



# ENERGY SUSTAINABILITY PLAN

A plan for an efficient, economic  
and resilient future 2024.





LACHLAN SHIRE COUNCIL  
ACKNOWLEDGES THE WIRADJURI  
PEOPLE AS THE TRADITIONAL  
CUSTODIANS ON THIS LAND.  
WE RECOGNISE THEIR STRENGTH  
AND RESILIENCE AND PAY RESPECT  
TO ELDERS PAST, PRESENT, AND  
EMERGING AND TO ALL ABORIGINAL  
AND TORRES STRAIT ISLANDER PEOPLE  
WHO ARE PART OF THE LACHLAN  
SHIRE COMMUNITY.



# INTRODUCTION



In September 2020, Lachlan Shire Council published its first Energy Sustainability Plan, a plan for an energy efficient, economic responsible and resilient future.

Our 2020 plan established Council's electricity consumption baseline and detailed a list of initiatives for Council to implement to reduce energy consumption, costs and emissions.

**COUNCIL HAS MADE EXTRAORDINARY PROGRESS IN THE IMPLEMENTATION OF THIS PLAN AND HAS ALREADY EXCEEDED MOST OF THE TARGETS IT SET IN 2020.**

Notable achievements include:

- \$503,000 (48%) reduction in annual electricity cost
- 839 Tonne (72%) reduction in annual electricity emissions
- 1,714 MWh (41%) reduction in imported energy
- Installation of 712kW of Solar PV across 19 sites
- Installation of LED streetlighting across our LGA
- Establishment of a revolving energy fund
- Long-term low-cost renewable energy power purchasing agreement until 2030.

Council is proud of our progress to date and strives to continue working towards a sustainable energy future.

By preparing this updated Energy Sustainability Plan (2024) Council wishes to:

- Record what has been achieved against 2020 nominated targets
- Identify new items and emerging opportunities
- Be prepared for future funding opportunities.





THIS PLAN REVIEWS COUNCIL'S ENERGY USAGE BY CATEGORY INCLUDING LIGHTING, WATER, COUNCIL SERVICES AND COMMUNITY FACILITIES, AND OUTLINES STRATEGIES TO ADDRESS EACH AREA.





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# ABOUT THIS DOCUMENT

## 01 / Purpose

Local governments have the ability to affect change through policy and legislation. Lachlan Shire Council chooses to be proactive in implementing strategies to reduce its impact on the environment and energy management has been identified as a key tool to reduce overall CO<sub>2</sub> emissions, decrease associated energy costs and improve our resilience as a community.

This document outlines the vision, strategies and timelines Lachlan Shire Council will implement to drive change and achieve sustainability goals. The elements outlined in this document will influence the decision making and policies of Council moving into our sustainable future.

The key benefits for Council are the reduced operational costs, and the social and economic benefits that are expected as a result of Council having additional funds for other projects that benefit the local community.

## 02 / Cost Reduction

Efficient energy management can significantly reduce community and Council costs. This document analyses the current energy needs and costs to Council. It considers methods for producing and storing our own energy through renewable generation and reducing energy consumption through energy efficiency.

This plan reviews Council's energy usage by category including lighting, water, Council services and community facilities, and outlines strategies to address each area.



## 03 / Resilience

Lachlan Shire Council relies heavily on the import of fuel and electricity. The money spent on this energy leaves the region and must be paid for by our other industries. Producing energy reduces this import, creates additional wealth for the region and leads to a more resilient community.

Resilience within a region is especially significant when external factors may hinder our traditional industries and provides an alternative source of value creation. Resilience takes two forms.

- The functional requirement for a stable, reliable energy supply
- Reduction of costs and our dependence on the purchase of energy from the market.

This energy sustainability plan aims to address both elements of resilience.

## 04 / Sustainability

Sustainability is the preservation of economic, social and environmental needs. Council actively addresses its responsibility to the community by providing frameworks and infrastructure that are both environmentally and economically viable. Through leadership, development decisions and community engagement in sustainable energy management, Lachlan Shire Council can shape a sustainable future for the local community.

The benefits of this Energy Sustainability Plan can only be realised when we can move away from the “business-as-usual” model.

From a financial position, Council is in a better position compared to 2019 baseline and changes a business-as-usual approach has lessened the impact of significant financial hardship over the coming decades. The progress Council has made to date in promoting sustainability has helped to secure both our environmental and economic future.

The steps addressed by this plan and the projects carried out under it must be affordable, therefore we have established criteria by which the projects are measured. These criteria consider the environmental, social, financial and operational benefits of each project and will also include a risk analysis.

Council is bound by the *NSW Local Government Act 1993* which states Council must:

**“PROPERLY MANAGE, DEVELOP, PROTECT, RESTORE, ENHANCE AND CONSERVE THE ENVIRONMENT....IN A MANNER THAT IS CONSISTENT WITH AND PROMOTES THE PRINCIPLES OF ECOLOGICALLY SUSTAINABLE DEVELOPMENT”.**

Council recognises that this plan will help us realise short-term and long-term benefits as we work towards our sustainable future.

