# Towards Net-Zero Emissions

## Annual Energy Review 2022-23


*A 100-kW solar PV system installed on the Ulladulla Civic Centre roof in 2023*

***Report prepared by Darren O'Connell, Andrew Truran & Pip Hildebrand***

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## Contents



# 1 Purpose

At the Shoalhaven City Council Strategy & Assets Committee meeting on 12 November 2019, it was resolved that Council "Endorse the preparation of Annual Energy Review reports to track Council's performance against energy and emission reduction targets established in Council's Sustainable Energy Policy." (MIN19.845).

The purpose of this report, which covers the 2022-23 financial year (FY2023), is to present an annual analysis of Council's energy consumption, document energy savings measures recently implemented and identify potential cost-effective measures for future energy efficiency and renewable energy investment. This report will also track performance of Council towards achieving its energy and emissions reduction targets set out in Council's adopted Sustainability and Climate Policy (POL22/177), which replaced the Sustainable Energy Policy in late 2022.

# 2 Introduction

Energy in the form of electricity, gas and vehicle fuel, is an essential resource for the effective operation of Shoalhaven City Council. Most of Council's current energy is derived from fossil fuels which are a costly and finite resource which also emit harmful greenhouse gases. From an economical and environmental perspective, it is critical that Council address its future energy needs and commence a strategic transition towards improved energy efficiency and use of more renewable energy. To guide this transition,

an annual review of Council's energy usage, greenhouse gas emissions and energy efficiency measures was conducted (***this report***).

# 3 Electricity Consumption

The supply of electricity to Council is delivered through three (3) main agreements:

| Supply Type | Site Consumption | Number of Sites | FY2023 Consumption (MWh) | FY2023 Total Electricity Spend |
|---|---|---|---|---|
| **Small Sites** | <100MWh per Year | ~570 | 5,618 | $1.202M |
| **Large Sites** | >100MWh per year | 55 | 27,476 | $5.481M |
| **Street lighting** | Unmetered | Aggregated | 3,700 | $877k* |
| **TOTAL** | | | **36,796** | **$7.561M** |

**Not including Street Light Use of System (SLUOS) charges (approx. $1.2M)*

Figure 1 shows the typical bill breakdown for Shoalhaven Council's Electricity Accounts. Only the energy costs are negotiable (contestable) through retailer agreements as the network and other charges are fixed.

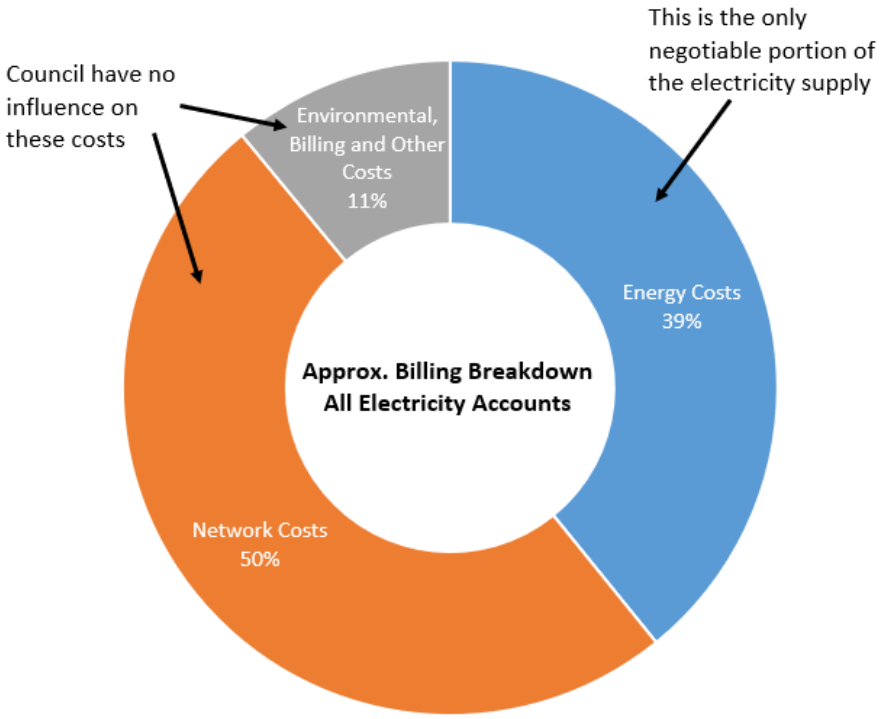



*Figure 1. Shoalhaven City Council's typical electricity bill breakdown*

In 2022-23, Shoalhaven City Council consumed 36,796MWh of electricity across its three supply types: Large Sites, Small Sites and Street Lighting, with a total electricity spend of $7.561M (excluding approx. $1.2M for the Street Light Use of System or SLUOS). Over half of Shoalhaven Council's electricity was consumed by Shoalhaven Water's wastewater (31%) and water supply (27%) operations (Figure 2). Wastewater processing ($2.4M) was more costly than water supply ($1.64M – Figure 3), with water

supply pumps typically able to operate during times of reduced electricity demand and hence lower costs i.e. solar peak and night time.

The majority of Shoalhaven's street lights are owned and operated by Endeavour Energy, and Council pays for the power that the lights consume (around $886K/pa, Figure 3). A Street Light Use of System (SLUOS) charge of approx. $1.2M per year is also paid by Council to Endeavour Energy, but this comprises costs mainly arising from the operation, maintenance and capital costs of the street lighting network, rather than electricity consumption. An accelerated LED street lighting replacement project commenced during 2020-21 which resulted in substantial energy savings to Council. The next stage, to upgrade public street lighting across the Shoalhaven LGA to 100% LEDs, has now commenced and is expected to be completed by Endeavour Energy by the end of 2023.

Council's Aquatic Centres and Holiday Haven tourist parks account for approximately 10% of Council's electricity costs with approximately $831K and $815K, respectively. Community facilities and Civic buildings and other small categories make up the balance of electricity costs (Figure 3).

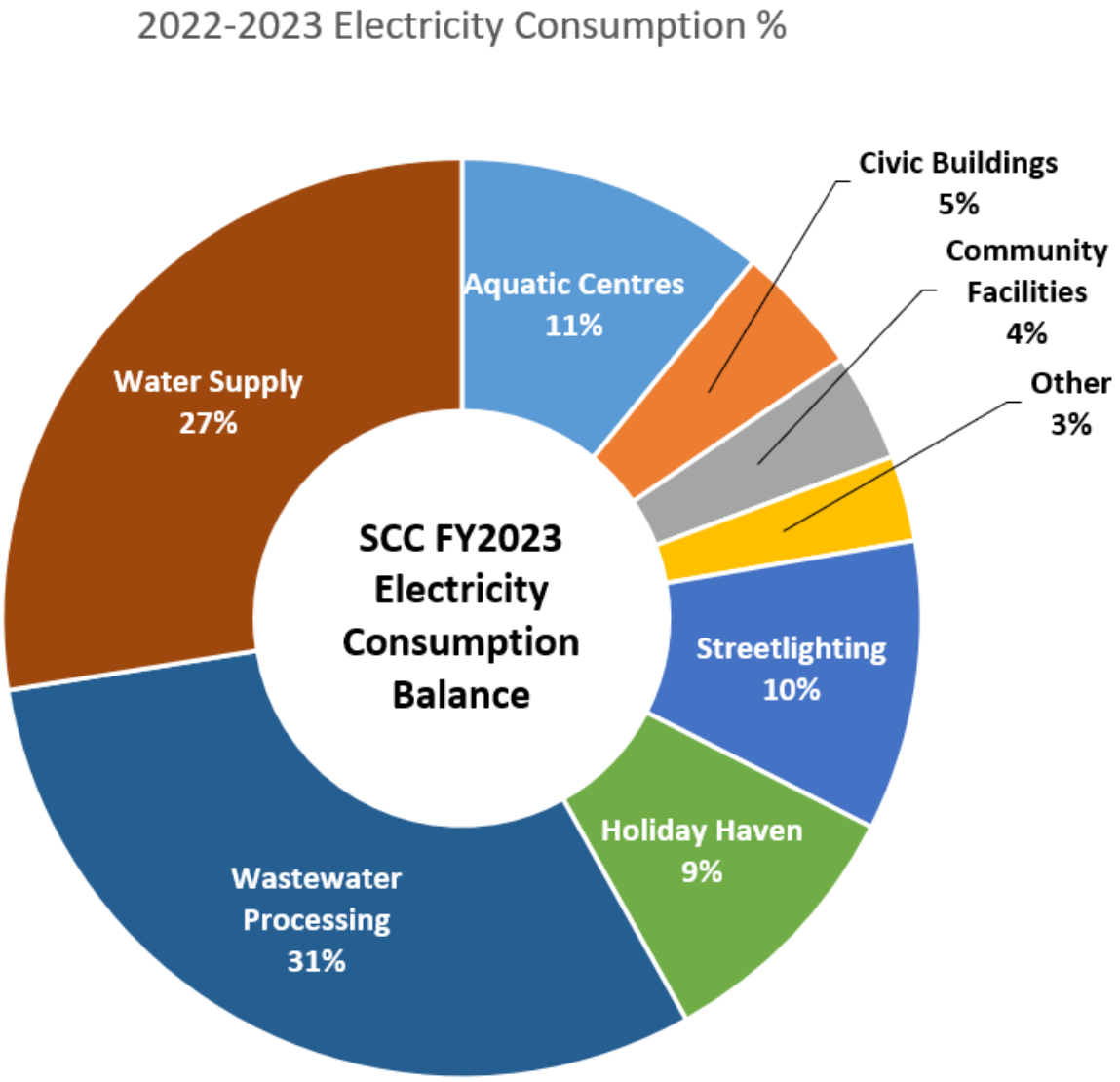



*Figure 2. Shoalhaven City Council's 2022-2023 electricity consumption % by functional areas*

