

TABLE OF CONTENTS

ITEM 1	APPLICATIONS FOR LEAVE OF ABSENCE	2
ITEM 2	DECLARATIONS OF INTEREST	2
ITEM 3	DECLARATIONS OF POLITICAL DONATIONS	3
ITEM 4	DRAFT EMISSIONS REDUCTION PLAN	3
ITEM 5	ENVIRONMENTAL SERVICES DEPARTMENT UPDATE REPORT	5
ITEM 6	MINING & ENERGY RELATED COUNCILS DRAFT MINUTES AND NEWSLETTER - SEPTEMBER 2022	8

CONFIDENTIAL ITEMS

Clause 240(4) of the Local Government (General) Regulation 2005 requires Council to refer any business to be considered when the meeting is closed to the public in the Ordinary Business Paper prepared for the same meeting. Council will discuss the following items under the terms of the Local Government Act 1993 Section 10A(2), as follows:

ITEM 1 MID-SCALE SOLAR PLANT UPDATE

Commercial information that would give advantage to a competitor of the council.

ANNEXURE ITEMS

ANNEXURE 4.1	CABONNE COUNCIL - EMISSIONS REDUCTION PLAN	10
ANNEXURE 5.1	'LOVE YOUR LEFTOVERS' POSTER	57
ANNEXURE 5.2	YEOVAL TRANSFER STATION INCOME JAN-AUG 2022	58
ANNEXURE 6.1	MERC - ORDINARY MEETING MINUTES 2ND SEPTEMBER 2022	60
ANNEXURE 6.2	MERC NEWSLETTER AUGUST 2022	68

ITEM 1 - APPLICATIONS FOR LEAVE OF ABSENCE

REPORT IN BRIEF

Reason For Report	To allow tendering of apologies for councillors not present.
Policy Implications	Nil
Budget Implications	Nil
IPR Linkage	1.2.2.1a - Facilitate Council and standing committee meeting processes.
Annexures	Nil
File Number	\\OFFICIAL RECORDS LIBRARY\GOVERNANCE\COUNCIL MEETINGS\COUNCIL - COUNCILLORS LEAVE OF ABSENCE - 1435770

RECOMMENDATION

THAT any apologies tendered be accepted and the necessary leave of absence be granted.

GENERAL MANAGER'S REPORT

A call for apologies is to be made.

ITEM 2 - DECLARATIONS OF INTEREST

REPORT IN BRIEF

Reason For Report	To allow an opportunity for councillors to declare an interest in any items to be determined at this meeting.
Policy Implications	Nil
Budget Implications	Nil
IPR Linkage	1.2.2.1a - Facilitate Council and standing committee meeting processes.
Annexures	Nil
File Number	\\OFFICIAL RECORDS LIBRARY\GOVERNANCE\COUNCIL MEETINGS\COUNCIL - COUNCILLORS AND STAFF DECLARATION OF INTEREST - 2022 - 1435775

RECOMMENDATION

THAT the Declarations of Interest be noted.

GENERAL MANAGER'S REPORT

A call for Declarations of Interest.

ITEM 3 - DECLARATIONS OF POLITICAL DONATIONS

REPORT IN BRIEF

Reason For Report	To allow for an opportunity for Councillors to declare any Political Donations received.
Policy Implications	Nil
Budget Implications	Nil
IPR Linkage	1.2.2.1a - Facilitate Council and standing committee meeting processes.
Annexures	Nil
File Number	\\OFFICIAL RECORDS LIBRARY\GOVERNANCE\COUNCIL MEETINGS\COUNCIL - COUNCILLORS DECLARATION OF POLITICAL DONATIONS - 1435780

RECOMMENDATION

THAT any political donations be noted.

GENERAL MANAGER'S REPORT

A call for declarations of any political donations.

ITEM 4 - DRAFT EMISSIONS REDUCTION PLAN

REPORT IN BRIEF

Reason For Report	To discuss options regarding emissions reduction targets
Policy Implications	Nil
Budget Implications	Nil
IPR Linkage	1.3.2.1b - Implement the adopted actions from Council's Emissions Reduction Plan (ERP).
Annexures	1. Cabonne Council - Emissions Reduction Plan ↓
File Number	\\OFFICIAL RECORDS LIBRARY\ENVIRONMENTAL MANAGEMENT\PLANNING\EMISSIONS REDUCTION PLAN - 1438468

RECOMMENDATION

THAT the committee discuss different emission reduction targets for inclusion in draft Emissions Reduction Plan for consideration by Council.







DEPARTMENT LEADER - INNOVATION & TECHNOLOGY'S REPORT

Following the presentation of Council's Draft Emissions Reduction Plan by 100% Renewables at council's August workshop, council should decide whether to include any specific emission reduction targets in the Emissions Reduction Plan.

100% Renewables have included the following recommendations in the draft plan regarding emissions reduction targets:

- Align with NSW State Government targets for net zero carbon emissions by 2050.
- Set or reaffirm targets linked to council's Renewable Energy Action Plan, for example to source at least 50% of its power from renewable energy.
- Develop interim emissions reduction goals linked to what is feasible for waste emissions reduction in response to the NSW Waste and Sustainable Materials Strategy 2041.

Breakdown of emissions for the 2019 Financial year:

	Emission source	Activity data	Units	Scope 1 t CO ₂ -e	Scope 2 t CO ₂ -e	Total	%
	Diesel	674	L	1,833.72		1,834	20.6%
	Petrol	489	L	11		11	0.1%
	Electricity	1,424,627	kWh		1,125	1,125	12.6%
	Streetlighting	419,297	kWh		331	331	3.7%
	Waste water	188	t CO ₂ -e	188		188	2.1%
	Landfill waste	4,950	t	5,425		5,425	60.9%
	TOTAL			7,458	1,457	8,915	100.0%

100% Renewables also recommended the following actions:

- Implement the REAP as adopted in 2020, including renewable energy power purchasing and mid-scale solar,
- Develop a fleet low emissions / EV transition strategy and integrate into fleet planning,
- Align waste management strategies with the NSW Waste and Sustainable Materials Strategy 2041, including emissions reduction targets from higher diversion rates, organics composting and waste reduction,

- Evaluate opportunities for eliminating residual emissions through offsetting or the development of local carbon sequestration opportunities

Points for discussion:

- Council is, through its new electricity contract, already committed to purchasing approx. 49% of its electricity from renewable sources, this is 8% of Council's total emissions (based on 2018/19 year).
- The renewable energy generated from the proposed solar plant at the Eugowra Sewer Treatment Plant is estimated to offset approx. 3,000 tonnes of CO₂, or 33% of council's emissions.
- 60.9% of council's emissions can be attributed to landfill, which is difficult to reduce on its own and any attempts to reduce emissions in this space would need to consider waste management contracts and would likely be reliant on larger State driven schemes and strategies.
- It may be that council is lacking the information required to set any targets at this time.

ITEM 5 - ENVIRONMENTAL SERVICES DEPARTMENT UPDATE REPORT

REPORT IN BRIEF

Reason For Report	To provide information to the committee regarding activities within council's Environmental Services Department.
Policy Implications	Nil
Budget Implications	Nil
IPR Linkage	3.2.1.3a - Conduct community education activities to promote recycling.
Annexures	1. 'Love Your Leftovers' poster ↓ 2. Yeoval transfer station income Jan-Aug 2022 ↓
File Number	\\OFFICIAL RECORDS LIBRARY\\WASTE MANAGEMENT\\CAMPAIGNS\\NETWASTE - 1435760

RECOMMENDATION

THAT the information be noted.

DEPUTY GENERAL MANAGER - CABONNE SERVICES REPORT

The following report has been compiled by the Environmental Services Department Leader to provide the committee with a departmental activity update.

NETWASTE COMMUNITY EDUCATION PROGRAM - ACTIVITY REPORT

As part of the Netwaste joint regional council's waste education plan it has recently launched the 'Love Food Hate Waste' - Food Waste Reduction Campaign. The aim of this campaign is to develop an online, community inspired 'Love Your Leftovers' recipe book.

Netwaste has provided council with media materials such as a media release, recipe template, website content, social media posts, campaign banner and logo in order to promote the campaign. Attached is a copy of the promotional poster for the information of the committee.

YEOVAL TRANSFER STATION

Council has been conducting a study of the use vs costings of Yeoval transfer station, this has taken in the past 8 months of use and costings. The report (attached) reveals that the facility (currently operating one day per week) is running at a heavy loss, and there is a limited number of local residents using the facility. This is considered to be due to the Yeoval community have access to, and utilising, the 2 bins domestic waste system that is in place and using the Cumnock waste facility for any bulky items.

To operate at a cost neutral level council needs to consider both the community benefit of operating the site one day per week, and the actual cost of operating the transfer station. The facility has transitioned over recent years from a landfill site to a transfer station, with the use of the site monitored. Previously open two days a week – and with weeks recorded where no mid week access to the site was generated, council reduced opening days from two days per week to one day per week. Data indicates minimal use of the transfer station site is currently required by the community.

The next steps will be to consult with the Yeoval community in regard to making the transfer station a fortnightly service and explaining the reasoning behind the decision.

There is also opportunity to investigate additional initiatives to encourage recycling and proactive waste management within the community; such as implementing a quarterly voucher system for rural landowners to enable free access to the Cumnock landfill facility for disposal of bulk waste items. This may be a model for implementation as an annual initiative across the shire at each of the landfill sites.

DOMESTIC KERB SIDE WASTE STREAM COMPOSITION - CONTAMINATION AUDIT

As part of the Netwaste audit program Envirocom Australia has conducted a composition audit of the domestic kerb side waste stream in Cabonne Council. The audit occurred during July and August 2022 and encompassed both the domestic kerb side residual waste and recycling streams (both the red and yellow lid bin system).

The rate of contamination in the recycling stream was observed to be 16.05%. The Netwaste objective is a contamination rate of below 10%.

The audit of the general waste collection indicated that 67.69% of the waste material was recoverable. This was generally compostable materials and recyclable materials.

Grad samples were taken from JR Richards kerb side delivery vehicles and the samples hand segregated to determine composition of the waste stream.

Recyclable paper constituted 9.6% of the total waste stream and over half of all resource lost within the general waste stream. Other common recyclable material was polypropylene packaging and steel cans.

Acceptable recycling materials comprised 83.95% of the recycling stream with recyclable paper accounting for almost half of the stream. Recyclable glass was the next most common material at 19.7%. The proportion of contamination was 16.05% comprising residual materials ie broken glass. Other plastic and bagged garage were also prominent contaminants.

The audit findings indicate opportunity to encourage residents to separate greenwaste from general waste for delivery to the Molong greenwaste site or similar, as well as the opportunity for community education programs on composting options. Further education on recycling of plastic / paper and steel materials will assist in reducing contamination of the recycling stream component of the domestic waste service.

COMMUNITY NOTIFICATION - CONTAMINATION LEVEL OF RECYCLING (YELLOW BIN) DOMESTIC SERVICE

During 2021 it was identified through the NetWaste Joint Recycling Contract Management Committee (which consists of 11 participating Councils with kerb side recycling services), that contamination has risen in the dry recycling service. The quality of the material collected must be further improved to reduce contamination.

Most councils have reported some higher contamination of the dry recycling collection service over the last 2 years. It has been difficult to pinpoint the cause, however, it has become apparent that more cross regional messaging and alignment is required to lower the current state of contamination, in both dry recycling and food and organics collections.

To move contamination below 10%, and to develop more continuity within the system, the Netwaste regional discussions have centred on the importance of educating the resident extensively, and to try and stem the contamination issues. The process requires the issuing of correspondence from JR Richards to the resident, drawing their attention to the presence of bin contaminants, and

providing additional information to encourage correct separate of waste materials. This engagement process aims to correct inappropriate use of the domestic waste service, to educate the community, and to maximize recycling. All efforts are made to keep the bin in circulation, with removal the very last option.

This unified messaging will enable councils that share similar services, to have the same messaging regarding managing kerb side contamination. This will enable more targeted stakeholder engagement, mirrored education, and more consistent information from their respective council to the customer shared across participating councils.

A number of the JR Richards fleet trucks are fitted with the J-Track system of recording. This contamination evidence will differ across the region, with digitally recorded pictures and non-digitally recorded images (driver physically seeing or removing the contamination) utilized for evidence-based accountability.

The purpose of this report is to seek council's endorsement to a singular shared document, set of informative warning letters, regarding contamination. The purpose of the community engagement process is to improve recovery and reducing contamination.

The regional template will be implemented as part of the JR Richards customer service management practices and will be issued from their service centres. Other councils that wish to adopt the regional document set can access these documents from NetWaste's Project Coordinator.

ITEM 6 - MINING & ENERGY RELATED COUNCILS DRAFT MINUTES AND NEWSLETTER - SEPTEMBER 2022

REPORT IN BRIEF

Reason For Report	For the information of council
Policy Implications	Nil
Budget Implications	Nil
IPR Linkage	5.5.1.c - Maintain knowledge and understanding of emerging environmental issues related to mining and energy industries
Annexures	1. MERC - Ordinary Meeting Minutes 2nd September 2022 ↓ 2. MERC Newsletter August 2022 ↓
File Number	\\OFFICIAL RECORDS LIBRARY\GOVERNMENT RELATIONS\LOCAL AND REGIONAL LIAISON\ASSOCIATION OF MINING AND ENERGY RELATED COUNCILS - 1438667

RECOMMENDATION

THAT the information contained in the report be noted.

DEPUTY GENERAL MANAGER - CABONNE SERVICES REPORT

The minutes of the September 2022 meeting of the Mining & Energy Related Councils meeting held in Sydney on 2 September 2022 are attached for the information of the committee. Also attached is the group's August newsletter.



Cabonne Council

EMISSIONS REDUCTION PLAN

Draft Report

Date: June 2022



Treasury



**CENTRAL NSW
JOINT ORGANISATION**

www.100percentrenewables.com.au



Contents

1	EXECUTIVE SUMMARY	4
1.1	CABONNE COUNCIL'S CLIMATE CHANGE RESPONSE	4
1.2	RECOMMENDED EMISSIONS REDUCTION TARGETS	4
1.3	CABONNE COUNCIL'S CARBON FOOTPRINT	5
1.4	ROADMAP TO ACHIEVE CABONNE COUNCIL'S NET ZERO TARGET	6
2	CONTEXT FOR ACTION TO REDUCE EMISSIONS	8
2.1	CLIMATE CHANGE 2021: THE PHYSICAL SCIENCE BASIS	8
2.2	INTERNATIONAL DRIVERS FOR CLIMATE ACTION	9
2.3	NATIONAL TARGETS	11
2.4	NSW STATE TARGETS	12
2.5	REGIONAL COUNCIL AND NSW COMMUNITIES' EMISSIONS REDUCTION TARGETS	13
3	CABONNE COUNCIL'S CARBON FOOTPRINT	14
3.1	FY2019 CARBON FOOTPRINT	15
3.2	FY2019, FY2020 AND FY2021 CARBON FOOTPRINTS	16
3.3	DATA MANAGEMENT PLAN	17
3.4	BUSINESS-AS-USUAL FORECAST EMISSIONS FOR CABONNE COUNCIL	18
3.5	ANALYSIS OF LANDFILL WASTE	21
3.6	ANALYSIS OF ELECTRICITY USE BY COUNCIL ASSETS	21
3.7	ANALYSIS OF FUEL USE (TRANSPORT)	22
3.8	ANALYSIS OF WASTEWATER	22
4	PAST AND CURRENT ABATEMENT INITIATIVES	23
5	OPPORTUNITIES TO REDUCE CARBON EMISSIONS	24
5.1	GRID DECARBONISATION	26
5.2	BUYING CLEAN ENERGY	28
5.3	MID-SCALE RENEWABLE ENERGY PLANT BUILT BY CABONNE COUNCIL	29
5.4	BEHIND-THE-METER SOLAR	30
5.5	ENERGY EFFICIENCY	32
5.6	SUSTAINABLE TRANSPORT	34
5.7	LANDFILL WASTE EMISSIONS REDUCTION	37
5.8	CARBON OFFSETS	39
5.9	SUSTAINABLE VALUE CHAIN	41
6	EMISSIONS REDUCTION PATHWAY DEVELOPMENT	44
6.1	STAKEHOLDER ENGAGEMENT	44
6.2	DEVELOPMENT OF AN EMISSIONS PATHWAY TO 2050	44
	APPENDIX A	46



Table of tables

Table 1: Cabonne Council – FY2019 carbon footprint by emissions source and scope	6
Table 2: Cabonne Council – FY2019 carbon footprint.....	15
Table 3: FY2019, FY2020 and FY2021 carbon footprints	16
Table 4: Suggested data management plan for Cabonne Council	17
Table 5: BAU changes to Cabonne Council's carbon footprint to FY2050	18
Table 6: Cabonne Council – landfill waste.....	21
Table 7: Cabonne Council – grid electricity consumption streetlighting accounts.....	21
Table 8: Cabonne Council – grid electricity consumption top ten facilities.....	21
Table 9: Cabonne Council – fuel use	22
Table 10: Cabonne Council – wastewater	22
Table 11: Cabonne Council – past, current & planned emissions reduction actions	23
Table 12: Summary of stakeholder consultation	44
Table 13: Opportunities for Cabonne Council to reduce its carbon footprint	44
Table 14: Summarised solar PV opportunities at Cabonne Council.....	46

Table of figures

Figure 1: Cabonne Council – FY2019 carbon footprint by emissions source and scope	5
Figure 2: Cabonne Council's possible emissions reduction pathway.....	7
Figure 3: Remaining global carbon budget (adapted from IPCC Working Group I report FAQs).....	8
Figure 4: Global context for action on climate	9
Figure 5: Global Risks report – Risks to global economy.....	10
Figure 6: Australia's renewable energy and emissions reduction goals – National level	11
Figure 7: Australia's renewable energy and carbon goals – State & Territory level	12
Figure 8: Emissions reduction commitments by New South Wales regional councils at Dec-21	13
Figure 9: Emissions reduction commitments by New South Wales communities at Dec-21	13
Figure 10: Scope 1, Scope 2 and Scope 3 emissions	14
Figure 11: Cabonne Council – FY2019 detailed carbon footprint	15
Figure 12: Cabonne Council – FY2019, FY2020 and FY2021 carbon footprints	16
Figure 13: Cabonne Council - Business-as-usual energy-related emissions projection.....	19
Figure 14: Cabonne Council - Business-as-usual total emissions projection	20
Figure 15: Nine categories of emissions reduction for Cabonne Council	25
Figure 16: AEMO model of renewable energy penetration in ISP2022 scenarios (draft).....	27
Figure 17: Cabonne Council's energy roadmap for emissions reduction.....	45
Figure 18: Cabonne Council's emissions reduction pathway with additional carbon offsets.....	45



1 Executive summary

100% Renewables was engaged by Central NSW Joint Organisation, with support from NSW Office of Energy and Climate Change (OECC), to work with Cabonne Council to develop an Emissions Reduction Plan (ERP) that builds on Council's recently adopted Renewable Energy Action Plan (REAP).

In addition to the REAP, this ERP is informed by the NSW Government's net zero emissions targets and plans that are linked to these, including the Net Zero Plan Stage I 2020-2030, NSW Waste and Sustainable Materials Strategy 2041, and the NSW Electric Vehicle Strategy.

It is intended that this Emissions Reduction Plan helps Council to understand the key abatement levers it has that can enable it to align with the NSW Government's target to reach net zero emissions for the State by 2050, and to set interim targets for emissions reduction.

1.1 Cabonne Council's climate change response

This Emissions Reduction Plan (ERP) for Cabonne Council builds on a number of commitments and plans made by Council in recent years to respond to the challenges and opportunities posed by climate change in the region.

- Cabonne Council's Renewable Energy Action Plan (REAP) was adopted in May 2020 and is based on an analysis of electricity consumption and renewable energy generation opportunities, both on Council-owned facilities and at mid-scale.
- The Cabonne Local Strategic Planning Statement (2020) identifies mitigation and adaptation to climate change and support to the development of renewable energy in the region as *Priority 9* and recognises climate change-related threats to include higher temperatures and less reliable water sources. Efficient buildings, renewable energy, tree planting in towns and implementation of Water Sensitive Urban Design are noted as some of the key measures that can be developed to mitigate these risks.
- Council has reported for many years through regional State of the Environment reports and has a decade of trends for resource consumption – electricity, fuel, waste – and associated emissions, including a significant reduction in electricity consumption since 2014.
- The Orange, Blayney and Cabonne Regional Economic Development Strategy 2018 – 2022 identifies the development of a renewable energy strategy for the region with key stakeholders (across mining and the community) as a key strategy to be progressed.
- The Central West and Orana Regional Plan 2036 recognises in its *Direction 9* that the region has significant potential for renewable energy (wind and solar as well as bioenergy) and prioritises the identification of suitable generation locations with grid access, the development of small-scale local projects and the maximisation of community benefits from renewable energy projects as key priority actions.

1.2 Recommended emissions reduction targets

Based on the analysis and consultation with key stakeholders, the following emissions reduction targets are recommended for Cabonne Council:

- In the first instance it is recommended that Council commit to align with the NSW State Government target of net zero emissions by 2050, or earlier where cost effective and feasible abatement measures allow.



