Waste CRC illustrate the Commonwealth’s capacity to influence waste and associated GHG emissions</i>
Agriculture & Forestry (including Land use)	Potentially high – future potential relies on research and successful commercialisation of enteric fermentation abatement measures being successful, as well as net changes to land use	High – through implementation by farmers and land owners of feasible measures to reduce livestock emissions, change & manage use of fertilisers, soil carbon, land use / clearing and manure mgt, and afforestation	Medium – business groups can lead research, share information and advocate for incentives and policy changes to increase opportunities for farmers and land owners	Low – community groups can share information with their networks and link them to programs and incentives for abatement from agriculture, and participate in local land use change actions	Medium – Regional Councils’ support to agriculture can include support to assessments of regional renewable energy. Council can also support and/or develop regional biodiversity initiatives	<i>Very high – NSW Net Zero Plan flags support to primary industries that can see emissions reduction and sequestration from livestock and land use activities</i>	<i>Very high – measures delivered in collaboration with NSW Government as well as Carbon Farming Initiative (under the ERF) underline the scope for Commonwealth to influence abatement</i>

Key observations

- **Local councils have numerous levers that can directly and indirectly influence emissions in their communities.**
- **Councils' most direct impact comes from how it acts to reduce its own emissions, through implementation of planning controls and strategies, through the infrastructure and services it provides within communities, and through collaboration – particularly with other councils to progress significant regional initiatives.**
- **Councils could encourage their communities to reduce their emissions by encouraging developers to go beyond minimum requirements, through incentives to residents and business, by providing education and engagement services to better inform people, through recognition of community members' sustainability leadership, and by advocating for action by all levels of government.**
- **Councils' ability to influence emissions in their communities can be described as 'medium' on the whole, with low ability to influence major abatement such as will occur via grid decarbonisation, high ability to influence emissions from waste, and medium influence on other measures such as sustainable transport, energy efficiency and rooftop solar/batteries through their leadership / own action and education / facilitation of community responses.**

5 Examples of councils setting and achieving abatement targets

Approximately 28 (out of 128) councils across NSW have set ambitious targets for renewable energy and/or carbon emissions from their operations (at October 2020). Notably most of these councils are inner metropolitan or large coastal councils, with some exceptions. These councils' targets are illustrated below. Others have set targets that are not as ambitious as those highlighted, but aligned with NSW 2050 net zero targets.

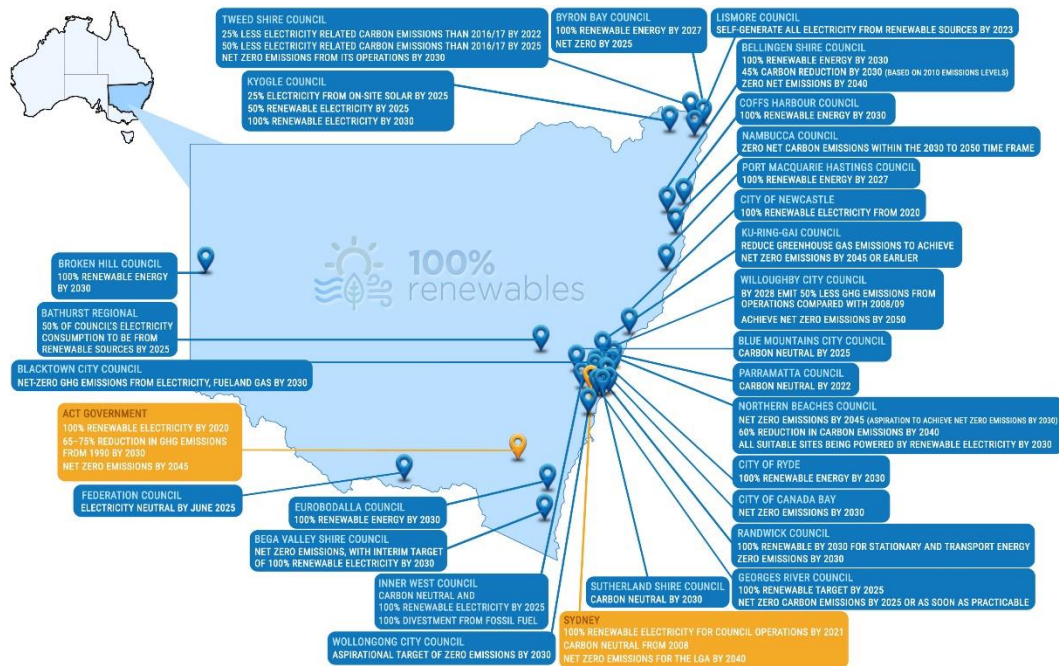


FIGURE 4: AMBITIOUS COMMITMENTS ON RENEWABLES AND GHG EMISSIONS BY NSW COUNCILS, 2020

At this stage no 'ranking' of abatement targets and responses by NSW councils has been made, and no mapping of any council's journey to their current situation has been performed. Examples of significant initiatives that some of these councils have implemented towards meeting their ambitious goals include:

- City of Sydney has been carbon neutral since 2008. In early 2020 it announced the signing of an agreement to purchase 100% renewable electricity for all of its operations for the next several years (including purchase of the output from Repower Shoalhaven's solar farm being built in Nowra <https://news.cityofsydney.nsw.gov.au/articles/5-things-to-know-about-our-electricity-deal?wvideo=73ibs06wpp>), and the City is shifting towards electric vehicles for its fleet.
- Randwick City Council has rolled out EV charging across its local area to enable charging by council and public vehicles, and has purchased a small number of EVs for its own fleet. Council purchases a portion of its electricity from renewables, and recently upgraded the Lionel Bowen Library, reducing electricity use by 40%, with plans to increase this to savings of over 60%.
- City of Newcastle has commissioned a 5MW solar farm at its Summerhill waste management centre, and this with a renewable energy PPA supplies council's operational electricity needs.

- Coffs Harbour City Council is well advanced in its solar rollout program which will see more than 2.1 MW of solar installed on council sites, from small systems on community facilities to large ground-mount systems at some of council's water and wastewater treatment sites.
- In December 2019 Kyogle Council became the first NSW council to partner with the Sustainable Australia Fund's Better Building Finance (BBF) program, to offer affordable environmental finance to local businesses in its local government area, supported by ARENA. This built on the adoption of Council's energy masterplan for its operations, developed through the Sustainable Councils and Communities program, including a commitment to achieve 100% renewables for all of Council's electricity use.
- Lismore Council was the first in NSW to set a target to be 100% renewables for its electricity supply by 2023, with onsite solar currently meeting around 20% of Council's electricity needs. Innovations such as the community-owned *Farming the Sun* and the floating solar farm at Lismore East WWTP are leading examples of Council action on climate.

The concentration of ambition to reduce emissions and/or increase renewables in Sydney and in prominent or large coastal councils does indicate that resources is a factor in the capacity for councils to act on climate. However the examples of Kyogle and Lismore show that this is not the only factor that enables action by Councils. In these cases individual leadership and drive, and community calls for action have been prominent factors in these councils' actions on climate.

Key observations

- **Some local councils are matching ambition with action to reduce their emissions, however this appears to be concentrated in inner metropolitan and large coastal councils who may be better resourced to both set ambitious targets and deliver on their planned actions.**
- **Notwithstanding the influence of higher resources, individual leaders and communities are also important factors that can drive Councils to act on targets and implementation of action on climate.**

6 Driving factors for councils' to address emission reduction

The motivations for organisations to address emissions reduction or energy savings are numerous, but might be broadly categorised as:

- **Cost savings:** business has often looked to energy as a relatively easy source of savings when there is a need to cut operating costs. Business has availed of offers made available by energy suppliers, local, state and federal governments to undertake energy audits, apply for energy saving grants, or to install solar panels and avail of high feed-in rates for energy sent to the grid. More recently the prospect of purchasing power from renewable energy at similar prices to 'regular' grid power has attracted interest from many organisations, including local councils. The potential to buy or lease electric vehicles or hybrid vehicles is also viewed primarily through a financial / cost saving lens.
- **Regulatory or mandatory requirements:** programs such as the Energy Savings Action Plan (ESAP) program (NSW) and the Energy Efficiency Opportunities (EEO) program are good examples of programs that compelled large energy users and some state and local governments to assess their potential for energy efficiency based on a methodology prescribed by the relevant government. These programs were implemented as policy responses to identified gaps in information and uptake of energy efficient technologies. Additional requirements on local governments may include periodic State of the Environment reports, requirements to meet targets for diversion from landfill and recycling, climate change risk assessments, etc. Directly or indirectly these requirements raise awareness and literacy levels, elevate emissions and climate change into roles for many people in local councils
- **Corporate responsibility:** many organisations face pressure from within and external to their organisations (e.g. from staff, shareholders, environmental groups, communities) to be more sustainable corporate citizens.
- **Environmental factors:** concerns about climate change and greenhouse gas emissions dates back several decades. In more recent history global, federal and state programs such as ICLEI – Local Governments for Sustainability, the Australian Greenhouse Challenge Program and the NSW Sustainable Energy Development Authority respectively, sought to encourage organisations to participate based on their shared concerns about climate change. More recently, with a clearer and accepted scientific basis, international agreements at Kyoto and Paris, and broad acceptance of the need to act urgently to keep global heating to a minimum, this is a stronger motivation for many organisations than in the past.

To some extent all of these are or have been motivating factors for local councils to reduce their energy demand and greenhouse gas emissions, and cost savings is usually uppermost as a motivating factor. Additionally, in the current environment – and evolving over the last several years – we believe that environmental factors, most notably climate action to reduce emissions and adapt local communities to a changing future, is a key motivation for councils¹¹.