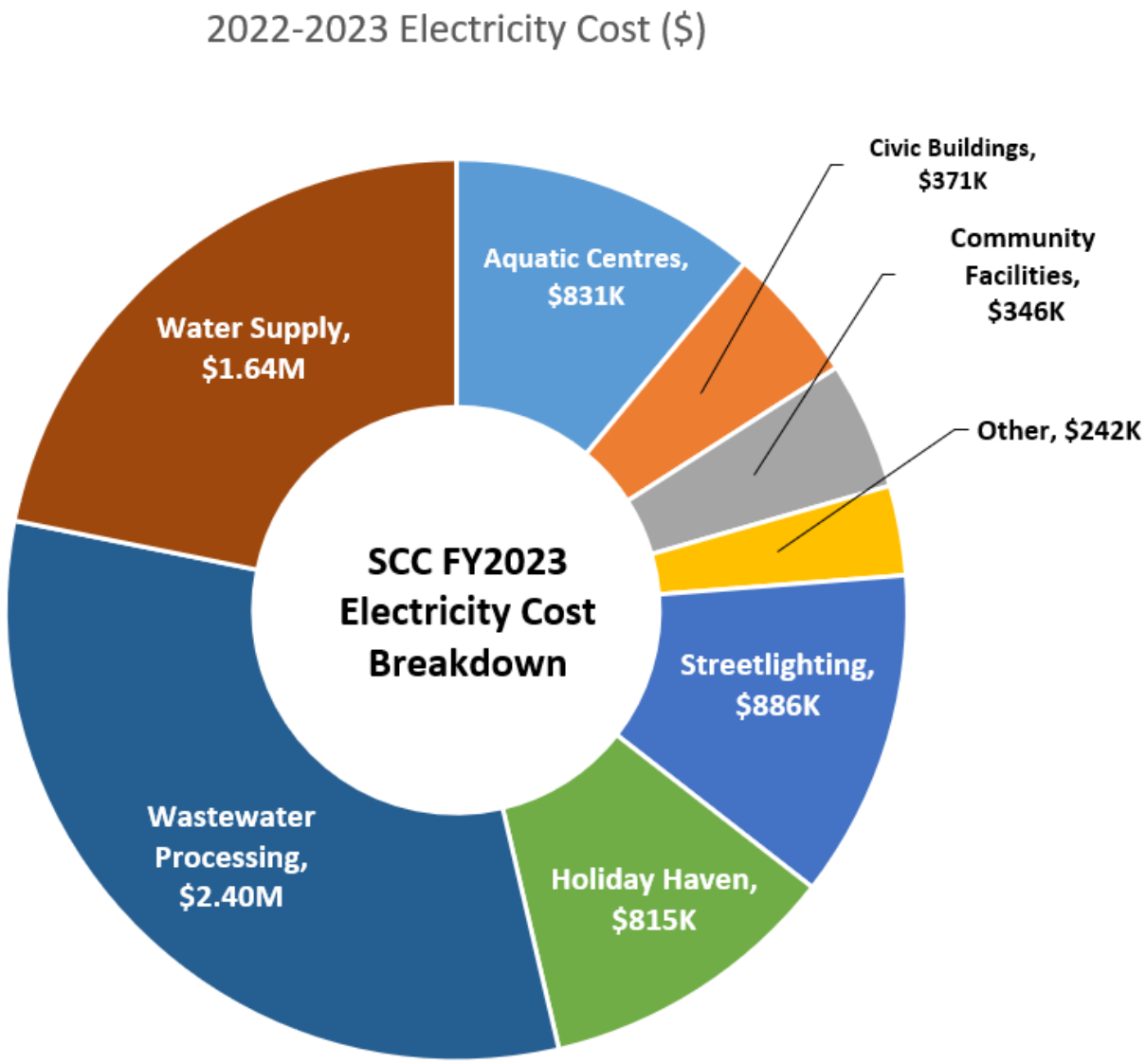



*Figure 3. Shoalhaven City Council's 2022-2023 electricity costs by functional areas.*

The annual electricity consumption breakdown into groups for all of Shoalhaven Council's assets for 2022-23, compared to previous years, is shown in Figure 4. Total electricity consumption has increased in 2022-2023 compared to the previous year, mostly due to Covid influences as operations returned to normal. Improved energy efficiency practices are encouraged at all sites to reduce electricity consumption, operating costs and corporate carbon emissions, potentially funded through Council's Revolving Energy Fund.

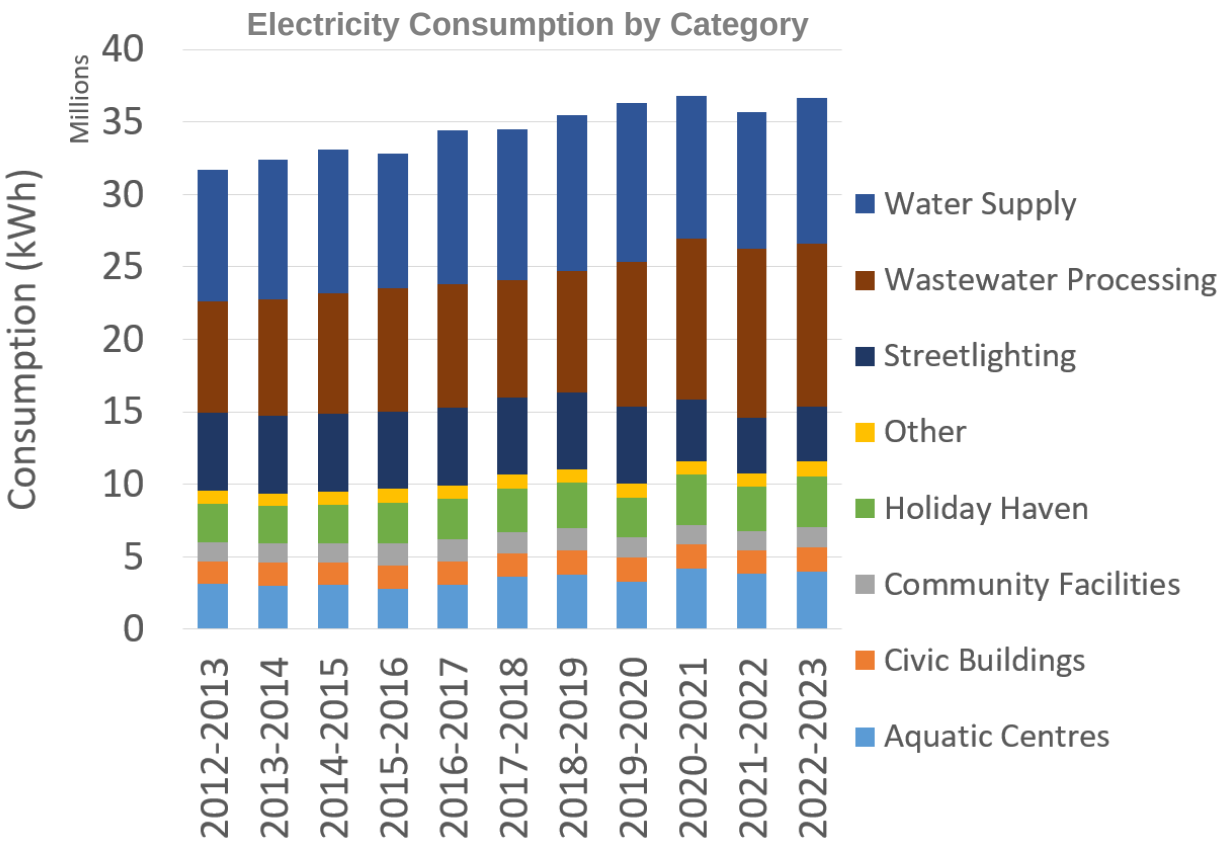



*Figure 4. Shoalhaven City Council's annual trend in electricity consumption by group category*

# 4 Fleet Fuel

Shoalhaven Council's fleet vehicle fuel consumption remained relatively stable over the past three financial years, with diesel transport fuel by far the most consumed resource (see Figure 5). Council had 2 BEV (Battery Electric Vehicle) fleet cars in 2022-23, both Hyundai Konas. Most small cars in Council's fleet are now hybrid vehicles, reducing fuel consumption compared to standard petrol cars. Most fleet cars and trucks are powered by diesel, as shown in the large volume of diesel purchased in 2022-23 (Figure 5).