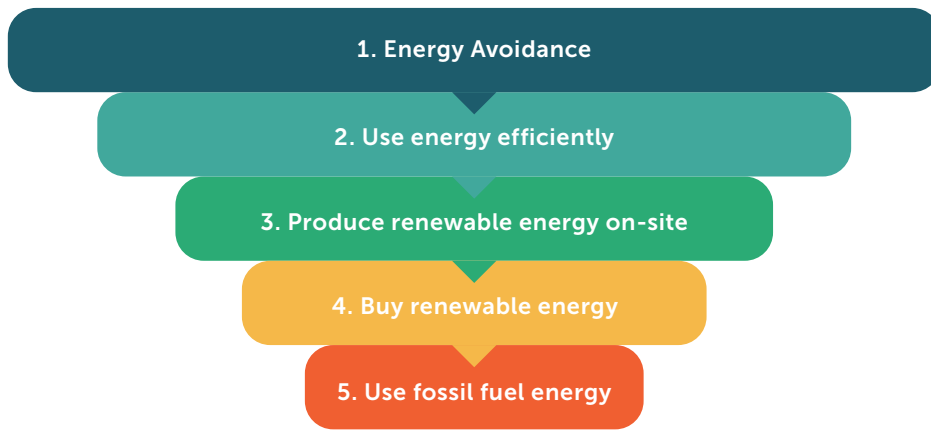


## 05 / Approach

Lachlan Shire Council applies an energy management hierarchy approach in its implementation of a more sustainable energy use profile.

An energy management hierarchy identifies and prioritises energy management options to progress towards a more sustainable energy system in the most efficient way.

**Figure 1:** Energy Management Hierarchy



1. ENERGY AVOIDANCE

Reducing energy consumption is the most important aspect of sustainable energy use. Councils primary focus is to prevent unnecessary energy use, for example, by switching off air conditioning and lighting when not in use.



2. ENERGY EFFICIENCY

Improving energy efficiency is the next highest in the hierarchy. Energy efficiency is using less energy to provide the same service. Reducing the total amount of energy consumed by implementing energy efficiency actions will reduce the overall amount of renewable energy Council is required to install at its facilities or purchase to meet its renewable targets. Examples of this include pumps with variable speed drives and LED lighting.



3. RENEWABLE ENERGY

Producing renewable energy at Council sites reduces our consumption of grid-sourced electricity which is produced primarily from fossil fuels.

For sites where production of renewable energy is not feasible, Council can purchase electricity produced from renewable sources. Council currently has a 50% renewable energy power purchasing agreement with Iberdrola, our large site energy provider.



# 2020 ENERGY SUSTAINABILITY PLAN REVIEW

Council has made significant progress in the implementation of its 2020 Energy Sustainability Plan initiatives and achieved substantial energy, cost and emissions savings.

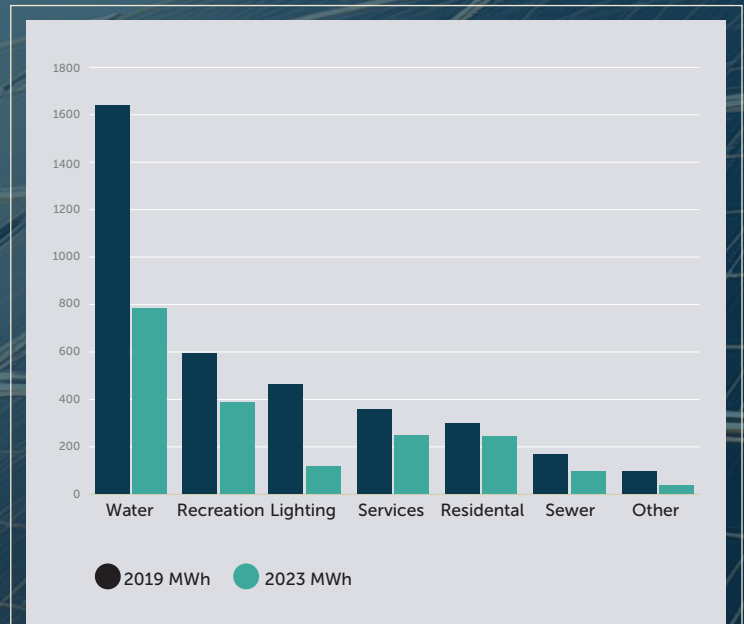
The table below compares Council's electricity portfolio metrics in 2019 and 2023.

	2019	2023	Reduction
<b>Annual Electricity Cost</b>	\$1,049,000	\$545,426	<b>\$503,574</b> (48% lower)
<b>Imported Electricity (MWh)</b>	3,659 MWh	1,945 MWh	<b>1,714 MWh</b> (41% lower)
<b>Scope 3 Emissions* (CO<sub>2</sub>)</b>	3,037 T	839 T	<b>2,198 Tonnes</b> (72% lower)

\*NSW 2023 Scope 2 + Scope 3 emissions factor of 0.73kg CO<sub>2</sub>-e/kWh. Solar export included in emissions reduction. LGCs bought and sold included, specifically Iberdrola 50% renewables, Shell 10% Greenpower and Lake WTP LGC sales.

The following graph compares energy consumption for each sector in 2023 vs 2019.

Council's energy consumption has been reduced in all sectors, but the water and lighting sectors have undergone the most significant energy savings through a combination of energy efficiency and on-site solar PV projects.



**Figure 2: 2019 vs 2023 Energy Breakdown**

Total on-site solar generation for 2023 was 837 MWh, with 442 MWh exported to the grid.

Total energy consumed in 2023 including on-site solar generation was 2,387 MWh (a 35% gross reduction, not factoring in the 442 MWh of net exports).



# 2020 TARGETS

Council set four emissions and energy reduction targets as part of its 2020 Energy Sustainability Plan. Council has **exceeded all the short-term targets** set out in this plan.