This is seen in a number of areas:

¹¹ This is reinforced by DPIE's IRIS survey of SCC councils. Of the 6 top reasons for Councils to join the SCC program the top reason was cost savings and three of the remaining 5 were to reduce energy use and respond to council and community concerns about climate change.

- As noted, 34 NSW councils have declared a climate emergency, recognising the urgent need to act to rapidly decarbonize to maintain a safe climate.
- As noted, at least 28 NSW councils have formally adopted ambitious renewable energy and net zero commitments well before 2050, or interim targets that are aligned with this. Several of these are additional to those councils that have declared a climate emergency.
- Other NSW councils have developed net zero and/or renewable energy plans that look at how they can transition their operations to clean energy over time, including several via Sustainable Councils and Communities. These plans go beyond traditional energy audits that may have a narrow focus in terms of scope and looking to the next Operational Plan.
- A number of additional NSW councils are part of programs such as Cities Power Partnership, an initiative of the Climate Council, whose aim is to help councils act rapidly on climate responses.

Taken together over 60 NSW local councils covering at least 6.6 million people are working towards lowering emissions in their operations. This driver does not only come from councils' consideration of climate science and the responses of their peers. Councils' Community Strategic Plans (CSP) frequently and increasingly highlight communities' need to see their local councils lead and act on climate action.

Leaving a legacy: *Looking out for future generations*



1.1 Natural resource management

Goal

Protect and manage the environment and natural beauty of the Tweed for current and future generations, and ensure that ecological sustainability and climate change consideration underpin decision making in Council.


Council's role

- L P A C
- L P A C
- L C
- L A C
- L P A C
- P C
- A

Strategies/actions

- Develop and use regulatory instruments to protect and manage the environment
- Implement land and waterway rehabilitation and protection projects
- Lead and engage the community to enhance awareness and improve sustainable management of the environment
- Decrease the carbon footprint of the Tweed community and progress towards 100 per cent self-sufficiency in renewable energy
- Prepare for climate change through adaptation and mitigation strategies
- Provide for appropriate public access and use of natural areas
- Council maintains a strong position to ensure the Shire retains a 'Gas Field Free' status

FIGURE 5: EXCERPT FROM TWEED SHIRE COUNCIL'S CSP



A REGION FOR THE FUTURE

This theme is about sustainability - acting and living now in a way that doesn't risk the needs of the future. Securing our long-term future and achieving our vision is also about governance, leadership and good planning. Our actions and decisions need to deliver the best outcomes possible for the community.

WHAT OUR COMMUNITY TOLD US

- Council should be a leader in renewable energy and sustainable practices
- Develop and implement a Regional Sustainability Strategy
- More sustainable planning
- Implement a Tree Management Plan
- Ensure we are planning at the current rate of growth
- A sustainable energy future phasing out fossil fuels.
- Need another dam for Tamworth to secure water to allow for continued growth
- Better care of our rivers and waterways
- Reduce noxious weeds in region

FIGURE 6: EXCERPT FROM TAMWORTH REGIONAL COUNCIL'S CSP

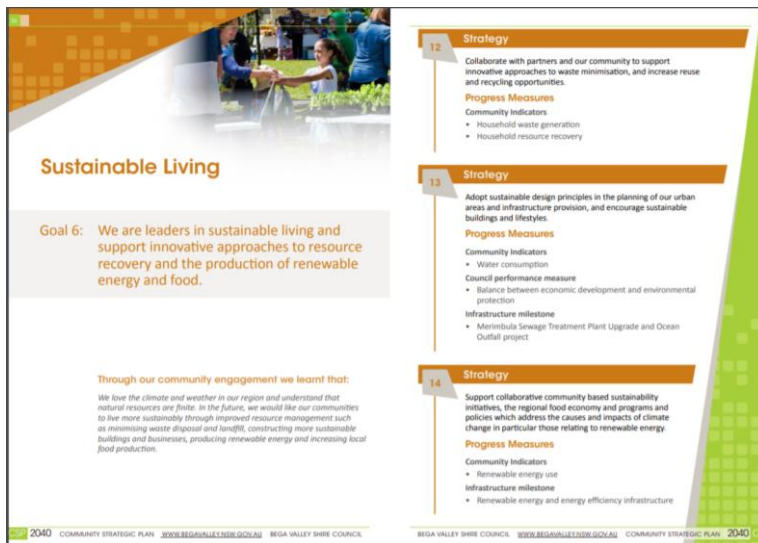


FIGURE 7: EXCERPT FROM BEGA VALLEY SHIRE COUNCIL'S CSP

Linked closely to a Council's interest in reducing its emissions is its ability to invest funds and resources into their assets and services to achieve this. To lesser or greater degrees local councils rely on grant assistance to make many sustainability projects happen, with often limited funding available via Operational Plans to achieve emissions reduction goals. Councils can also look to options such as fees for environmental assessments of businesses, Revolving Energy Funds, onsite solar power purchasing, opportunities to create Energy Savings Certificates, creating Large-scale Generation Certificates for solar PV systems >100kW, low interest loans, and others.

While numerous councils are planning and acting on emissions in their operations, just a small number of councils and a small number of towns have progressed to develop and set targets for community greenhouse gas abatement – see below. This requires further extensive consultation with communities to understand views on climate, solicit ideas to mitigate and adapt to climate change, and input on potential targets for community abatement. In addition to the councils highlighted below, this approach has been taken recently by Queanbeyan-Palerang Regional Council, and is currently underway in City of Newcastle and Clarence Valley Council. A focus by councils on their own operations in the first instance – e.g. to demonstrate leadership – may be one factor in this.

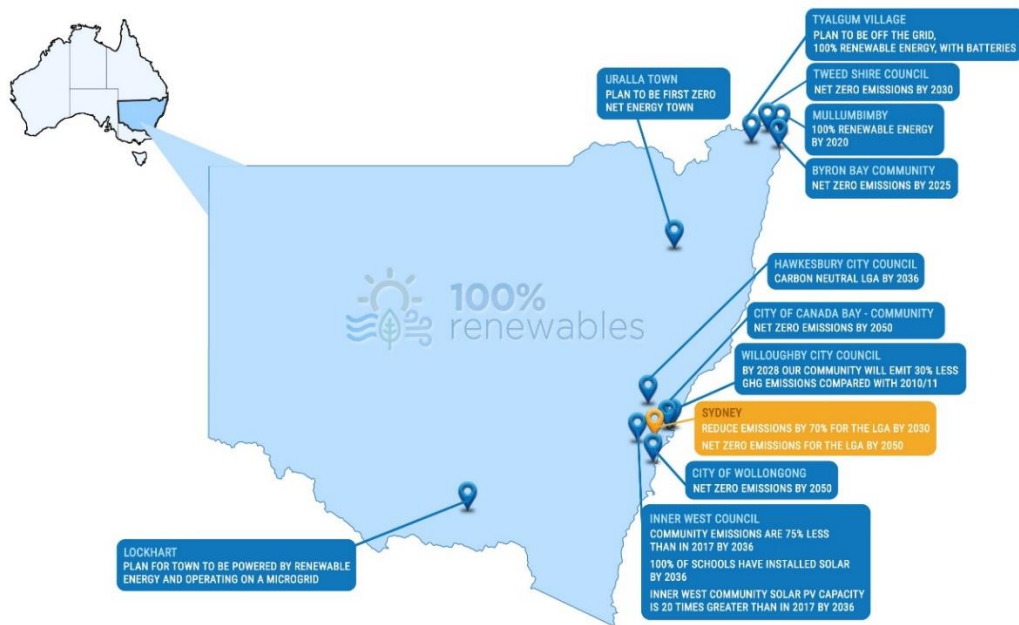


FIGURE 8: NSW AMBITIOUS RENEWABLE ENERGY & NET ZERO TARGETS - COMMUNITIES

While declaring a climate emergency, setting ambitious targets for operations and communities and developing climate action strategies does not equate to success in acting on climate change, it does mean that many councils in NSW are looking at emissions holistically, and want to look at how they can get to net zero, often quicker than federal or state targets.

Successful decarbonisation is then subject to factors such as cost-effectiveness, fit-for-purpose technologies, competing priorities and plans in council, availability of funds, availability of resources, skills and training needs. These barriers to decarbonisation are discussed further below.

Key observations

- **Cost savings and environmental concerns – specifically the need to decarbonise and adapt to climate change – are the main motivators for councils to reduce emissions.**
- **Many councils in NSW have made declarations, set targets or developed plans that focus on how they can reach net zero and/or 100% renewables, often responding to local needs expressed in their Community Strategic Plans.**
- **Council’s ambitions for abatement are often not matched by ready access to resources and funding, and grants and other approaches to financing of abatement initiatives is usually required.**
- **Just a small number of councils and towns have set targets towards net zero for their communities, and this may in part reflect that councils are focused initially on their own operations and on demonstrating leadership before asking their communities to reduce their emissions.**

6.1 How do councils transition along a spectrum of efficacy in addressing emission reductions?

The specific question posed in the brief asks how councils transition towards the stage where they are setting targets for climate / emissions reduction for themselves and potentially the community.

The IRIS paper on their survey of the SCC program highlights a move from project-based approaches that save money, to the development of an energy plan, to a broader all-encompassing sustainability strategy, and highlights that varying levels of funding, resources, expertise and capability means that there are many pathways and rates at which councils progress along this path.