Council is yet to own any publicly accessible EV chargers. Future work to attract third-party EV charging stations continues to take place with Charge Point Operators, whether these be fast DC chargers or 'destination' type AC chargers. Council has also been working with Endeavour Energy on a trial of power pole-mounted EV chargers to assist with EV street charging.

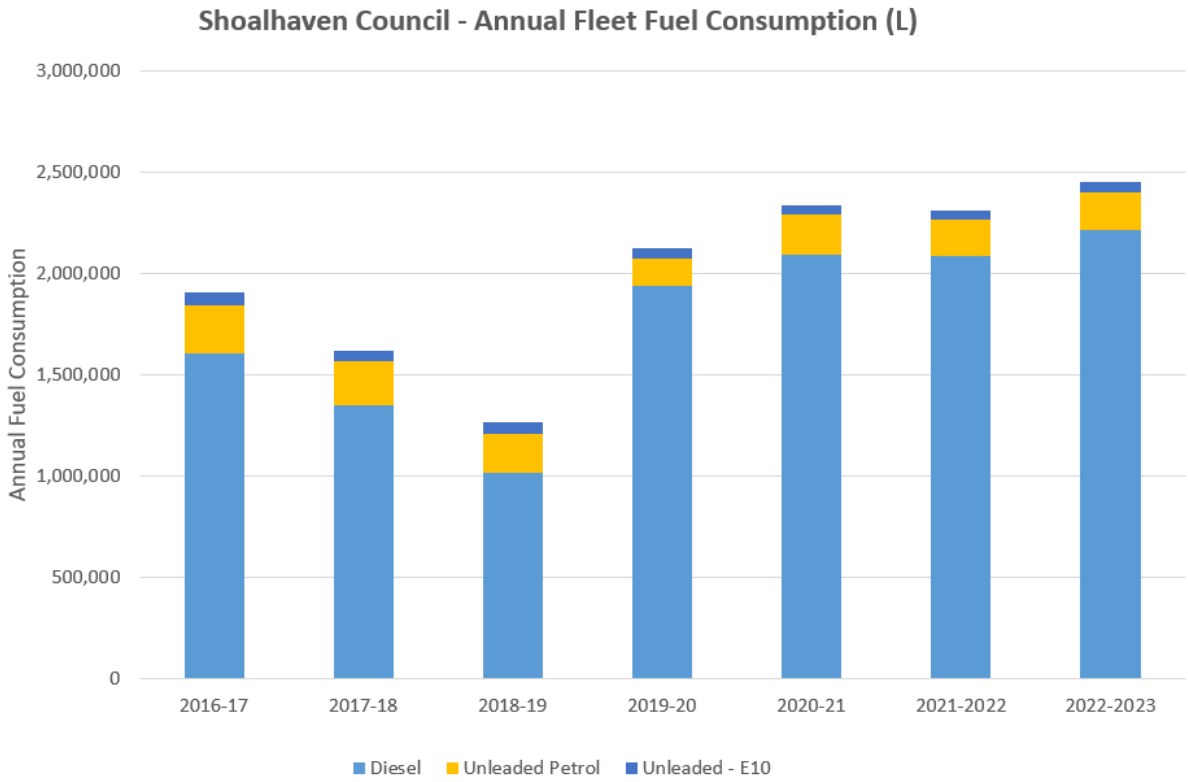



*Figure 5. Shoalhaven City Council's annual fleet vehicle fuel consumption*

# 5 Gas (Natural & Bottled LPG)

Natural gas is only supplied to Council assets in Nowra and north of the Shoalhaven River where the natural gas pipeline extends. Natural gas is supplied under a whole of NSW Government contract (Contract 4000 – Retail Supply of Natural Gas for Small Sites) by Origin. The contract extends through until 30 June 2025.

Council purchases LPG (bottled gas) under a whole of NSW Government supply contract (Contract 349 Liquified Petroleum Gas (LPG) Non-Automotive) with Origin. The contract extends through until 1 June 2025. Under this contract, the pricing for LPG supply is part-based on an international gas market price indicator, so it can fluctuate with supply/demand and market influences.

Tota gas use is down from the previous financial year overall, with an increase in natural gas consumption offset by a larger decrease in LPG bottled gas consumption (see Figure 6). Much of the bottled gas is consumed at Council's Holiday Haven Parks and Leisure Centres. It is recommended that these assets consider a move away from gas and electrify their equipment at the end of its working life, where practicable. This 'fuel switch' allows these appliances to be powered by renewable electricity (via the Large Sites renewable Power Purchase Agreement) and therefore reduce emissions and running costs.

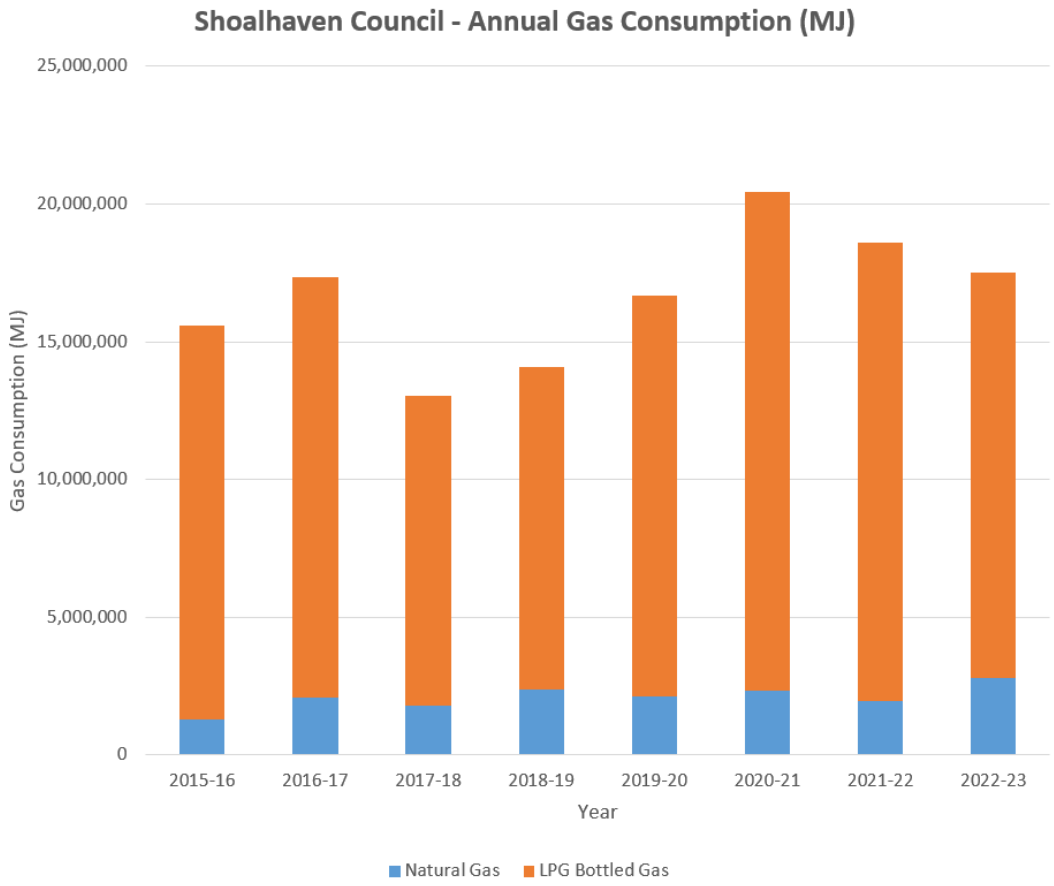



*Figure 6. Shoalhaven City Council's annual natural gas and LPG bottled gas consumption*

# 6 Emissions targets

Shoalhaven City Council adopted a Sustainability and Climate Policy (POL22/177) on 28 November 2022. The purpose of this Policy is to outline Council's commitment to protect and nurture our natural environment, address climate change, and enhance the quality of life for current and future generations.