Emissions Reduction Plan: Cabonne Council

- Set or reaffirm targets linked to the REAP and renewable energy purchasing, such as Council's commitment to source at least 50% of its power from renewable energy.
- Develop interim emissions reduction goals linked to what is feasible for waste emissions reduction in response to the NSW Waste and Sustainable Materials Strategy 2041.

In addition to these recommended targets and objectives, numerous factors may call for targets to be changed from time to time. These include legislation, technology, funding, political, expansion of Council's scope to include value chain emissions, as well as action by Council's peers.

Given this, a strategic priority for Council should be to review its targets periodically, for example in line with each Delivery Program cycle, potentially with a midpoint review as well.

1.3 Cabonne Council's carbon footprint

Cabonne Council's greenhouse gas emissions in FY2019, the baseline year for this ERP, were **8,915 t CO₂-e** (scope 1 and scope 2). Almost 60.9% of emissions are due to landfill operations, while most of the remaining emissions are due to fuel (20.7%) and electricity for facilities and streetlights (16.3%). A summary of emissions in the baseline year is graphed and tabulated below.

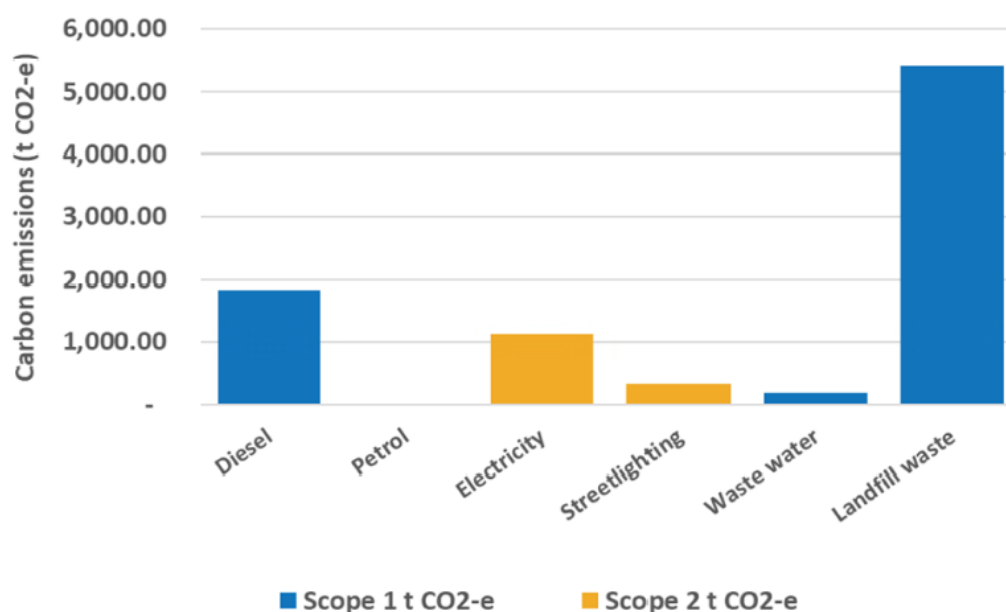


FIGURE 1: CABONNE COUNCIL – FY2019 CARBON FOOTPRINT BY EMISSIONS SOURCE AND SCOPE



Emissions Reduction Plan: Cabonne Council

TABLE 1: CABONNE COUNCIL – FY2019 CARBON FOOTPRINT BY EMISSIONS SOURCE AND SCOPE

	Emission source	Activity data	Units	Scope 1 t CO ₂ -e	Scope 2 t CO ₂ -e	Total	%
	Diesel	674	kL	1,833.72		1,834	20.6%
	Petrol	4.89	kL	11		11	0.1%
	Electricity	1,424,627	kWh		1,125	1,125	12.6%
	Streetlighting	419,297	kWh		331	331	3.7%
	Waste water	188	t CO ₂ -e	188		188	2.1%
	Landfill waste	4,950	t	5,425		5,425	60.9%
	TOTAL			7,458	1,457	8,915	100.0%

Council's carbon footprint builds on the electricity-focused carbon footprint that was developed for the REAP, and now includes emissions resulting from transport, waste deposited in landfills as well as emissions resulting from wastewater treatment operations. Emissions related to the purchase of goods and services by Council, and from the commute to and from work by Council staff (value chain emissions) are not considered in this ERP but may be considered in future revisions to this Plan.

1.4 Roadmap to achieve Cabonne Council's net zero target

Making deep cuts in greenhouse gas emissions that is aligned with the NSW Government's targets of reaching net zero emissions by 2050 and reducing emissions by 50% by 2030 can be achieved by:

- Implement the REAP as adopted in 2020, including renewable energy power purchasing and mid-scale solar,
- Develop a fleet low emissions / EV transition strategy and integrate into fleet planning,
- Align waste management strategies with the NSW Waste and Sustainable Materials Strategy 2041, including emissions reduction targets from higher diversion rates, organics composting and waste reduction,
- Evaluate opportunities for eliminating residual emissions through offsetting or the development of local carbon sequestration opportunities



Emissions Reduction Plan: Cabonne Council

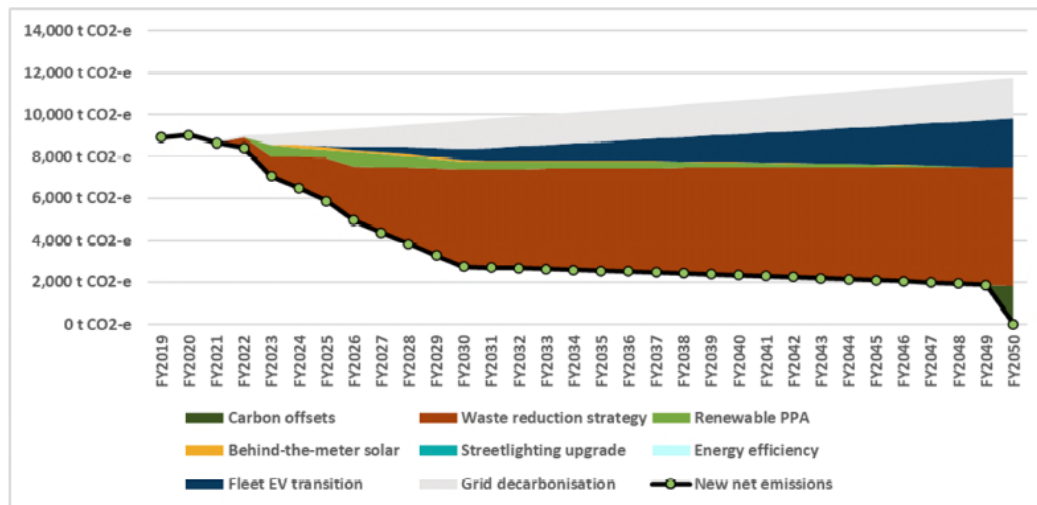


FIGURE 2: CABONNE COUNCIL'S POSSIBLE EMISSIONS REDUCTION PATHWAY



2 Context for action to reduce emissions

2.1 Climate Change 2021: the Physical Science Basis¹

Due to all historical carbon emissions, average global temperatures have increased by ~1°C from pre-industrial levels; in Australia it is higher at ~1.4°C. The IPCC's report, *Climate Change 2021: the Physical Science Basis* has issued the strongest call yet for urgent and deep cuts to be made to global greenhouse gas emissions. The Working Group I Report (WGI) says the window to deliver the "deep emissions cuts" needed to prevent the worst impacts of climate change is closing rapidly. Subsequent Working Group reports (WGII and WGIII) set out the impacts of climate change based on the latest data, and the mitigation solutions, progress and pledges. This highlights that while the solutions to decarbonise are commercially available, current pledges and progress fall short of what is required.

The main driver of long-term warming is the total cumulative emissions of greenhouse gases over time. Since 1750, emissions have been more than 2,560 billion tonnes CO₂. A key message from the WGI report is that rapid reductions in emissions are required **this decade** to prevent long-term ecological and climate breakdown. The report predicts that it is near-certain warming will exceed 1.5°C in the next two decades, but accelerated abatement and removals can reverse this situation beyond 2050.

We have a 50/50 chance to limit warming to 1.5°C if we stay within an added global carbon budget of 500 billion tonnes. At pre-pandemic global emission rates, this gives us under 11 years before we exceed 1.5°C. If we want a better chance – two in three – of achieving around 1.5°C of warming by mid-century, then we can emit just 400 billion tonnes globally, and we have even less time to act.

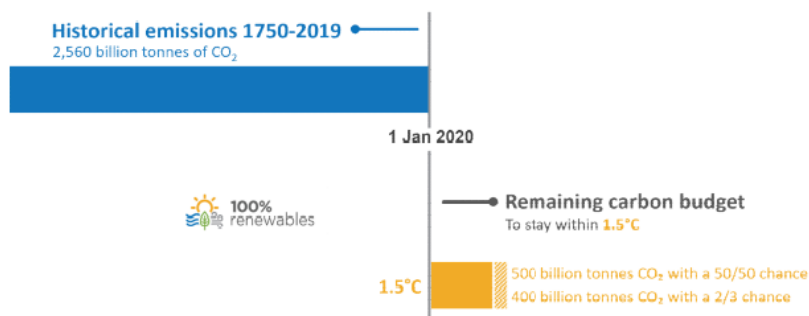


FIGURE 3: REMAINING GLOBAL CARBON BUDGET (ADAPTED FROM IPCC WORKING GROUP I REPORT FAQs)

From the perspective of an organisation, the pathway to follow if a safe future climate is a goal is to **start today, make deep emissions cuts, and persist on this path for years to reach net zero emissions**. To achieve net zero emissions in a local government context this would mean:

1. GHG emissions from stationary fuel combustion such as LP gas are minimised, and
2. GHG emissions from transport fuel combustion are minimised, and
3. GHG emissions from electricity consumption are minimised, and
4. GHG emissions from waste to landfill and wastewater systems are minimised, and
5. GHG emissions in the value chain – upstream and downstream are minimised, and
6. Remaining emissions are offset or removed through sequestration measures

¹ <https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/>



2.2 International drivers for climate action

Beyond the second commitment period of the Kyoto Protocol (2013 to 2020), there are several drivers for urgent climate action. These are:

1. Sustainable Development Goals (SDGs)

In 2015, countries adopted the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals². The SDGs came into force on 1 January 2016 and call on action from all countries to end poverty and promote prosperity while protecting the planet.

2. Paris Agreement

To address climate change, countries adopted the Paris Agreement at the COP21 in Paris on 12 December 2015. In the agreement, signatory countries agreed to work to limit global temperature rise to well below 2°C, and given the grave risks, to strive for 1.5°C Celsius³.

3. Special IPCC report on 1.5°C warming (SR15)

In October 2018 in Korea, governments approved the wording of a special report on limiting global warming to 1.5°C. The report indicates that achieving this would require rapid, far-reaching, and unprecedented changes in all aspects of society⁴.

4. IPCC Sixth Assessment Reporting cycle (AR6)

The AR6 cycle builds on prior scientific evidence and provides the international community with further data with which to build consensus to act to reduce emissions. The Working Group I, II and III reports referred to above form part of the IPCC's sixth assessment report cycle (AR6), and their synthesis report will be released in 2022, which will bring together the latest science, evidence, and projections for global warming⁵.



FIGURE 4: GLOBAL CONTEXT FOR ACTION ON CLIMATE

² Sourced from <https://www.un.org/sustainabledevelopment/development-agenda/>

³ Sourced from <https://www.un.org/sustainabledevelopment/climatechange/>

⁴ Sourced from https://www.ipcc.ch/news_and_events/pr_181008_P48_spm.shtml

⁵ Sourced from [ht https://www.ipcc.ch/assessment-report/ar6/](https://www.ipcc.ch/assessment-report/ar6/)



In addition, the World Economic Forum's Global Risks Report 2022⁶ highlights adverse climate change-related outcomes as among the most likely to occur with the *highest impacts to the global economy*. A key graphic from the WEF's report highlights the most severe risks to the global economy over the next 10 years.

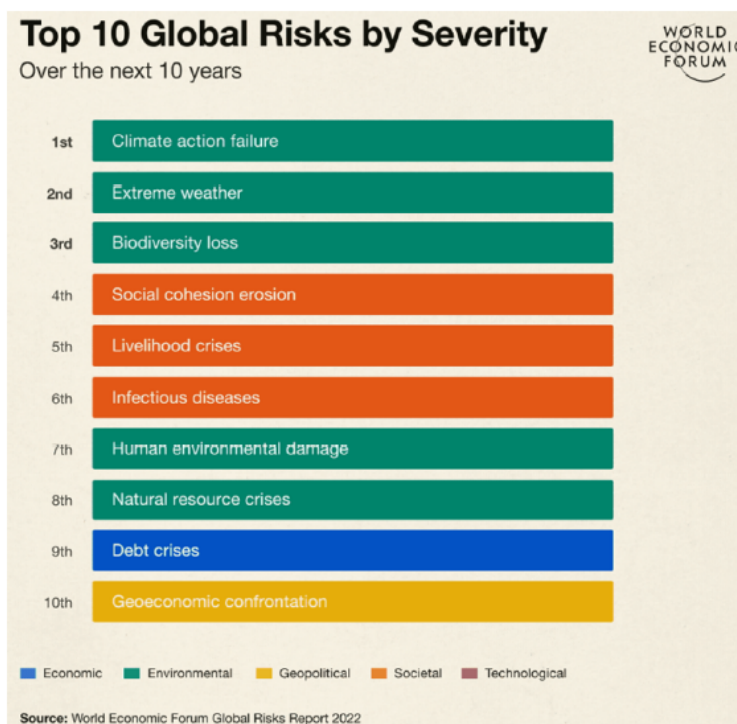


FIGURE 5: GLOBAL RISKS REPORT – RISKS TO GLOBAL ECONOMY

The report is underpinned by the Global Risk Perception Survey (GRPS) and gathers insights from nearly 1,000 global experts and leaders who highlighted the importance and urgency of international collaboration to address the economic, environmental, geopolitical, societal, and technological risks. Climate change continues to be perceived as the severest threat to humanity. Climate action failure, extreme weather, and biodiversity loss rank as the three most potentially severe risks for the next decade.

An increasing number of organisations, including governments, businesses, investors and communities, are conversing on the need for a quicker transition towards net zero emissions and committing to decarbonise. This transition may happen at different speeds, depending on decarbonisation ambitions, political will, economic structures and technological and financial capabilities. For organisations that move faster, close attention to scope 3 emissions is increasingly advantageous as this will shine a spotlight on value chains and increase focus on organisations, businesses and communities that value climate action initiatives.

⁶ [WEF The Global Risks Report 2022.pdf \(weforum.org\)](https://www.weforum.org/reports/The-Global-Risks-Report-2022)



2.3 National targets

Ahead of the United Nations Climate Change conference in Glasgow in 2021, Australia's Federal Government set a target to achieve net zero emissions by 2050. There is no legislation at this time that will bind Australia to meeting this goal, however it does bring Australia into line with most of the international community.

More recently, in June 2022 the new Australian Government committed to increase Australia's Nationally Determined Contribution (NDC) under the Paris Agreement. The updated commitment to the United Nations Framework Convention on Climate Change (UNFCCC) commits Australia to reduce greenhouse gas emissions by 43 per cent below 2005 levels by 2030, and reaffirms the commitment to reach net zero emissions by 2050. To date the most impactful policy that has underpinned Australia's decarbonisation efforts has been the Renewable Energy Target (RET). This commits Australia to source 20% of its electricity from renewable energy sources by 2020. According to the Clean Energy Regulator⁷, the Renewable Energy target has been met and renewable energy generation will exceed the target by some 7,000 GWh.

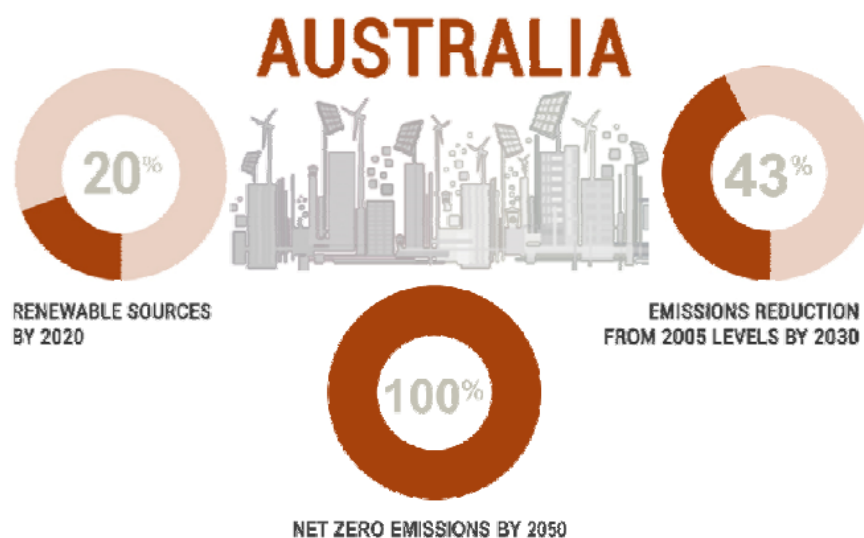


FIGURE 6: AUSTRALIA'S RENEWABLE ENERGY AND EMISSIONS REDUCTION GOALS – NATIONAL LEVEL

According to the Clean Energy Regulator⁸, the Renewable Energy target has been met. The RET is the main successful policy underpinning Australia's climate mitigation efforts. Other key initiatives include the Climate Solutions Fund, formerly the Emissions Reduction Fund, which sources abatement from eligible activities in the economy via periodic auction processes.

⁷ March 2018, Australian Government – Clean Energy Regulator. 2018 Annual Statement to the Parliament on the progress towards the 2020 Large-scale Renewable Energy Target.

⁸ March 2018, Australian Government – Clean Energy Regulator. 2018 Annual Statement to the Parliament on the progress towards the 2020 Large-scale Renewable Energy Target.



2.4 NSW State targets

All states and territories have established emissions targets as well as some legislated targets for renewable energy, as seen below.

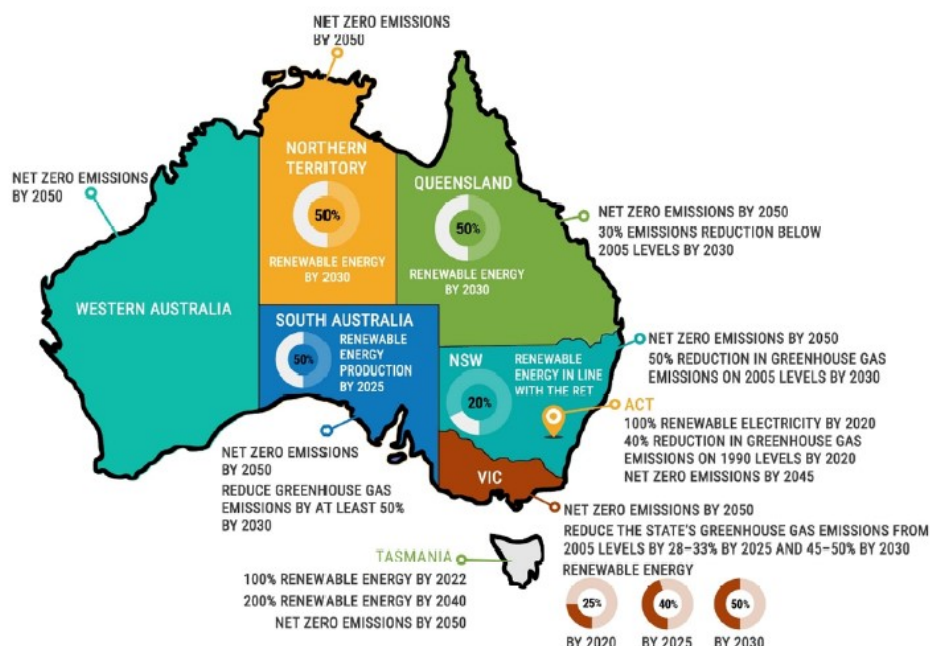


FIGURE 7: AUSTRALIA'S RENEWABLE ENERGY AND CARBON GOALS – STATE & TERRITORY LEVEL

Supporting the NSW Government's commitment to reach net zero emissions by 2050, NSW Government in 2020 released its **Net Zero Plan Stage 1: 2020–2030**⁹. This sees the first of three 10-year plans released that will set a pathway to net zero emissions in NSW by 2050. Within the net zero target NSW has an interim goal to reduce emissions by 50% by 2030, supported by measures outlined in this Stage 1 plan. A Bill before the NSW Parliament (Climate Change (Emissions Targets) Bill 2021) may see these targets legislated in future¹⁰.

In addition the NSW Government has developed a **NSW Electricity Strategy**¹¹ which will help the State to deliver on its goal to attract renewable energy investment. On 27th November 2020 the NSW Government passed the *Electricity Infrastructure Investment Bill (2020)* which will help to drive the transition to renewables in the state in coming years by coordinating investment in new generation, storage and network infrastructure in New South Wales¹².

⁹ © State of New South Wales 2020. Published March 2020

¹⁰ <https://legislation.nsw.gov.au/view/pdf/bill/3b9183c2-81eb-40df-af9b-adf118591c37>.