2020 Target	2024 Progress	Status
Reduce emissions by <b>385 tonnes</b> by 2025.	Electricity associated emissions reduced by <b>1,870 Tonnes</b> by 2024.	✓
Reduce grid consumption by <b>12% by 2022</b> .	Grid consumption reduced <b>by 41%</b> .	✓
Increase renewable energy proportion by <b>25% by 2025</b> .	<p>Council achieved <b>53% net renewable energy</b> as a proportion of its electricity needs <b>by 2023</b>.</p> <p>This was achieved through the following initiatives:</p> <ul style="list-style-type: none"> <li>• 35% net renewable energy proportion from on-site solar alone</li> <li>• 50% of energy purchased for large sites (319MWh) is from renewable sources</li> <li>• 10% of energy purchased for small sites (131MWh) is from renewable sources.</li> </ul>	✓
Carbon Neutral by 2050 (all sectors).	<p>On track: electricity emissions <b>already reduced by 72%</b>.</p> <p>Council has prepared a broader emissions reduction plan and is working to address <u>all</u> sectors including waste, gas and fleet emissions.</p>	

These targets have been surpassed due to the successful implementation of several projects identified in the 2020 Energy Sustainability Plan.

Phase 1: (2020-2022)	Status
Development of a sustainability team within Council.	
Securing additional funding for lighting upgrades and completing identified projects.	✓
Securing additional funding for solar PV and completing up to eleven (11) projects across Council.	✓
Implement a dashboard to review data and interpret data to monitor project success.	✓
Establishing a revolving energy fund. What this means is that the savings generated by the fund are put back into other energy saving projects.	✓
Implement sustainability school grants.	



Council has completed or is currently implementing Phase 2 projects.

Phase 2: (2023-25)	Status
Development of a sustainability committee including Council sustainability team, elected Councillor and other outside influencers in the community).	In progress
Introducing energy efficiency metrics in lighting and pumping projects.	✓
Incorporate Solar Power Purchasing Agreement (PPA) in electricity contract in 2023.	✓
Review completed projects (of the 11 identified sites) and identify new projects.	✓
Bulk-buy opportunities.	

Phase 3 included projects to be targeted from 2025 onwards. Council has already made part progress in these areas and will continue to work on all areas.

Phase 3: (2025 onwards)	Status
Rebates and incentives.	
Combined Central NSW Joint Organisation Programs/Projects.	✓
Sustainable building – Sustainable lifestyle for commercial and residential buildings.	
Inclusion of energy sustainability within the Community Strategic Plan.	✓
Energy storage.	✓
Solar farms.	
Purchasing electric vehicles in the light fleet.	In progress





# SUCCESSFUL PROJECTS

## 01 / Solar PV

In 2021, following the publishing of our Energy Sustainability Plan 2020, Council installed 660kW of solar PV across 15 Council sites. See Figure 3: 660kW Solar PV Portfolio, page 13.

Council was recognised for these energy projects as a winner of two 2021 Sustainable Tidy Town Awards and Local Government NSW Excellence in Environment Awards.

As of 2024, Council has 19 sites with solar PV including a 39kW system on the new Visitor Information Centre in Condobolin.

In 2023, our solar PV portfolio generated 837,099 kWh of renewable energy, equivalent to 35% of our total gross electricity consumption.

## 02 / Energy Storage

In addition to the solar PV, Council installed a 180kWh battery at the Lake Cargelligo Water Treatment Plant to increase the utilisation of on-site generation. Council has also used this infrastructure to trial innovative retail electricity opportunities such as Virtual Powerplants.



Figure 3: 660kW Solar PV Portfolio





### 03 / Power Purchasing Agreements

Council, as part of a CNSWJO initiative, has signed up to a Power Purchasing Agreement (PPA) with our large site energy supplier to significantly decrease energy costs and associated carbon footprint.

As of January 2023:

- The PPA electricity rates are below general market rates, and locked-in until 2030
- 50% of our large site electricity is purchased from renewable energy sources
- 10% of our small site electricity is purchased from renewable energy sources.

Council aims to pursue an increased renewable energy purchasing percentage as part of our future electricity contracts.

### 04 / Lighting

Energy efficient lighting upgrades provides great opportunities for reductions in energy usage and operating costs across our portfolio.

Council has installed energy efficient LED lighting across all streetlights as well as several Council sporting and community facilities.

These lighting upgrades have reduced Council’s lighting associated grid consumption by 73% (348MWh). This corresponds to approximately \$90,000 p.a in energy savings.

Council continues to review lighting at all of our sites and ensure energy efficient lighting is installed where possible.

### 05 / Revolving Energy Fund

Council has implemented a Revolving Energy Fund (REF) to continually invest realised savings into sustainability projects.

Significant cost savings have been realised by investing in these projects to date. This Revolving Energy Fund allocates energy savings compared to the baseline, which have been a result of this Energy Sustainability Plan. This fund continues to be an important reserve to replace renewable infrastructure as it approaches end of life.