In this paper we do not have quantitative analysis to verify or augment these findings. In our experience this pathway certainly aligns with what we have observed for the first two steps, both in SCC councils as well as other councils across NSW. That is, councils implement energy efficiency and solar panels on a projects by project basis, and progress to developing a plan which may include the setting of targets for emissions reduction. Beyond this stage a next stage for councils may be the setting of targets or plans to help their communities reduce their emissions, and a few examples have been highlighted above. Councils cite the need for them to be leading and reducing emissions in their operations before asking their communities to do the same.

We have not observed the same progression from energy plan to broader sustainability plan (which may simply reflect our lack of experience with more holistic sustainability planning). In most councils we do see many pre-existing wider sustainability and environmental management plans (biodiversity, coastal management, bushland, waterways, etc), and to an extent we are seeing climate change factor into these plans, and seeing frameworks for sustainability shift to have climate change as an overarching focal point, with energy / abatement plans coming under this broad framework. However further survey and engagement with local councils would be needed to see if this is an emerging trend or not.

As to how or why these stages occur, we can draw on some of the above notes which highlight that there are numerous motivating factors that have an influence, such as:

- Overall literacy in councils and communities around climate change is higher, both in the wider community and in some of the requirements on councils,
- Call by communities – via CSPs, climate action groups seeking declarations of a climate emergency, etc, for councils to act to reduce emissions,
- Action by peers on climate, such as neighbouring councils, JO members,
- A wide range of energy efficiency and renewable energy solutions are now available, such as LEDs, VSDs, solar panels, batteries, PPAs, electric vehicles, and the wide range of options and opportunities available may simply call for a plan to be developed so that a coherent approach can be developed and budgeted for over several years,
- The influence of one or a few key individuals is also a factor in our experience – whether a councillor, senior manager or staff member who wants to see more focus and action on emissions reduction

As with the progression from project-based approaches to planned and strategic approaches, these notes are simply observations from our work with local councils, and more quantitative research would be needed if verification of the progression steps and motivating factors was required.

7 Pathways for emission reductions for councils and communities

One of the key decisions taken by councils when considering their emissions boundary and baseline for the purpose of planning their emissions reduction options, is what emissions sources should be considered part of council's footprint and what should be considered part of the community's footprint¹². Mostly the decision comes down to how fugitive emissions from landfill and from wastewater (CH₄, N₂O) should be treated, and in our experience the decision is usually to allocate these to the community's footprint (and associated abatement plans) since they result directly from activities by the community.

As such council emissions for the purpose of planning to get to net zero emissions typically includes:

- Stationary energy use for council operations – electricity, LPG or natural gas for heating, hot water, etc
- Transport energy use for council's fleet – diesel, ULP, E10 etc

These represent the emissions sources that councils have the greatest control over.

A typical emissions profile for an urban council based on these sources could look as shown below.

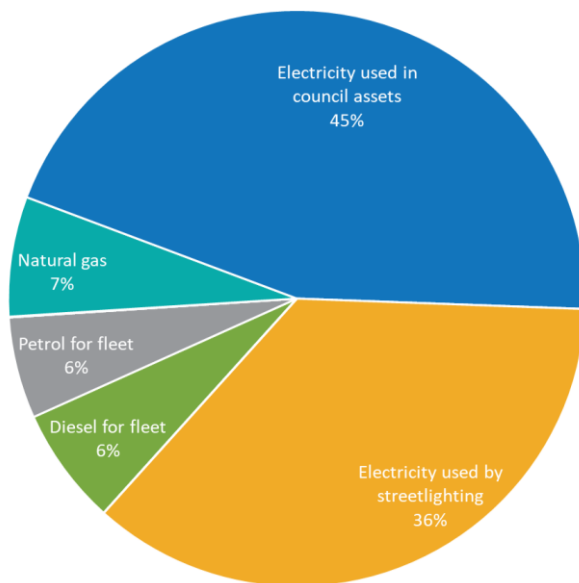


FIGURE 9: TYPICAL GHG EMISSIONS PROFILE FOR A METROPOLITAN COUNCIL







¹² We make a distinction between a Council's operational emissions and their up- and downstream scope 3 emissions (per Climate Active). The vast majority of Councils have not yet developed full scope 1, 2 & 3 carbon footprints, which could expand their reported emissions by up to 40%. There are some exceptions, predominantly inner metropolitan councils. Net Zero emissions planning, such as is being developed by DPIE through their 30-business pilot program, may help to change the way organisations think about their emissions boundaries in future.

Community emissions for the purpose of planning to get to net zero are usually drawn from work by Beyond Zero Emissions (BZE) or Resilient Sydney. For most communities, emissions sources covered include:

- Stationary energy use for the community – electricity, LPG, natural gas, etc
- Transport energy use for the community – diesel, ULP, E10, aviation fuel, etc
- Landfill gas emissions
- Wastewater emissions
- Agriculture emissions
- Forestry and land use net emissions

An emissions profile for a typical mid-sized regional community is shown below.

TABLE 4: TYPICAL GHG EMISSIONS PROFILE FOR A MID-SIZED REGIONAL COMMUNITY

	Emission Sources	Emissions	%
	Electricity	349,500.0 t CO2-e	52.2%
	Residential	146,800.0 t CO2-e	
	Commercial	85,700.0 t CO2-e	
	Industrial	117,000.0 t CO2-e	
	Transport	287,800.0 t CO2-e	43.0%
	On road	283,800.0 t CO2-e	
	Domestic air travel	4,000.0 t CO2-e	
	Waste	24,800.0 t CO2-e	3.7%
	Landfill	18,000.0 t CO2-e	
	Water	6,800.0 t CO2-e	
	Agriculture	7,000.0 t CO2-e	1.0%
	Land Use	-4,700.0 t CO2-e	
	Total	669,100.0 t CO2-e	100.0%

7.1 Pathway to reducing council operations' emissions

Typically the abatement levers available to a council to reduce its emissions¹³ include:

- Grid decarbonisation – councils don't directly influence this but should take it into account when forecasting their future emissions.
- Onsite solar PV and batteries can typically meet 10% to 25% of total grid energy demand for councils, and since these technologies are cost effective or nearing cost-effectiveness (for batteries) an aggressive program of solar on roofs and council-owned land is a common feature of council plans. Beyond emissions reduction, onsite solar offers a high return on investment for councils.
- Energy efficiency opportunities exist through upgrading streetlighting to LED + smart controls, upgrading building lighting and air conditioning, 'green IT', and energy efficient pumping and aeration for water and wastewater treatment. Councils have been implementing energy efficiency for many years. Countering this, the provision of new and improved community facilities and services, increasing EPA requirements for water and wastewater treatment, and new land releases for development with associated streetlights and water / sewer connections leads to new energy demand. Beyond emissions reduction, energy efficiency offers a high return on investment for councils.
- Renewable energy power purchasing is feasible as demonstrated now¹⁴ by ~22 NSW councils, to meet all or part of electricity demand. The Southern Sydney Regional Organisation of Councils (SSROC) was the first major NSW Council PPA, and involves 19 councils buying ~25% of their power (39 GWh pa) from the Moree solar farm under a long term agreement (this PPA has now moved into a 'phase 3' round of procurement). Since then each of the City of Sydney, City of Newcastle and Hawkesbury City Council have entered into individual PPAs for their power supply. In the first two of these we understand the agreements are for 100% of all electricity use, whereas for Hawkesbury we understand 100% renewables is purchased for Council's large market sites. Several other NSW councils are currently engaged with market participants and intermediaries with the aim of securing renewable energy PPAs during 2021 and beyond. The case for a PPA is made by taking a long term view on potential wholesale electricity market prices and comparing these with a PPA offer, alongside any added risks if there is spot market exposure for example. New PPA models are also developing, which may lead to more customer-centric PPAs in future.
- Electric vehicles are just emerging as a viable commercial option, and several councils have taken small steps towards electrification. In coming years the cost effectiveness of EVs for passenger cars will improve, while for heavy fleet and plant, and even utility vehicles this may take much longer. In this time other options such as hydrogen fuels may emerge.

The graphs below show some potential pathways for emissions in council operations based on these levers being employed when they are cost effective. These pathways are reflective of numerous assessments carried out of council emissions reduction opportunities.

- The first chart shows a 'low scenario' pathway to ~30% emissions reduction in 2030 compared with 2018 (35% emissions reduction by 2030 compared with 2005 equates to approximately

¹³ As above this includes Council operational emissions and does not include their full Scope 3 emissions sources / activities.

¹⁴ At early 2021.

22% reduction compared with 2018 given emissions reductions already made). This is based on measures such as progressive uptake of renewable energy PPAs to under 15% of councils' electricity use by 2030, increasing energy from rooftop solar by 0.5% of council electricity demand year-on-year, and making modest gains year-on-year in energy efficiency. Measures are then progressively implemented to a level needed to reach net zero by 2050 for these emissions sources.

- The second chart shows a 'high scenario' pathway based on emissions reductions that are likely to be cost effective for local councils to 2030, and shows that abatement of over 75% is likely to be feasible by 2030, principally through switching to renewables for all electricity supply by that time, alongside other measures such as accelerated solar PV and efficiency.