¹¹ <https://energy.nsw.gov.au/renewables/renewable-energy-zones>

¹² <https://www.parliament.nsw.gov.au/bill/files/3818/XN%20Electricity%20Infrastructure%20Investment%20Bill.pdf>



Emissions Reduction Plan: Cabonne Council

2.5 Regional council and NSW communities' emissions reduction targets

When considering whether to set targets for emissions reduction and/or renewable energy, Cabonne Council should consider the goals of their peers in addition to the targets set at national and state levels. The two graphics below highlight some of the targets that have been set by regional NSW councils in recent years, as well, as well as targets set by or for local communities across NSW.

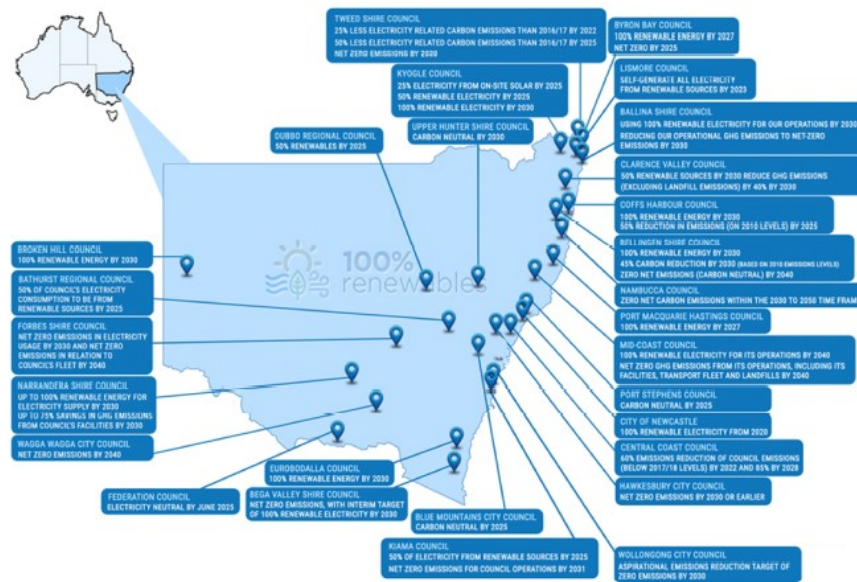


FIGURE 8: EMISSIONS REDUCTION COMMITMENTS BY NEW SOUTH WALES REGIONAL COUNCILS AT DEC-21

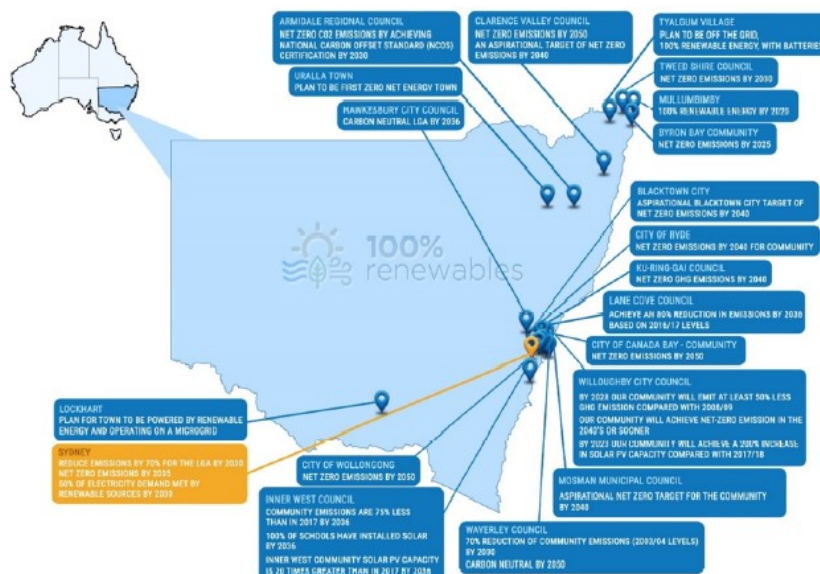


FIGURE 9: EMISSIONS REDUCTION COMMITMENTS BY NEW SOUTH WALES COMMUNITIES AT DEC-21



3 Cabonne Council's carbon footprint

To help differentiate between different greenhouse gas emission sources, emissions are classified into the following scopes according to the GHG Protocol¹³ – Corporate Standard:

- **Scope 1 emissions** are emissions directly generated at your operations such as the production of waste, driving company cars, or refrigerant gases in your air conditioning equipment.
- **Scope 2 emissions** are caused indirectly by consuming electricity. These emissions are generated outside your organisation (think coal-fired power station), but you are indirectly responsible for them.
- **Scope 3 emissions** are also indirect emissions and happen upstream and downstream of your business. Typical examples are staff commute, air travel, the purchase of goods and services, contractor emissions, or leased assets.

Since Council operates landfills, greenhouse gas emissions from landfills are considered to be Council's scope 1 – i.e. direct emissions, as shown in the graphic below.



FIGURE 10: SCOPE 1, SCOPE 2 AND SCOPE 3 EMISSIONS

At this time, Cabonne Council's carbon footprint coverage is limited to scope 1 and scope 2 emissions relating to energy (for facilities and transport), and waste from Council's operations (landfill and wastewater treatment).

Scope 3 emissions are excluded from the ERP at this time, and this can be considered by Council as its journey towards net zero emissions progresses. At that time, emissions coverage would likely be done in accordance with the Australian Government's Climate Active Standard¹⁴. This standard provides a credible framework for measuring greenhouse gas emissions aligned with the GHG Protocol and achieving carbon neutrality, and provides best-practice guidance on how to measure, reduce, offset, validate and report emissions that occur as a result of the operation of an organisation.

¹³ <https://ghgprotocol.org/>

¹⁴ The Climate Active program is delivered by the Australian Government Department of Industry, Science, Energy and Resources (DISER)



3.1 FY2019 carbon footprint

The 2018/2019 financial year (FY2019) is taken as the baseline year for the ERP. Cabonne Council's FY2019 carbon footprint was **8.915 t CO₂-e**, with landfill waste accounting for 60.9% of total emissions. Table 2 and the chart below (Figure 11) provide further insights into Council's emissions in FY2019.

TABLE 2: CABONNE COUNCIL – FY2019 CARBON FOOTPRINT

	Emission source	Activity data	Units	Scope 1 t CO ₂ -e	Scope 2 t CO ₂ -e	Total	%
	Diesel	674	kL	1,833.72		1,834	20.6%
	Petrol	4.89	kL	11		11	0.1%
	Electricity	1,424,627	kWh		1,125	1,125	12.6%
	Streetlighting	419,297	kWh		331	331	3.7%
	Waste water	188	t CO ₂ -e	188		188	2.1%
	Landfill waste	4,950	t	5,425		5,425	60.9%
	TOTAL			7,458	1,457	8,915	100.0%

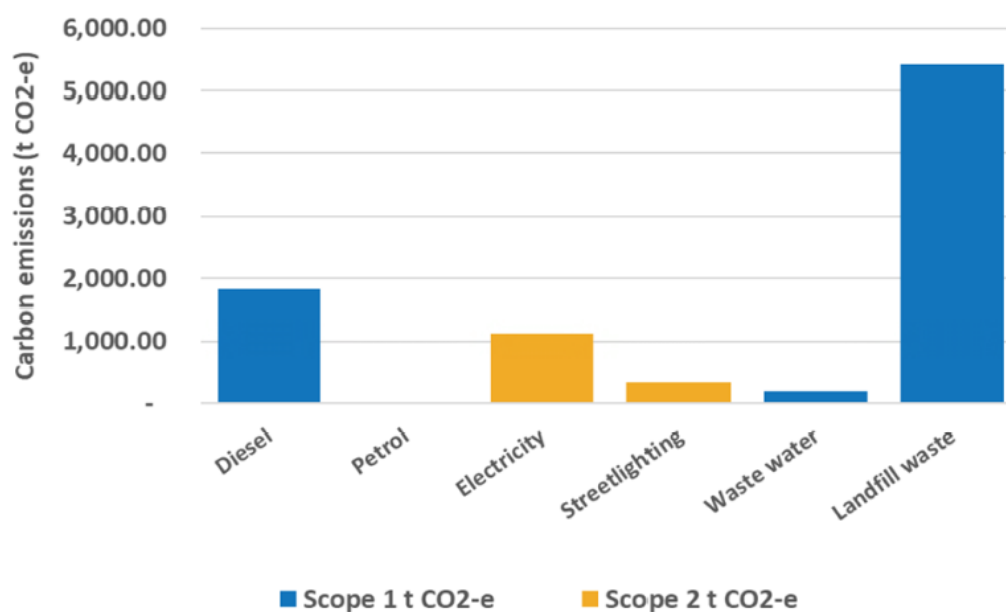







FIGURE 11: CABONNE COUNCIL – FY2019 DETAILED CARBON FOOTPRINT



3.2 FY2019, FY2020 and FY2021 carbon footprints

The FY2020 and FY2021 carbon footprints were also developed for Cabonne Council. One significant change that has occurred has been the implementation of LED technology for streetlighting. Landfill emissions were estimated based on a single year's aggregate data for each of four landfill sites, and wastewater emissions were estimated based on the population served by each treatment plant and the treatment method employed.

TABLE 3: FY2019, FY2020 AND FY2021 CARBON FOOTPRINTS

	Emission source	FY 2019	FY 2020	FY 2021
	Diesel	1,834 t CO2-e	1,971 t CO2-e	1,682 t CO2-e
	Petrol	11 t CO2-e	11 t CO2-e	15 t CO2-e
	Electricity	1,125 t CO2-e	1,098 t CO2-e	1,177 t CO2-e
	Streetlighting	331 t CO2-e	319 t CO2-e	167 t CO2-e
	Waste water	188 t CO2-e	188 t CO2-e	188 t CO2-e
	Landfill waste	5,425 t CO2-e	5,425 t CO2-e	5,425 t CO2-e
	TOTAL	8,915 t CO2-e	9,011 t CO2-e	8,654 t CO2-e

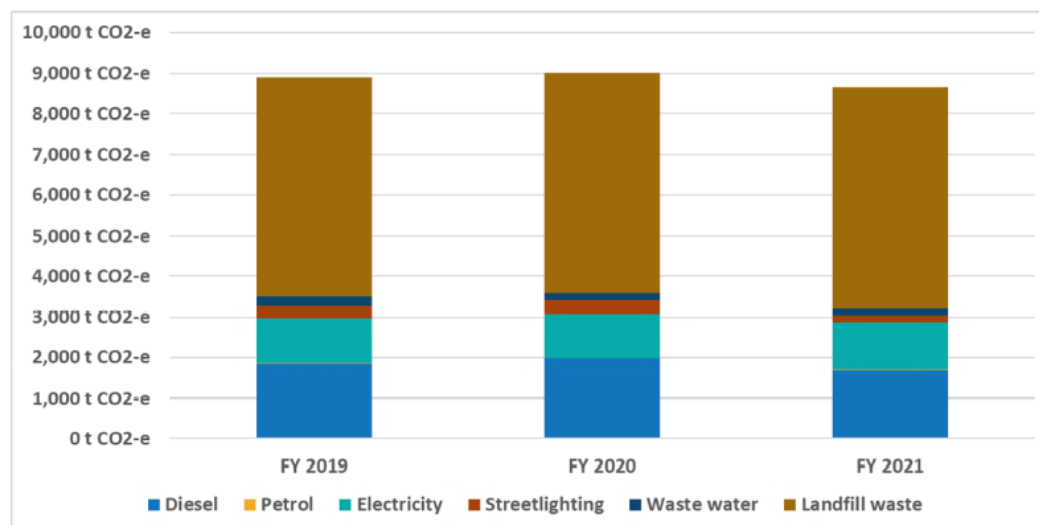


FIGURE 12: CABONNE COUNCIL – FY2019, FY2020 AND FY2021 CARBON FOOTPRINTS



3.3 Data management plan

Quality data is key to developing reliable greenhouse gas emissions inventories. The inventory was developed based on Council's current data management system. A data management plan is presented below to help improve Council's data collection process for each emission source.

TABLE 4: SUGGESTED DATA MANAGEMENT PLAN FOR CABONNE COUNCIL

Emissions Source	Current data management	Proposed improvements
Diesel	Council provided historical fuel data in a table via email, covering 3 financial years, disaggregated by fuel type. There are no obvious gaps in the data.	None.
Petrol		
LP gas	Nil. LPG purchases are small.	None.
Electricity	Council is using an energy and carbon management software to record electricity consumption.	None.
Streetlighting		None.
Wastewater	No estimation of wastewater emissions is currently performed.	Council can use the 'greenhouse gas calculator for use by NSW utilities' developed by DPE Water for estimating wastewater emissions.
Landfill waste	<p>Landfill emissions were provided as total estimated MSW deposited to each of Council's four landfill sites for the most recent year.</p> <p>Guidance from the National Greenhouse Accounts (NGA) Factors workbook is that organisations that do not know the composition of their waste can use emission factors in Table 49 of NGA, which gives weighted average emission factors for municipal (x 1.6), commercial and industrial (x 1.2), and construction and demolition waste (x 0.2) categories. Cabonne Council's landfill waste was arranged into these three basic categories to develop an estimate of GHG emissions.</p>	<ul style="list-style-type: none"> Detailed source-level waste data deposited in landfills, together with recycled waste streams data could be captured in a database (e.g. Excel spreadsheet), and Council should use the National Greenhouse Accounts Factors at the level of waste sub-streams (like food, paper, etc) to develop more robust estimates of emissions at the individual waste stream level. Having more robust emissions estimation methods may be important in the context of Council's efforts to meet the targets set out in the NSW Waste and Sustainable Materials Strategy 2041.
Green waste	No green waste data were provided.	As with general landfill waste and recycling, green waste collection data and treatment type should be recorded for estimation of emissions.



3.4 Business-as-usual forecast emissions for Cabonne Council

To understand the size of Council's net zero emissions task, it is important to develop both the current carbon footprint, as well as a forecast of future emissions considering expected or forecast changes in Council's operations as well as changes in external factors. In developing a high-level estimate of 'business-as-usual' emissions the following factors are considered:

- New facilities to be built,
- Facilities to be closed or divested,
- Emissions reduction that occurs because of external factors, such as grid decarbonisation,
- Population growth and any resultant increase or decrease in demand for Council services

These 'business as usual' or BAU changes are estimated so that a picture of what Council's emissions could be without any new actions beyond FY2022 to reduce emissions can be developed.

Following this, we develop an emissions reduction pathway, based on the scope, timing and scale of new abatement measures over time, informed by discussions with Council's key stakeholders.

Based on discussions with key stakeholders, the following tabulated BAU changes are forecast to occur and are incorporated into a BAU chart below to FY2050 for Council's carbon footprint.

TABLE 5: BAU CHANGES TO CABONNE COUNCIL'S CARBON FOOTPRINT TO FY2050

Emissions source / facility	Assumed business as usual (BAU)	Timing	Expected impact of BAU on energy demand and/or emissions
Population change	Cabonne Council's Long Term Financial Plan 2020/21 – 2029/30 suggests a very modest population growth of 1% per annum.	FY2022 to FY2050	There is likely to be a marginal increase in many Council services based on population increase
Grid decarbonisation	Coal-fired power stations close at their scheduled end of life and are replaced with renewables	FY2020 to FY2050	The emissions intensity of electricity from the grid decreases over time as coal power is replaced with renewables, in line with Federal Government (DISER) and AEMO forecasts
Fuel	BAU emissions will be aligned with the population growth of Council.	From FY2022	Assumes pre-covid fuel usage on FY2022 with the following values: Diesel - 674 kL Petrol - 4.89 kL From FY2022 there will be a 1% year-on-year increase to align with the population growth.
Minor changes in electricity	BAU emissions will be aligned with the population growth of Council.	From FY2022	Assumes electricity emissions will increase by 1% year-on-year to align with the population growth.



Emissions Reduction Plan: Cabonne Council

Emissions source / facility	Assumed business as usual (BAU)	Timing	Expected impact of BAU on energy demand and/or emissions
Streetlighting	Council has upgraded most of the streetlights (85% complete) to LED. There are no significant plans to expand residential areas.	From FY2022	Assumes no growth in streetlighting usage.
Wastewater	BAU emissions will be aligned with the population growth of Council.	Start FY2022	Assumes wastewater emissions will increase by 1% year-on-year to align with the population growth.
Landfill waste	BAU emissions will be aligned with the population growth of Council. Baseline is emissions as reported in FY2021.	Start FY2022	Assumes waste emissions will increase by 1% year-on-year to align with the population growth.

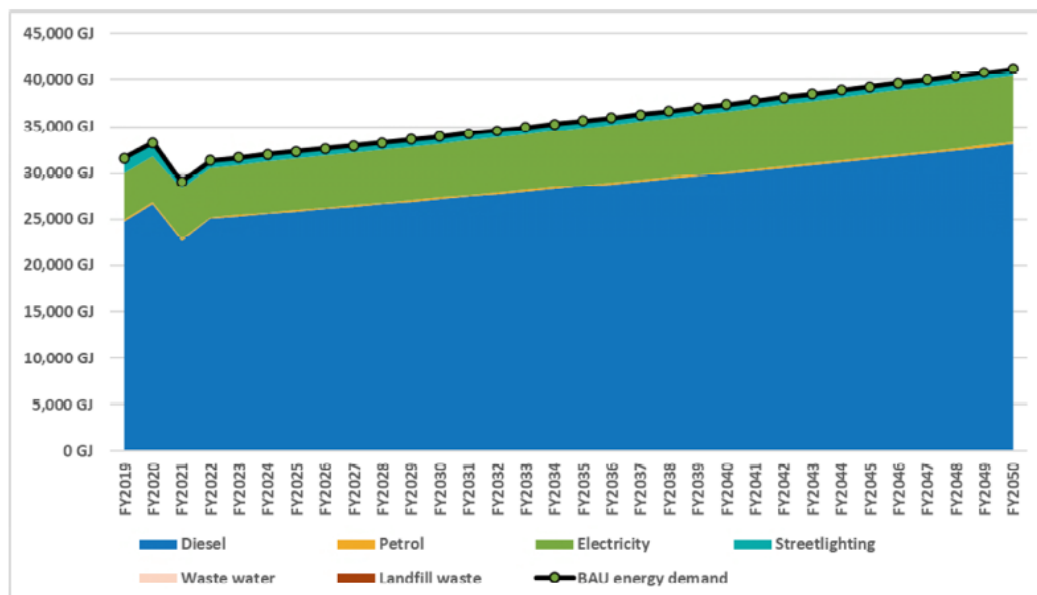


FIGURE 13: CABONNE COUNCIL - BUSINESS-AS-USUAL ENERGY-RELATED EMISSIONS PROJECTION



Emissions Reduction Plan: Cabonne Council

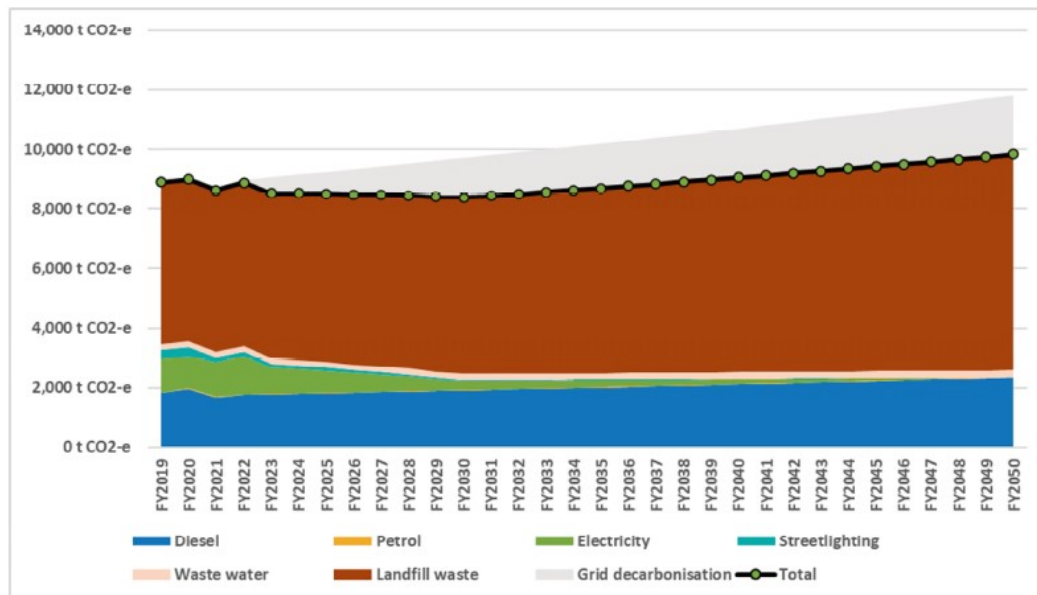


FIGURE 14: CABONNE COUNCIL - BUSINESS-AS-USUAL TOTAL EMISSIONS PROJECTION



3.5 Analysis of landfill waste

Cabonne Shire Council operates 6 Waste Management Facilities located at Canowindra, Cargo, Cumnock, Eugowra, Manildra and Yeoval, providing recycling, solid waste transfer and landfilling. Molong accepts greenwaste, while Cargo and Yeoval function as transfer stations only. Waste has been reduced over the past 15 years due to recycling and diversion of waste from the landfills.