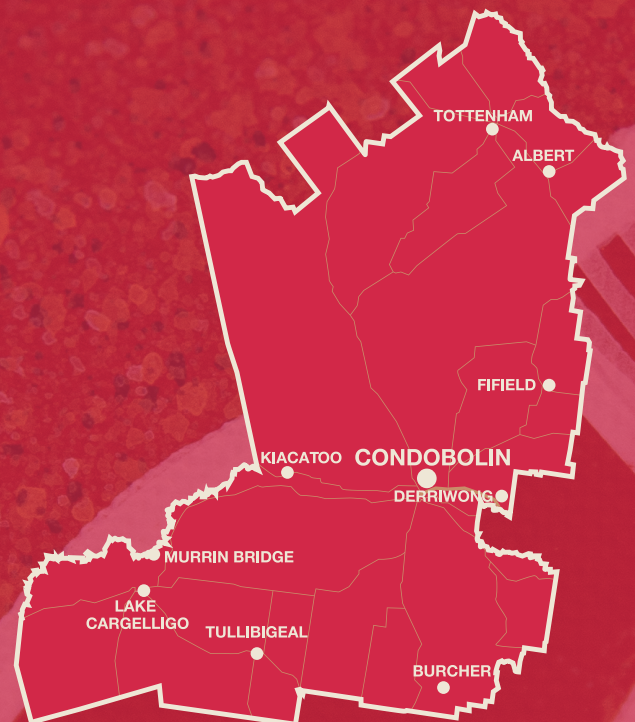
# WHERE ARE WE IN 2024

Lachlan Shire Council is geographically the heart of NSW, with the Lachlan River running through it. The shire covers an area of 14,970 square kilometres and has a population of 6,200 with the main towns and villages being Condobolin, Lake Cargelligo, Tottenham, Tullibigeal, Burcher, Derriwong, Albert, Fifield and Murrin Bridge.

Council as a water and sewer authority and community service provider uses a large amount of energy.

In 2023 Council used 2,387 MWh of electrical energy across 136 sites, 53% of this was from on-site solar or renewably sourced grid electricity.

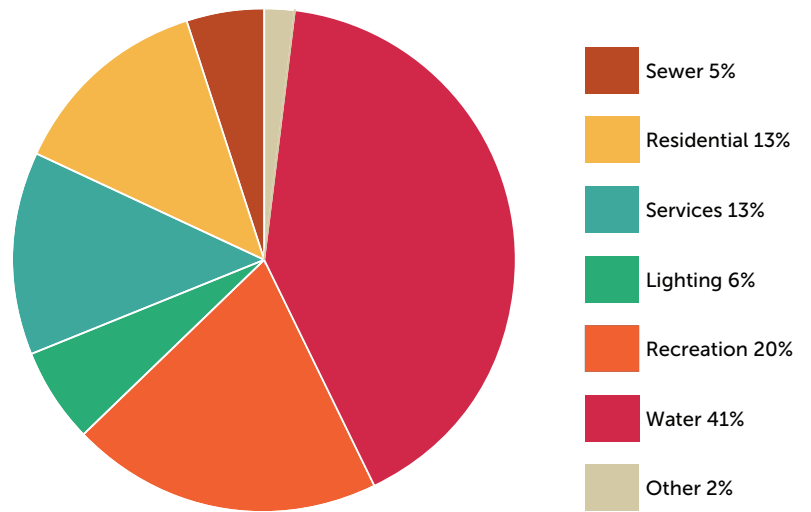
The chart on page 16 shows the breakdown of Councils electricity consumption by sector.







## USAGE BY SECTOR



**Figure 5:** Lachlan Shire Council's 2023 Energy Usage by Sector.

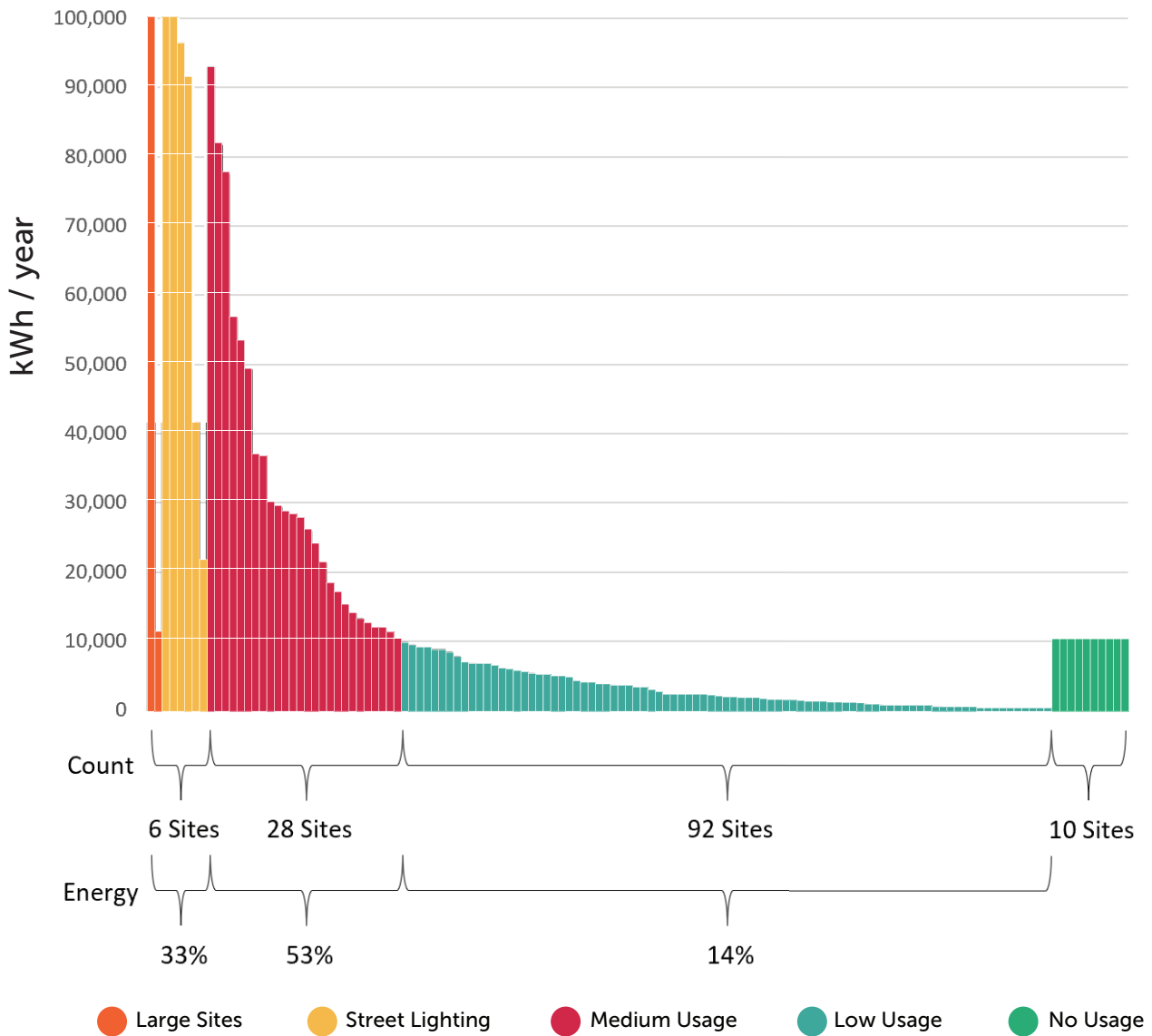
The largest sector for energy usage is water services remains related to pumping and treatment of drinking water.

