Break O'Day Council

Corporate Carbon and Energy Opportunities

2024

NTARC

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Break O'Day Council Carbon & Energy Opportunities 2024

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Contents

Summary 4
Council existing actions reducing energy use and emissions 4
Suggested Actions 5
Annual Energy and Emissions Reporting 5
Metered Electricity 5
Unmetered Streetlighting 6
Governance 6
Discussion 7
Introduction 7
Annual CCEF reporting 7
Assessment of Fuel Use and Efficiency Actions 7
Assessment of Electricity Use and Efficiency Actions 9
Metered Electricity 10
Unmetered Public Streetlighting 12
Solar power 13
Corporate Systems 14

Summary

Break O'Day Council is actively engaged in efforts to reduce its energy use and greenhouse gas emissions. Its recent Council Carbon and Energy Footprint (CCEF) reporting, from 2019/20 to 2022/23, showed a 6% reduction.

The CCEFs and Opportunities Report are prepared as part of the Northern Tasmanian Alliance for Resilient Councils (NTARC) that is supporting, and coordinating the 8 northeastern Tasmania to increase their climate resilience and reduce their energy use and greenhouse gas emissions.

This Opportunities Report, complementing the CCEF, assesses the Council's current progress on improving its corporate energy efficiency and progress in reducing associated Scope 1 and Scope 2 greenhouse gas emissions, along with potential actions and ideas to further reduce these. This Opportunities Report does not include emissions related to waste disposal or treatment, Scope 3 emissions generated by others providing goods and services to the Council or any emissions generated by the community.

The Opportunities Report was prepared following brief site visits to several facilities, including the Break O'Day Council office building, St Helens Visitor Centre, St Helens works depot, St Helens Community Stadium and Scamander Waste Transfer Station, along with discussions with key council employees.

Council existing actions reducing energy use and emissions

Council employees are already undertaking a range of actions to reduce corporate energy use and emissions and are investigating further cost-effective opportunities. This includes regularly reviewing, and where appropriate implementing, more efficient and lower emission technology in the fleet, including hybrid or electric powered vehicles and plant. They are also considering how the fleet can be used more effectively in delivering services and undertaking projects, through better project planning and optimising use.

Council's asset managers have completed a range of works to improve energy efficiency and reduce emissions at council facilities. This has included the delivery of major refurbishments and new build projects, and also through smaller energy retrofit projects, such as replacing older technology lights with more efficient LED alternatives and installing occupant sensors for lighting.

There also appeared to be a good level of awareness of the benefits of reducing energy use amongst the managers and users of buildings, as evidenced in discussions and by observed actions such as lights and heating/cooling being turned off in unoccupied rooms.

The Council's main priority to date has been a focus on its facilities and fleet that have higher energy use and emissions. These typically provide the best potential for more savings and the most cost-effective measures. Council staff advised of further actions planned to be implemented or investigated, such as further upgrades of lights to LED, replacing the gas heating system at the St Marys Town Hall with an electric system, purchase of new electric ride on mowers when the current internal combustion engine mowers are due for replacement and investigation of installing further solar power systems.

Suggested Actions

The suggested actions further the Council current efforts to reduce emissions and energy use and ways in which its systems can support these actions are provided briefly in this Summary with more detail in the body of the Opportunities report.

Annual Energy and Emissions Reporting

Support was provided to Council officers in preparing the 2023/24 annual corporate energy and emissions inventory, including the development of spreadsheets to collate fleet fuel use from various data sources.

While the Council receives all its electricity data annually from Aurora Energy through invoices, it is time consuming to collate the data received in this way. As part of the NTARC work to develop the carbon inventories, Aurora Energy was able to provide the annual data in a consolidated format.

Opportunity: Support work at the regional level, via NTARC, to advocate for the council's electricity retailer to provide consolidated data on an ongoing basis.

Opportunity: Support work at the regional level, via NTARC, to identify annual CCEF reporting indices on an ongoing basis.

Fleet:

Comment: The most likely path forward to achieve a significant reduction in fleet emissions is to transition to battery electric powered vehicles and plant. However, this is still some way off due to the lack of suitable models and equipment and the higher capital costs. This is especially the case for plant and trucks, but also for some types of vehicles, including utes. There is also some uncertainty about resale values, which affects holding costs. This is primarily due to the cost of new electric vehicles dropping and the small number of second-hand vehicles available on the market resulting in limited resale pricing data. Furthermore, there would be significant investment required to install charging infrastructure, which would need to be considered in the changeover to electric vehicles and plant.

Officers managing the fleet, in particular, and some employees are conscious of fuel usage and there have been changes to planning of activities resulting in reductions in vehicle and plant use. Further savings may be possible from reviewing how services and projects are delivered.

Opportunity: In the short term, one of the main ways to reduce fuel use is to look at how council services and projects are being delivered and whether there are ways to reduce the kilometres being travelled through increased coordination and planning, or the hours plant is being operated.