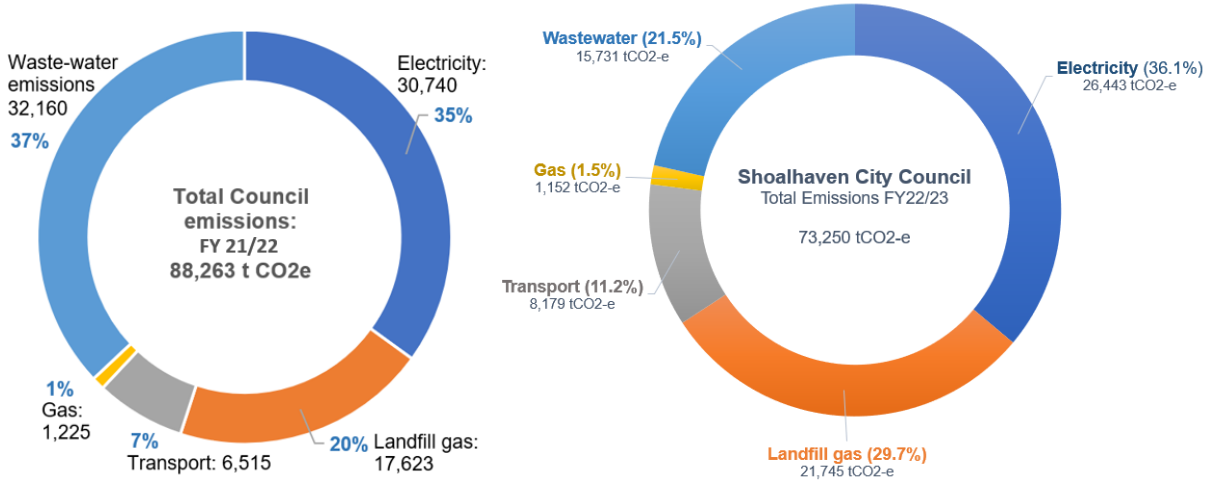
The new Policy established a key target for Council to achieve net zero greenhouse gas emissions across Council operations by 2035, with an interim target to reduce emissions by 50% by 2028, compared to 2020 levels.

As outlined in the Policy, Council has committed to monitor progress toward achieving this target through annual reports. The Policy also committed to the preparation and implementation of a responding Sustainability and Climate Action Plan to identify priority projects and assist in meeting the objectives of the Policy. The Sustainability and Climate Action Plan was approved by Council's Executive Management Team on the 7th November 2023.

This report primarily focuses on reporting progress towards Council's adopted emissions target. Moving ahead, annual reports on the delivery of Council's Sustainability and Climate Action Plan will be prepared, encompassing all aspects of the Action Plan and associated Policy objectives.

## 6.1 Progress in Reducing Emissions

Shoalhaven City Council's operations emitted a total of **73,250 tonnes** of greenhouse gases (carbon dioxide equivalents or CO2-e) in 2022-23 (Scope 1, 2 & associated Scope 3 emissions). Between FY 21-22 and FY 22-23, Council's annual emissions **reduced by 17%** from 88,263 tCO2-e, showing significant progress towards advancing Council's target – see charts below. This reduction can be attributed to a number of factors, including a reduction in electricity emissions as a result of renewable energy procurement through the new Power Purchase Agreement (PPA), as well as improvements in wastewater emissions calculations.




In 2022-23, Council's ***purchased electricity*** contributed the highest emissions with just over one-third (36%) of Council's total annual corporate greenhouse gas emissions (Figure 7). Despite having 1271 kW of installed solar panels across 58 Council owned and operated assets, generating around 1,675,000 kWh per year, this renewable energy supplies only a small portion of Council's total electricity needs. The remainder of Council's electricity used in 2022-23 is mostly generated from coal or gas-fired power stations which results in greenhouse gas emissions due to the combustion of these non-renewable fossil fuels.

Under new electricity contracts from Jan 2023, Shoalhaven Council is purchasing 25% renewable electricity in 2023 and 2024, increasing to 50% renewables from 2025 for its Large Sites and Street Lighting. Under the agreement, Shoalhaven Council will purchase renewable electricity from wind and solar farms in regional NSW to cover the operation of large facilities including pools, administration buildings, street lighting and treatment plants. The arrangements will see renewable energy added to the grid on behalf of Council, offsetting energy use through the purchase of Large-scale Generation Certificates.

Methane emissions from the Council-operated landfill at West Nowra generated the second largest amount of equivalent greenhouse gas emissions at 30%, despite some additional flaring of the gas for emissions reduction purposes. Methane and nitrous oxide emissions from wastewater and sludge at Council's 13 wastewater treatment plants were the third highest source of greenhouse gas emissions at 21% in 2022-23. Fleet transport fuels (i.e. diesel and petrol) and gas for stationary energy (both natural

gas and LPG) make up the remaining 13% of Council's corporate carbon emissions profile.

# **Note** The large reduction is wastewater emissions recorded between 2021-22 and 2022-23 are the result of more accurate and improved greenhouse gas calculations. The calculator supplied to Council from the National Performance Reporting scheme to analyse emissions from wastewater treatment plants has incorporated more parameters, such as sludge transferred out of the facility, to produce a more accurate figure.