The landfill waste emissions are estimated using National Greenhouse Accounts (NGA) factors at the level of aggregated municipal solid waste, commercial & industrial waste, and construction & demolition waste categories. The total estimated emissions from landfill waste for the last three financial years as shown below. It should be noted that these landfill emissions were estimated based on a single year's aggregate data for each of four landfill sites.

TABLE 6: CABONNE COUNCIL – LANDFILL WASTE

	FY2019 t CO ₂ -e	FY2020 t CO ₂ -e	FY2021 t CO ₂ -e
Net Landfill waste emissions	5,425	5,425	5,425

3.6 Analysis of electricity use by Council assets

Council has a little over 90 electricity accounts, with ~70% of consumption accounted for by the four streetlighting accounts and the top ten facilities as tabulated below.

TABLE 7: CABONNE COUNCIL – GRID ELECTRICITY CONSUMPTION STREETLIGHTING ACCOUNTS

NMI	Site name	FY2019 (kWh)	FY2020 (kWh)	FY2021 (kWh)
4001125185	Canowindra streetlights	121,447	114,967	56,417
4001125186	Eugowra street lighting	44,645	44,730	24,285
4001125187	Molong streetlights	127,811	120,139	67,710
4001125188	Manildra + others street lighting	125,394	124,508	63,477
	All streetlighting	419,297	404,344	211,889

The ~50% decrease in electricity consumption for streetlighting was achieved by upgrading 85% of streetlighting to energy efficient LED technology.

TABLE 8: CABONNE COUNCIL – GRID ELECTRICITY CONSUMPTION TOP TEN FACILITIES

NMI	Site name	FY2019 (kWh)	FY2020 (kWh)	FY2021 (kWh)
4001048683	McCarron Baths - Gaskill Street, Canowindra	192,280	201,029	222,741
4001217759	Health One Molong - 103 Bank St, Molong	146,521	165,123	143,211
4001000601	Molong Office - 99 - 101 Bank St, Molong	144,668	149,517	156,981
4001000600 40010006004	Molong Caravan Park - Watson Street Molong	79,440	72,392	87,461



Emissions Reduction Plan: Cabonne Council

4001000602	Molong Sewerage	74,442	79,936	93,668
40010006028	Treatment Plant - Wellington Road, Molong			
4001000604	Cudal Office - Main Street,	65,752	65,821	75,118
40010006044	Cudal			
4001000603	Googodery Road, Water pump Cumnock	53,075	50,561	10,299
4001019128	Molong Depot - Molong St, Molong	48,991	53,159	53,025
4001065288	Tilga St Canowindra	44,228	40,835	43,682
4001048749	Gaskill Street, Canowindra	41,401	27,325	53,525
	Top 10 facilities	890,798	905,698	939,711

During FY2021, there was a slight increase in the electricity use at McCarron Baths, Molong and Cudal offices, Molong Caravan Park and sewerage treatment plants. There was a significant decrease in water pump electricity consumption (~80%) at Cumnock during FY2021.

3.7 Analysis of fuel use (transport)

Fuel (transport) contributes around 20% of Council's carbon footprint, with diesel reported to account for almost all fuel consumed.

TABLE 9: CABONNE COUNCIL – FUEL USE

Fuel	FY2019 (L)	FY2020 (L)	FY2021 (L)
Diesel	673,745	724,039	618,012
Petrol	4,890	4,683	6,327

3.8 Analysis of wastewater

Wastewater contributes around 1.6% of Council's carbon footprint. The NSW Sewage Treatment Works Calculator was used to estimate emissions based on population served and treatment process.

TABLE 10: CABONNE COUNCIL – WASTEWATER

	FY2019 t CO ₂ -e	FY2020 t CO ₂ -e	FY2021 t CO ₂ -e
Wastewater	188	188	188



4 Past and current abatement initiatives

Cabonne Council has implemented a range of initiatives that serve to reduce its emissions below what they would otherwise have been, and further measures are in progress. Past and current actions are tabulated below.

TABLE 11: CABONNE COUNCIL – PAST, CURRENT & PLANNED EMISSIONS REDUCTION ACTIONS

Emissions reduction action	Description of action taken
Streetlighting	85% LED upgrades
Landfill	Waste diversion through recycling Cumnock - about 250 tonnes of recyclable material taken off site Canowindra - about 296 tonnes of recyclable material taken off site
Waste	Green waste collection at all the waste stations
Energy Efficiency	Workshop LED lights upgraded 3-4 years ago
Energy Efficiency	Variable speed drivers for pump station at Molong
HVAC upgrades	HVAC upgrades at new community hall in Molong
Fleet	Around 30 staff cars in total with 5 or 6 hybrids



5 Opportunities to reduce carbon emissions

The following section describes a pathway for Cabonne Council to achieve the NSW state target of net zero emissions by 2050. This pathway will be affected by factors that are both within and outside Council's influence.

1. Grid decarbonisation
 - The NSW electricity grid is decarbonising rapidly, and this will see some of the abatement task delivered without the need for action by the City.
2. Buying clean energy (e.g. via a renewable energy power purchase agreement or PPA)
 - Cabonne Council intends to purchase minimum 50% renewable energy and up to 100% renewable energy over the period of time. From January 2023, Council plans to enter into PPA along with other council members of Central NSW Joint Organisation.
3. Mid-scale renewable energy generation
 - Cabonne Council is seeking to develop a 2.14MW solar plant at Eugowra with 2 x 2.75MWh battery storage, which could form part of a renewable energy PPA.
4. Behind-the-meter solar
 - Council can install onsite solar, plus battery energy storage systems, which reduces emissions in the short to medium term as the grid decarbonises, and delivers long-term cost savings.
5. Energy efficiency
 - Continuing improvement to buildings and other assets, finishing LED upgrades to streetlighting, and incorporating new LED technology and controls into future upgrades.
6. Landfill emissions reduction
 - Increasing FOGO, reducing waste and diversion from landfill in line with NSW State targets to reduce emissions.
7. Sustainable transport
 - For transitioning to low emissions and electric vehicles, with associated charging infrastructure, Council could align their target to transition to EV's with the NSW Government objective of 52% of new cars sales to be EVs by 2030-31.
8. Carbon offsets
 - To compensate for the balance of its emissions, Council can purchase carbon offset units. Alternatively, Council could consider carbon sequestration through planting of trees on Council-owned or acquired land
9. Sustainable value chain
 - Waste water management, sustainable design, purchasing of goods & services, capital goods, employee commute



Emissions Reduction Plan: Cabonne Council

These nine measures are illustrated in the graphic below. Following this, a general summary of the scope, scale, cost-effectiveness and risks associated with each of these abatement categories is presented that can enable the success of the Council's abatement efforts. This is then followed by the development of a pathway that shows how these measures can together deliver the Council's targets, drawing on consultation with key stakeholders.



FIGURE 15: NINE CATEGORIES OF EMISSIONS REDUCTION FOR CABONNE COUNCIL



5.1 Grid decarbonisation



Description

In NSW there are five coal-fired power stations with combined 10,240 MW capacity that supply most of the State's electricity and make up most NSW electricity sector emissions (Liddell, Vales Point B, Eraring, Bayswater, Mt Piper).

The state is largely self-reliant for power, with this supplemented by interstate links as and when required. Since 2010 three coal-fired power stations with 1,744 MW of capacity have closed in NSW (Wallerawang C, Redbank, and Munmorah).

As more coal-fired power stations approach the end of their life – the five coal-fired stations above will likely close between 2023 and the early 2030s' – they are most likely to be replaced with renewable energy. This is most likely to be from large-scale wind and solar PV plants with battery storage, together with Distributed Energy Resources (DER) and demand-side measures.

In recent years several thousand MW of large-scale solar, wind energy and rooftop solar PV generation capacity has been built in NSW and much more is planned. In recent years rooftop solar installations have accelerated.

In September 2021 the NSW Government released the draft declaration of the Central-West Orana Renewable Energy Zone for exhibition. This process will ultimately formalise this REZ under the Electricity Infrastructure Investment Act 2020 and will lead to the development of some 3 GW of network capacity (the expressions of interest process elicited more than 27 GW of renewable energy and storage proposals). Recently, EOIs closed for the New England REZ, where more than 8 GW of renewables and storage will be built in coming years. Other REZs' are proposed to be located at Hunter-Central Coast, Illawarra, and the South-West region of NSW.

Given this shift to renewable energy generation, the future carbon intensity of the NSW grid will decline. The grid emissions intensity will be influenced by a range of factors, and the Australian Energy Market Operator's (AEMO) Integrated System Plan 2022¹⁵ (ISP2022) models scenarios with differing assumptions for key influencing factors including demand drivers, DER uptake, emissions, large-scale renewable build cost trajectories, investment and retirement considerations, gas market settings and coal price settings, together with assumptions regarding policy settings and transmission infrastructure development.

The resultant scenario outcomes for penetration of renewable energy in the NEM is illustrated below, highlighting the increasing likelihood of a rapid transition to renewables.

The NSW Government's Electricity Infrastructure Investment Bill will facilitate the rapid transition to renewables in NSW, and ISP2022 forecasts reflect this.

¹⁵ AEMO: <https://aemo.com.au/consultations/current-and-closed-consultations/2022-draft-isp-consultation>



Emissions Reduction Plan: Cabonne Council

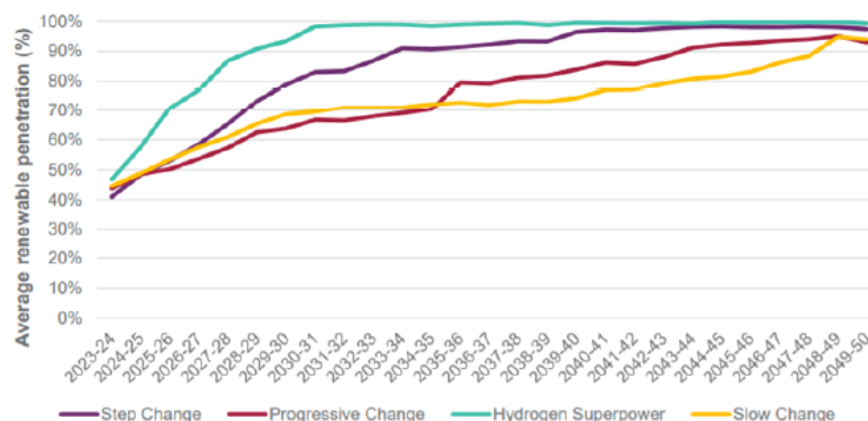


FIGURE 16: AEMO MODEL OF RENEWABLE ENERGY PENETRATION IN ISP2022 SCENARIOS (DRAFT)¹⁶



The above potential change to the NSW grid carbon intensity would impact on energy related GHG emissions for Cabonne Council, with the potential for electricity emissions to move towards zero emissions. Vehicle transition towards EV will also see emissions decline over time as the grid becomes greener.

Under AEMO's current scenarios most of this impact will be seen by the late 2020s. Cabonne Council could see its electricity emissions decline at a faster rate through renewable energy power purchase agreements and other abatement measures.



Cabonne Council has little influence over the rate of change in the grid carbon intensity, and the main risk mitigation strategy is to try and build capacity across Cabonne Council to respond with local solutions to reduce emissions.



There is no direct cost to Cabonne Council associated with decarbonisation of the electricity grid, excepting impacts on energy pricing in future years.

¹⁶ AEMO: <https://aemo.com.au/consultations/current-and-closed-consultations/2022-draft-isp-consultation>



5.2 Buying clean energy



Description

The single biggest opportunity to reduce electricity emissions is to purchase renewable energy and/or renewable energy offsets via Council's electricity procurement process.

There are three main ways in which an organisation can source renewable energy, illustrated below.



The first of these – entering into a renewable energy power purchase agreement (PPA) is by far the most prominent approach, with more than 10,000 GWh of electricity being sourced under PPAs entered into over the last four years, mostly by businesses located in NSW, Queensland, and Victoria. This approach has been taken by several local governments in the National Electricity Market (NEM, eastern states) in recent years and underpins most goals to reach net-zero emissions¹⁷.



Scope for abatement

In November 2022, Council plans to enter into renewable energy power purchasing agreement (PPA), along with other council members of Central NSW Joint Organisation, to source minimum 50% and up to 100% energy from renewable resources, like solar and/or wind. The energy generation from the mid-scale solar farm, that Council is planning to build, may become part of the PPA agreement (see below).



Risks and mitigation

Renewable electricity procurement is well established, and incorporates robust risk assessment processes that address market, delivery, counterparty, policy change and other risks as applicable.



Costs and benefits

The cost savings to Council can be based on an assessment of the difference between the bundled electricity / LGC pricing and the forecast price for wholesale electricity over the contract term. One scenario considered by Council is to sell generated LGCs for the first couple of years, then retire them and claim the clean energy generated for carbon offsets (see below).

¹⁷ Examples of NSW Councils' purchasing renewables as part of their electricity supply include: [Southern Sydney Regional Organisation of Councils](#), [City of Sydney](#), [City of Newcastle](#), [Northern Beaches Council](#), [Eurobodalla Shire Council](#) and [Hawkesbury City Council](#).



5.3 Mid-scale renewable energy plant built by Cabonne Council



Description

Council plans to build a 2.14 MW mid-scale renewable energy plant, on its own land, with two 2.75MWh battery storage. The plant is designed to meet most of Council demand.

Council can't simply 'allocate' the renewable energy generated to its sites. If it wants to offset its regular power use with power from its own renewable energy plant, it would do so via a licensed retailer as an intermediary. Council can enter into an agreement with a power company that both generates and retails electricity and the arrangements will be made either via simple power pass-through agreement or by a separate off-take and supply mechanism.



Scope for abatement

The 2.14MW solar plant can generate 3.703 GWh of electricity annually which is almost double of the electricity annual consumption from all Council sites. There may be potential to offset all or most of Council's power needs as well as some of the demand of other Councils, or to receive income from direct supply to the market.

Council could sell the generated LGCs for a time to improve the investment return. During this time, the emissions reduction Council can claim will be zero. In future years if LGCs generated are retired, then Council can offset this against their residual emissions from electricity consumption.



Risks and mitigation

Risk associated with building mid-scale renewable energy plant are mainly around finding the right retailer/generator who will be willing to off-take the council generated electricity. Council also must have a thorough knowledge of wholesale markets in order to manage revenue risk over time.



Costs and benefits

In the current market – with declining wholesale prices, declining LGC prices, and lower offtake rates available for much larger renewable energy projects compared with mid-scale projects, the business case likely favours a PPA-only model to sourcing renewables for Council's facilities.

However continuing declines in costs for mid-scale solar projects, and grant support to community-based renewables may make a mid-scale project viable for Cabonne Council in a near future.



5.4 Behind-the-meter solar



Description

Solar PV is a well-established technology, and nearly 30% of Australian homes and an increasing number of businesses are installing solar panels to reduce their grid energy costs and greenhouse gas emissions. Uptake of battery energy storage (BESS) remains low but is expected to become more cost effective in future.

Current status of solar PV in Cabonne Council

There are no rooftop solar PV installations on Council operated sites at present. The following is a summary of the solar PV and BESS opportunities that have been identified at Council operated sites.

Site name	Behind-the-meter solar potential
McCarron Baths - Gaskill Street, Canowindra	Council could consider implementing a 70.2 kWp ground-mount system subject to land availability. The site electricity demand would be reduced by 38%.
Health One Molong - 103 Bank St, Molong	Council could consider implementing a 43.68 kWp roof-mounted PV system. The site electricity demand would be reduced by approximately by 34%.
Molong Office - 99 - 101 Bank St, Molong	Council could consider implementing a 46.8 kWp roof-mounted PV system across the rear and front side of the building. The site electricity demand would be reduced by approximately by 37%. Council could consider unifying both 4001217759 and 4001000601 NMIs to reduce supply charges.
Molong Caravan Park - Watson Street Molong	Council could consider implementing a total of 21.8 kWp across 4 buildings to reduce the site's demand by approximately 27%.
Sewerage Treatment Plant - Wellington Road, Molong	Council could consider implementing a 29.7 kWp ground-mount system that can reduce the site's electricity demand by 32%.
Cudal Office - Main Street, Cudal	Council could consider implementing a 23.82 kWp roof-mount system that can reduce the site's consumption by approximately 35%.
Googodery Road, Water pump Cumnock	This site was included within top 10 energy usage sites because the energy usage was much higher in 2019 and 2020. In 2021, there was a significant decrease in electricity consumption (approximately 80%) because the pump has been used only as a backup. With the electricity usage at this level, there is no need for solar PV due to the high energy exports and payback time.
Molong Depot - Molong St, Molong	Council could consider implementing a 17.1 kWp roof-mount PV system which could reduce the site's electricity demand by approximately 38%.



Emissions Reduction Plan: Cabonne Council

Tilga St Canowindra	Council could consider implementing a 13.68 kWp roof-mount PV system to reduce the site's electricity demand by approximately 36%. <i>Note: The exact address was not available in the time of analysis.</i>
Gaskill St Canowindra	Council could consider implementing a 16.97 kWp solar PV system to reduce the site's electricity consumption by approximately 35%. <i>Note: The exact address was not available in the time of analysis.</i>



Scope for abatement

Apart from constructing the solar farm at Eugowra, the opportunities for emissions abatement can be summarised as:

- Council-operated sites have scope for approximately **287 kW** of solar PV with no potential to implement battery storage (BESS) due to the low exports and high demand reduction.
- This can generate approximately **467 MWh** of electricity per year with most of this electricity consumed on Council sites.
- The installation of solar PV at the sites above has been modelled between FY 2023 and FY 2025, implementing 1 – 3 projects per year, based on Council's priorities.
- During the implementation years, the abatement range will be between of **104 – 123 t CO₂-e**.



Risks and mitigation

Risks associated with solar PV implementation are minimal provided systems are appropriately sized, designed, installed, connected, and maintained on sound buildings and structures, as with any other asset.

The cost effectiveness of solar PV has long been demonstrated, and panel prices continue to fall. The commercial sector has embraced solar PV in recent years, and this has driven further acceleration in the implementation of rooftop solar.



Costs and benefits

Solar is cost-effective and provides good returns for Council's investment. The investment required for solar is estimated at **\$341,300**, delivering annual savings of approximately **\$91,356** per annum. The annual savings are based on the energy generated by solar PV systems and the electricity rates are based on the electricity bills provided by Council and on the REAP report. The estimated payback period for these systems is **~3.8 years**. The Water pump at Cumnock was excluded from these costs and benefits because, with the payback period more than 11 years, it is not an economically viable option. See appendix A for more information.



5.5 Energy efficiency



Description

Energy efficiency remains the cheapest form of greenhouse gas abatement in many situations. Cabonne Council has been implementing numerous energy efficiency upgrades and upgrading to LED is standard practice when replacing Council-owned public lights, passive and active field lights, as well as building lighting.

The most significant energy efficiency upgrade has been the rollout of LED technology for streetlighting. Around 85% of streetlighting has been upgraded to LEDs, as well as LED upgrades at Canowindra and Molong sporting fields.

Efficiency gains can be made via retrofit and asset upgrade works, and lighting typically offers the quickest and the most predictable savings. ICT systems tend to have a rapid turnover compared with other energy-using assets, providing opportunities to upgrade to digital, cloud-based and low wattage IT devices every few years.

Longer life assets such as air conditioning (10-25 years) and motor systems for irrigation and pumping may have short-term opportunities for smart controls and minor retrofits that save power, but the major savings come when these assets are at the end of their life and require replacement and when new water infrastructure is designed and built. As such the rate of improvement in energy use for these services tends to be modest and over a long period of time.

Efficiency plans and budgeting will be informed by regular auditing of facilities and equipment and by Operational Budget planning and Delivery Program planning that considers projects that will continuously reduce energy.

Examples of energy efficiency measures that Council could implement:

- **Lighting upgrades** to LEDs complete the remaining 15% upgrades for streetlighting. The aim is to have the upgrade completed by FY 2025.
- **HVAC system upgrades** for Council halls implemented from FY 2025
- **Variable Speed Drives** installation for pumps at swimming pools and sewerage treatment plants (i.e., Eugowra pool pump upgrade with aim to reduce electricity by 25% from FY 2025)
- **Pumped hydro energy storage** - there may be scope for pumped hydro along Molong Creek which has been included in the total electricity consumption reduction as part of the 1% year-on-year electricity reduction.



Scope for abatement

The scale of abatement will depend on renewable energy purchasing decisions. If 100% renewable energy is chosen, then the scope for abatement is zero but the scope for cost-effective savings to the Council and better services to the community is high.



The risks associated with energy efficiency upgrades are generally low provided business cases, specifications and contractor management processes are robust. Some of the main risks and mitigants will include:



Emissions Reduction Plan: Cabonne Council

Risks and mitigation

- Designing effective measurement and verification at an affordable cost that provides useful feedback about the success of projects
- Persistence of energy savings – it is not uncommon, particularly for education initiatives and control settings to lapse in their performance and be changed back to poor practices or inefficient settings, and providing resources to sustain energy savings is also important
- Regular review processes for energy management are important. For example, design guidelines and procurement guidelines should stay at the level of development of new technologies, practices, and services

**Costs and benefits**

Most energy efficiency upgrades to Council facilities are achieved through annual funding, asset improvement funding for outdoor amenities and sporting facilities, grants, as well as funding committed for upgrading Council's streetlighting.