Metered Electricity

Comment: The main three uses of metered electricity are for lighting, heating and cooling and for hot water.

The upgrade of lighting to energy efficient LEDs is typically very cost effective where the lights are on for a significant portion of the time. Many of the lights inspected were LED and further non-LED lights are planned to be upgraded.

Opportunity: Undertake a comprehensive audit of lighting at facilities and develop a prioritised program to upgrade further lights to LED, including use of occupancy sensors, where appropriate.

In the buildings inspected, heating and cooling was mostly provided in an energy efficient way, such as by heat pumps with some low wattage panel heaters for spot heating or by radiant panel heaters in high-ceilinged facilities.

Opportunity: There is potential to reduce heat loading on the council St Helens offices through the installation of awnings or shade structures on the northern side of the building.

Opportunity: Replacing the LPG panel heaters in the auditorium at the St Marys Town Hall with electric radiant panel heating would reduce costs and emissions by almost 1.5 tonnes CO_2-e per annum. This is planned to be undertaken.

Opportunity: Where hot water is used in significant amounts, such as may be the case at sporting facilities like the St Helens Stadium complex, then it may be cost effective to upgrade the hot water systems to heat pump hot water or other energy efficient technology.

Solar Power

Comment: The installation of solar power can reduce mains electricity use and associated emissions. It is however considered preferable to maximise energy efficiency of a facility as a first step. This may well affect what size solar power system would be suitable and what financial return can be achieved. The facilities where solar is likely to be the most cost effective are those with significant daytime electricity use and with suitable roof structure, layout, no overshadowing and where there are no heritage issues.

Opportunity: Installation of solar panels at St Helens Visitor Centre could have potential, as it appears energy efficient, operates seven days a week and has a suitable north facing roof.

Unmetered Streetlighting

Comment: As at January 2024 over 80% of the unmetered streetlights that the council pays for use energy efficient LED technology. Remaining lights are replaced with LED, when they reach the end of their useful lives.

Opportunity: Work to accelerate the replacement of remaining non-LED streetlights would entail working with TasNetworks, and this could potentially benefit from a regional approach.

Corporate Systems

Comment: Considerable corporate knowledge and understanding of the energy use and emissions resides with the Council's employee's, in relation to the operation, and maintenance, of assets such as administrative buildings and halls, depots, recreation facilities. A challenge for the council exists in terms of capturing this knowledge as personnel leave and its transference to incoming employees as they are inducted into the Council's systems and processes.

Opportunity: Review the Council's systems to ensure capture of corporate knowledge and establish processes which support the ongoing reporting and management and reduction of corporate energy use and related emissions.

Discussion

Introduction

This Opportunities Report has been prepared through NTARC which is supporting the 8 councils in north east Tasmania to coordinate action that increases their climate resilience and reduces their energy use and greenhouse gas emissions. Four councils, including Break O'Day, opted for direct support, from NTARC, to embed and implement action, which includes this report.

Through NTARC, Council Carbon and Energy Footprints (CCEF) for the period 2019/20 to 2022/23 were developed for the 8 northeast councils. The CCEFs cover energy use and associated emissions directly resulting from corporate operations. They do not include emissions related to waste disposal or treatment, which is being considered regionally by Circular North and NTARC.

The CCEFs included a summary report on the inventories and generic actions that could be taken. As part of the Break O'Day Council's direct support additional training in preparing the annual inventory, site visits and further assessment of potential actions were undertaken. This Opportunities Report is based on the information contained in the CCEFs and from 2 days of brief site visits, meetings and training in collating data and using the Council Carbon Calculator Tool with key Council employees.

Given that the site inspections were of a relatively brief duration and covered only a small number of sites, the assessment of energy use at facilities was at a general overview level and didn't include detailed audits. As such, this report provides a range of general actions with some examples for further investigation. More detailed audits would be required to identify a list and prioritise a list of specific actions as the basis of an implementation plan.

Annual CCEF reporting

Training on the preparation of annual CCEFs, as part of the direct support, was undertaken with Council employees in the Finance Department in October 2024. The training included an overview of calculating energy and emissions, guidance and support in using the Council Carbon Calculator Tool to prepare annual reports and developing a template spreadsheet to collate fleet fuel data for incorporation to the calculator. Next step is to identify annual CCEF indices at council and regional levels.

A key input into the preparation of CCEFs is Aurora Energy billing across the Council's sites. Through NTARC Aurora Energy provides a bulk extract of data for seven of the northern councils (not including Flinders Council for which Momentum Energy is the retailer). However, in early 2024 Aurora Energy changed their billing system software part way through the financial year, which presented challenges in extracting the summary data.

The consolidated information provided by Aurora is however considered to be a very useful resource and saves effort in bringing together the energy information provided on invoices. It is intended that the process of providing this data to councils can be streamlined in future years through regional advocacy by NTARC with the council's electricity retailer.