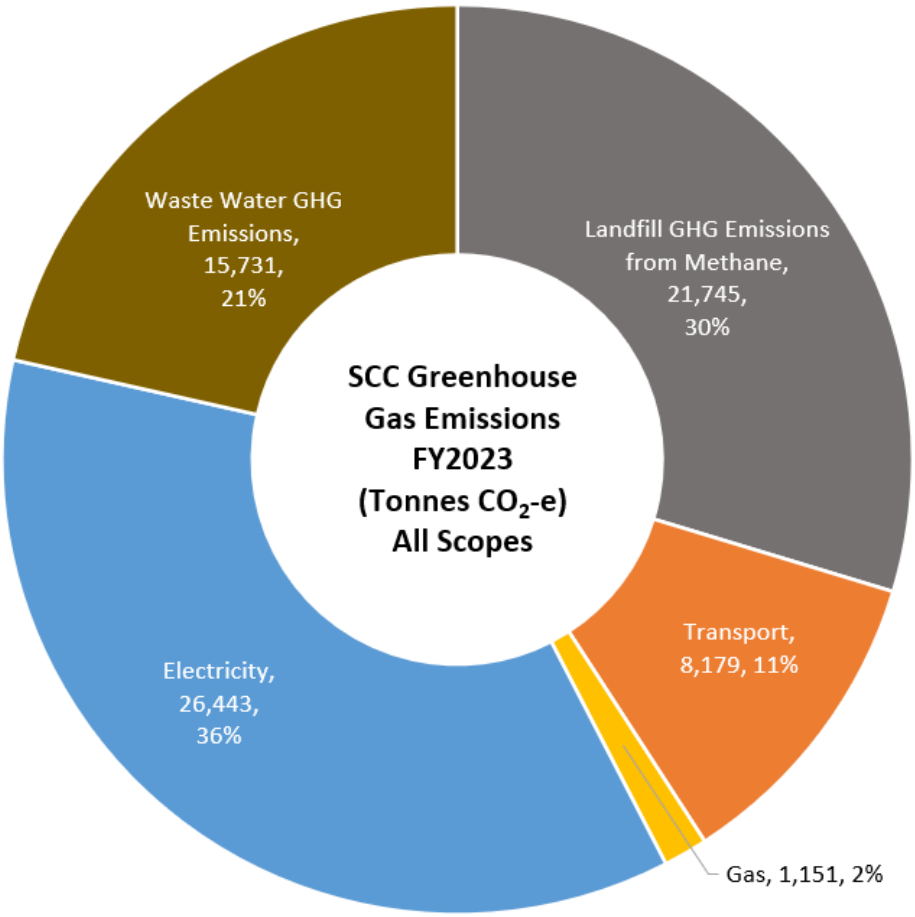
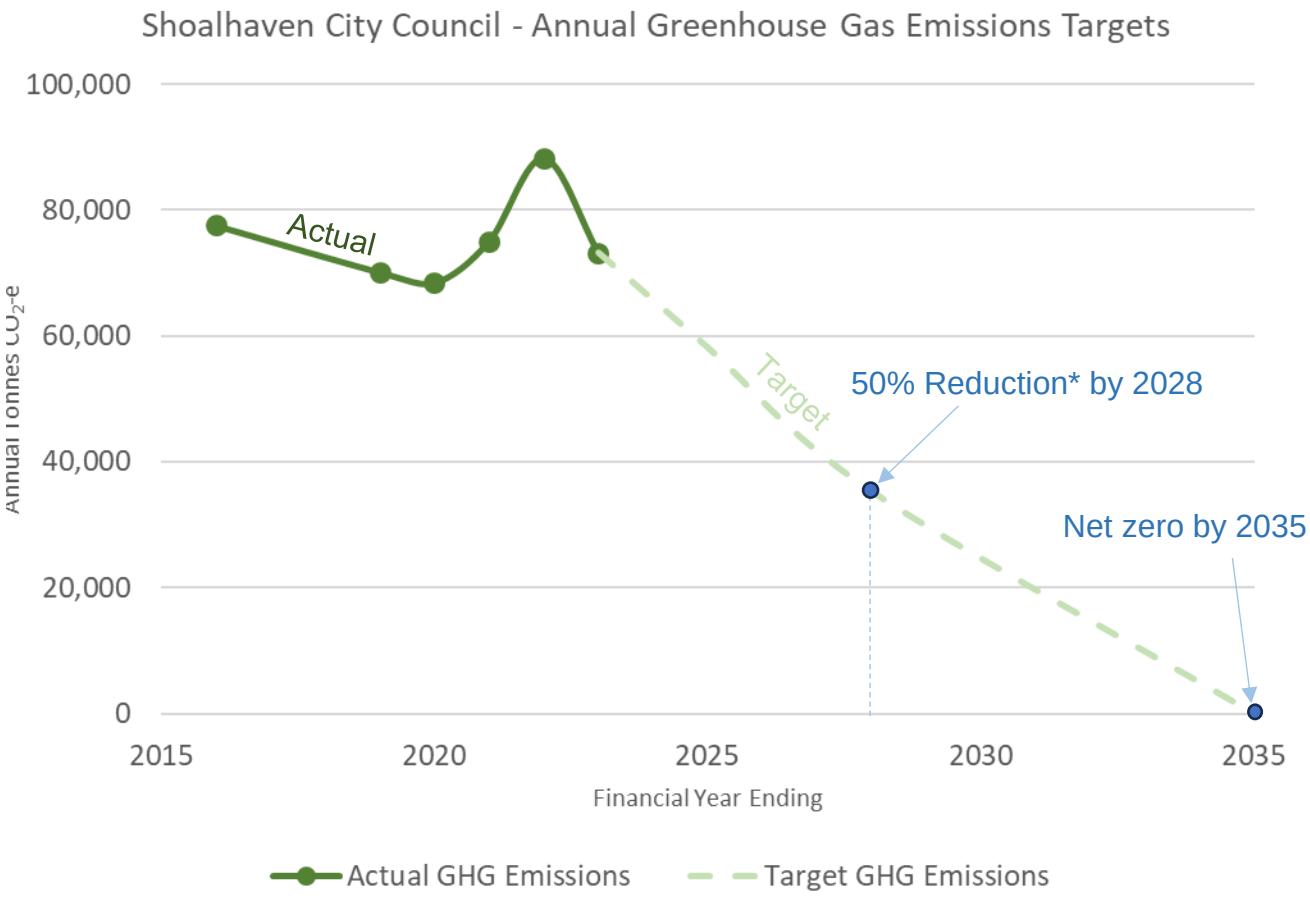



*Figure 7. SCC corporate GHG emissions (from all scopes: 1,2 and 3) for 2023-2023*

Figure 8 shows Council's corporate greenhouse gas emissions for the 2015 baseline year, most recent years and emissions targets for 2028 and 2035. Although on a steady decline since 2016-2017 for a few years, emissions then began climbing in more recent years before reducing for 2022-23. Much of the recent years increases was due to Scope 1 direct emissions from both wastewater treatment plants and landfill gases. Some of this was due to the calculation method/formula and not strictly an increase in carbon emissions from these sources. Notwithstanding this, it will take a great effort in all areas to actively reduce greenhouse gas emissions from Council's operations to achieve Council's net-zero emissions and interim carbon reduction targets.




**Relative to 2020 emissions levels*

*Figure 8. SCC's actual corporate greenhouse gas emissions to 2022-23 and projected targets*

# 7 Cities Power Partnership

Shoalhaven Council is a member of the national Cities Power Partnership (CPP) program. Under the CPP, each member Council makes five action pledges in either renewable energy, energy efficiency, transport or working in partnership to tackle climate change. Progress on the pledges is reported back to the CPP every 6 months. Shoalhaven Council updated and refreshed its 5 pledges in mid-2020 and progress on these pledges has been outlined in Table 1.

**Table 1: Progress update on Cities Power Partnership Pledges made by Shoalhaven Council**

| CPP Pledge | 2022-23 Progress Update |
|---|---|
| 1. Use council resources to support the uptake of renewable energy | There was one new 100 kW solar PV system installed at Ulladulla Civic Centre in 2022-23 (shown below). Eleven solar PV systems operated by Shoalhaven Water were maintained in 2023 by way of a deep clean of the solar panels and electrical check. This improved solar generation by 10% on average. |
| 2. Facilitate large energy users' collectively tendering and purchasing renewable energy at a low cost | Shoalhaven Council lead a joint tendering activity with Kiama and Shellharbour Councils for the supply of renewable electricity for Large Sites and Street Lighting. The successful electricity retailer was Flow Power and all 3 Councils executed contracts with them for electricity supply under a Power Purchase Agreement from 2023-2030 inclusive. Shoalhaven will buy 25% renewables in 2023 and 2024, then increase to 50% renewables from 2025 onwards. Additional renewables (LGCs) are expected to be bought post-2025 depending on market pricing to eventually achieve 100% renewables. |
| 3. Adopt best practice energy efficiency measures across all council buildings, and support community facilities to adopt these measures | Energy Ready analyses were completed on all Large Sites to identify energy savings opportunities. Under the Recovery into Resilience project, the 25 community assets that were fitted out in 2021-22 as Local Info Hubs with 10kW solar PV systems, a Tesla Powerwall battery and a generator connection point, operated well, including during grid outages. |

| | |
|---|---|
| 4. Roll out energy efficient lighting across the municipality | Shoalhaven Council approved capital funding to engage Endeavour Energy to complete the 100% LED street lighting upgrade, expected to be completed by the end of 2023. It follows on from the large LED street lighting upgrade in 2020-21 in which 32% of Council's residential street lights were replaced with energy savings LEDs. |
| 5. Ensure Council fleet purchases meet strict greenhouse gas emissions requirements and support the uptake of electric vehicles | Council continued its trial of some fully electric vehicles (EVs) throughout 2022-23 and now exclusively offer hybrid cars in the small car fleet range. Some steps were taken to encourage investment in EV chargers in the region as part of NSW Government programs. |