5.6 Sustainable transport



Description

Transport emissions are a relatively small GHG emissions source for Cabonne Council, primarily from diesel used in truck and plant fleet, and to a far lesser extent in Council's passenger and utility vehicle fleet.

Presently, Council operates 5 hybrid vehicles. The adoption of electric vehicles will depend on charging infrastructure being put in place in the region and in Council's operating sites.

NSW Government's Net Zero Plan 2020-2030 is developing a range of measures that will start to shape the future of transport in the State. Current measures in relation to electric vehicles (EV) include:

- Financial support for purchasing EVs, including:
 - Removal of stamp duty for BEVs under \$78,000 from Sept 2021
 - \$3,000 rebates for up to 25,000 EVs sold after 1 Sept 2021
- EV infrastructure including:
 - \$171 million over four years for ultra-fast charging, EV commuter corridors, destination charging in commuter carparks and regional tourist locations
- Transport Consumer Information
- Fleet optimisation including pilots for vehicle-to-grid and base charging
- EVs in Government fleet, including:
 - Fleet incentives for local councils via reverse auctions
 - NSW Government will electrify its fleet by 2030, with 50% EV procurement by 2026
- Electric buses/trucks

EV charging infrastructure

In August 2021 the Electric Vehicle Council reported that there were over 3,000 public chargers in Australia, of which 470 are rapid DC chargers¹⁸. Locations of DC and public chargers are readily accessible (e.g., via Plugshare)¹⁹. Increasing numbers of private chargers are also being installed, retrofitted to homes and businesses as well as designed into new buildings.

Projected growth in electric vehicles

The NSW Government's Electric Vehicle Strategy²⁰ forecasts that EVs are expected to make up 52% of new car sales in 2030-31 and it is the NSW Government's objective to achieve that uptake and see most new car sales as EVs by 2035.

Where fuelled with regular grid power in NSW, EVs currently have higher operational emissions than hybrids, whereas when fuelled from renewables this is

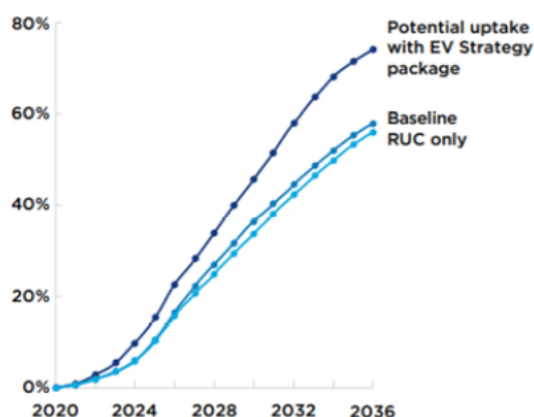
¹⁸ <https://electricvehiclecouncil.com.au/wp-content/uploads/2021/08/EVC-State-of-EVs-2021-sm.pdf>, p11

¹⁹ <https://www.plugshare.com/>

²⁰ <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Climate-change/nsw-electric-vehicle-strategy-210225.pdf>, p30



not the case. As the grid changes with retirements of coal fired power stations, this situation will change and emissions from EVs will become less than those from hybrids.



NSW GOVT EV STRATEGY: FORECAST SHARE OF BATTERY ELECTRIC VEHICLES IN ANNUAL SALES

Availability of electric passenger vehicles in Australia

According to the Electric Vehicle Council²¹, Australians now have access to 31 passenger EV models from 12 carmakers, a small increase compared with 2020. A total of 14 EV models are priced at under \$65,000. There are currently more PHEV models on the Australian market than BEVs.

By the end of 2022 it is expected that Australians will have access to a further 27 EV models, with 20 of these expected to be BEVs.

Corporate and government fleets make up more than 50% of new EV sales, and many Councils are now developing long term transport strategies that explicitly include a shift in their fleet to low and ultimately zero-emissions fleet.

Commercial Electric Vehicles in Australia

The EV Council also reports that there is still a limited supply of light and heavy vehicles, which include the Renault Kangoo van and several models available from SEA Electric including a van and minibus as well as specialised vehicles and multiple truck-cab chassis. The EV Council report forecasts that several more models are coming on to the Australian market, but that there is a need for a nationally coordinated approach for this category.

Utility vehicles are commonly used as part of council fleets and can account for a sizeable proportion of fuel use. Plans by manufacturers such as Mitsubishi (Triton), Toyota (HiLux), Nissan (Navara) and Ford (Ranger, Everest) to introduce hybrid-

²¹ <https://electricvehiclecouncil.com.au/wp-content/uploads/2021/08/EVC-State-of-EVs-2021-sm.pdf>, p07



Emissions Reduction Plan: Cabonne Council

electric models from the mid-2020s have been announced, but the pathway to full-electric utility vehicles may be some years away.

**Scope for abatement**

In the absence of an EV transition strategy, a gradual transition to EVs has been assumed from FY2025 to FY2050, aiming for an interim target of 35% emissions reduction by 2030 and final target of 100% emissions reduction by 2050.

The scope for emissions reduction for Cabonne Council from transport measures is over 1,800 t CO₂-e from FY2025, where vehicles are supplied with renewables, such as from the Eugowra solar farm, renewable energy PPA or other future initiatives. The speed of emissions reduction will depend on the rate of adoption of EVs and hybrids, and on the selection of renewable energy as the fuel source for EVs.

**Risks and mitigation**

Cabonne Council should assess the range of factors influencing the uptake of EVs for different types of vehicle users – wholly owned by Cabonne Council, salary-sacrificed by staff, or driven by contractors. Factors will include:

- Whole of Life costing basis that considers purchase price, incentives, resale, and operating costs including electricity price
- Range and charging infrastructure
- Fitness for purpose
- Availability, serviceability, warranties

**Costs and benefits**

Costs and benefits are not assessed in this plan, and at this time it is likely that the business case for EV will be weak. As EV prices drop and larger commercial vehicle EV options become commercially available, Cabonne Council should assess these on the same total cost-of-ownership basis as is currently done.



5.7 Landfill waste emissions reduction



Description

Landfill waste accounted for 60.9% of Council's emissions in the base year FY2019.

Cabonne Shire Council operates 6 Waste Management Facilities located at Canowindra, Cargo, Cumnock, Eugowra, Manildra and Yeoval, providing recycling, solid waste transfer and landfilling services. Molong accepts greenwaste, while Cargo and Yeoval function as transfer stations only.

The NSW Waste and Sustainable Materials Strategy 2041²² was developed to update the Waste Avoidance and Resource Recovery Strategy 2014–2021. This is in accordance with the NSW Waste Avoidance and Resource Recovery Act 2001 which commits the NSW government to review and update its waste strategy every five years. The strategy aims to achieve the following emissions-related targets for landfill waste by 2030:

- Implement measures to achieve 10% waste reduction per person by 2030
- Increase FOGO capture to achieve 50% organics collection by 2030
- Implement diversion from landfills to achieve 80% waste diversion by 2030

Given the significance of landfill emissions to Council's carbon footprint, achieving these NSW targets would be necessary for Council to make deep cuts to its emissions and to reach net zero emissions by 2050.



Scope for abatement

Emissions from landfill under business-as-usual modelling is expected to increase from 4,525 t CO₂-e in 2019 to 7,240 t CO₂-e in 2050, based just on a 1% annual population increase. High-level modelling of potential abatement is based on achieving the State targets, and this suggests abatement potential of 5,682 t CO₂-e by FY2050 compared with estimated business-as-usual growth linked to population growth.

However, as waste data is not highly disaggregated and is based on figures grouped into MSW, C&I and C&D categories, the modelling is indicative only, and part of any future waste strategy should be the collation of waste stream data at a more granular level and the application of emissions factors at this level also, to inform the development of strategies that can potentially meet the targets.



Risks and mitigation

Achieving emissions reduction targets for waste is integral to Council's ability to achieve an overall net zero emissions goal. With small landfill operations that are likely unsuited to gas capture, and given the size of the Cabonne LGA, it is likely that there is a high risk that the required abatement can be achieved.

A key goal for Cabonne Council will be to evaluate its options for waste management to achieve these targets, in conjunction with its regional partners and NetWaste, as well as the EPA. Whereas initiatives such as gas capture and flaring and FOGO are feasible and in place for several large Councils with relatively small areas, the State targets will be extremely challenging for regional councils with small dispersed populations across large areas. While local solutions such as converting sites to

²² [NSW Waste and Sustainable Materials Strategy 2041](#)



Emissions Reduction Plan: Cabonne Council

transfer stations have been feasible and been implemented, achieving the emissions reduction goals may call for regional solutions and more resources.

**Costs and
benefits**

Costs and benefits associated with Council's waste management abatement measures are not estimated as part of this project and should be evaluated through the development of a waste strategy that includes the State's targets and is done in consultation with regional partners.



Emissions Reduction Plan: Cabonne Council

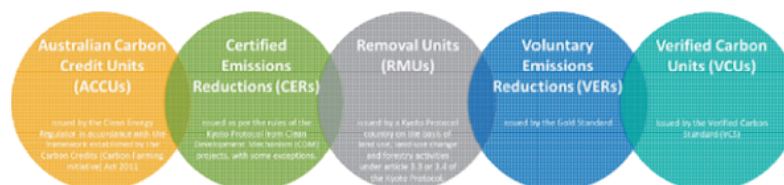
5.8 Carbon offsets



Description

If Council wishes to purchase carbon offsets to meet all or some of any potential shortfall to net zero emissions, then it should consider buying offsets that are approved under the Climate Active Standard. These include:

- Australian Carbon Credit Units (**ACCUs**) issued by the Clean Energy Regulator in accordance with the framework established by the Carbon Credits (Carbon Farming Initiative) Act 2011 which has now been amended to establish the Emissions Reduction Fund (ERF).
- Certified Emissions Reductions (CERs) issued as per the rules of the Kyoto Protocol from Clean Development Mechanism (**CDM**) projects, with some exceptions.
- Removal Units (**RMUs**) issued by a Kyoto Protocol country on the basis of land use, land-use change and forestry activities under article 3.3 or 3.4 of the Kyoto Protocol.
- Voluntary Emissions Reductions (VERs) issued by the **Gold Standard**.
- Verified Carbon Units (VCUs) issued by the **Verified Carbon Standard (VCS)**.



Another option for compensating for remaining carbon emissions is by creating Council's own offsets through sequestration. The "Mixed Environmental Planting" ERF methodology set up by Clean Energy Regulator describes two key actions that could be considered by Council:

- **Reforestation by environmental or mallee planting** which involves establishing and maintaining native vegetation on land that has been clear for at least 5 years
- **Avoided clearing** action which involves retaining areas of native forest that would otherwise be cleared



Scope for abatement

The scale of the carbon offsets / sequestration task is the net emissions left after the other types of abatement measures have been implemented. The other types of emission reduction measures have been described in previous chapters and include grid decarbonisation, buying clean energy, mid-scale renewable energy generation, energy efficiency, sustainable transport and landfill emissions reductions. The required carbon offsets to reach net zero by 2050, after these abatement measures have been implemented, could be approximately **1,558 t CO₂-e** (this equals the total emissions generated by Council's operations less the impact of abatement measures).



Emissions Reduction Plan: Cabonne Council

**Risks and mitigation**

Local assessments based on current and planned tree plantings, the actual size and condition of available areas, and other local factors should be used to develop more correct estimates of this potential.

**Costs and benefits**

Costs and benefits have not been assessed in this report.



5.9 Sustainable value chain



Description

Based on the current scope of Council's carbon footprint, opportunities for Cabonne Council to make deep emissions cuts encompass landfill emissions, renewable energy power purchasing (PPA), installing solar PV systems, improving energy efficiency, switching gas to electric technologies, sustainable transport, in addition to grid decarbonisation.

Sustainable procurement processes underpin these opportunities and can also incrementally reduce the Council's broader scope 3 (value chain) emissions over time through multiple individually small purchasing decisions, such as for building materials, appliances, ICT equipment, etc.²³. Three components to sustainable procurement include:

- Policy frameworks that incorporate a sustainable procurement focus and weight low emissions / good environmental outcomes
- Engagement and training of staff to drive use of a sustainable procurement framework in all aspects of Council operations
- Continual review of equipment and services specifications, to identify opportunities to incorporate the sustainable procurement framework into the procurement and use of equipment and services

Sustainable procurement policy and framework

A policy relating to sustainable procurement can set out Council's overall intent to procure products and services with consideration of Council's sustainability goals, such as emissions reduction, energy efficiency and water conservation (among others). Alongside a policy, Council should develop its internal sustainable procurement guidance, drawing on an appropriate framework, such as the NSW Sustainable Procurement Guide for Local Government²⁴.

The Sustainable Procurement Guide for NSW local governments aims to help Councils develop and embed sustainable procurement practices in their organisation. The guide presents information on key concepts, certifications, standards and processes and is designed for all council staff involved in any purchasing. The Guide is applicable from major tenders through to one-off equipment purchases.

Council should examine the guide to identify key areas within its procurement processes where this can add value and lead to more informed and better procurement decisions.

Engagement & Training

Even with a policy and sustainable procurement framework in place, decisions to source services and products that deliver best practice emissions reduction outcomes will happen when people who are buying these services and products take these decisions.

²³ Scope 3 GHG emissions are emissions upstream and downstream of the Council's operations, and are associated with goods and services sourced for council activities.

²⁴ Sustainable Procurement Guide for Local Governments in NSW, 2017: <https://www.lgns.gov.au/files/imce-uploads/127/esstam-sustainable-procurement-guide-30.05.17.pdf>



Underpinning this should be a program of continuing engagement, education and training of staff who procure services and products. This could encompass:

- Capital works staff involved in the design of new projects such as new / renovated community facilities, or new / renovated parks & reserves, where energy and water efficiency and onsite renewables and battery storage could be specified,
- Sourcing of professional and other services for Cabonne Council,
- Roads and pavement construction and repair / maintenance teams who specify the types of materials to be used, where there may be opportunities to use more sustainable materials,
- Fleet procurement staff who assess plant and vehicle needs and specify new purchases and leases that will impact fuel use and other environmental performance measures for several years,
- Operational staff who may repair or replace equipment as it fails, such as appliances, air conditioners, lights, where there are opportunities to ensure that replacements are fit for purpose and energy efficient

Design, Equipment and Services Specifications

Policy, procurement frameworks and education / training should ultimately lead to the specifications for services and works / products being continually improved to include Council's requirements for low or net zero emissions.

In addition, the evaluation criteria and weighting of responses to tenders and quotes should be periodically revised to evaluate and weight performance against these updated emission requirements, while achieving the other key goals of Council's procurement policy. Products and services where Cabonne Council could continually update specifications include:

- **Road and pavement construction:** look to source low embodied emissions materials and encourage or require potential suppliers to reduce emissions in their materials.
- **Building design policies:** Cabonne Council can continue to go further than code requirements, by requiring new buildings to be 6-Star Green Star (design and as-built) and having a pathway for ongoing improvement in its design requirements to work towards the implementation of 'net-zero buildings'.
- **Business Services:** procurement of services is typically a significant source of emissions in a local government's value chain. By requiring that suppliers of services to Council lower their own emissions (e.g., by being certified Climate Active carbon neutral), scope 3 emissions can be significantly reduced.
- **Building lighting:** design and replacement with LED and smart controls together with passive measures to reduce demand for lighting.
- **HVAC:** many facilities will see air conditioning replaced over the next ten years, providing opportunities to improve passive heating and cooling, specify efficient fit-for-purpose technologies and smart controls, and specify low and zero-emissions refrigerant gases.
- **Power & appliances:** Power and appliances represent a modest % of electricity use, including servers that run 24/7, office equipment such



Emissions Reduction Plan: Cabonne Council

as computers, copiers and printers, and appliances like fridges, boiling water units, microwaves, dishwashers, and televisions. Efficient appliances and 'green IT' options are available, and many are already being pursued, and specifications can be developed that ensures all equipment such as these is energy efficient when purchased.

- **Wastewater and irrigation pumps** are upgraded or rebuilt from time to time. Upgrades offer opportunities to assess system design, evaluate VSD opportunities and improve control systems, such as moisture sensors.
- **Public park and reserve lighting:** LED and solar lighting are becoming the default technologies here for the City.
- **Sporting oval lighting:** it is increasingly common to select LED as the default technology for new sporting oval lighting. Smart controls can both centralise oversight and provide users with control and incentives to manage their use of sports lighting.



Scope for abatement

The scope for abatement from sustainable procurement can be sizeable, with incremental gains made via all purchased goods and services over the long-term complementing potentially large abatement from the procurement of electricity from renewables via supply agreements and the sourcing of electric vehicles. Cabonne Council also has the capacity to influence emissions reduction by its suppliers and contractors, and this may be increasingly important in future years in the context of reducing value chain emissions to reach net zero emissions.



Risks and mitigation

An assessment of risks and mitigation strategies would be part of any periodic review of procurement policies and processes for goods and services.



Costs and benefits

A robust sustainable procurement approach would see sustainable services and goods sourced on a whole-of-life cost basis, which will tend to favour efficiency and lower lifetime cost. Similarly, contractors and suppliers who are sustainable in their own operations are likely to have lower, not higher costs.



6 Emissions reduction pathway development

6.1 Stakeholder engagement

100% Renewables held a series of meetings with key stakeholders from Cabonne Council to get an insight into current actions that will have an influence on emissions, and to get input on potential new actions that can reduce emissions over time. The stakeholder consultation summary is shown in the table below.

TABLE 12: SUMMARY OF STAKEHOLDER CONSULTATION

Key stakeholder	Area of discussion	Date
Nathan Stubberfield	Innovation & Technology	21/12/2021
Charlie Harris	Urban Infrastructure	07/02/2022
Michael Fitzgerald	Plant & Depots	07/02/2022
Todd Saxelby	Environmental Services	09/02/2022

6.2 Development of an emissions pathway to 2050

Resulting from meetings with stakeholders, 100% Renewables has built a potential emissions reduction pathway that Cabonne Council could implement to reduce its carbon footprint to meet the target emissions level. It is noted that this is based on a combination of BAU assumptions as documented above, known initiatives such as renewable energy power purchasing and streetlighting upgrades, on possible abatement pathways for sources such as transport and value chain emissions, and assuming that the State's targets for emissions reduction from waste can be achieved. The feasibility, timing and scale of any of the measures included in the pathway may well change over time, and this pathway therefore highlights one possible scenario.

TABLE 13: OPPORTUNITIES FOR CABONNE COUNCIL TO REDUCE ITS CARBON FOOTPRINT

Emissions source	Scenario to reduce emissions
<i>Purchased electricity</i>	Council enters a PPA with 50% RE purchase from FY2023 to FY2025 and 100% RE purchase from FY2026 onwards.
<i>Electricity – on site solar PV and batteries (behind-the-meter solar)</i>	Establishment of solar PV systems on 10 sites with highest electricity usage from FY2023 to FY2025. The modelling selects 1-3 projects per year from the top sites. The number and order of project implementation may change based on Council's plans and targets.
<i>Electricity – energy efficiency</i>	HVAC system upgrades and operation improvement and implementation of SCADA system and VSD for water treatment stations. Assuming there will be a 1% year-on-year reduction in electricity BAU from FY2025 to FY2050.
<i>Streetlighting – energy efficiency</i>	Implementation of the remaining 15% reduction potential due to streetlighting LED upgrades from FY2025.
<i>Transport fuel</i>	Align with the NSW Government's EV Strategy. Gradual transition from diesel and petrol to EV starting from FY2025 with the target of 35% transition by FY2030 and complete transition to EV by FY2050.
<i>Landfill waste</i>	80% diversion from landfill (assumes 50% organics diversion occurs within this) and 10% overall waste reduction in the community by FY2030



Emissions Reduction Plan: Cabonne Council

Emissions source	Scenario to reduce emissions
Carbon offset	Council will sequester emissions over time or purchase carbon offsets in FY2050 to achieve net-zero status

The assumptions in the above table are reflected in the graphs below to show a energy and emissions roadmap for Council.