Another significant portion is related to recreation and community facilities including our swimming pools in Condobolin, Lake Cargelligo and Tottenham.

Council's eight large contract sites (including streetlighting) attributed 33% of Council's energy usage.

These high-use sites have been a focus for Council's energy efficiency and renewable energy projects to date, and will continue to be improved as we strive to further reduce energy consumption.

## COUNCIL ELECTRICITY PORTFOLIO



**Figure 6:** Council Electricity Portfolio Consumption. Details of Council's top 44 highest consumption sites are included in Appendix 1 (page 30).



# COUNCIL VISION

Lachlan Shire Council remains committed to a sustainable future for our community. Council's approach to sustainability means that planning, decisions and actions aim to optimise the use of resources to maintain organisational viability, improve the environment and enhance social values and community engagement.

Throughout Council's operations we aim to reduce our operational cost, economic impact, ecological/ carbon footprint, impact on the environment

and also strive to lead by example implementing projects that supports sustainability in our shire.

Reducing our reliance on imported energy and electricity is a key area in this energy sustainability plan that Council aims to address to become more resilient and retain wealth in the region.

# MEASURES OF SUCCESS

# OUR NEW TARGETS

The reporting outlined above is necessary to monitor progress in relation to targets. The key measures are:

- CO2 emissions and energy usage by source and end-use category
- Import and export of energy into and out of the region
- Actual cost savings realised
- Community engagement and involvement.

Council has updated our targets to reflect our progress to date and the projects identified within this report. Each targets address our measures of success above. Council acknowledges that reaching net zero electricity emissions becomes increasingly challenging as we tackle sectors that are difficult to reduce consumption, improve efficiency or support with renewable energy.

2020 Targets			
Reduce electricity emissions by 385T (13%) by 2025	Reduce grid consumption by 12% by 2022	25% renewable energy proportion by 2025	Carbon Neutral by 2050 (all sectors)
↓	↓	↓	↓
2024 Progress			
2,198 T (72%)	41%	53%	On track
↓	↓	↓	↓
New Targets			
Reduce electricity emissions by 80% by 2027	Reduce grid consumption by 60% by 2027	75% renewable energy proportion by 2027	Carbon Neutral by 2050 (all sectors)



# IMPLEMENTATION PLAN

THE FOLLOWING PROJECTS HAVE BEEN IDENTIFIED TO ADDRESS THE UPDATED TARGETS.



Council has divided these projects into two phases: short and medium term. Council plans to review and update our Energy Sustainability Plan at the completion of phase 2.

**Council had great success with capturing the ‘low hanging fruit’ and has now set its sights on more complex projects.**

## **Phase 1: (2024-2026)**

- Installation of solar PV at 5 sites.
- Installation and optimisation of battery storage functionality.
- Review and implementation of “Energy Smart” pumping projects.
- Implementation of “Energy Smart” pumping and heating at Council swimming pools.
- Implementation of “Energy Smart” HVAC features at Council sites.
- Preparation of a Council site EV charging infrastructure plan. Installation of EV charging to address short term charging needs.
- Purchasing of electric vehicles in the light fleet and trial of electric heavy, utility and plant vehicles.
- Combined Central NSW Joint Organisation Programs/Projects.
- Inclusion of energy sustainability within the Community Strategic Plan.

**Phase 2 includes projects to be targeted from 2027 onwards.**

## **Phase 2 (2027-29)**

- Roll out of EV charging at Council sites.
- Transition to primarily electric vehicle purchases across all fleet segments.
- Investigate grid scale solar PV and energy storage projects.
- Include on-site Solar PV on all suitable new capital works projects.
- Negotiation of 100% Renewable Energy PPA for large and small sites.
- Review of our Energy Sustainability Plan initiatives.



## 01 / Solar PV

Council has already implemented solar PV at 19 sites. These projects focussed on high energy use sites with suitable physical and load characteristics.

Council will continue the rollout of solar PV at suitable Council sites. Council has identified a range of high usage sites as well as new buildings such as the Condobolin depot.

A business case analysis of suitable sites is presented in the table below.

Our target is to implement four identified solar PV projects in 2024-25 financial year. Council will specifically target these projects for grant funding.