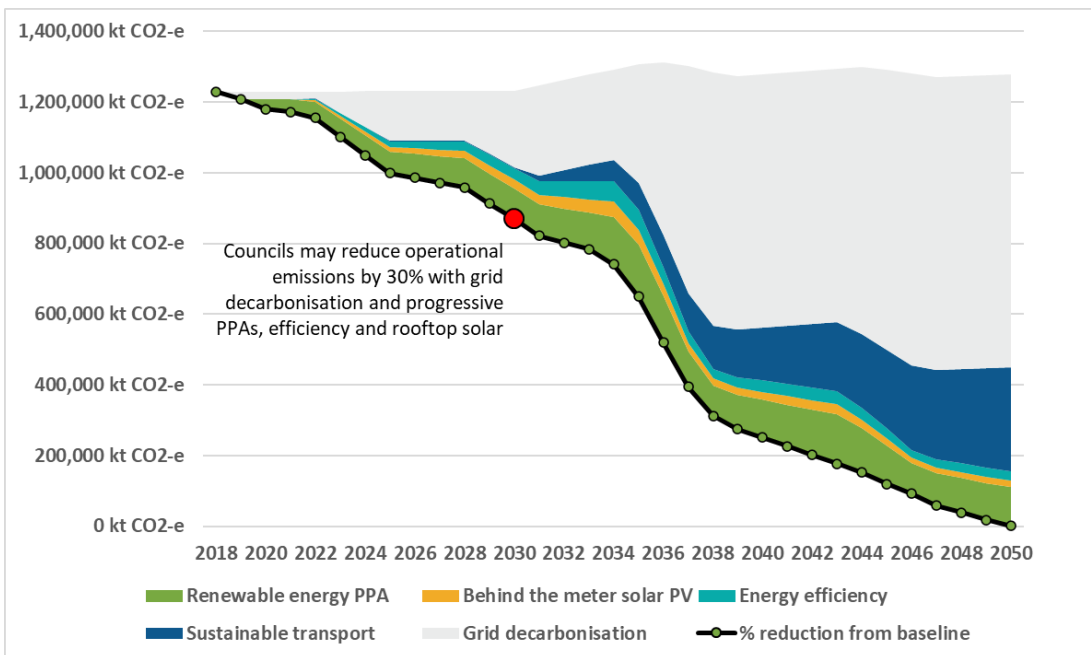


FIGURE 10: POSSIBLE PATHWAY FOR LOCAL COUNCIL ENERGY-RELATED EMISSIONS – LOW SCENARIO

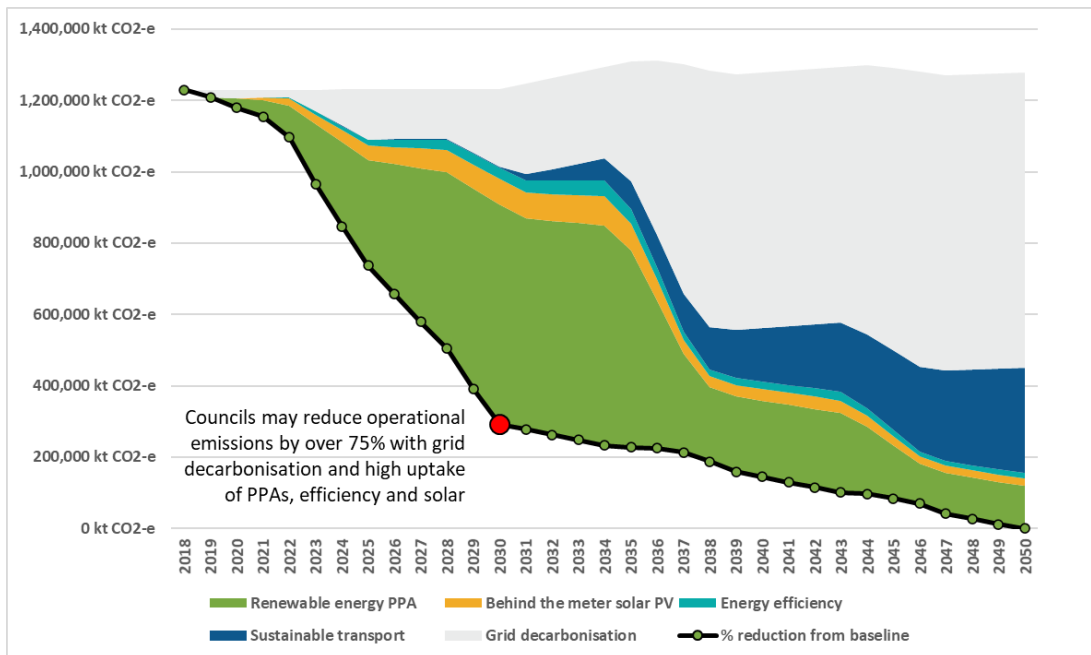


FIGURE 11: POSSIBLE PATHWAY FOR LOCAL COUNCIL ENERGY-RELATED EMISSIONS – HIGH SCENARIO

What both of these graphs show is that:

1. In the long term grid decarbonisation with renewables and a change to electric (or hydrogen) vehicles will be the two most significant factors in reducing a council's operational emissions.
2. Deep cuts or even beyond-BAU cuts to emissions in the next 10-15 years (depending on the pace of grid decarbonisation) will happen by councils acting themselves.
3. Renewable energy PPAs offer the greatest opportunity for emissions reduction, though there is less clarity about the cost savings to a council over a long period given uncertainty in electricity price forecasting.
4. Solar PV and energy efficiency can make moderate contributions to emissions reduction, but important contributions through good financial returns, greater engagement of staff at all levels, and greater literacy around emissions reduction and renewables.
5. Low emissions and electric vehicles offer longer term opportunities in terms of emissions reduction for councils, and the higher priority at this time may be hybrids, EV charging infrastructure and collaboration with State government and neighbouring councils to facilitate this change.

7.2 Pathway to reducing community emissions

At a community level more abatement levers need to be considered when developing pathways towards net zero emissions, including:

- Grid decarbonisation – as more renewables feed into the grid carbon emissions for electricity will decline
- Buying clean energy – buy energy via GreenPower®, carbon neutral electricity or a renewable energy power purchase agreement (PPA)

- Community and regional clean energy generation – develop and participate in local and regional renewable energy generation projects
- Behind-the-meter solar – generate renewable energy and battery storage locally – e.g. via solar panels
- Energy efficiency – adopt energy efficient technologies and practices to reduce emissions
- Sustainable transport – buy efficient, low and zero emissions vehicles and implement EV infrastructure
- Waste management – reduce emissions from waste through lower consumption, less waste and effective resource recovery and treatment
- Forestry – Sequester carbon by planting new trees and protecting existing forests
- Agriculture – Increase carbon sequestration and reduce livestock methane emissions

In urban councils consideration of forestry and agriculture emissions may not be relevant. For example City of Canada Bay recently released its corporate and community emissions reduction plan, with the projected pathway for community emissions towards net zero as shown below. In this the business-as-usual pathway would see emissions rise as population increases and fuel + gas devices are converted to electricity. Efficiency and renewable energy measures then see emissions trend downwards.

This chart illustrates that in the period to 2030, communities can decarbonise through greening of the grid, rooftop solar, energy efficiency and purchasing of renewables, particularly by large energy users. Fuel switching for plant and vehicles, lowering emissions from waste, and deeper grid decarbonisation will likely occur beyond this time.

Community pathway

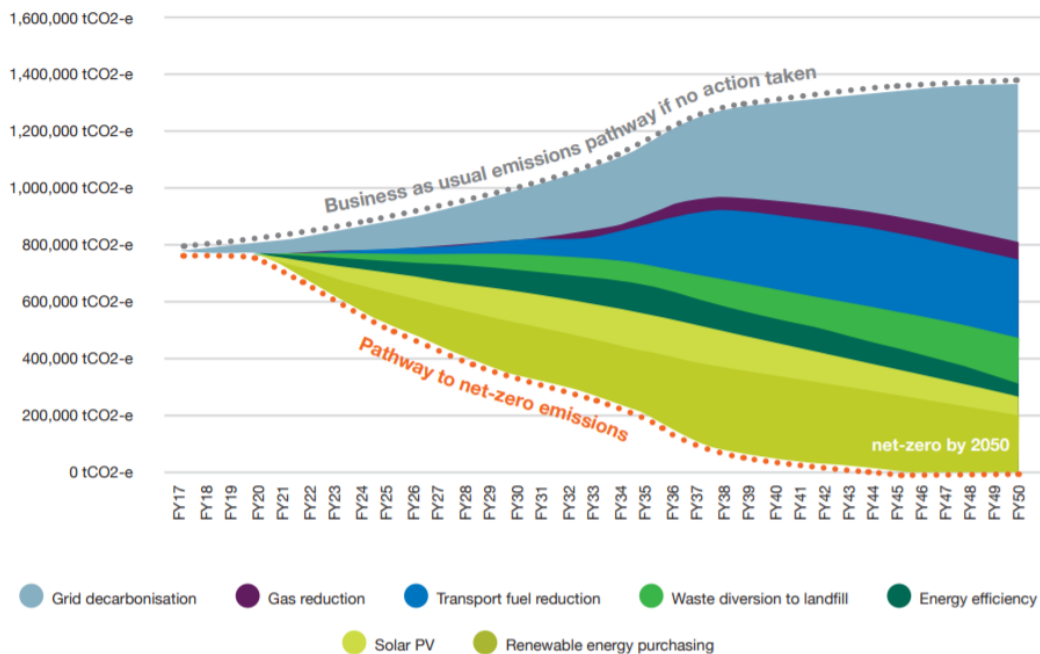


FIGURE 12: GHG PATHWAY TOWARDS NET-ZERO FOR CITY OF CANADA BAY (COMMUNITY)

Key observations

- There are feasible and cost-effective solutions that councils can employ to achieve GHG emissions reductions in line with or ahead of NSW net zero targets, particularly in the next 10-15 years. After this time grid decarbonisation may accelerate and emissions reduction from onsite actions will reduce.
- If deep emissions cuts are to be achieved by councils in the next 10-15 years then renewable energy power purchasing would have to be a sizeable part of this across all councils.
- Onsite solar and energy efficiency can provide moderate levels of abatement, but are proven and cost effective, so can improve a council's bottom line, increase staff engagement and increase literacy around emissions and renewables.
- Low emissions and electric vehicles offer longer term opportunities in terms of emissions reduction for councils.
- Renewable energy power purchasing may be less cost effective for small energy users (such as the residential sector and small business) so community-level abatement action may require a balanced focus on a range of abatement levers such as local renewables & batteries, energy efficiency and EV vehicle uptake to see deep cuts in emissions result.