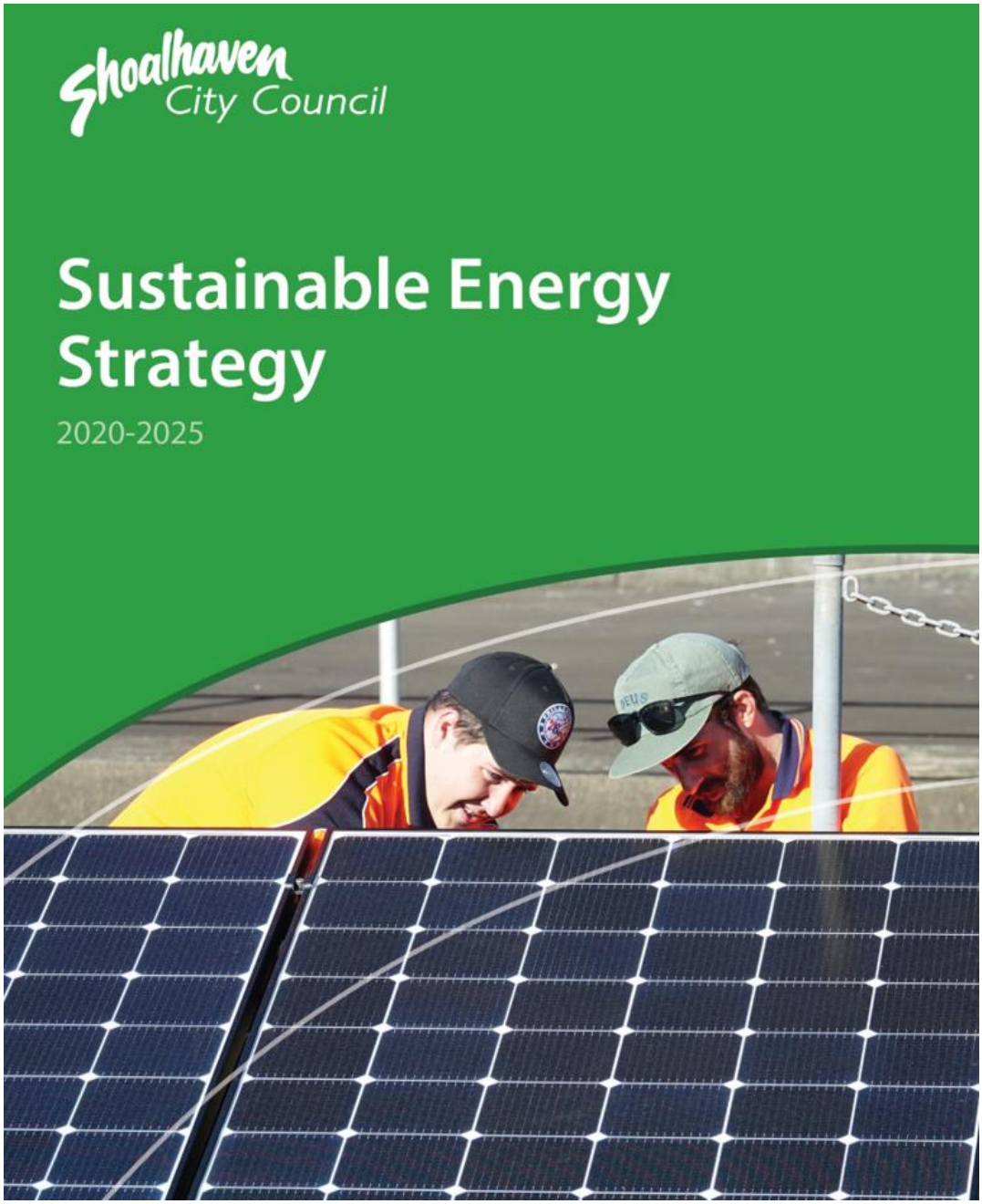
# 8 Sustainable Energy Strategy 2020-2025

Shoalhaven Council will support its Sustainability and Climate Policy and associated Action Plan by implementing its approved Sustainable Energy Strategy 2020-2025. The Sustainable Energy Strategy remains current through to 2025 and identifies priority initiatives to achieve the following objectives:

- ***Cleaner Energy***: Transition to cleaner (lower emissions), more sustainable and more affordable energy sources.
- ***Less Energy***: Reduce the energy requirement for Council by maximising energy efficiency in all aspects of Council's operations.
- ***Measuring and Monitoring Energy***: Ensure systems, processes and expertise are in place to measure, monitor and manage energy consumption and renewable electricity generation effectively.
- ***Demonstration of Leadership***: Council will 'lead by doing' to encourage the local community and businesses to also transition to a more resilient, reliable and renewable energy future.

The Sustainable Energy Strategy outlines a range of measures that Shoalhaven Council intends to implement to better manage its energy requirements over the next few years to 2025. The Strategy incorporates comprehensive baseline energy and emissions data, Council's current corporate commitments, and identifies funding opportunities, such as Council's internal Revolving Energy Fund.

Progress on the initiatives in the Strategy during 2022-23 is outlined in Table 2.


Shoalhaven City Council
Sustainable Energy Strategy
2020-2025

## 8.1 Energy efficiency and demand management

**Table 2: Progress and performance against Shoalhaven Council's Sustainable Energy Strategy 2020-2025 initiatives**

***PERFORMANCE KEY -*** ***X Minimal or no progress*** ***▲ Some progress but could do better*** ***✓ On track to achieve*** ***? Unknown***

| ENERGY INITIATIVE | PROGRESS in 2022-23 | PERFORMANCE |
|---|---|---|
| Upgrade aged Heating, Ventilation and Air-conditioning (HVAC) systems in Council's main administrative and community buildings for significant energy savings | Both the Shoalhaven Regional Gallery and Nowra Admin Centre have had their HVAC systems upgraded. Additional assets to be identified for energy savings opportunities. | ▲ |
| Work in collaboration with Endeavour Energy to further upgrade Shoalhaven LGA public street lighting to energy saving LED lights | Stage 2 to replace 100% of Council's public street lights to LEDs commenced in late June 2023. The $2.65M capital funding enables Endeavour Energy to replace the remaining 4,435 non-LED street lights with energy efficient LEDs. The project will generate Energy Savings Certificates to the value of approx. $750,000 (market variable) to offset the total cost of this project to Council. By early August 2023, around 1,000 of the 4,435 lights had already been replaced with LEDs. The project is expected to be completed by the end of Dec 2023. | ✓ |
| Upgrade of Council building, parks and sporting field/court lighting to energy saving LED lights and smart lighting controls | Energy savings LED flood lighting upgrades were commenced/completed in 2023 at several Council assets including:<br>• South Nowra Soccer Fields 4 & 5 – completed August 2023.<br>• Crookhaven Park Soccer Fields – to be completed by 21-12-2023.<br>• Kangaroo Valley Showground – to be completed by 21-12-2023. | ✓ |
| Installation and maintenance of Power Factor Correction (PFC) units to reduce maximum network demand charges | It is unclear whether routine maintenance and inspections of PFC units at Council's Large Sites is taking place. PFCs units must be checked by a licenced electrician on a regular basis to ensure they are fully operational. The unit capacitors have a finite life and may not give any apparent warning when they fail. This can result in a loss of savings and unnecessary damage to existing equipment. | ▲ |
| Load shifting of major electrical loads outside critical time slots to avoid excessive network demand charges | As demand charges can make up to one-third of the total electricity bill amount it is important that Large Sites avoid high electricity loads between 4pm and 8pm on working days. Burrier Water Pumping Station, with its energy efficient pumping schedule, has been particularly strict on avoiding these peak demand | ✓ |

| ENERGY INITIATIVE | PROGRESS in 2022-23 | PERFORMANCE |
|---|---|---|
| | periods throughout 2022-23 and therefore averting the $15,000 maximum demand monthly charge. Avoiding the peak periods will also save costs on Council's retail electricity for Large Sites for which around 30% of the electricity price is based on the wholesale spot market. | |
| Energy efficiency measures for Council assets to reduce excessive base load electricity | Nowra Administration Centre continues to have a very high after-hours electricity baseload of around 35 kW. The building's daily electricity load also ramps up to around 150 kW at approx. 5am, presumably when the cleaners arrive and the central air-con system is set to switch on automatically. Further energy investigations are required on this asset to reduce overall power consumption and running costs. This is particularly important for cost savings from 2023 onwards when the cost of electricity for Large Sites increased dramatically compared to past power pricing. | X |
| Purchase energy efficient plant and equipment for new installations (use the Energy Rating Label, where applicable, the more stars the more energy efficient) | This initiative is difficult to track as it relies on all staff selecting energy efficient appliances in their procurement projects. | ? |
| Consider 'load shedding' opportunities for suitable sites | Load shedding or 'powering down' high electricity consuming sites such as water pumping stations during times of peak demand for reimbursement is organised through an energy retailer such as Flow Power. Since Jan 2023, Shoalhaven Water has signed up to the Reliability and Emergency Reserve Trader (RERT) scheme for its water pumping assets. For Burrier WPS and some other water pumping stations that can be operated with some flexibility, they can be powered down or off if possible, when a RERT event is called. The asset owners are paid during the RERT event for helping stabilise the grid during critical power supply periods. | ✓ |
| Fuel efficiency to be one of the criteria in the tendering and selection of Council trucks, cars and heavy plant | Fleet services has been active in sourcing fuel efficient vehicles for leaseback and pool cars. There are currently 2 fully electric vehicles and 1 plug-in hybrid within Council, as well as many standard hybrids. The smaller cars on Council's leaseback list are now mostly hybrids. |  |
| Council's Aquatic Centres to adjust pool heating settings for improved energy efficiency and to reduce maximum network demand charges | With pool heating (particularly for outdoor pools) being one of the highest electricity consuming processes for Council, avoiding high power loads during peak demand periods (from 4pm to 8pm on working days) is critical to lowering electricity bill charges. Further investigation is warranted particularly now that electricity pricing for Large Sites has increased dramatically. A recent Energy Ready audit by Flow Power found numerous Council pools could improve their demand profile by load shifting energy-intensive pumps/heating outside of peak spot market periods for substantial cost savings. |  |

| ENERGY INITIATIVE | PROGRESS in 2022-23 | PERFORMANCE |
|---|---|---|
| Investigate energy savings solutions for Burrier Pumping Station on the Shoalhaven River | Burrier Water Pumping Station (WPS) uses by far the most electricity of any Shoalhaven Council asset every year. Demand management has been well practiced by Shoalwater staff to avoid maximum demand charges which are costly (~$15,000/month) for this Large Site. Additional energy efficiency and demand management opportunities were investigated for Burrier WTP as part of Flow Power's Energy Ready service. The timing of pumping will be further refined in 2023 to minimise the cost of pumping for this asset. The substation was upgraded at this site in mid-2023. | ✓ |