The energy reduction is identified as 131 MWh p.a. which equates to emissions reductions of 96 Tonnes of CO<sub>2</sub> p.a.

The energy cost savings from these projects can be fed back into other sustainability projects through our revolving energy fund.

Site	Solar PV Size	Cost	Estimated Annual Saving	Estimated Payback
5 Melrose St, Condobolin	15kW	\$15,000	\$3,570	4.2 years
Pump Pretty Valley	15kW	\$25,000	\$3,570	7.0 years
Willow Bend Sports Centre	13kW + 20kWh battery	\$35,000	\$3,120	11.2 years
New Works Depot	40kW	\$40,000	\$6,070	6.6 years
<b>Total</b>	<b>83kW</b>	<b>\$115,000</b>	<b>\$16,330</b>	<b>7.0 years</b>





## 02 / Energy Storage

Energy storage systems technologies and applications have developed significantly in the past few years.

Energy storage can deliver a range of benefits to Council sites including:

- Higher utilisation of on-site solar generation
- Back-up functionality for community resilience
- Virtual power plant retail opportunities
- Grid support and demand response.

There have also been recent developments in retail electricity agreements that enhance the business case for battery storage. The key barrier for Council to take-up battery storage is that our electricity contract is so competitive that it makes it almost impossible to save money by storing and selling energy.

In addition to the two sites identified above in the solar PV analysis, Council has examined a range of Council sites that may be suitable for battery storage for either economic or resilience benefits. In this analysis, the sites are switched to a retailer offering virtual-power-plant services (Amber Electric) and also an advantageous Essential Energy network tariff (known as 'sun-soaker').

A business case analysis of suitable sites is presented in the following table.

Site	System Size	Cost	Estimated Annual Saving	Estimated Payback
Lachlan Children Services	20kWh battery	\$20,000	\$977	20.5 years
Home & Community Care (HACC)	20kWh battery	\$20,000	\$790	25.3 years
Condobolin Library	20kWh battery	\$20,000	\$781	25.6 years
Lake Cargelligo Library	20kWh battery	\$20,000	\$834	24.0 years
Visitor Information Centre	20kWh battery	\$20,000	\$1,000	20.0 years

Simple payback is unlikely to be achieved in the lifetime of the battery system, however, could provide these important buildings with backup power resilience.

The 180kWh battery at the Lake Cargelligo water treatment plant is optimised for behind-the-meter value. However, it may be possible to unlock greater value at this site by integrating this system into an in-front-of-meter VPP controller and/or coordinating with Essential Energy to relax export constraints at certain times of the day.

Site	System Size	Cost	Estimated Annual Saving	Estimated Payback
Lake Cargelligo Water Filtration Plant	Optimisation Controller	\$25,000	\$10,000	2.5 years

## 03 / Energy Smart Pumping

Council’s 2020 Energy Sustainability Plan identified pumping as the single largest sector for electricity usage within Council. Any optimisation in efficiency will have significant effects on cost and energy savings.

Council will continue to ensure energy efficiency becomes a key element of all future pumping capital works projects. Installing energy efficient pumps with smart control functionality enables cost saving opportunities including:

- General improved efficiency
- Time of use operation – scheduling pumping to avoid peak electricity prices where appropriate
- Demand response functionality responding to grid signals by
  - Increasing pumping in times of high renewable power grid penetration when prices are low
  - Reducing pumping in peak periods when wholesale electricity prices are high.

Council has identified 10 pumping sites to be reviewed for:

- Replacement of old pumps with variable speed drives (VSDs)
- Implementation of smart control functionality.

Site	Annual consumption (MWh)
Goobang water pump station	172
Condobolin WTP	136
Merri Abba bore 2 high lift pump	92
Pump Station, Lake St, Lake Cargelligo	30
Bore 3, Lachlan Valley Way, Lake Cargelligo	29
Treatment works, Lachlan St, Condobolin	28
Bore 2, Lachlan Valley Way, Lake Cargelligo	28
Tullibigeal pump, Gubbatta Rd	26
Raw water pump station, Lachlan St	21
Burcher Dam	13
Recreation ground pump, Lake St, Lake Cargelligo	12







Implementing VSDs at these sites has the potential to improve efficiency by 5-20% and generate up to \$30,000p.a. of behind the meter value. Council will also conduct a review of our pump control programming in line with new retail opportunities. This may generate additional value of approximately \$50,000 p.a. across our pumping portfolio.

The table below outlines the business case for implementing VSDs across our portfolio.

VSDs with integrated control	Cost	Annual Savings	Estimated Payback
6	\$210,000	\$35,979	5.8 years
13	\$455,000	\$54,514	8.3 years
20	\$700,000	\$80,000	8.8 years

## 04 / Energy Smart Swimming Pools

Council operates three swimming pools in our major towns of Condobolin, Lake Cargelligo and Tottenham. These three pools account for 10% of our total grid electricity usage. Council has already installed solar PV at each of these facilities to reduce our daytime load.

Site	Annual consumption (MWh)	Solar PV System Size
Condobolin Swimming Pool	96	37kW
Lake Cargelligo Swimming Pool	65	40kW
Tottenham Swimming Pool	37	20kW

The majority of energy usage at these facilities is attributable to water filtration, pumping and heating (if applicable).

Council has implemented several mechanisms to reduce the energy consumption and energy cost of these sites including:

- Installation of solar PV at all sites.
- Lining of the Condobolin Pool to prevent water loss and therefore heating requirements.