8 Barriers to councils progressing along this spectrum

The preceding analysis has established a number of key observations:

- Local councils are a reasonably large emitter of greenhouse gas emissions, with regional councils having a larger carbon footprint than their metropolitan counterparts.
- Many councils are committed to action on climate for cost and climate reasons, with around 28 councils in NSW setting ambitious targets for renewables and emissions reduction and many more declaring a climate emergency or joining with voluntary initiatives such as Cities Power Partnership.
- Councils have a number of levers that they can employ to help their communities shift towards energy efficient technologies, solar panels and lower emissions, though at this time just a small number of councils and towns have publicly committed to LGA-wide action and targets.
- Many assessments of emissions reduction opportunities at local council operations and at community-wide level demonstrate that there are cost-effective pathways towards low emissions for their operations that are at least aligned with the NSW Government's net zero pathway targets. Local councils are generally well aware of the opportunities available to them, but not all have funding, plans or resources to act on these. Few have considered their up- and downstream emissions and related abatement plans at this time.

The top five barriers to action identified by SCC councils in the IRIS survey accord with this summary of findings, and include:

- Financial constraints (e.g. low rate base, rate capping, competing priorities for funds)
- Lack of knowledge and internal capacity
- Old infrastructure
- Lack of a plan or strategy
- Lengthy payback periods

To better understand some of these factors that enable some councils and communities to progress with action on climate and prevent others from acting, it is important to recognise that not all local councils are 'the same'.

For this work we segment local councils in a couple of ways to try and gain an understanding of some of the factors that help and hinder action on climate. These are:

- Geographic region, specifically metropolitan, coastal and inland regional councils, and
- A segmentation of 47 councils we have worked with, looking at their resourcing and successes in action on emissions reduction, alongside statistical data on their population and socio-economic index¹⁵

8.1 Geographic region

8.1.1 Metropolitan councils

Around 5.5 million people live in 35 metropolitan councils, including the Sydney region (Hawkesbury to Blue Mountains to Camden), Central Coast, Newcastle and Wollongong.

¹⁵ This analysis just reflects our perceptions from working with these councils, and is therefore very subjective

- Operational emissions for these councils are approximately 500 kt CO₂-e annually (before renewable energy purchasing).
- Of these at least 15 have set ambitious targets for renewable energy and/or carbon emissions for their operations, while these and several others have published sustainability / climate action plans and can evidence significant action to reduce their emissions.
- Sydney region councils with ambitious targets tend to be inner metropolitan and urban coastal councils (Sydney, Inner West, Canada Bay, Randwick, Sutherland, Northern Beaches, Willoughby, Ryde, Ku-ring-gai), with fewer councils represented among outer metropolitan areas (with notable exceptions in Parramatta, Blacktown, Blue Mountains).
- 20 of these 35 councils have declared a climate emergency calling on urgent action by all levels of government including councils to address climate change.
- 24 of these councils are members of the Cities Power Partnership program.
- Some councils with ambitious targets are part of programs such as Sustainability Advantage, however the majority of targets and climate action plan development is self-funded.
- 18 urban councils joined together under SSROC to source around 25% (~39 GWh pa) of their operations electricity supply from renewables, while Hawkesbury council and the cities of Sydney and Newcastle have entered into 100% renewable energy supply agreements.
- Six councils have made ambitious commitments for emissions reduction by their communities and committed to various actions to encourage uptake of solar and abatement action. These include Inner West, Sydney, Canada Bay, Hawkesbury, Willoughby and Wollongong. City of Newcastle is currently seeking public comment on a similar plan and target.

Based on knowledge from working with approximately 20 of these councils, key factors that are integral to this level of action on climate are resources and funding. Based on our experience we estimate there are 2 to 3 staff working largely or partly on their council's climate action strategy, with budgeted funds generally available to progress towards committed targets or to progress plans.

Councils with community targets also tend in our experience to have small teams supporting their communities through education, audits, linkage to business and residential efficiency programs (such as Better Business Partnerships), financial incentives, awards programs and the like. They are also much more likely to be taking action on several of the levers available to them to try to influence emissions in their communities, such as infrastructure planning (e.g. bike paths, EV charging). In the case of Willoughby Council (as noted earlier) a special rate level – e.restore – serves to incentivise or fund a range of community sustainability actions, including action on climate.

8.1.2 Coastal councils

Around 1.1 million people live in 18 NSW coastal councils, excluding Central Coast, Newcastle and Wollongong.

- Operational emissions for these councils are estimated to be around 300 kt CO₂-e annually, with additional emissions for waste disposal.
- Of these at least 9 have set ambitious targets for renewable energy and/or carbon emissions for their operations. These and a few others have produced or are developing sustainability / climate action plans and can evidence action to reduce their emissions.

- Typically coastal councils are committed to achieve 100% renewables by 2030 or earlier, with net zero ambitions reflected in some but not other targets.
- 8 of these 18 councils have declared a climate emergency calling on urgent action by all levels of government including councils to address climate change.
- 14 of these 18 councils are members of the Cities Power Partnership program.
- Climate action plans and subsequently-adopted ambitious targets for larger councils such as Tweed, Coffs Harbour, Port Macquarie-Hastings, Shoalhaven and Clarence Valley were largely self-funded. Smaller councils such as Bellingen, Richmond Valley Nambucca, Bega Valley, Eurobodalla and Kempsey have drawn on support from NSW Government, through either or both of Sustainability Advantage and Sustainable Councils and Communities.
- At this time we are not aware of any renewable energy power purchasing arrangements for these councils, though some have assessed opportunities for mid-scale solar farms to supply their demand and others have at least entered into exploratory discussions for renewable energy purchasing.
- Some councils have been able to progress significant solar PV rollouts, including Clarence Valley (est >1 MW), Coffs Harbour (2.1 MW) and Tweed Shire (>1.5 MW implemented + committed), particularly in their water and sewer division assets where land and roof areas are able to be used to site solar panels to offset high daytime energy demand.
- At this time we understand that just Tweed Shire and Byron Shire have made commitments for GHG emissions reduction for their communities, and a number of small towns in northern NSW have made renewable energy and net zero commitments and initiated action in this direction. Clarence Valley Council is currently assessing the potential for local region emissions reduction and how they and the community can work together to drive action.

Based on knowledge from working with 12 of these councils we estimate there are on average 1 to 1.5 staff working largely or partly on their council's climate action strategy. Larger councils based on population tend to have more resources to implement action to reduce their emissions, although grant funding is integral to action by all councils. Smaller councils may have no or a single staff member working largely or partly on their council's climate action strategy.

At a community emissions level local council support tends to include the provision of information / education, minor funding and the provision of some staff time and space to engage with local climate action organisations. Bike paths, engagement with NRMA on EV rapid charging are a couple of infrastructure services that coastal councils are also actively engaged with.

8.1.3 Inland regional councils

Around 1.3 million people live in the remaining 75 NSW councils, covering all inland regional areas of the state.

- Operational emissions for these councils are estimated to be around 500 kt CO₂-e annually (similar to operational emissions of metropolitan councils), with additional emissions for waste disposal.
- At this time we are aware of just four councils in this region that have adopted ambitious targets for renewables and/or emissions (Kyogle, Lismore, Bathurst, Armidale). These and a

few others have produced or are developing sustainability / climate action plans. Lismore was the first NSW council to adopt a 100% renewable energy target for its operations.

- Most of the councils developing renewable energy plans are doing so with support from NSW Government, typically via Sustainable Councils and Communities or Sustainability Advantage (Kyogle, Upper Lachlan, Temora, Weddin, Oberon, Forbes, Lachlan, Parkes, Orange, Narrandera, Leeton, Murray River, Albury, Wagga Wagga, Dubbo, Broken Hill, Cowra). A small number have self-funded renewable energy plans, including Lismore, Walcha, Glen Innes Severn and Queanbeyan-Palerang.
- 6 of these 75 councils have declared a climate emergency calling on urgent action by all levels of government including councils to address climate change, suggesting that at this time action on climate is not as pressing a priority as it is in urban and coastal regions.
- 10 of these 75 councils are members of the Cities Power Partnership program.
- At this time we are not aware of any renewable energy power purchasing arrangements for these councils, though we are aware of efforts to progress this at several councils.
- Some councils have been able to progress modest-sized solar PV rollouts, including Tamworth (>0.5 MW) and Lismore (>0.8 MW), typically in their water and sewer division assets.
- At this time we understand that just Lockhart town in the NSW Riverina has made renewable energy and net zero commitments and initiated action in this direction. Queanbeyan-Palerang has assessed opportunities for it to work with its community to help them reduce emissions.

Based on knowledge from working with 16 of these councils we estimate there are around 0 to 0.5 staff working largely or partly on their council's climate action strategy. For most councils the function of emissions reduction and/or renewables/energy efficiency is delivered by facilities, engineering or infrastructure personnel, often at Director level. In some cases we have seen the role led at General Manager level. Grant funding is integral to action by all councils.