## 8.2 Fuel Switching

| ENERGY INITIATIVE | PROGRESS in 2022-23 | PERFORMANCE |
|---|---|---|
| Transition Council's fleet vehicles to hybrid or fully electric vehicles (EVs) where fit for purpose, cost-effective and rechargeable from renewable energy sources. | Fleet services has been active in sourcing fuel efficient vehicles for leaseback and pool cars. There are currently 2 fully electric vehicles and a plug-in hybrid within Council, as well as many standard hybrids. The smaller cars on Council's leaseback list are now mostly hybrids. | ▲ |
| Installation of Council-owned electric vehicle (EV) charging stations in strategic locations across the Shoalhaven LGA. | As stated in Council's Electric Vehicle Charging on Public Land Policy, it is not considered Council's core business to own or manage EV charging infrastructure, however Council can support the installation of charging infrastructure on Council land through a leasing arrangement with a charge point operator. As such, no Council-owned electric vehicle (EV) charging stations exist in the Shoalhaven LGA. Council has been successful under a NSW Government scheme to attract an EV charger company to install a fast EV charger in Ulladulla. The proposed charging station received community support during public consultation, and licensing discussions are progressing with the CPO, with approval expected to be sought from Council to advance the license in early December. Type 2 EV chargers are also being considered for some Holiday Haven Parks as 'destination chargers', along with power pole-mounted chargers. | X |
| At the end of their working life, replace gas hot water systems on Council owned assets with heat pumps or solar hot water. | Gas (both natural mains gas and bottled LPG) is a very expensive fuel for heating and cooking and the carbon emissions from gas appliances cannot be easily negated. With the aim to 'electrify everything', no more gas appliances should be installed at Council | X |

| ENERGY INITIATIVE | PROGRESS in 2022-23 | PERFORMANCE |
|---|---|---|
| | assets. Electric appliances can be powered by renewables (either on-site or off-site through retail electricity contacts) and are therefore the best choice for new builds and renovations of Council facilities. Ulladulla Leisure Centre is being reviewed for replacement of gas appliances with more energy-efficient electric heat pumps, in anticipation of applying for a grant under the Australian Government's Community Energy Upgrade fund in 2024. | |

## 8.3 On-site Renewable Energy

| ENERGY INITIATIVE | PROGRESS in 2022-23 | PERFORMANCE |
|---|---|---|
| Install solar PV systems on suitable Council-owned assets (rooftop or ground-mounted) where the business case is favourable to generate daytime electricity. | There was one new 100 kW solar PV system installed at Ulladulla Civic Centre in 2022-23 (shown below). Eleven solar PV systems operated by Shoalhaven Water were maintained in 2023 by way of a deep clean of the solar panels and electrical check. This improved solar generation by 10% on average.<br>  | ✓ |

| ENERGY INITIATIVE | PROGRESS in 2022-23 | PERFORMANCE |
|---|---|---|
| Battery storage to be incorporated with solar PV installations where an asset's energy and load profile suits and the business case is favourable. | Storage batteries remain relatively expensive and tend to be utilised where they offer numerous benefits such as backup electricity supply during grid outages. Several community halls throughout the Shoalhaven LGA have been fitted out with Tesla Powerwall batteries to supply secondary power during grid outages, as part of the Recovery into Resilience project. Further investigation into battery suitability for Large assets like Aquatic Centres is warranted to avoid high spot market pricing events. | ▲ |
| Council continues to implement landfill gas methane flaring at its primary landfill facility at West Nowra. | Council's West Nowra Landfill site flared off the captured methane gas emanating from the waste cells during 2022-2023. Total biogas captured in the 2023 financial year was 7,631,695 m3 – approx. half of which is methane gas. Total carbon abatement from biogas captured in the 2023 financial year was 72,483 t CO2-e. Operation of the landfill gas generation facility by LGI Ltd to turn the biogas into renewable energy to feed into the grid is under development.<br>  <br>*The landfill biogas flare at West Nowra landfill.* | ✓ |
| Continue investigations into a mid-scale solar farm (<5 MW capacity) on the Callala Wastewater Treatment Plant site to generate renewable energy to meet some of Council's future electricity needs beyond 2025. | Flow Power commenced preliminary investigations into unused land at the Callala WWTP for potential use as a 3 MW solar farm. The site was found to be habitat of the threatened Green and Golden Bell Frog and would therefore require biodiversity offset credits to be paid for developing the land. Flow Power determined that this additional cost was unviable and therefore are not pursuing this site any further for their solar farm. The new electricity contracts between Flow Power and Shoalhaven Council from 2023 include the opportunity for the development of 2 new solar farms in the region by Flow Power. The disused North Nowra Tip Site was also identified but being Crown land has some additional administration requirements, including a Plan of Management to be | X |

| ENERGY INITIATIVE | PROGRESS in 2022-23 | PERFORMANCE |
|---|---|---|
| | prepared and approved, before it can be used for a solar farm. Shoalhaven Council intend to buy renewable electricity from these new solar farms as part of its electricity contracts with Flow Power should they eventuate. | |

## 8.4 Off-site Renewable Energy

| ENERGY INITIATIVE | PROGRESS in 2022-23 | PERFORMANCE |
|---|---|---|
| Develop and implement a corporate Power Purchase Agreement (PPA) to source renewable energy off-site (e.g. solar/wind farms) to achieve Council's adopted renewable energy targets. | Shoalhaven City Council partnered with Shellharbour and Kiama Councils (the Participating Councils) to lead a joint tendering activity for the long-term (8-years) supply of retail electricity for Large Sites and Street Lighting. The tender was awarded to Progressive Green Pty Ltd T/as Flow Power and commenced on 1 Jan 2023. The Power Purchase Agreement supplies 25% renewable power in 2023 and 2024, increasing to 50% renewable from 2025 until the end of the contract term. Additional Large-scale Generation Certificates (LGCs) are proposed from 2025 to achieve 100% renewable electricity for all Council assets. | ✓ |
| Encourage local community renewable energy uptake for rooftop solar PV and storage batteries for residents and businesses in the Shoalhaven via Council-run:<br><br>- Education and information programs;<br>- Renewable energy bulk-buy programs. | Solar PV installations have risen to 31% of dwellings in the Shoalhaven LGA, compared to 18% in 2018. This is not far from achieving the original Sustainable Energy Policy target of 33% of dwellings by 2025. A Solar and Battery 101 public workshop was delivered to assist the community with this technology. Repower Shoalhaven delivered another community workshop on behalf of Council titled 'Electrify Everything' to encourage community uptake of EVs, heat pumps and 'getting off the gas'.<br><br>Shoalhaven Council has subscribed to the Australian Photovoltaic Institute (APVI) SunSpot tool which allows Shoalhaven residents and businesses to check on the suitability of their rooftops for solar PV systems. | ✓ |
| Work with Shoalhaven community groups proposing large scale community energy projects in the region. | Council staff worked with Repower Shoalhaven and Flow Power on their large solar farm completed in Dec 2021 on Council's old sanitary depot site at South Nowra. Council has also been liaising with Innovating Energy on their proposal for | ✓ |

| ENERGY INITIATIVE | PROGRESS in 2022-23 | PERFORMANCE |
|---|---|---|
| | a biogas plant that would generate renewable power from primarily dairy farm manure. | |
| Participate in emerging energy technologies, such as battery storage, microgrids, embedded networks and Virtual Power Plants (VPP), where opportunities arise and if they support Council or the community's economic, social or environmental outcomes. | Council has embraced the installation of several Tesla Powerwall batteries as part of its fit-out of 25 community halls with secondary power systems for Community Information Hubs. Work has also taken place with Endeavour Energy on their project to create a microgrid with a community battery for Kioloa and Bawley Point villages. | ✓ |