Council proposes to introduce smart controls to the pool pumps at each site to reduce pumping in peak periods (5pm-8pm) and therefore access significant cost savings.

Tottenham Pool for example, by implementing a peak-shaving controller, can create savings of \$1,400 per annum (25% of the annual electricity bill) by pausing water-filtration pumping for three hours in the peak period.

This could be achieved by either by using basic timers, or VSD pump controllers.

A business case analysis of each site is presented in the table below.

Site	Pump Load	Annual Energy Saving (MWh)	Estimated Cost Saving
Condobolin	15kW	9	\$3,672
Lake Cargelligo	10kW	6	\$1,680
Tottenham	8kW	5	\$1,400

A budget of \$30,000 to implement smart pumping which will achieve a simple payback of under five years.

Council has also sought quotations for the installation of a "Heliocol" solar thermal heating system and pool covers at Condobolin Pool.

Project	Cost	Annual Savings	Estimated Payback
Smart pumping control at 3 Sites	\$30,000	\$6,752	4.4 years
Condobolin Pool Heating	\$64,000	\$5,200	12.0 years

## 05 / Energy Smart HVAC

Council plans to optimise our HVAC systems across our portfolio of sites to prevent unnecessary energy usage and where appropriate respond to market price signals.

Council has identified eight sites with medium energy usage that have HVAC systems. These sites typically only operate in business hours (i.e. 7am-5pm).

Site	Annual consumption (MWh)
Condobolin Works Depot (new site)	~78
Medical Centre -5 Melrose St Condobolin	49
Administration Building – 62 Molong St Condobolin	41
HACC - Condobolin	12
Condobolin library	12
Lake Cargelligo Library	11
Lachlan Children Services - 35 Marsden St Condobolin	10
Medical Centre -3 Melrose St Condobolin	8



Council plans to install a smart controller on each of the HVAC systems at these sites. The smart controller will automatically turn off HVAC systems outside of business hours. This system will also incorporate remote monitoring so Council can track HVAC energy consumption and behaviour. This system will have a manual override switch for instances where the building is occupied outside of normal hours.

Council also plans to trial a system at the administration building which responds to energy market signals (demand response) and reduces power consumption when wholesale electricity prices are high.

This energy smart HVAC program is expected to cost \$40,000 and reduce our energy consumption by 8-16 MWh p.a. and save \$3,000-\$5,000 p.a.

Smart HVAC Control	Cost	Annual Savings	Estimated Payback
8 Sites	\$40,000	\$4,000	10 years

## 06 / Electric Vehicles and EV Charging Infrastructure

Council’s existing fleet emits approximately 1,900T of CO<sub>2</sub>e per annum. Electrifying Council’s fleet operations provides an opportunity to significantly reduce Council’s emissions and meet our net-zero target by 2050.

Council is currently working in partnership with CNSWJO to prepare a Zero Emissions Fleet Transition Plan.

This document analyses Council’s fleet data and provides a detailed plan to achieve:

- Lower total operating cost
- Lower emissions
- Improved vehicle and operational performance
- Demonstrate leadership to our communities in adopting new technology.

To enable this change Council plans to install electric vehicle charging infrastructure throughout our Council sites and buildings. This will result in significantly higher electricity usage at our depots and administration buildings.

Figure 7: New Council Works Depot – Vehicle Charging Render



Council is currently building a new works depot in Condobolin. As part of this design, we have made electrical provision for mass EV charging of an electric fleet.

Council will conduct a review of all Council sites with fleet parking and prepare a charging infrastructure plan for short-term and long-term EV charging requirements.

## 07 / Power Purchasing Agreements

Council, as part of a CNSWJO initiative, has signed up to a power purchasing agreement (PPA) with our large site energy supplier to significantly decrease energy costs and associated carbon footprint.

As of January 2023:

- The PPA electricity rates are below general market rates, and locked-in until 2030 for large sites
- The small-site contract (not a PPA) is not locked in
- 50% of our large site electricity is purchased from renewable energy sources
- 10% of our small site electricity is purchased from renewable energy sources.

Council's renewable energy PPA has enabled Council the reduction of emissions at sites which are not suitable for on-site solar PV generation. As we have seen at our large sites, PPAs have the potential to provide cost savings opportunities.

Council will work with CNSWJO to negotiate renewable energy power purchasing as part of future large and small site contracts.

Council targets an increased renewable energy purchasing percentage as part of our future electricity contracts and targets 100% renewable energy across large and small sites by 2030.

Based on existing grid energy consumption, a 100% renewable power purchasing agreement is expected to increase Council's electricity bill by approximately \$35,000p.a.

As identified in our energy management hierarchy, purchasing renewable power is the final step towards achieving zero emissions, however, energy avoidance is the priority.

## 08 / Emissions Reduction Plan



In 2023 Council prepared an *Emissions Reduction Plan*, which takes a more holistic view at Council emissions including electricity gas, fleet, and waste emissions. This plan outlines Council's long-term pathway to net zero emissions by 2050.

This *Energy Sustainability Plan* details updated initiatives that Council can undertake to reduce emissions associated with Council's consumption of electricity and liquid fuels.

As stated above, Council has a target of becoming carbon neutral across all sectors by 2050. We have already reduced our electricity emissions by 72% and are targeting 100% by 2030.

Council is working towards electrifying our Council fleet to reduce our liquid fuel consumption. Council will install additional solar PV at our depots to power our fleet from renewable sources.