At a community emissions level local council support can include the provision of information, small grants, collaboration with community groups on renewables (such as some of the successful RCEF grant recipients), collaboration with NRMA on the rapid charger EV rollout, among other actions.

8.1.4 Summary

Geographic Area	Metropolitan	Coastal	Inland Regional
Population	5,500,000	1,100,000	1,300,000
Number of Councils	35	18	75
People per council	157,143	61,111	17,333
Operational emissions pa	500,000 t CO ₂ -e	300,000 t CO ₂ -e	500,000 t CO ₂ -e
% with ambitious targets	43%	50%	5%
% declared a climate emergency	57%	44%	8%
% in CPP	69%	78%	13%

Geographic Area	Metropolitan	Coastal	Inland Regional
Main funding of climate plans	Self-funded	Self-funded for larger councils, NSW Govt support for smaller councils	Mainly NSW Government funded
% of Councils with PPA	60%	6%	0%
% with community targets	17%	11%	3%
Best estimate of emissions reduction resources per council	2-3	1-1.5	0-0.5
Level of resources to support community	Medium	Low	Very low

8.2 Segmentation of 47 councils

In 100% Renewables' work with 47 councils with nearly 3.6 million population over the last few years we have gained reasonable knowledge of councils' level of resources to address emissions reduction challenges, and whether these councils are achieving good outcomes through implementation of emissions reduction measures. A summary of this is provided below, alongside socio-economic indicator data and population data. Note that this analysis just reflects our perceptions from working with these councils, and is therefore subjective, and may not reflect the situation for all councils in NSW. Individual councils are not identified.

Level of resources to address emissions reduction	Low	Medium	High
Number of councils	18	12	17
Population served	335,074	609,873	2,641,567
Population per council	18,615	50,823	155,386
Predominant location	Inland Regional (14)	Coastal (8)	Sydney metro (12) Large coastal (4)
Simple average Index of Relative Socio-economic Disadvantage	952	970	1,033
Level of success / achievement in emissions reduction	Low = 12 Med = 4 High = 2	Low = 2 Med = 7 High = 3	Low = 0 Med = 4 High = 13

Key findings

- **Metropolitan councils serving the majority of the NSW population but with just 25% of local government emissions, have the most ambitious targets, better funding and more resources to act on climate than their coastal or inland regional counterparts.**
- **Inland regional councils have similar emissions from their operations as metropolitan councils (and similar opportunities for abatement), but a fraction of the funds and resources to respond to climate change. Unlike metropolitan and coastal councils there is a lesser call for urgent action on climate. Based on our work, small, low socio-economic inland regional councils generally have few resources to address emissions reduction opportunities, and levels of success in implementation are similarly low. This aligns with the geographic assessment that shows far fewer inland regional councils have ambitious targets, declared climate change to be an emergency, are engaged with broad council initiatives like CPP, or have looked at setting community targets**
- **Coastal councils are actively engaged in action on climate through setting of targets, planning for abatement in their operations and declaration of a climate emergency. Many coastal councils have a similarly low index of socio-economic disadvantage, but tend to have much larger populations than inland areas, and this may be a factor in why levels of ambitious targets, plans and implementation of emissions reduction measures are higher. Larger councils tend to be better resourced to plan their pathways to renewables and low emissions, whereas smaller councils tend to require greater support from State government to help them plan, set targets and implement.**
- **Across the state, action by local councils is largely focused on their operations, and action on the levers that could reduce emissions in their communities is low by comparison across all councils, though more pronounced in regional areas.**

9 What role could multi-council, regional groupings play?

Groupings of Councils such as Joint Organisations (JOs) already work together or have plans and stated intent to collaborate in a number of areas relevant to GHG reduction. For example:

- Southern Sydney Regional Organisation of Councils (SSROC) led a project to source 39 GWh of renewable electricity for 18/19 metropolitan councils as part of a new electricity supply agreement from mid 2019. The renewables purchase represents ~25% of total supply for these councils, runs for 11 years, and is sleeved with 'regular' power purchasing for the ~75% balance of electricity supply for these councils. A multi-year process to test the market, align contract dates with bridging agreements and procure a multi-year cost-effective renewable energy agreement was undertaken, coordinated by SSROC. This procurement is now at a third stage and covers ~40 councils.
- Southern Lights, a multi-JO project to deliver LED streetlighting and IoT infrastructure to southern NSW local governments. This 18 month project brings together 41 councils across 4 JOs – REROC, Central NSW, Canberra and RAMJO, as well as Broken Hill City Council.
- Waste management is commonly addressed at a regional level, with multiple collaborations across NSW between Councils and their JO representatives. Canberra Region's waste strategy is a good example (https://crjo.nsw.gov.au/wp-content/uploads/300723_CRJO-RWS-2018-2023-V3.pdf).
- Canberra region JO has committed to a range of regional strategic priorities, including a regional Energy Action Plan and a regional Climate Adaptation Plan.
- Central NSW JO identifies coordinated procurement (including for electricity), electric vehicle toolkit, Southern Lights LED rollout among other priorities going forward.
- Hunter JO has a number of regional and inter-regional priorities relevant to community emissions, including regional organics processing and circular economy, as well as numerous initiatives focused on climate risk and resilience in the Hunter region.
- Northern Rivers JO is seeking to develop a renewable energy prospectus for its region, and is seeking funding / contributions to develop this.
- In its statement of strategic regional priorities Riverina JO highlights energy management and climate change among its key priorities going forward.

In the context of reducing greenhouse gas emissions from local council operations (outside of streetlighting), as well as within their communities, the prior assessment of barriers shows that most inland regional councils and smaller coastal councils (some outer metropolitan councils as well) are less well resourced than other councils, and as a result spend relatively little time on this task, despite having similar opportunities for abatement and cost saving.

Joint Organisations of councils could help to overcome some of this gap in resources to help member councils reduce costs and get access to resources and opportunities that reduce their energy use and emissions, and accelerate and give scale to opportunities that receive little attention. Initiatives that could potentially be pursued include:

- Awareness and education resources – low membership of initiatives such as CPP, few climate emergency declarations and few plans for carbon abatement may highlight a gap in access to information that a JO could coordinate on behalf of its members,
- Greater ability to advocate to state and commonwealth governments through a dedicated resource on behalf of several members,

- Ability to recognise excellence and achievements in climate responses at a regional level to further raise awareness,
- Having access to energy data and contract information across multiple councils could help to highlight opportunities such as tariff changes, metering contract opportunities, price benchmarking within JOs,
- To the extent that members wish to pursue renewable energy purchasing, aggregation of load and coordination of contract start dates can facilitate this process and could potentially see more interest from electricity retailers. As SSROC's PPA process demonstrated, it can take a few years for a multi-council opportunity to develop, and a coordinating body pulling this opportunity together would be required if there was sufficient interest,
- Regional renewable energy strategy or plans could more cost effectively target the identification and development of renewable energy and energy efficiency initiatives at larger sites, or could adopt an approach where councils focus on particular types of initiative or facilities and share outcomes with other councils,
- Potential to initiate and coordinate grant opportunities for efficiency and clean energy opportunities, such as community renewable energy, mid-scale solar, community retailer, etc,
- Coordination of regional renewable energy and bioenergy assessments and development of feasible projects. An example of regional opportunities scoping was the ISF bioenergy study¹⁶ that was undertaken for the North Coast. ARENA¹⁷ has also been investing in research, collaboration and projects to progress bioenergy in Australia, including developing a roadmap for bioenergy resources in Australia¹⁸.
- Ability to coordinate efforts to work with state government on EV initiatives such as charging infrastructure development, consumer information, fleet leasing / procurement, rather than council-by-council progress,
- Potential to develop a form of revolving energy fund (REF) or similar that could help to fund regional clean energy projects,
- Ability to develop regional climate risk / resilience and adaptation plans

Key findings

- **Lack of resources means that constrained councils – typically inland regional, small coastal and some outer metro councils – cannot progress action to reduce emissions in their operations.**
- **Groupings such as JOs may have a greater opportunity to progress action on climate, and key focus areas of some JOs highlight what could be targeted with the right level of resources.**

¹⁶ <http://cfsites1.uts.edu.au/find/isf/publications/isonetal2013northcoastbioenergy.pdf>

¹⁷ <https://arena.gov.au/renewable-energy/bioenergy/>

¹⁸ <https://arena.gov.au/blog/charting-course-to-grow-bioenergy-industry/>

Appendix A: Local Council levers to influence community emissions



Local Planning Priority 16:

Reducing carbon emissions and managing energy, water and waste efficiently

The challenge in Blacktown City is to use resources more efficiently despite high rates of population and development growth.

The built environment is the largest single contributor of greenhouse gas emissions. It consumes a third of water and generates 40% of all waste. Industry, transport and waste processing are the other main contributors to total carbon emissions.

Our commitment to reducing emissions includes promoting best practice in Council-initiated projects or voluntary initiatives such as developers going beyond the basic sustainability standards mandated in BASIX or the National Construction Code. In total, Blacktown City's 2016/17 carbon dioxide (CO₂) emissions were calculated at over 3.26 million tonnes. With projected growth in the City, emissions will continue to rise to 4.96 million tonnes CO₂ by 2036, unless substantial reductions are achieved.

Waste management is important for the health, safety, amenity and wellbeing of residents and the environment. The *Central City District Plan* identifies waste management as a serious concern in planning for Sydney's growth. We are committed to working with other Sydney councils on safe, efficient and cost-effective waste initiatives that maximise resource recovery. Well planned waste infrastructure will be responsive to future needs and provide equitable access to waste, re-use and resource recovery services as part of the circular economy.