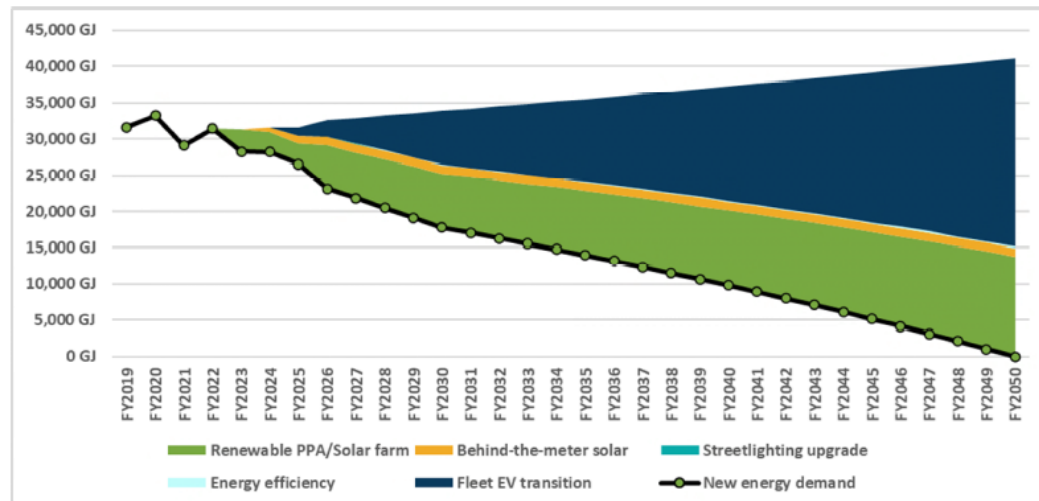


FIGURE 17: CABONNE COUNCIL'S ENERGY ROADMAP FOR EMISSIONS REDUCTION

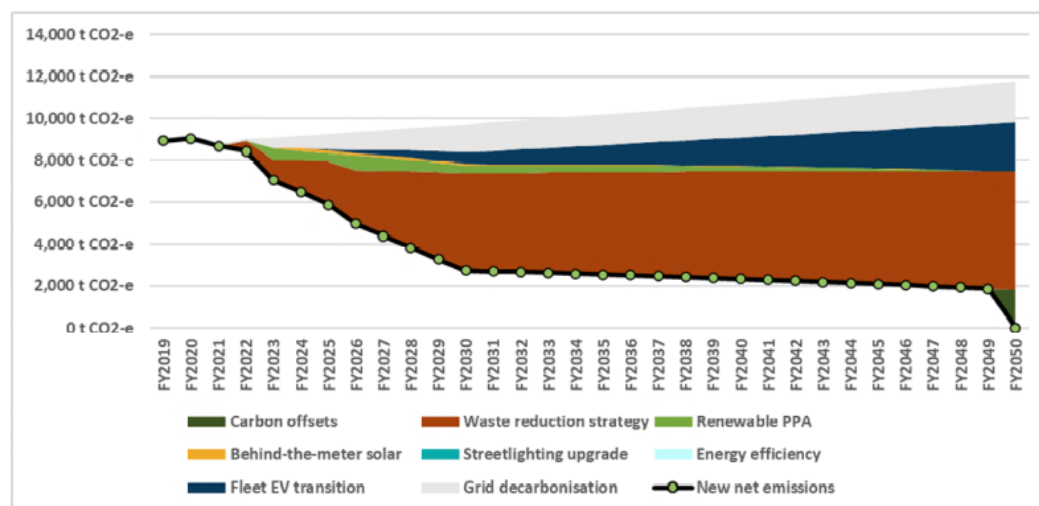


FIGURE 18: CABONNE COUNCIL'S EMISSIONS REDUCTION PATHWAY WITH ADDITIONAL CARBON OFFSETS

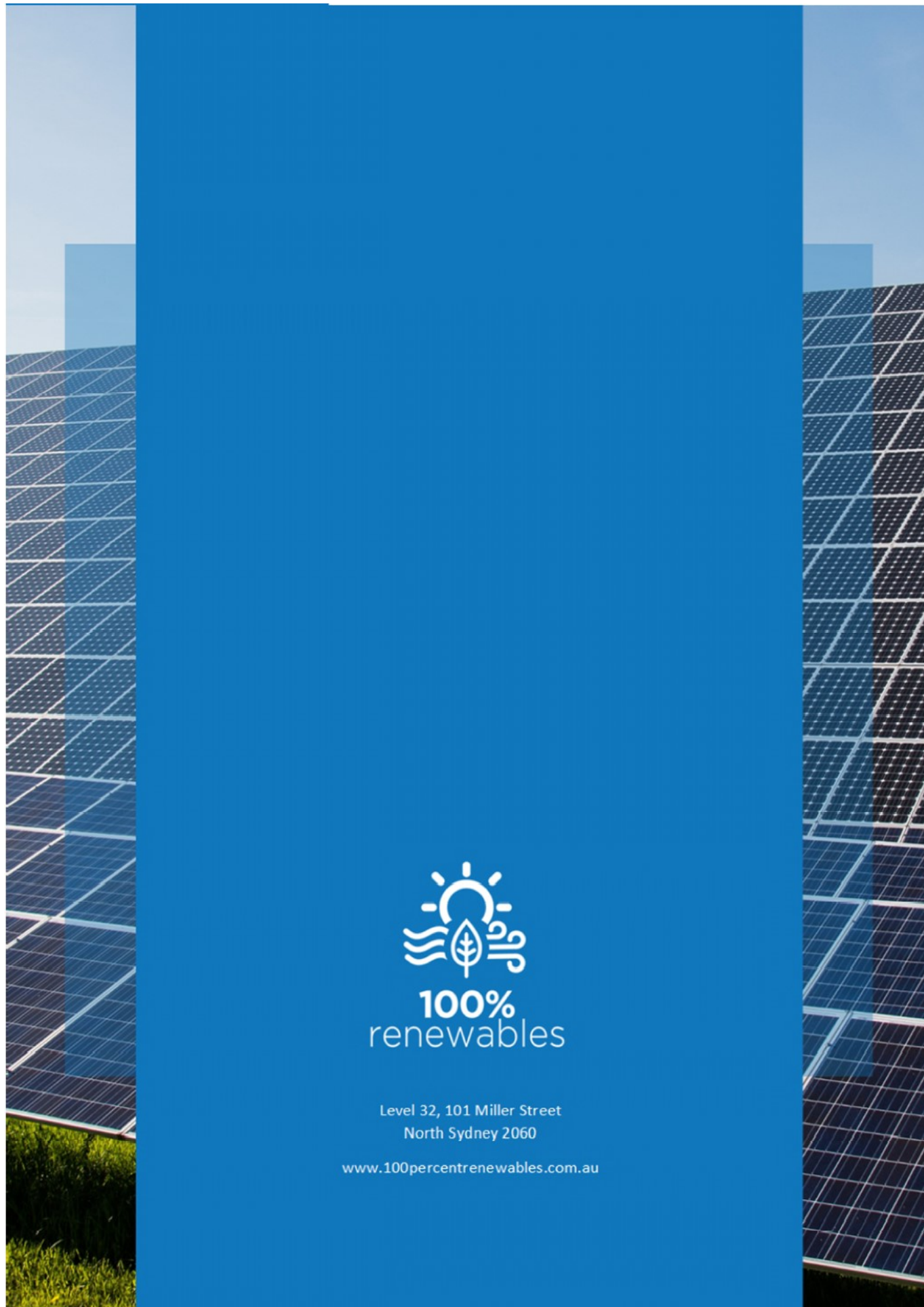


Emissions Reduction Plan: Cabonne Council

APPENDIX A

TABLE 14: SUMMARISED SOLAR PV OPPORTUNITIES AT CABONNE COUNCIL

Site name	Electricity consumption FY2021 (kWh)	Solar PV size (kW)	Solar generation (kWh/yr)	Savings (kWh/yr)	Electricity reduction	Exports	Capital Cost (\$)	Electricity rate (\$/kWh)	Feed-in tariff (\$/kWh)	Savings (\$/yr)	Payback (yr)	Source
McCarron Baths	222,741	70.20	123,806	86,797	38%	30%	\$91,260	\$0.28	\$0.05	\$25,057	3.8	100%RE
Health One Molong	143,211	43.68	71,430	49,930	34%	30%	\$50,232	\$0.28	\$0.05	\$10,943	3.6	REAP
Molong Office	156,981	46.80	66,614	56,233	37%	16%	\$53,820	\$0.28	\$0.05	\$11,633	3.6	REAP
Molong Caravan Park	87,461	21.80	33,660	23,562	27%	30%	\$25,070	\$0.27	\$0.05	\$6,286	4.0	REAP
Molong Sewerage Treatment Plant	93,668	29.70	52,920	36,639	32%	31%	\$38,610	\$0.28	\$0.05	\$9,814	3.8	REAP
Cudal Office	75,118	23.82	37,559	26,291	35%	30%	\$27,393	\$0.29	\$0.05	\$7,043	3.7	REAP
Water pump Cumnock	10,299	3.00	5,517	86	1%	98%	\$3,450	\$0.28	\$0.05	\$293	11.8	REAP
Molong Depot	53,025	17.10	28,760	20,132	38%	30%	\$19,665	\$0.27	\$0.05	\$5,453	3.6	REAP
Tilga St Canowindra	43,682	13.68	19,890	13,489	36%	37%	\$15,732	\$0.29	\$0.05	\$3,949	4.1	100%RE
Gaskill St Canowindra	53,525	16.97	26,763	18,734	35%	30%	\$19,519	\$0.28	\$0.05	\$5,441	3.8	100%RE
Top 10 facilities	939,711											





We're creating a 'Love Your Leftovers' recipe book inspired by the community for the community.

Share your recipes and tips for reusing leftovers and help us tackle food waste!

Why are we creating a recipe book?



Food waste costs the Australian economy \$36.6 billion annually. The average Australian household throws away \$2,500 worth of food every year.



One in five shopping bags of food are thrown out. Food waste rotting in landfill generates harmful greenhouse gas emissions.



Over five million Australians experience food insecurity each year, one quarter of these are children.

How can I contribute?

If you have a favourite leftovers recipe or even an idea on reducing food waste, we want to hear from you! We are looking for recipe ideas for breakfast, lunch and dinner as well as dessert and snacks too!



Submitting your ideas and recipes is easy. Scan the QR code to complete online or email netwaste.loveyourleftovers@envirocom.com.au for a recipe template to print.

All recipes must be submitted by Friday 25th November 2022.



E: netwaste.loveyourleftovers@envirocom.com.au

P: 0400 259 535

11903960 - Cabonne Landfill Income GEN (Jan to Aug 2022)

Date	Code	Description	Credit (GST = Y)	Receipt
------	------	-------------	---------------------	---------

YEOVAL TRANSFER STATION

01-01-2022	AK	Yeoval Tip Fees EFTPOS Transactions	77.27	83945
08-01-2022	LM	Yeoval Tip Fees EFTPOS Transactions	113.64	84003
15-01-2022	AK	Yeoval Tip Fees EFTPOS Transactions	118.18	84155
22-01-2022	LM	Yeoval Tip Fees EFTPOS Transactions	136.36	84254
29-01-2022	LM	Yeoval Tip Fees EFTPOS Transactions	131.82	84379
05-02-2022	AK	Yeoval Tip Fees EFTPOS Transactions	86.36	84538
12-02-2022	AK	Yeoval Tip Fees EFTPOS Transactions	109.09	84683
19-02-2022	AK	Yeoval Tip Fees EFTPOS Transactions	68.18	84844
26-02-2022	LM	Yeoval Tip Fees EFTPOS Transactions	118.18	85006
05-03-2022	AK	Yeoval Tip Fees EFTPOS Transactions	109.09	85201
12-03-2022	HK	Yeoval Tip Fees EFTPOS Transactions	50.00	85335
19-03-2022	AK	Yeoval Tip Fees EFTPOS Transactions	68.18	85507
26-03-2022	AK	Yeoval Tip Fees EFTPOS Transactions	113.64	85649
02-04-2022	AK	Yeoval Tip Fees EFTPOS Transactions	81.82	85825
09-04-2022	AK	Yeoval Tip Fees EFTPOS Transactions	90.91	85961
16-04-2022	AK	Yeoval Tip Fees EFTPOS Transactions	27.27	86093
23-04-2022	LM	Yeoval Tip Fees EFTPOS Transactions	122.73	86188
30-04-2022	AK	Yeoval Tip Fees EFTPOS Transactions	45.45	86316
07-05-2022	LM	Yeoval Tip Fees EFTPOS Transactions	68.18	86445
21-05-2022	AK	Yeoval Tip Fees EFTPOS Transactions	59.09	86737
28-05-2022	AK	Yeoval Tip Fees EFTPOS Transactions	63.64	86936
04-06-2022	AK	Yeoval Tip Fees EFTPOS Transactions	27.27	87105
11-06-2022	AK	Yeoval Tip Fees EFTPOS Transactions	63.64	87264
18-06-2022	AK	Yeoval Tip Fees EFTPOS Transactions	63.64	87389
25-06-2022	AK	Yeoval Tip Fees EFTPOS Transactions	122.73	87730
02-07-2022	AK	Yeoval Tip Fees EFTPOS Transactions	31.82	87852
09-07-2022	AK	Yeoval Tip Fees EFTPOS Transactions	27.27	87984
16-07-2022	AK	Yeoval Tip Fees EFTPOS Transactions	104.55	88107

Current Costings From Januray 22 till August 22

Staff	\$333.90
Site office costs	\$75.00
Generator	\$20.00
Total	<u>\$428.90</u> Per week

\$428.90 X 34 Weeks = \$14,582.60

Total takings over 34 weeks = \$2690.91

Total **-\$11,891.69****If we opened the site every fortnight 9am-4pm**

Staff	\$333.90
Site office costs	\$150.00
Generator	\$20.00
Cost to run total	<u>\$503.90</u> Per fortnight

Average fortnightly income \$200.00

Cost to run \$503.90Total **-\$303.90****If we opened the site every fortnight 9am-1pm**

Staff	\$190.80
Site office costs	\$150.00
Generator	\$20.00
Cost to run total	<u>\$360.80</u> Per fortnight

23-07-2022 AK	Yeoval Tip Fees EFTPOS Transactions	104.55 88219			
30-07-2022 AK	Yeoval Tip Fees EFTPOS Transactions	27.27 88390	Average fortnightly income		\$200.00
06-08-2022 AK	Yeoval Tip Fees EFTPOS Transactions	100.00 88503	Cost to run		\$360.80
13-08-2022 AK	Yeoval Tip Fees EFTPOS Transactions	86.36 88645		Total	<u>-\$160.80</u>
20-08-2022 LM	Yeoval Tip Fees EFTPOS Transactions	31.82 88778			
27-08-2022 AK	Yeoval Tip Fees EFTPOS Transactions	40.91 89011			
	Yeoval Total	2690.91			

MINUTES OF THE ASSOCIATION OF MINING & ENERGY RELATED COUNCILS (NSW) INC. ORDINARY MEETING HELD AT CLUB YORK, 2nd Floor YORK 2 ROOM, 99 YORK ST, SYDNEY 2nd SEPTEMBER 2022

Present in person

Cr Michael Banasik
Cr Kevin Duffy
Cr Dennis Brady
Cr Denis Todd
Cr Dom Figliomeni
Cr Mathew Deeth
Cr Chris Roylance
Cr Peter Batten
Steve Loane OAM
Greg Tory
Heather Nicholls
Cr John Clements

Wollondilly Shire Council (Chair)
Orange City Council (Dep Chair)
Lachlan Shire Council (Ex Comm)
Warrumbungle Shire Council (Ex Comm)
Wollongong City Council
Wollondilly Shire Council
Forbes Shire Council
Cabonne Shire Council
Forbes Shire Council
Lachlan Shire Council
Cabonne Shire Council
Narrabri Shire Council (Observer)

By Zoom

Cr Liz McGlynn
Cr Jane Keir
Mike Urquhart
Mark Dicker
Cath Blakey
Peter Vlatko
Kent Boyd
Cr Jason Hamling
Cr Des Kennedy
Ron Zwicker
Rob Williams

Bland Shire Council
Walgett Shire Council
Walgett Shire Council
Blayney Shire Council
Wollongong City Council
Cobar Shire Council
Parkes Shire Council
Orange City Council
Mid Western Regional Council
Wollongong City Council
Narrabri Shire Council (Observer)

Apologies

Cr Scott Ferguson
Cr Phyllis Miller OAM
Brad Cam
Cr Mathew Dickerson
Murray Wood
Cr Jim Hickey
Cr Peter Abbott
Cr Jane Keir
Gary Woodman
Cr Ros Jackson
Cr Katrina Walker
Cr John Stafford
Colleen Worthy
Cr Aneillo Iannuzzi

Blayney Shire Council (Ex Comm)
Forbes Shire Council (Dep Chair)
Mid Western Regional Council
Dubbo Regional Council
Dubbo Regional Council
Broken Hill City Council
Cobar Shire Council
Walgett Shire Council
Warren Shire Council
Warren Shire Council
Warren Shire Council
Upper Lachlan Shire Council
Upper Lachlan Shire Council
Warrumbungle Shire Council

In attendance

Greg Lamont, Executive Officer (Minute Taker); Liza Schiff (Melting Pot Planning); Roy Butler, MP Barwon & Troy Lennon - Shooters, Fishers & Famers Party; Stephen Galilee, CEO and David Frith, Director Policy - NSW Minerals Council; Mike Young, Executive Director, Department Energy & Climate Change (Energy Corporation); Stephen Wills, Executive Director Programs, Kirstan Fulton, Director and Lana Hall, Program Manager, Resources for Regions, Regions NSW; Andrew Bray, CEO, RE-Alliance and Megan Dixon, CEO RDA Orana/N2N.

MINUTES OF THE ASSOCIATION OF MINING & ENERGY RELATED COUNCILS (NSW) INC. ORDINARY MEETING HELD AT CLUB YORK, 2nd Floor YORK 2 ROOM, 99 YORK ST, SYDNEY 2nd SEPTEMBER 2022

1. Welcome by Chair.

The Chair, Councillor Michael Banasik, welcomed members and the Narrabri Shire Council delegates to the meeting and declared the meeting open at 9.10am.

2. Acknowledgement of Country by Chair

"I acknowledge the traditional custodians of the land that we meet on today and pay our respects to the Elders past, present & emerging".

3. Apologies.

OM 21/2022 Resolved (Cr Brady/Cr Todd) that the apologies as per the above list be received and noted

4. Disclosures of Interest.

OM 22/2022 Resolved (Cr Brady/Cr Todd) that the disclosures of interest by Cr Dom Figliomeni declared an interest as a shareholder in New Hope and Whitehaven mining companies & Ron Zwicker as shareholder in AGL shares be received and noted.

SUSPENSION OF STANDING ORDERS AT 9.12AM TO RECEIVE PRESENTATIONS FROM THE FOLLOWING SPEAKERS AND FOR MORNING TEA.

OM 23/2022 Resolved (Cr Figliomeni/Cr Duffy) that the meeting be suspended at 9.12am to receive the presentation from the following speakers and for morning tea:-

- (a) Roy Butler, MP Barwon (Shooters, Fishers & Farmers Party) on concerns he has that the NSW State Government keeps focussing on creating more jobs and bolstering the economy in regions for mining and energy developments, however noting that whilst that is good for regional areas it is creating a major problem with competition for housing and accommodation for the itinerant workers and local residents.
- It was pointed out by delegates that the population figures from DPIE reflect poorly on rural councils, are not accurate with the modelling they use and have a negative impact on grant allocations.;
 - Discussion was also held on the Jobs Summit and need for Federal Government to consider splitting tax rates for secondary employment to a lower level for the second job and allowing pensioners/grey nomads a higher threshold with their pension and still working part time to solve the employment issues in regional areas;
 - There is a need for Planning Agreements to be made compulsory for mining & renewable energy developments and they be extended to take into account impacts on neighbouring LGA's where there are no active developments.

Roy was happy to pursue these issues with the NSW Minister for Planning, Hon Anthony Roberts and Minister for Energy, Hon Mathew Kean on State and Federally where required.