# KEY CHALLENGES

The primary challenge for Lachlan Shire Council, in achieving the targets set out in this plan, is that we are resource constrained in;

- Our human resources (time) to deliver on the elements within this plan
- Our lack of funds to initiate projects
- Savings from energy efficiency and solar projects being redirected into other projects or cross subsidising Council's general revenue.

Part of the success of this Energy Sustainability Plan relies on accessing grant funding.

Council recognises that accessing grant funding requires a considerable amount of time and energy. Therefore, to obtain this funding Council must increase its resource capacity within sustainability area of Council.

As part of our 2020 Energy Sustainability Plan, Council appointed a sustainability role to focus on implementing our initiatives, attracting grant funding and overcoming challenges. Council is working closely with the Central NSW Joint Organisation and NSW Sustainable Councils program to access external support when required.

Change management can also be a challenge in addressing the objectives of this plan. Council must ensure that it communicates the benefits of each activity beyond the outcomes of "business-as-usual". This will ensure that all involved, from Council and the community, can see the value of the Plan and support the projects carried out under it.







# APPENDIX 1

## High Consumption Sites

The table below details Council's top 44 sites with the highest electricity consumption with target projects to reduce energy usage. Sites marked with a CIRCLE already have solar PV systems installed.

Site Name	Site Type	Grid Electricity Usage (kWh)	Target Projects
Goobang Water Pump Station, Weir St, Condobolin	Water	171,883	Pump efficiency and demand response
Water Treatment Works, Henry Parkes Way	Water	136,006	Pump efficiency
Lake Cargelligo Water Treatment Plant, Uabba St	Water	● 133,600	Optimise storage and solar export
Condobolin, Unmetered Supply	Lighting	105,107	LED lighting installed
Condobolin Swimming Pool, Harding Ave	Recreation	● 96,536	Solar thermal heating + batteries
Riverview Caravan Park, Diggers Ave, Condobolin	Residential	● 92,881	Hot water
High Lift Pump, Bore 2, Lachlan Valley Way	Water	● 91,669	Pump efficiency and demand response
Caravan Park, Naradhan St, Lake Cargelligo	Residential	81,623	Hot water
Works Depot, 6 Bathurst St, Condobolin	Services	77,437	New depot with solar PV and EV charging
Lake Cargelligo Swimming Pool	Recreation	● 59,666	Battery and demand response
Sewer Treatment Plant, Golf Links Rd, Condobolin	Sewer	● 56,641	
Sra Ground, Diggers Ave, Condobolin	Recreation	53,198	
Medical Centre, 5 Melrose St, Condobolin	Services	49,205	Solar PV
Council Admin Building, 62 Molong St	Services	● 41,480	HVAC optimisation and EV charging
Swimming Pool, 111 Umang St, Tottenham	Recreation	● 36,512	Battery and demand response
Pump Pretty Valley, Lake Cargelligo Rd, Tullibigeal	Water	36,433	Solar PV
Pump Station, Lake St, Lake Cargelligo	Water	29,805	Pump efficiency and demand response
Bore 3, Lachlan Valley Way, Lake Cargelligo	Water	29,234	Pump efficiency and demand response
Treatment Works, Lachlan St, Condobolin	Water	28,470	Pump efficiency and demand response
Sports Complex Cnr Orange/William St, Condobolin	Recreation	28,114	HVAC and solar PV
Bore 2, Lachlan Valley Way, Lake Cargelligo	Water	27,657	Pump efficiency and demand response
Tullibigeal Pump, Gubbatta Rd, Tullibigeal	Water	● 25,847	Pump efficiency and demand response
Caravan Park Residence, Diggers Ave, Condobolin	Residential	23,965	Hot water
Raw Water Pump Station, Lachlan St	Water	21,498	Pump efficiency and demand response
Happy Valley Caravan Park, Tullamore Rd, Tottenham	Residential	21,272	Hot water and solar
Sewerage Works, Minalong St, Tottenham	Sewer	18,331	
Stp, Blackers Road, Lake Cargelligo	Sewer	● 16,947	
Recreation Ground, Lake St, Lake Cargelligo	Recreation	15,095	Lighting efficiency and hot water
Sports Ground, Burgooney Rd, Tullibigeal	Recreation	14,009	Lighting efficiency and hot water
Burcher Dam, Bena St, Burcher	Water	13,140	Pump efficiency and demand response
Recreation Ground Pump, Lake St, Lake Cargelligo	Recreation	12,410	Pump efficiency and demand response
Library, 132 Bathurst St, Condobolin	Recreation	● 11,800	HVAC and batteries
Hacc Centre, 7 Melrose St, Condobolin	Recreation	● 11,761	HVAC and batteries
Library, 35a Foster St, Lake Cargelligo	Services	● 11,129	HVAC and batteries
Albert Tottenham, Unmetered Supply	Lighting	11,101	LED lighting installed
Lachlan Children Services, 35 Marsden St, Condobolin	Other	● 10,204	HVAC and batteries
Grace St, Lake Cargelligo	Other	9,808	
Vic - Lot 2, 9218 Lachlan Valley Way, Condobolin	Services	● 9,395	EV Charging
State Emergency Service, Marsden St, Condobolin	Services	8,974	
Bush Fire Brigade, Marsden St, Condobolin	Services	8,945	
Gum Bend Rd, Gum Bend Rd, Condobolin	Other	8,761	
Pumping Station, Officers Pde, Condobolin	Water	8,716	
Medical Centre, 3 Melrose St, Condobolin	Services	8,366	
Tottenham Racecourse, Racecourse Rd, Tottenham	Recreation	7,766	







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**LACHLAN SHIRE  
COUNCIL**

Wiradjuri Country