We will prepare a Low Carbon Precincts Strategy in our growth areas. The Strategy will provide principles for low carbon precincts and tools to reduce emissions from development and the energy, waste, water and transport sectors.

Our Waste Management Strategy and Action Plan focuses on:

- reducing waste at source
- diverting waste from landfill to recycling
- reducing littering and the dumping of waste
- using the planning framework to help reduce construction waste going to landfill and ensure development provides for orderly and safe waste management.

We advocate for NSW Government leadership in developing a Greater Sydney-wide waste strategy, including the return of waste levies to each local council.

Water-efficiency measures (including low-flow fixtures, sensors and use of non-potable water for irrigation) in housing and office buildings can reduce water waste, lower sewage volumes, reduce energy use and reduce building running costs. BASIX sets minimum water efficiency measures for new development. Best practice would adopt higher standards for water efficiency.

Our Integrated Water Management Strategy will facilitate more efficient use of water and the reuse of water in the landscape. This in turn will enable the provision of greater amenity in our suburbs, for example, through increasing the use of non-potable water for irrigation of our recreation and open space areas.

Transport demand management initiatives

Initiatives to assist in reduced greenhouse gas emissions could include:

- working from home
- flexible working hours
- improved access to and connectivity of walking and cycling routes
- improved access to car sharing, car pooling and on-demand transport
- greater access to vehicle charging stations.

Smart poles

We are installing a series of smart poles across Blacktown City that enable on-street parking access to electric vehicle charging stations.

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Local Strategic Planning Statement

FIGURE 13: EXCERPT FROM BLACKTOWN CITY COUNCIL'S LOCAL STRATEGIC PLANNING STATEMENT



FIGURE 14: LISMORE CITY COUNCIL'S 'FARMING THE SUN' FLOATING SOLAR ARRAY ON EAST LISMORE STP



FIGURE 15: CITY OF CANTERBURY BANKSTOWN ELECTRIC VEHICLE (SOURCE: DAILY TELEGRAPH)

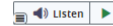


Home / Environment / e.restore

In This Section

- Climate Change
- Our Green City Plan
- Events and Activities
- Bushland & Wildlife
- Sustainable Living
- Environmental Health
- Natural Hazards
- School Programs

e.restore



e.restore is a program set up to improve our environment, made possible by an environmental levy. It is responsible for a broad range of new projects as well as maintaining previous works.

An environmental levy was first introduced in July 2000 to address the issue of our local natural environment being degraded and needing restoration. Strong community support saw the program extended for a second term from 2003 until 2008.

From July 2008 a new Sustainability Levy replaced the Environmental Levy to fund the third round of the e.restore program. e.restore 3 continued the existing local environmental works that have been underway since 2000, while introducing a new focus on responding to climate change.



In 2018, council undertook extensive community engagement to develop its 10 year Community Strategic Plan, [Our Future Willoughby 2028](#). This plan identified as one of its five strategic outcomes that the community wanted a *city that is green*.

In order to develop a shared vision of what a green Willoughby City could look like, further community consultation was undertaken in order to develop the [Our Green City Plan 2028](#).

The *Our Green City Plan 2028* reflects the priorities identified by the community in order to achieve a green city as follows:

- Reduce carbon and greenhouse gas emissions
- Promote sustainable lifestyles and practices
- Enhance, protect and respect waterways, bushland, nature, wildlife and ecological systems
- Reduce energy, water and resource waste and encourage reuse and recycling

These projects reflect Council's ongoing commitment to taking immediate action to mitigate Climate Change and continuing to restore and preserve our local natural environment.

FIGURE 16: WILLOUGHBY CITY COUNCIL E.RESTORE FUNDING TO TACKLE CLIMATE CHANGE

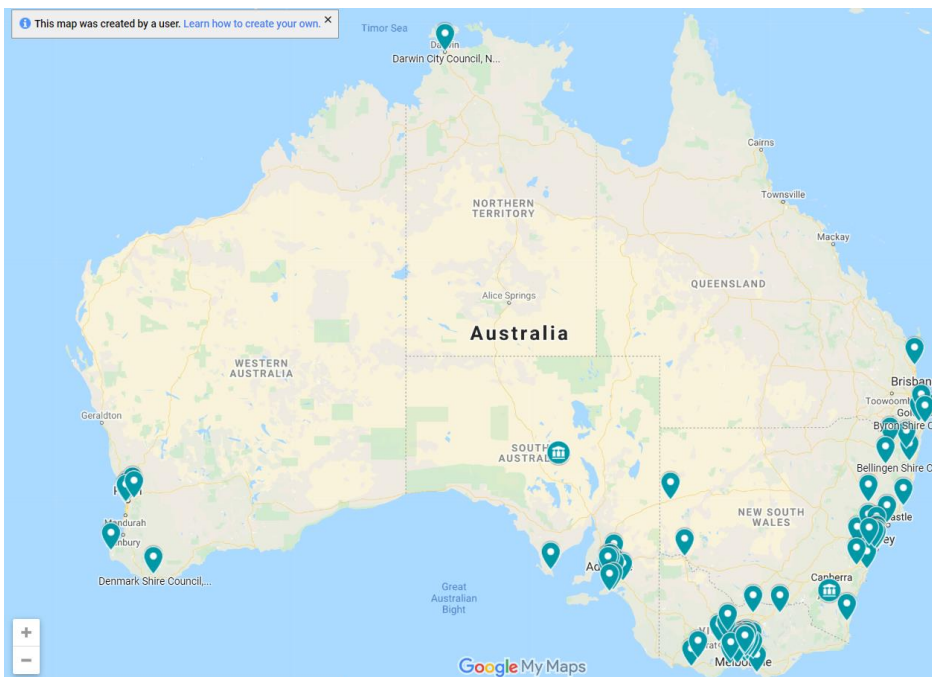



FIGURE 17: CLIMATE EMERGENCY DECLARATIONS MAP OF AUSTRALIA (SOURCE: CEDAMIA)



Select ...

Explore Live

Sustainability Leadership Award

For actions over a range of initiatives and taking a holistic view of sustainability.


Winner

- ➔ [Feather and Bone](#) – Marrickville

For their wide-reaching, holistic sustainability impacts. Feather and Bone have stayed true to their core values and continue to show leadership and influence in their field. The business is not only reducing their own energy consumption, they are innovating in new product areas, strengthening and advocating for sustainable livestock farming

Finalists

- ➔ [Dear Delicious](#) –Dulwich Hill
- ➔ [Village Wholefoods](#) – Marrickville



For further information about the awards, contact Anne Abbott on 9392 5341 or email anne.abbott@innerwest.nsw.gov.au.

Check out previous years Business Environment Awards winners and finalists: [2017 winners and finalists](#) and [2016 winners and finalists](#).

For a limited time, Inner West Council is offering comprehensive, [free sustainability consultations](#) to eligible local businesses. Consultations will be provided by an independent sustainability expert.


FIGURE 18: INNER WEST COUNCIL BUSINESS ENVIRONMENT AWARDS

Central NSW

JOINT ORGANISATION

Home About Us ▾ Strategic Planning & Priority Setting ▾ Leadership & Advocacy ▾

Intergovernmental Co-operation ▾ **Programs ▾** News & Publications ▾



Central NSW Joint Organisation works collaboratively with its 11 member councils to deliver value through 5 key regional energy activities.

Southern Lights

[Southern Lights NSW](#) is an enabling infrastructure project designed to deliver better, safer, cheaper lighting and smarter, connected communities. Not only will lighting levels be improved, the project will provide significant connectivity benefits to regional and rural communities across southern NSW from Bega to Broken Hill.

The project will see one of the largest deployments of smart-enabled LED lighting in Australia, with over 75,000 LED street lights deployed across a geographic area that is approximately the same size as the United Kingdom.

Energy Management Program

Member councils utilise energy management software to analyse and identify opportunities to reduce their electricity consumption. CNSWJO provides support to member councils in this regard.

Additionally, CNSWJO works with member councils to procure electricity for council sites, which includes large market sites, mass market sites and streetlighting. The most recent round of electricity procurement was conducted in late 2019 with a new contract commencing on 1 January 2020 for a period of 3 years.

Electric Vehicles Policy and Toolkit

CNSWJO member councils have a keen interest in electric vehicles and are working on a variety of projects to support and encourage the uptake of electric vehicles in Central NSW.

A [Toolkit](#) has been developed by CNSWJO and its member councils to help councils, businesses and charging station operators to understand and navigate the process of installing chargers throughout the Central NSW region.

The Toolkit is designed to walk through the necessary steps involved in installing electric vehicle chargers including considerations such as site selection, charging infrastructure, required approvals, the installation process and signage.

Members are also working on a regional project to identify key locations to install EV charging stations. A strategic approach to charging infrastructure will ensure that electric vehicle drivers have the most logical and stress-free journey through the region. The project will have a strong tourism focus to ensure there is inter-connectivity with the Sydney and Canberra.

Solar Panel and Battery Innovation

In 2018/19, seven member councils participated in an alternate energy options analysis which assessed a total of 57 council sites ranging from swimming pools, administration buildings, depots and libraries using 'behind-the-meter' solar to carparks as solar generation sites.

A regional procurement process for solar and batteries on council buildings is planned in the future.

Innovation in the energy market emergent opportunities

CNSWJO member councils have a strong interest in investigating renewable energy opportunities, both through their standard electricity contracts, the installation of solar panels, as well as other innovative approaches as they arise.