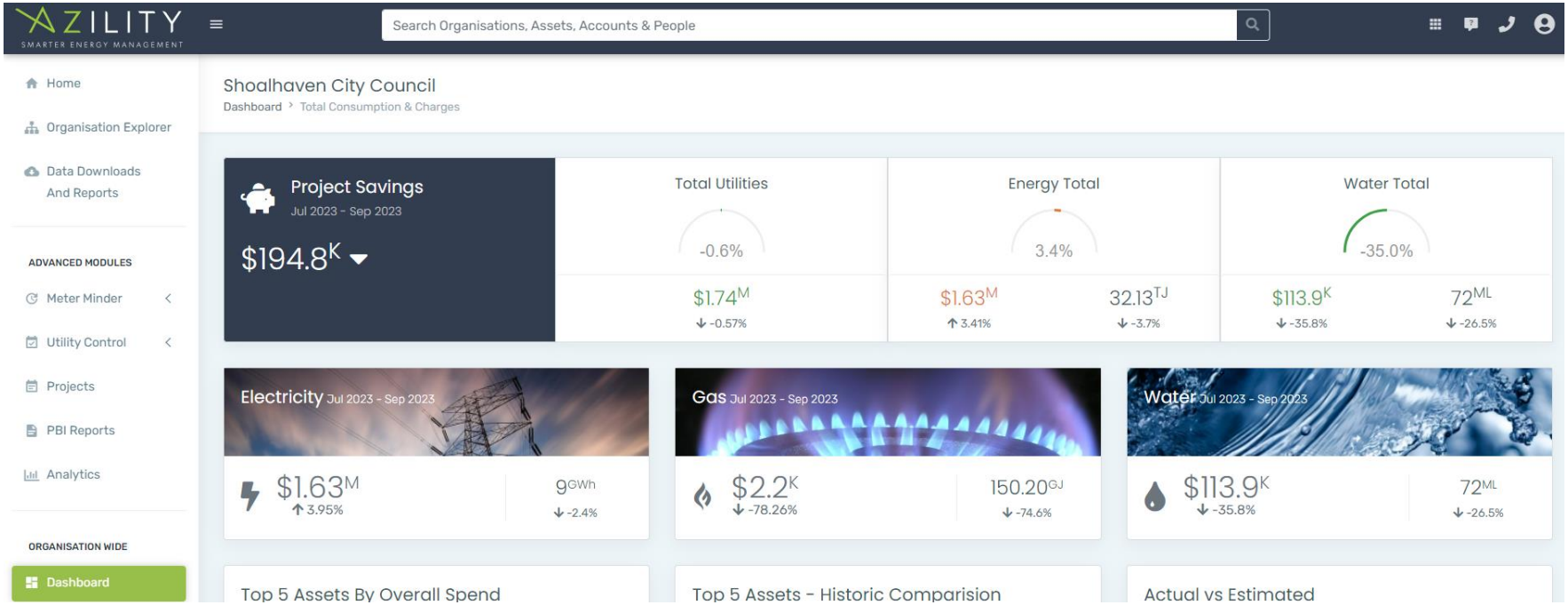
## 8.5 Carbon Offsets

| ENERGY INITIATIVE | PROGRESS in 2022-23 | PERFORMANCE |
|---|---|---|
| Afforestation projects – carbon sinks | Carbon offsets are not required at present to achieve Council's adopted emissions targets. There have been some preliminary discussions with Council's Enviro Services around 'blue carbon' and working with Greening Australia to explore council owned land that would be suitable for local offsetting. | N/A |

## 8.6 Resourcing, Implementation & Expertise

| ENERGY INITIATIVE | PROGRESS in 2022-23 | PERFORMANCE |
|---|---|---|
| Employ an Energy Manager to coordinate, communicate and implement Council's sustainable energy policy, strategy and plans. | An Energy Management Coordinator contractor has been engaged by Council to implement its sustainable energy strategy, and to project manage and coordinate energy efficiency, renewable energy, energy accounts and electricity tendering projects. | ✓ |
| Maintain Council's Revolving Energy Fund (REFund) to provide future funds for high priority energy efficiency and renewable energy projects. | The REFund has continued and funded projects with the most recent being a 100kW solar PV system installation at the Ulladulla Civic Centre. Additional funds are available in the REFund for more energy efficiency or renewable energy projects. | ✓ |

| ENERGY INITIATIVE | PROGRESS in 2022-23 | PERFORMANCE |
|---|---|---|
| Identify and seek funding and financing to implement priority energy savings projects with solid business cases. | Council will be accessing the NSW Energy Saver Scheme for claiming Energy Savings Certificates to reduce costs for the 100% LED street lighting upgrade. | ✓ |
| To track progress towards its energy and emissions targets, Council will prepare an Annual Energy Review in October every year to publish the previous financial year's energy consumption and greenhouse gas emissions data. | This 'Annual Energy Review' (***this report***) documents performance against both the Sustainability and Climate Policy targets and gauges implementation of the Sustainable Energy Strategy. | ✓ |
| Calculate and report on Council's greenhouse gas emissions using acceptable methodology and protocols. | Council uses the *National Greenhouse & Energy Reporting* (NGERS) scheme methodology to calculate and report on its annual carbon emissions sources. | ✓ |
| Maintain membership to the Climate Council's national Cities Power Partnership (CPP) program and continue implementing pledges under the program. | Council continues to implement its revised pledges under the CPP (see Table 1 above). Shoalhaven Council entered and won the Battler Award at the 2023 National Climate Awards hosted by the CPP. This award recognised that Shoalhaven Council has demonstrated the true spirit of resilience and is battling hard to improve its resilience to climate impacts and to ensure its community is better prepared for the future.  | ✓ |
| Maintain access to an online dashboard energy portal to access and monitor all energy and emissions data, monitoring, reporting and billing. | Azility continues to be well utilised by Council's energy and accounts staff for energy monitoring and billing (see Dashboard screen shot below). Any staff can access the Azility platform via a password, if required. Flow Power also offer a dashboard for monitoring Live Data through their kWatch controllers at all Large Sites. | ✓ |


AZILITY
SMARTER ENERGY MANAGEMENT
Search Organisations, Assets, Accounts & People
Home
Organisation Explorer
Data Downloads And Reports
ADVANCED MODULES
Meter Minder
Utility Control
Projects
PBI Reports
Analytics
ORGANISATION WIDE
Dashboard
Shoalhaven City Council
Dashboard › Total Consumption & Charges
Project Savings
Jul 2023 - Sep 2023
$194.8K
Total Utilities
-0.6%
$1.74M
-0.57%
Energy Total
3.4%
$1.63M
3.41%
32.13TJ
-3.7%
Water Total
-35.0%
$113.9K
-35.8%
72ML
-26.5%
Electricity Jul 2023 - Sep 2023
$1.63M
3.95%
9GWh
-2.4%
Gas Jul 2023 - Sep 2023
$2.2K
-78.26%
150.20GJ
-74.6%
Water Jul 2023 - Sep 2023
$113.9K
-35.8%
72ML
-26.5%
Top 5 Assets By Overall Spend
Top 5 Assets - Historic Comparision
Actual vs Estimated

# 9 Recommendations

The following actions are priorities for implementing throughout 2023-24 for Shoalhaven City Council:

- Continue to work with energy partner Flow Power to manage energy efficiency at all Large Sites and identify and implement demand management opportunities to reduce electricity costs and charges. This will include interrogation of real time electricity data from the recently installed kWatch controllers and engagement of Asset Custodians in energy savings opportunities;
- Continue to identify and approve energy efficiency and renewable energy projects under the Revolving Energy Fund (REFund);
- Continue to explore opportunities to electrify council assets and transition facilities away from gas. Of particular note is the opportunity to secure matched funding under the Community Energy Upgrade Fund. A feasibility study including costs and payback periods is in development to transition the pool heating system at the Ulladulla Leisure Centre to an energy efficient electric heat pump, so that this project is shovel-ready to take advantage of this grant funding. Council had previously approved budget to upgrade the facility in FY 23-24. This funding will need to be confirmed to ensure that Council has sufficient matched funds to apply for the grant. There is also potential for the REFund to support additional solar generation at the site as part of these works.
- Identify additional sites and funding opportunities for further solar PV installations at Council assets such as solar car shades, including solar farm development sites for Flow Power under Council's Power Purchase Agreement for Large Sites;
- Work with EV Charge Point Operators for the installation of EV Charging Stations at priority sites within the Shoalhaven LGA, along with smaller 'destination' Council EV chargers at Council assets;
- Continue to work with Endeavour Energy/Ironbark on the upgrade of the remaining residential street lights with energy savings LEDs;
- Continue to support Endeavour Energy on the roll-out stage of the new Bawley Point/Kioloa community microgrid;
- Develop an Emissions Reduction Plan to identify pathways to achieve Council's net zero target;
- Develop engaging and educational content for Council's webpage on sustainability, emissions, and climate change for improved community engagement on local sustainability and energy actions, including the benefits of installing residential and business solar PV and batteries;
- Deliver a range of community workshops and forums to reduce community emissions;
- Continue to work with ISJO on the Regional Energy Strategy and Net Zero Emissions Project Control Group.