MINUTES OF THE ASSOCIATION OF MINING & ENERGY RELATED COUNCILS (NSW) INC. ORDINARY MEETING HELD AT CLUB YORK, 2nd Floor YORK 2 ROOM, 99 YORK ST, SYDNEY 2nd SEPTEMBER 2022

- (b) Stephen Galilee, CEO, NSW Minerals Council and David Frith, Director Policy:
- The mining sector is growing in the metalliferous area (with world class production of rare earths, silver, gold, zinc, copper. etc.);
 - All miners are very conscious of their emissions abatement obligations and overtime the emissions have declined as a result of how they are addressing them overall particularly above ground working with EPA, DPIE and Resources Regulator, however the diesel fuel, electricity usage and underground coal mining still present challenges for the sector;
 - More needs to be done underground through use of technology and renewable energy options that are used where they can plus with the gradual introduction of autonomous and electric vehicles, but early days;
 - Power stations are more efficient when they use the high-quality coal that Australia produces however it exports 85% of coal for a premium price;
 - Delegates asked questions in relation to how the mining sector are addressing the skills shortage and accommodation; Net Zero Emissions targets set by State Government; Scope 1, 2 & 3 Emissions;
 - Nuclear Energy as a power source was discussed and Stephen felt that politicians are scared to consider the nuclear energy option in view of the impact at the polls.
(See slides distributed separately)
- (c) Mike Young – Executive Director- Planning & Communities, Energy Co, Dept Energy & Climate Change:
- Energy Corporation of NSW is a statutory authority re-established in line with legislative functions under the Energy and Utilities Administration Act 1987 and Electricity Infrastructure Investment Act 2020 has been set up to “join the dots” with the design, delivery and coordination of Renewable Energy Zones (REZ’s) and other electricity infrastructure in a way that benefits consumers, investors and regional communities;
 - Transmission development is becoming increasingly controversial in local communities, with communities already raising concerns with compensation, consultation, land use conflict and cost recovery.
 - The loss of social licence has the potential to delay the rollout of transmission infrastructure which would jeopardise energy security, slow NSW’s transition to net zero emissions and increase electricity costs for consumers. To avoid this the government will need to actively build community support for the transition rollout.
 - Consequently, Mike is keen to work with MERC to establish a dedicated forum, with strategic planning & coordination, developing a governance model for community benefit funding for community projects. In the following areas:
 - Council Forum - establishing a dedicated forum to work on delivery of enabling services and infrastructure with Councils in each REZ;
 - Strategic Planning & Coordination - preparing and implementing coordinated strategies and funding models to address key issues in consultation with Councils, generators and government agencies (e.g. Local Roads Strategy, Workforce Accommodation Strategy, Waste Management Strategy, etc);
 - Community Benefit Funding - establishing a governance committee for distribution of access fees from generators, including Councils and other stakeholders – noting that the

MINUTES OF THE ASSOCIATION OF MINING & ENERGY RELATED COUNCILS (NSW) INC. ORDINARY MEETING HELD AT CLUB YORK, 2nd Floor YORK 2 ROOM, 99 YORK ST, SYDNEY 2nd SEPTEMBER 2022

- intention is to invite applications for community projects and programs;
- Interactions with Planning System – all existing planning processes under the EP&A Act will continue to apply, including provision for planning agreements between proponents and councils – noting that there are some reforms proposed for developer contributions. Central West Orana Transmission Project.
 - Progress with Central West Orana REZ – Note the following data: ~180 km of 500kV/330kV • At least 3GW of transfer capacity • 3 major energy hubs to connect renewable energy projects • Appoint network operator to build, finance and operate – end 2022 • Planning approval – end 2023 • Construction – 2024/2025 • Operation – 2026/27.
 - Given MERC's involvement with VPA's and Resources for Regions criteria working parties involving Department of Planning and stakeholder bodies like the NSW Minerals Council in the past he has suggested to delegates that MERC could work with Energy Co with some of the foregoing. If it comes off there may be funds available for this that MERC could be eligible for its involvement.
(See slides distributed separately)
- (d) Stephen Wills, Executive Director Programs, Regional NSW, Kirstan Fulton, Director and Lana Hall, Program Manager on the current programs that are out for attention in September on Resources for Regions & Royalties for Rejuvenation. (Slides will be distributed separately when received).
- (e) Andrew Bray, CEO RE-Alliance outlined what they do in relation to LGA's that have a REZ eg Central West Orana REZ:
- Aim to maximise outcomes for local communities;
 - Organise communities around opportunities, eg. community benefit sharing & new industries;
 - Mitigate cumulative impacts;
 - Provide information through community workshops and webinars;
 - Industry Roundtable in CWO;
 - Lobbying government for better planning and community engagement approaches.
- Andrew also raised some issues RE-Alliance have with the CWOREZ rollout:
- Concern around housing during peak construction;
 - Communities start from a difficult position after covid, drought, fires, mice plagues and flood;
 - Some are neighbours to multiple projects & transmission;
 - High volume of approaches from developers;
 - Opaque government decision-making processes;
 - Burden of trying to handle so much project detail—engagement fatigue;
 - Lack of access to information on what RE land use agreements should contain, and to legal experts with experience in RE land use agreements;
 - Non-disclosure agreements can breed mistrust in communities;
 - High levels of anxiety about the future, especially landholders in TX study corridor. (See slides distributed separately)

MINUTES OF THE ASSOCIATION OF MINING & ENERGY RELATED COUNCILS (NSW) INC. ORDINARY MEETING HELD AT CLUB YORK, 2nd Floor YORK 2 ROOM, 99 YORK ST, SYDNEY 2nd SEPTEMBER 2022

- (f) Megan Dixon, CEO RDA Orana outlined she had approached MERC to seek assistance as a partner to O2N chasing grant funding for the following two projects on the basis that they will support members:

(i) Development of a Business Case to establish a Zero Emissions Business Incubator & Innovation Zone.

The NSW Government has a Regional NSW – Business Case and Strategy Development Fund, which closes this Wednesday. O2N intends to seek funding to progress the business case, with a focus on 2 specific consultancies:

- Stakeholder engagement to consolidate and negotiates partnerships, design requirements, detailed feasibility and development of the operations and governance structures for the facility and the
- Design and documentation for the development of the Zero Hub buildings, as per the specs developed from the first consultancy.

This facility can be a catalyst to put the regions on the map for resources and energy, as identified by industry when we were doing our industry planning for O2N. Our focus is to drive innovation, collaboration and advancement in the resources, energy and construction sectors on a global scale.

It is intended that the facility be based on strong partnerships between industry, governments, education providers, researchers, and the community, and enable strong collaboration is critical in shaping the future of the METS and resources sector not only in the region but internationally.

The facility will build on and support the activity occurring across the region; including the establishment of the renewable energy zone, the critical minerals hub and the efforts by industry to move towards zero emissions production.

(ii) Development of a Business Case to Undertake a Transport Study for the Golden Highway

The NSW Government have funding available for business cases, and RDA Orana are planning to seek funding to update and expand the study done in 2013/14 to include rail and air as well as road; to take into account new projects including Inland Rail, mining and renewable energy developments.

RDA Orana know that studies are being done by NSW Transport but feel that this study will plug any gaps and enable their local Government partners and them to advocate for improvements. It will also take into account three modes of transport between the two regions and the flow of goods both from the Orana as well as the flow of goods from the Hunter.

RESUMPTION OF STANDING ORDERS AT 12.45PM

OM 23/2022 Resolved (Cr Batten/Cr Blakey) that the meeting be resumed at 12.00pm to continue with the meeting items.

MINUTES OF THE ASSOCIATION OF MINING & ENERGY RELATED COUNCILS (NSW) INC. ORDINARY MEETING HELD AT CLUB YORK, 2nd Floor YORK 2 ROOM, 99 YORK ST, SYDNEY 2nd SEPTEMBER 2022

5. Adoption of the Minutes of the Ordinary Meeting held on 3rd June 2022

OM 24/2022 Resolved (Cr Figliomeni/Loane) that the minutes of the Ordinary meeting held on 3rd June 2022 be received and noted.

6. Business Arising from Minutes of the Ordinary meeting held on 3rd June 2022 - Nil

7. Adoption of the Minutes of the Executive Committee Meeting held on 30th August 2022

OM 25/2022 Resolved (Cr Duffy/Cr Brady) that the minutes of the Executive Committee meeting held on 30th August 2022 be deferred until after the Executive Officer provides a background report on the items & recommendations.

Executive Officer's Report

The Mayor and Executive Officer went through the items in the Executive Officer's report that related to matters on the Agenda for this meeting prior to adoption of them as follows:

- Items (a) to (i) that the information be noted
- Item (j) Resources for Regions
 - (1) that the information be noted; and
 - (2) that MERC engage Oz Environmental (Warwick Giblin) in collaboration with the Executive Officer and Executive Committee, to prepare a submission with relevant case studies of affected members, to Hon Paul Toole, Minister for Regional NSW & Deputy Premier and forward a copy to the NSW State Government Opposition and Minor Party Leaders on:-
 - a) reviewing the current methodology used for Round 9 Resources for Regions program in order to address the inequities with the current "eligible criteria list of Local Government Areas (LGA's)" in relation to LGA's being neighbours of active mining developments and employment location anomalies but are not currently eligible for funding, albeit significantly affected;
 - b) implementing legislative changes to ensure that all State Significant Developments for mining and developments require the proponent to develop Planning Agreements in consultation with affected LGA's that neighbour active mines;
 - c) the establishment of a working party consisting of MERC delegates, MERC's consultant and Regional NSW to undertake input into (a) & (b).
- Item (k) Royalties for Rejuvenation
 - (1) that the information be noted;
 - (2) that MERC write to the Hon Paul Toole, Minister for Regional NSW & Deputy Premier (with a copy to go to the NSW State Government Opposition and Minor Party Leaders) to:
 - a) express MERC's disappointment with the exclusion of current Mayors and Councillors on the recently established Royalties for Rejuvenation Expert Panels when our delegates who consist of experienced elected persons that come from mining related LGA's who would have the expertise sought for the panels;

MINUTES OF THE ASSOCIATION OF MINING & ENERGY RELATED COUNCILS (NSW) INC. ORDINARY MEETING HELD AT CLUB YORK, 2nd Floor YORK 2 ROOM, 99 YORK ST, SYDNEY 2nd SEPTEMBER 2022

- b) consider the appointment of relevant delegates from MERC such as the Executive Officer and/or other senior staff delegates to the regional Royalties for Rejuvenation Expert Panels and reimburse expenses for them to attend accordingly.

OM 26/2022 Resolved (Loane/Cr Duffy) that the minutes of the Executive Committee meeting held on 30th August 2022 items (a) –(k) be received and noted.

8. Business Arising from the Notes of Executive Committee Meeting held on 30th August 2022 - Nil

9. Delegates Reports – Nil.

10. Executive Officer's Report – Dealt with in Item 7

11. General Business

(a) Location/dates for next meetings in 2022/23

OM 27/2022 Resolved (Cr Banasik/Cr Duffy) That:

- (1) the next meeting of MERC in Dubbo be moved from 11th November 2022 to either 25th November subject to Dubbo Regional Council confirmation;
- (2) the quarterly meeting for late February early March 2023 to be held in Sydney a week after the CMA meeting;
- (3) the mini conference & Ordinary meeting be held in Dubbo at the Dubbo Regional Theatre & Convention Centre (DRTCC) in the period 21-29th May 2023, with the slot being reserved by staff at DRTCC until a MERC decision is made;
- (4) the Executive Officer to discuss with LGNSW Events team regarding their engagement on a fee basis to manage and market the event to target all Councils in NSW;
- (5) the Chair/Executive Officer to report back to delegates on dates for (1), (2) & (3) subject to availability and to fit in with member Council meeting schedules and the results of (4).

(b) 2 Year Term for the Executive Committee

OM 28/2022 Resolved (Cr Banasik /Cr Brady) That no further action be taken in relation to changing the current constitution for Executive Committee terms at this stage.

Cr Denis Todd left the meeting at 12.57pm

(c) Life Memberships

OM 29/2022 Resolved (Cr Banasik/Cr Duffy) That

- (1) life membership be granted to former Councillors Peter Shinton and Owen Hasler as meeting the requirements of Clause 4.5 of the Association's constitution ie "a retiring delegate with a minimum of two terms representing their Council and having made an outstanding, recognised contribution to the organisation";

**MINUTES OF THE ASSOCIATION OF MINING & ENERGY RELATED COUNCILS
(NSW) INC. ORDINARY MEETING HELD AT CLUB YORK, 2nd Floor YORK 2 ROOM,
99 YORK ST, SYDNEY 2nd SEPTEMBER 2022**

(2) they be invited to attend the next meeting of MERC in Dubbo on 25th November.

Cr Denis Todd returned to the meeting at 12.58pm

Close – the meeting closed at 1.00pm

DRAFT

The minutes (pages 1-8) were confirmed at a meeting of the Ordinary Meeting held on the 25th November 2022 and are a concise and accurate record of proceedings of the Ordinary General meeting held on 2nd September 2022.

.....
Cr Michael Banasik
Chairperson



MERC NEWSLETTER – AUGUST 2022

INTRODUCTION

Delegates, here is the August MERC Newsletter, please circulate the Newsletter to your fellow Councillors and senior staff, so they can appreciate and understand the excellent work the Association and you are doing on behalf of your Council and community, with regard to mining and energy related matters.

EXECUTIVE SUMMARY

(a) GOVERNANCE MATTERS

- i. Next Meetings of Association – Next Ordinary meeting to be held in Dubbo 25th November 2022, venue to be confirmed. The AGM and Ordinary meeting to be held in with tour and network dinner day before, arrangements and dates being sorted in consultation with Dubbo event staff and venue managers. The Mini Conference date slots have been booked for 21-29th May 2023 at Dubbo Regional Theatre & Convention Centre. Discussions have commenced with an event management entity to assist.
- ii. COVID-19 Virus Impact on MERC - In 2022 MERC will be resuming its' activities in the normal manner. What this means for MERC delegates is that 2022 will have quarterly as "face to face" meetings with use of zoom in exceptional circumstances. Executive Committee meetings will be by zoom means as determined. A lot of value is gleaned from being at a meeting in person and this can be lost when delegates attend by zoom. However, focus will always be on giving delegates opportunity to attend meetings which may be difficult for voting at the upcoming AGM in Dubbo.
- iii. Speakers for Next Meeting in Dubbo - Minister for Regional NSW and Deputy Premier Hon Paul Toole plus Minister for Agriculture Hon Dugald Saunders & Opposition Shadows and Minor parties will be pursued. With everything that is going on with government and the lead up to State elections may have an impact on attendees.
- iv. Orana Opportunity Network (O2N) – MERC is trialing as a Bronze Member of ON2 for 12 months. Their Newsletters are available on their website on o2n@o2n.org.au. Read more in the Matters of Interest section on CEO's presentation to delegates on 2nd September 's Ordinary meeting.
- v. CRC Transformation in Mining Economies (CRCTiME) - MERC is a partner with CRC TiME on a no cost but consultative basis. They provide updates on progress with opportunity for members to join webinars, workshops, surveys etc. Latest update is below.
- vi. Renewable Energy Zones (REZ) – Mike Young, Executive Director – Planning & Communities, Energy Corporation, Department Energy & Climate Change provided delegates with another updated informative insight on what is happening with Renewable Energy Zones in NSW. There is an opportunity for MERC to be part of a working party with Energy Co to successfully roll out the REZ's. Mike and EO to talk about how this may work for MERC and EnegyCoto be involved in the REZ roll-out.

(b) MATTERS OF INTEREST

(i) CRC for Transformations in Mining Economies (CRC TiME)

1 |



The Executive Officer will continue to liaise with the consultants on the foregoing and look for opportunities for MERC to be involved and keep delegates informed. CEO Guy Boggs writes that the CRC has been going for two years and will continue to provide information to partners that may be of interest.

Since the release of our 15 initiatives, hub meetings were held in South Australia, South West WA, Bowen Basin and Latrobe Valley from March to April 2022, providing stakeholders a chance to discuss opportunities in the regions. Gove has elected to have key projects engage with other closure planning processes running in the region and Pilbara elected to link CRC TiME work with the economic development planning work related to hydrogen already occurring in the region.

(ii) RE-Alliance

Andrew Bray, National Director, RE-Alliance, presented to delegates on 2nd September 2022 and writes in his latest newsletter: "I had the honour of recently attending the inaugural First Nations Clean Energy Symposium, along with RE-Alliance's VIC/TAS Coordinator Tony Goodfellow.

It was a powerful example of First Nations leadership in confronting the challenges and opportunities of an energy transition. The symposium celebrated some great examples of First Nations clean energy achievements happening globally and highlighted how crucial it is that we work to ensure First Nations people are central to the renewable energy transformation.

In particular, it is clear that following the leadership of First Nations groups is vital. Karrina Nolan, descendant of the Yorta Yorta people and a key architect of the [First Nations Clean Energy Network](#) (FNCEN) who organised the symposium, [said](#):

"If done well, clean energy will provide a big boost to our communities. We have an opportunity to do development right this time, protecting country and sacred sites while delivering reliable power, jobs and economic opportunity for our communities."

It was a real highlight to hear so many First Nations voices talking about our energy transformation. Kado Muir, Ngalia Traditional Owner and Chair of the National Native Title Council said, "We want to be active participants in the economy of renewable energy, as owners of projects, technology and power distribution into markets."

Across the country, [First Nations communities are right now designing and building renewables](#). It was great to hear their experiences. Gadrian Hoosan, a Garrwa and Yanyuwa man from Borroloola, has [plans to build a micro-grid for his community](#).

Les Shultz, a Ngadju Traditional Owner, is currently negotiating on a massive green hydrogen project in Western Australia. He's hoping to get good social and economic opportunities for his people, but also to be an example that others can use in negotiations for future projects.

There is some great work currently being done to make First Nations leadership more central in Australia's clean energy transformation – for instance, federal Energy Ministers



have committed to a co-designed and resourced First Nations Clean Energy Strategy. The recently released [NSW First Nations Guidelines](#) are also an important step forward.

But there's also lots of room for improvement, as we look at excellent examples overseas like the U.S.'s Navajo Power.

[For more important takeaways and powerful moments from the First Nations Clean Energy Symposium, read on here.](#)

The First Nations Clean Energy Symposium was an example of the immense benefits that our renewable energy transformation can provide, if we are guided by First Nations leadership. It's crucial that we support First Nations initiatives, like the vital work the First Nations Clean Energy Network is doing in community, industry and policy. [We encourage you to support them.](#)

(III) Renewable Energy Zones (REZ's)

A REZ is a hub of renewable projects across a region that form a modern-day power station, producing a large amount of energy for the State. The State Government has set them up in the New England, Southern NSW and Hunter/Central Coast Regions.

Mike Young updated delegates on 2nd September 2022 on the further progress with the Central West Orana REZ and outlined them as follows:

- Energy Corporation of NSW is a statutory authority re-established in line with legislative functions under the Energy and Utilities Administration Act 1987 and Electricity Infrastructure Investment Act 2020 has been set up to "join the dots" with the design, delivery and coordination of Renewable Energy Zones (REZ's) and other electricity infrastructure in a way that benefits consumers, investors and regional communities;
- Transmission development is becoming increasingly controversial in local communities, with communities already raising concerns with compensation, consultation, land use conflict and cost recovery.
- The loss of social licence has the potential to delay the rollout of transmission infrastructure which would jeopardise energy security, slow NSW's transition to net zero emissions and increase electricity costs for consumers. To avoid this the government will need to actively build community support for the transition rollout.
- Consequently, Mike is keen to work with MERC to establish a dedicated forum, with strategic planning & coordination, developing a governance model for community benefit funding for community projects. In the following areas:
 - Council Forum - establishing a dedicated forum to work on delivery of enabling services and infrastructure with Councils in each REZ;
 - Strategic Planning & Coordination - preparing and implementing coordinated strategies and funding models to address key issues in consultation with Councils, generators and government agencies (e.g. Local Roads Strategy, Workforce Accommodation Strategy, Waste Management Strategy, etc);
 - Community Benefit Funding - establishing a governance committee for distribution of access fees from generators, including Councils and other stakeholders – noting that the intention is to invite applications for community projects and programs;



- Interactions with Planning System – all existing planning processes under the EP&A Act will continue to apply, including provision for planning agreements between proponents and councils – noting that there are some reforms proposed for developer contributions. Central West Orana Transmission Project.
- Progress with Central West Orana REZ – Note the following data:
 - ~180 km of 500kV/330kV • At least 3GW of transfer capacity • 3 major energy hubs to connect renewable energy projects • Appoint network operator to build, finance and operate – end 2022 • Planning approval – end 2023 • Construction – 2024/2025 • Operation – 2026/27.
- Given MERC's involvement with VPA's and Resources for Regions criteria working parties involving Department of Planning and stakeholder bodies like the NSW Minerals Council in the past he has suggested to delegates that MERC could work with Energy Co with some of the foregoing. If it comes off there may be funds available for this that MERC could be eligible for its involvement.

(iii) Orana Opportunity Network (ON2)

CEO RDA Orana, Megan Dixon addressed delegates at the 2nd September Ordinary meeting on the following, outlining that MERC EO had provided letters of support for the following 2 projects and she was there to provide the background.

(a) Development of a Business Case to establish a Zero Emissions Business Incubator & Innovation Zone.

The NSW Government has a Regional NSW – Business Case and Strategy Development Fund, which closed 31st August 2022. O2N intends to seek funding to progress the business case, with a focus on 2 specific consultancies:

- (i) Stakeholder engagement to consolidate and negotiates partnerships, design requirements, detailed feasibility and development of the operations and governance structures for the facility and the
- (ii) Design and documentation for the development of the Zero Hub buildings, as per the specs developed from the first consultancy.

This facility can be a catalyst to put the regions on the map for resources and energy, as identified by industry when doing our industry planning for O2N. Our focus is to drive innovation, collaboration and advancement in the resources, energy and construction sectors. It is intended that the facility be based on strong partnerships between industry, governments, education providers, researchers, and the community, and enable strong collaboration is critical in shaping the future of the METS and resources sector not only in the region but internationally.

The facility will build on and support the activity occurring across the region; including the establishment of the renewable energy zone, the critical minerals hub and the efforts by industry to move towards zero emissions production.

(b) Development of a Business Case to Undertake a Transport Study for the Golden Highway

The NSW Government have funding available for business cases, and RDA Orana are planning to seek funding to update and expand the study done in 2013/14 to include



rail and air as well as road; to take into account new projects including Inland Rail, mining and renewable energy developments.

RDA Orana know that studies are being done by NSW Transport but feel that this study will plug any gaps and enable their local Government partners and them to advocate for improvements. It will also take into account three modes of transport between the two regions and the flow of goods both from the Orana as well as the flow of goods from the Hunter.

Letters of support were provided to RDA Orana to support the two projects on the basis that member Councils will benefit by the projects.

(iv) Resources for Regions

Steven Wills – Executive Director, Kirstan Fulton - Director & Lana Hall – Program Manager from Department Regional NSW updated delegates on Round 9, Resources for Regions \$140m program at the 2nd September meeting, details have been distributed to Councils with closing dates end of September for applications.

There are still concerns delegates have with the criteria for Round 9, so delegates resolved that MERC engage Oz Environmental (Warwick Giblin) in collaboration with the Executive Officer and Executive Committee, to prepare a submission with relevant case studies of affected members, to Hon Paul Toole, Minister for Regional NSW & Deputy Premier and forward a copy to the NSW State Government Opposition and Minor Party Leaders on:-

- (a) reviewing the current methodology used for Round 9 Resources for Regions program in order to address the inequities with the current “eligible criteria list of Local Government Areas (LGA’s)” in relation to LGA’s being neighbours of active mining developments and employment location anomalies but are not currently eligible for funding, albeit significantly affected;
- (b) implementing legislative changes to ensure that all State Significant Developments for mining and developments require the proponent to develop Planning Agreements in consultation with affected LGA’s that neighbour active mines;
- (c) the establishment of a working party consisting of MERC delegates, MERC’s consultant and Regional NSW to undertake input into (a) & (b).