CNSWJO and its members are continually looking for opportunities to not only reduce their electricity consumption, but also support and engage in the uptake of renewable energy.

FIGURE 19: CENTRAL NSW JOINT ORGANISATION – COLLABORATION ON ENERGY

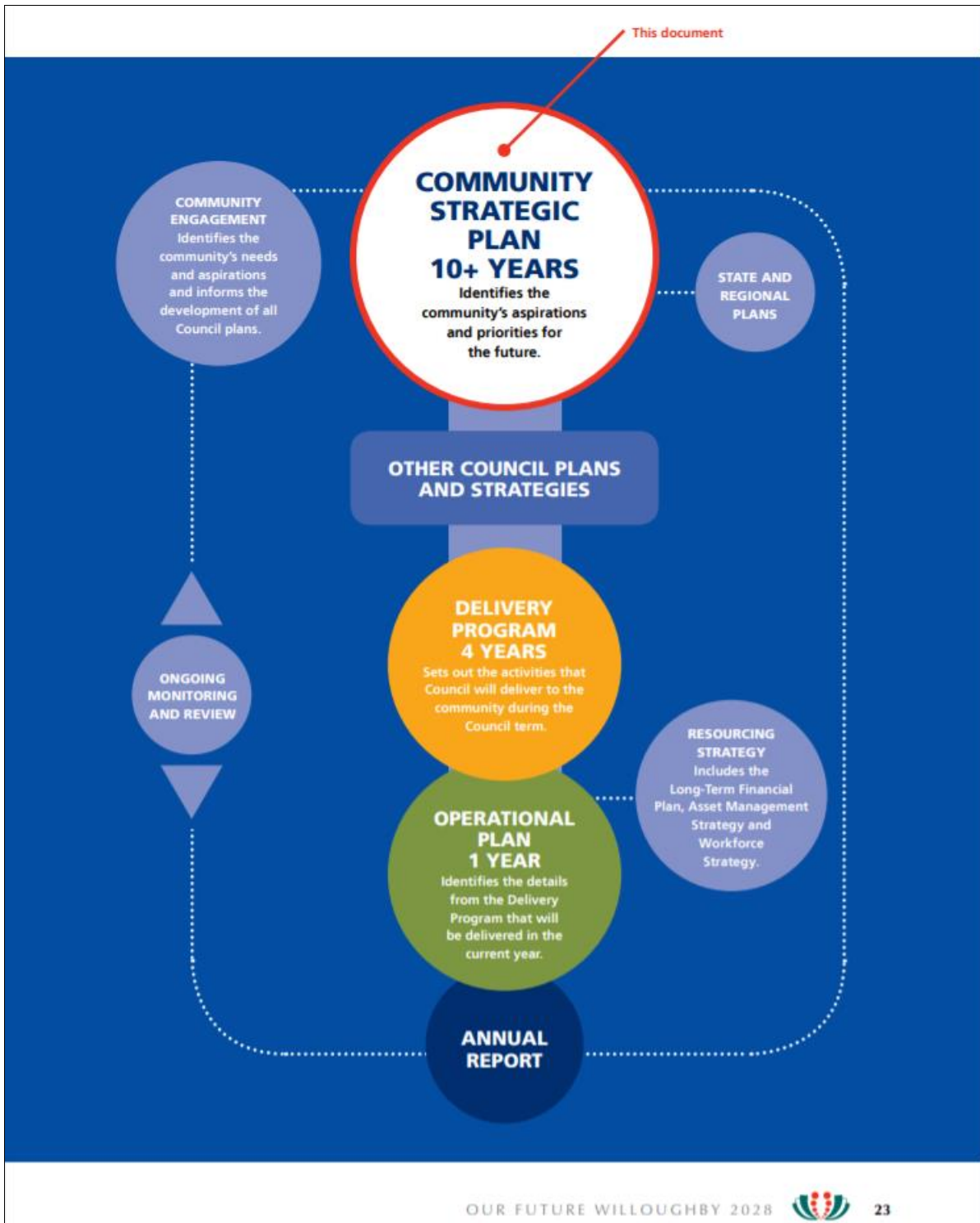
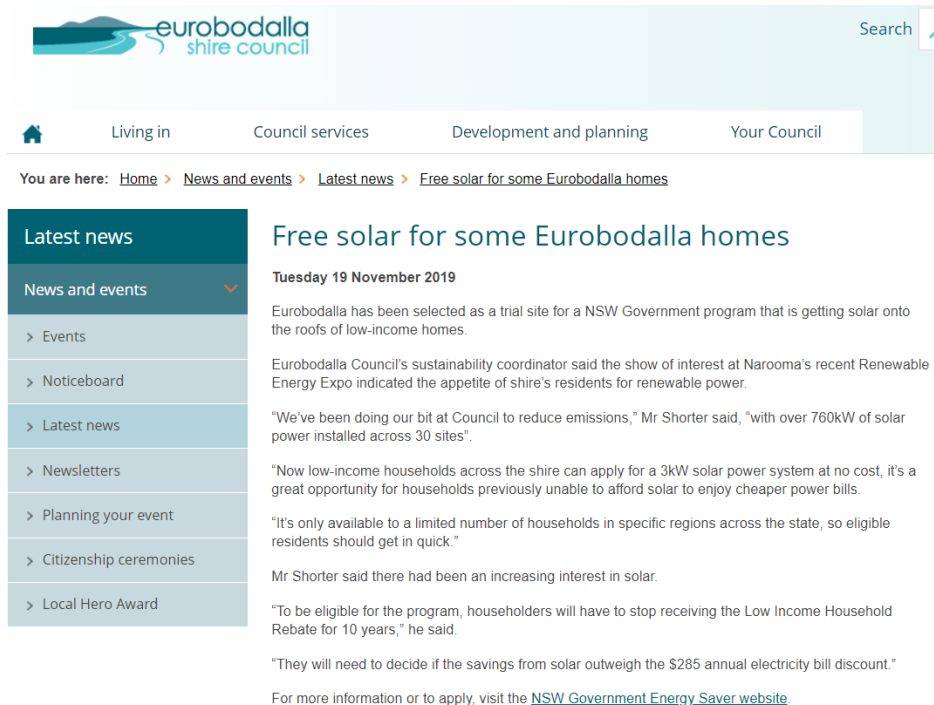


FIGURE 20: INTEGRATED PLANNING AND REPORTING FRAMEWORK EXAMPLE – WILLOUGHBY



The screenshot shows the Central Coast Council website. The navigation menu includes: RESIDENTS, ENVIRONMENT, PLAN AND BUILD, BUSINESS, RECREATION, COUNCIL, and EVENTS. There are also icons for PLACES, CONTACT, and SEARCH. The main content area features a large image of a harbor with many sailboats. Below the image, the breadcrumb trail reads: Home / Council / Local road built almost entirely with recycled products. The article title is "Local road built almost entirely with recycled products" dated Wednesday, 1 July 2020. The article text states: "Central Coast Council has demonstrated that a road project – including road base, road surface, kerb and guttering, footpaths and drainage – can be built with over 90 percent recycled material. Significant environmental benefits have been achieved on what looks like a typical road upgrade in Wyongah – with the majority of materials sourced from recycled household and construction products. Council Director Roads Transport Drainage and Waste, Boris Bolgoff said the project recycled over five million glass bottles, 270 kilograms of plastic and thousands of tonnes of used concrete and road gravel. 'This project represents a milestone in Council's commitment to sustainably develop and maintain the Central Coast's 2,200 kilometre road network,' Mr Bolgoff said. 'We started from the bottom and worked our way up – instead of virgin sand we used recycled glass for trench backfills and the sub-base of the road, and the road base itself is made from recycled crushed concrete and the existing road pavement. 'For kerb and guttering and the footpath we used a 'Green concrete' made from fly ash (a by-product of coal fired powered stations) and recycled glass sand, with the reinforcing made out of recycled plastic, saving the equivalent of 50,000 plastic bags.

FIGURE 21: CENTRAL COAST COUNCIL – RECYCLED PRODUCTS IN ROAD CONSTRUCTION



The screenshot shows the Eurobodalla Shire Council website. The navigation menu includes: Living in, Council services, Development and planning, and Your Council. There is a search bar and a home icon. The breadcrumb trail reads: You are here: Home > News and events > Latest news > Free solar for some Eurobodalla homes. The article title is "Free solar for some Eurobodalla homes" dated Tuesday 19 November 2019. The article text states: "Eurobodalla has been selected as a trial site for a NSW Government program that is getting solar onto the roofs of low-income homes. Eurobodalla Council's sustainability coordinator said the show of interest at Narooma's recent Renewable Energy Expo indicated the appetite of shire's residents for renewable power. 'We've been doing our bit at Council to reduce emissions,' Mr Shorter said, 'with over 760kW of solar power installed across 30 sites'. 'Now low-income households across the shire can apply for a 3kW solar power system at no cost, it's a great opportunity for households previously unable to afford solar to enjoy cheaper power bills. 'It's only available to a limited number of households in specific regions across the state, so eligible residents should get in quick.' Mr Shorter said there had been an increasing interest in solar. 'To be eligible for the program, householders will have to stop receiving the Low Income Household Rebate for 10 years,' he said. 'They will need to decide if the savings from solar outweigh the \$285 annual electricity bill discount.' For more information or to apply, visit the [NSW Government Energy Saver website](#).

FIGURE 22: EUROBODALLA SHIRE COUNCIL – INFORMATION RESOURCES LINKING RESIDENTS TO SOLAR



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