(v) Royalties for Rejuvenation

Steven Wills – Executive Director, Department Regional NSW took the opportunity to update delegates on the Royalties for Rejuvenation program to establish expert panels paying \$5000k meeting fees to participate. Delegates had some concerns about the establishment of the panel and who was to be appointed to it. Consequently, it was resolved that MERC write to the Hon Paul Toole, Minister for Regional NSW & Deputy Premier (with a copy to go to the NSW State Government Opposition and Minor Party Leaders) to:

- a) express MERC’s disappointment with the exclusion of current Mayors and Councillors on the recently established Royalties for Rejuvenation Expert Panels when our delegates who consist of experienced elected persons that come from mining related LGA’s who would have the expertise sought for the panels;



- b) consider the appointment of relevant delegates from MERC such as the Executive Officer and/or other senior staff delegates to the regional Royalties for Rejuvenation Expert Panels and reimburse expenses for them to attend accordingly.

(c) OTHER MATTERS OF INTEREST – COAL & RENEWABLE ENERGY

‘Crunch Time for Grid: More Wind, Solar, Storage and Links Urgently Needed Before Coal Exodus’ Giles Parkinson, 31st August 2022, Renew Economy writes: The Australian Energy Market Operator has placed an “urgent” sign on the need for new wind, solar and storage capacity, and new transmission links, to help cope with the anticipated mass exodus of another five coal generators before the end of the decade.

AEMO, in its annual assessment of potential future market deficits known as the Electricity Statement of Opportunities (ESOO), says there is more than enough capacity in the pipeline to meet Australia’s electricity needs as coal retires, but not enough of this new capacity has reached the “committed stage.”

At least not yet. And its concerns are amplified by the threat of delays to projects, including the new Project Energy Connect link between South Australia and NSW, which already appears to be running one year late. AEMO notes that there is 7.3GW of what it calls “committed” generation, and another 3.4GW – mostly wind, solar and battery storage” – of what it calls “anticipated” projects.

Strangely, these include some projects, like the Torrens Island battery in South Australia and the country’s biggest wind farm at MacIntyre in Queensland, that have visibly already started construction. If this “anticipated” capacity is built – as most people expect they would be – then there are no short-term issues with grid reliability, apart from the risk of more extreme weather events and failing coal and gas generators.

With these assets, and added transmission lines, the threat of breaching the new, tighter, “interim reliability standard” is pushed out to the end of the decade. Still, AEMO wants more capacity in anticipation of even more rapid closures of ageing thermal capacity and to mitigate further delays.

It’s important to note here that AEMO takes a very conservative view of what is “committed” and what is “anticipated”. Even its anticipated list does not include the detailed NSW and Victoria government plans for their respective renewable roadmaps, including their auctions planned for new renewable energy zones. That’s one of the problems with the ES00. It is designed to inform the market where the best investment opportunities lie, but is often used for headlines that scream “blackouts” on the assumption that this investment does not occur.

One of the reasons some projects have not been committed is the uncertainty surrounding the design of market rules, although the change of federal government, its commitment to 82 per cent renewables by 2030, and the injection of environment and emissions into the national electricity objective, should smooth the path.

AEMO notes that its Integrated System Plan identifies some 45GW of new wind solar and “firming” investment that will be required to deal with the anticipated exit of most of the country’s coal generators, and it wants the market to get a move on, both with new generation and new transmission links. “The report reiterates the urgency of progressing generation, storage and transmission developments to maintain a secure, reliable and affordable supply of electricity to homes and businesses,” AEMO CEO Daniel Westerman said in a statement.



"Forecast reliability gaps have emerged across NEM regions due to considerable coal and gas plant closures, along with insufficient new generation capacity commitments needed to offset higher electricity use."

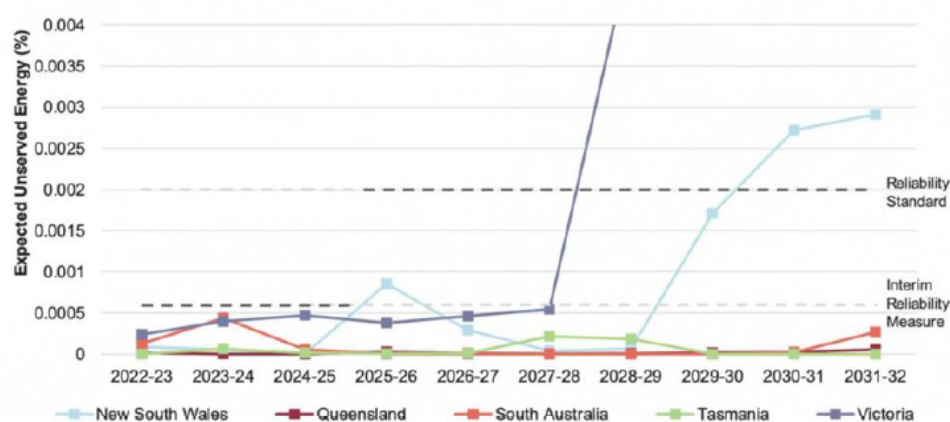
But Westerman makes it clear that "should the 3.4GW of anticipated generation and storage projects, alongside ISP actionable transmission projects, be delivered to their current schedules, then reliability standards would be met in all regions of the NEM until later in the decade when more large thermal generators exit."

These "anticipated" projects include the huge, and already financed and contracted, Riverina big battery, the 104MW Karara wind project which is part of the massive 1GW MacIntyre project that has actually begun construction, the MacIntyre project itself, and the Tailm Bend battery that is about to begin construction.

Others on the "anticipated" list include the 250MW Torrens Island battery that has also begun construction, and EnergyAustralia's announced Wooreen battery that is also about to begin construction.

Westerman notes there is a much bigger proposed pipeline of 113GW of variable renewable energy (VRE) and 53GW of dispatchable resources (including battery, pumped hydro, and other technologies) that demonstrate the opportunity for the market to respond to any emerging reliability gaps.

Figure 2 Expected unserved energy, ESOO Central outlook with anticipated and actionable developments, 2022-23 to 2031-32 (%)



This graph above illustrates the forecasts for reliability, assuming that the "anticipated projects" do go ahead. There is a blip above the interim reliability measure in NSW in 2025, around the time that the country's biggest coal fired generator Eraring is scheduled to retire. That may explain the NSW government's recent decision to tender for around 400MW of "firming capacity" to ensure that the major load centres are properly serviced.

Victoria is forecast to test reliability standards once Yallourn closes in late 2028, and NSW again at the end of the decade as Vales Point retires. But both state governments have put in plans – offshore wind in Victoria, an infrastructure roadmap in NSW – that the ESOO document does not recognise as "anticipated."



Still, Westerman says the grid cannot afford any more delays. The report also notes the likelihood that demand will actually increase in coming years as electrification becomes commonplace in homes and businesses, and as the uptake of electric vehicles also accelerates.

"One Skill Shortage More Than any Other is Holding Back the Race to Net Zero"

Dr Bjorn Stumberg* writes: "The race to create zero carbon economies is heating up dramatically in 2022. This is a race to not only secure a safe climate but also to secure prosperity in this century's global economy. Australia has finally clocked that this is, in fact, a race, and is getting into gear. Enviably, as the lucky country, we have the head start of an abundance of renewable energy resources – solar and wind – and minerals critical for the production of batteries.

But transforming the economy requires skills as well as raw resources, and here Australia has a shortage and is losing ground to intense global competition. In this week's Jobs and Skills Summit the federal government will test their coalition building skills at the table with business and union leaders to tackle skills shortages across many sectors, including 'future industries'.

While there is a multitude of pressing skills shortages, I believe that one skill stands out as critical to Australia's future prosperity: that skill is flexibility. Flexibility is central to both the transformation process and to many of the services in the new economy, making it a central theme in my new book, [Amy's Balancing Act – a tale of clean energy and the power of diversity](#). To illustrate the role of flexibility, let's consider the electricity system, which is at the forefront of decarbonisation and emblematic of the transformation of old industries.

The electricity system of the 20th century was grounded in assertions of secure fuel supply and centralised control focused on stability and maintenance of long term assets. This slow pace of change was instilled in the communities, trades, engineers, operators and regulators supporting the system.

But over the past twenty years the pace of change has been accelerating dramatically. Last year power from solar panels and wind turbines made up almost a quarter of Australia's electricity generation, and for a week provided 100% of South Australia's demand. What's more, Australia's solar power comes more from our roofs than solar farms, undermining the approach of centralised control and creating a new way for customers to engage with the system.

Looking a mere 7.5 years ahead to 2030, the target is for 82% of electricity to come from renewables. As highlighted in today's [ESOO report from AEMO](#), this change is even greater than it sounds once you factor in the electrification of appliances and sectors adding to electricity demand. So how does flexibility play into this?

On the engineering front, flexibility in generating (and drawing) power is becoming the most valuable capability in the energy market. This is why [BlackRock](#), and most [major energy companies](#), are investing billions into batteries that are incredibly flexible in responding to changes in supply/demand balance. But technology flexibility is only a small part of system flexibility. More important is the flexibility of the people using and managing the system.

This human flexibility is a skill deserving comparable investment. An immediate priority is fostering flexibility within the trades that are building the new energy system. This is vital for keeping up with rapidly evolving technologies and facilitating retraining from declining industries.



Similarly, rapid changes demand flexibility from the staff within the energy market bodies (who play the protagonist role in [Amy's Balancing Act](#)), market participants, and planning and policy departments.

And as consumers of electricity, we will all be asked to flexibly adapt our usage to match weather patterns – particularly through power hungry and easily automated appliances such as water and space heaters and electric vehicles. The switch in electricity prices to now being cheaper during sunlight hours than overnight is an early example of this.

These are just a few examples, from a single sector, of how flexibility is the defining skill of the future economy. By investing in flexibility – and embracing the related power of diversity more broadly – Australia will have the natural and human resources to ensure our ongoing prosperity in a zero emissions world.”

**Dr Bjorn Sturmborg is Research Leader in the Battery Storage and Grid Integration Program at the Australian National University and author of Amy's Balancing Act, published by Little Steps Publishing.*

“Heat pumps can cut your energy costs by up to 90%. It's not magic, just physics” Article

written by Allan Pears, Senior Research Fellow RMIT University, Melbourne 8th September 2022 :”



Image Credit: Solar Flow

Heat pumps are becoming all the rage around a world that has to slash carbon emissions rapidly while cutting energy costs. In buildings, they replace space heating and water heating – and provide cooling as a bonus.

A heat pump extracts heat from outside, concentrates it (using an electric compressor) to raise the temperature, and pumps the heat to where it is needed. Indeed, millions of Australian homes already have heat pumps in the form of refrigerators and reverse-cycle air conditioners bought for cooling. They can heat as well and save a lot of money compared with other forms of heating!

Even before the restrictions on Russian gas supply, [many European countries](#) were rolling out heat pumps – even in cold climates. Now, [government policies are accelerating change](#). The United States, which has had very cheap gas in recent years, has joined the rush: President Joe Biden has [declared](#) heat pumps are “essential to the national defence” and ordered production be ramped up.

The ACT government is encouraging electrification of buildings using heat pumps, and is [considering legislation](#) to mandate this in new housing developments. The Victorian



government recently launched a [Gas Substitution Roadmap](#) and is reframing its incentives programs towards heat pumps. Other states and territories are also reviewing policies.

Just how big are the energy cost savings? Relative to an electric fan heater or traditional electric hot water service, I calculate a heat pump can save 60-85% on energy costs, which is a similar range to [ACT government estimates](#). Comparisons with gas are tricky, as efficiencies and energy prices vary a lot. Typically, though, a heat pump costs around half as much for heating as gas. If, instead of exporting your excess rooftop solar output, you use it to run a heat pump, I calculate it will be up to 90% cheaper than gas.

Heat pumps are also good for the climate. My calculations show a typical heat pump using average Australian electricity from the grid will cut emissions by about a quarter relative to gas, and three-quarters relative to an electric fan or panel heater.

If a high-efficiency heat pump replaces inefficient gas heating or runs mainly on solar, reductions can be much bigger. The gap is widening as zero-emission renewable electricity replaces coal and gas generation, and heat pumps become even more efficient.

How do heat pumps work? Heat pumps available today achieve 300-600% efficiency – that is, for each unit of electricity consumed, they produce three to six units of heat. Heat pumps can operate in freezing conditions too. How is this possible, when the maximum efficiency of traditional electric and gas heaters is 100%, and cold air is cold?

It's not magic. Think about your fridge, which is a small heat pump. Inside the fridge is a cold panel called an evaporator. It absorbs heat from the warm food and other sources, because heat flows naturally from a warmer object to a cooler object.

The electric motor under the fridge drives a compressor that concentrates the heat to a higher temperature, which it dumps into your kitchen. The sides and back of a typical fridge get warm as this happens. So, your fridge cools the food while heating the kitchen a bit.

A heat pump obeys the laws of thermodynamics, which allow it to operate at efficiencies from 200% to over 1,000% in theory. But the bigger the temperature difference, the less efficient the heat pump is. If a heat pump needs to draw heat from the environment, how can it work in cold weather? Remember your fridge keeps the freezer compartment cold while pumping heat into your kitchen. The laws of physics are at play. What we experience as a cold temperature is actually quite hot: it's all relative.

Outer space is close to a temperature known as absolute zero, zero degrees Kelvin, or – 273°C. So, a temperature of 0°C (at which water freezes), or even the recommended freezer temperature of -18°C, is actually quite hot relative to outer space. The main problem for a heat pump in "cold" weather is that ice can form on its heat exchanger, as water vapour in the air cools and condenses, then freezes. This ice blocks the air flow that normally provides the "hot" air to the heat pump. Heat pumps can be designed to minimise this problem.

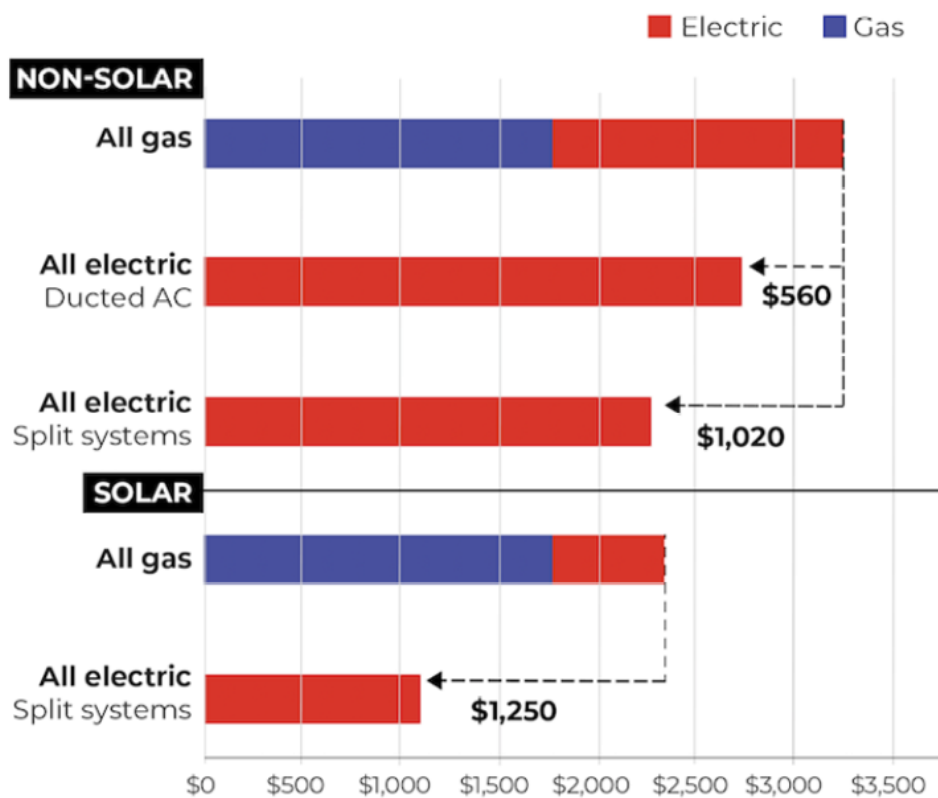
How do you choose the right heat pump for your home? Selecting a suitable heat pump (more commonly known as a reverse-cycle air conditioner) can be tricky, as most advisers are used to discussing gas options. Resources such as [yourhome.gov.au](#), [choice.com.au](#) and the popular Facebook page [My Efficient Electric Home](#) can help. All household units must carry energy labels (see [energyrating.gov.au](#)): the more stars the better. The



independent [FairAir](#) web calculator allows you to estimate heating and cooling requirements of a home and the size needed to maintain comfort.

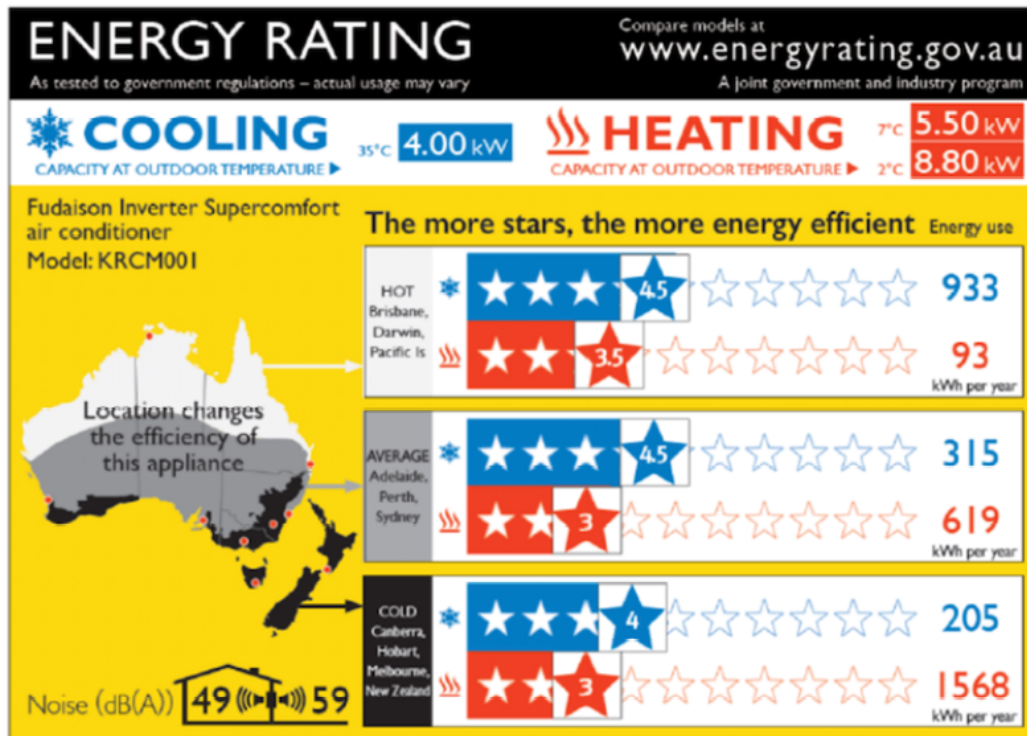
Average household energy bill savings for a typical detached home

Residential energy bills, detached dwelling, Victoria, 2022



THE CONVERSATION

Data: [State of Victoria Gas Substitution Roadmap 2022](#), CC BY



The government is phasing in this climate zone label to replace the old star rating label on reverse-cycle air conditioners. Unfortunately, the phase-in is slow, so many products still do not show climate related differences. Bigger heat pumps are more expensive, so unnecessary oversizing can cost a lot more. Also, insulating, sealing drafts and other building efficiency measures allow you to buy a smaller, cheaper heat pump that will use even less energy and provide better comfort.

When using a heat pump, it is very important to clean its filter every few months. A blocked filter reduces efficiency and the heating and cooling output. If you have an older heat pump that no longer delivers as much heat (or cooling), it may have lost some refrigerant and need a top-up"

This article is republished from [The Conversation](#) under a Creative Commons license. Read the [original article](#).

Disclaimer The comments and details in the articles in this newsletter do not reflect the views, policies or position of the Association or its member Councils and are sourced and reproduced from public media outlets by the Executive Officer to provide information for members that they may not already be exposed to in their Local Government areas

Contacts

Clr Michael Banasik (Chair) michael.banasik@wollondilly.nsw.gov.au 0425798068 or Greg Lamont (Executive Officer) 0407937636, info@miningrelatedcouncils.asn.au.

TABLE OF CONTENTS

CONFIDENTIAL ITEMS

Clause 240(4) of the Local Government (General) Regulation 2005 requires Council to refer any business to be considered when the meeting is closed to the public in the Ordinary Business Paper prepared for the same meeting. Council will discuss the following items under the terms of the Local Government Act 1993 Section 10A(2), as follows:

ITEM 1 MID-SCALE SOLAR PLANT UPDATE

(d) (ii) commercial information of a confidential nature that would, if disclosed, confer a commercial advantage on a competitor of the council (The energy market is a competitive one and works undertaken by Council could be used to advantage another operator and increase the risk of failure or increase costs of the proposed solar plant.)

ANNEXURE ITEMS