Assessment of Fuel Use and Efficiency Actions

In 2022/23 the Council's fleet and plant used 125,972 litres of diesel, 11,422 litres of petrol and 441 litres of LPG (used by the forklift at St Helens Depot). In total this is equivalent to 5,265 GJ of energy and emissions of about 370 tonnes of CO_2-equivalent

There was also some use of LPG at specific sites for uses such as space heating or cooktops. The most significant usage in 2022/23 was 1,005 litres at St Marys Town Hall, equivalent to 25 GJ of energy and 1.6 tonnes of emissions. Smaller amounts used at the St Helens Stadium complex and other sites such as public gas barbeques.

The largest category of energy use and related emissions for the Council operations is that of fleet fuel use at 80% of total energy consumption and over 85% of energy related greenhouse gas emissions. This is typical of a regional council with a large network of roads relative to population, needing to be more self-reliant in terms of equipment and plant and having multiple separate population centres, entailing more kilometres of travel. The high proportion of greenhouse gas emissions from fleet is also more typical for Tasmanian councils as the other main source of energy is electricity, which is primarily from renewable generation and has a low coefficient for emissions compared to most mainland states.

Typically the largest consumers of fuel are major plant such as graders and tractors, along with medium to heavy trucks.

The Council's fleet management personnel are very aware of the costs of fuel and the emissions from use of fuel and are regularly reviewing options to reduce fuel use.

The biggest future potential change to reduce emissions and energy use is shifting to battery electric powered cars, utes, trucks and plant, as suitable cost-effective alternatives become available. However, the changeover to fully electric equipment is largely not viable at the current time. Much higher capital costs, uncertainty regarding resale values and a lack of suitable electric alternatives being available, which meet council's performance requirements are all barriers to varying degrees. There are also limitations due to battery capacity for larger plant and trucks, which restrict hours of operation or range. The Council fleet management staff are regularly reviewing the situation and are prepared to trial and purchase electric alternatives if they appear to be suitable and cost competitive.

In addition to the costs for purchasing electric vehicles and plant, the cost of installing the infrastructure needed to charge the fleet will need to be considered.

Moving from diesel and petrol vehicles and plant to electric alternatives could result in about a 60-70% reduction in energy use (as electric motors are much more efficient than internal combustion engines) and a more than 90% reduction in emissions (which is more than energy reduction due to Tasmania's low emissions factor for electricity).

There are only a couple of electric ute models available in Australia and they tend to have overall lower performance than the fossil fuelled equivalents, such as range and/or carrying capacity as well as being more expensive and not having much of a history in Australia. Further plug-in hybrid and battery electric models are expected to be released during 2025 and 2026.

The Council does have some battery electric powered minor plant and does have a battery electric ride on mower, which is proving to be reliable, much cheaper to run and performing well after 12 months of operation.

The Council also has some hybrid cars in its fleet, which typically use about 20-30% less fuel per kilometre than standard petrol models.

Another low emissions technology is that of green hydrogen (i.e. from renewable sources). While there is support at both the national and state level for production of green hydrogen, it is energetically less efficient that batteries. There are very few models of vehicle and plant using hydrogen available in Australia and there would be a need to develop transport and storage infrastructure to support its use.

At this stage it appears that this technology will develop much more slowly and will likely be more costly than battery electric for most applications.

In the short term, one of the main ways for the Council to reduce fuel use is to look at how services and projects are being delivered and whether there are ways to reduce the kilometres being travelled or the hours plant is being operated.

For instance, one example could be servicing of public litter bins. Councils receive requests or identify locations for new/additional public litter bins, and after an assessment may install new bins, however there is seldom a review of their use. An opportunity to reduce fuel and truck use could be through a review of a litter bins use to identify if it is still required, or if the frequency of collection can be reduced.

Consideration of how materials are delivered to project sites in the project planning stage may also enable some efficiencies, such as stockpiling closer to the project site, as suggested by David Jolly, Manager Infrastructure and Development Services.

Waste compaction can reduce the volume of waste and reduce the number of trips for a given volume of waste.

Other opportunities include the coordination of different tasks, use of electronic technology and review of activity frequency for services or inspections undertaken on a regular basis,.

Works, such as road maintenance involving grading of gravel roads and slashing of roadside vegetation, or mowing of parks and sportsgrounds are typically undertaken on an as needs basis to meet required service levels rather than on a fixed frequency, which may have limited potential for savings.

Improvements are being made to the collation and analysis of fuel consumption data and in monitoring vehicle use through GPS tracking, which will assist in identifying ways to reduce fuel use and enhance productivity.

Based on experience at other councils it may be possible to reduce fuel use by 5-10%, by reviewing service and project delivery, though this varies from council to council and what efficiencies have already been put in place.

No specific actions are recommended as this is beyond the scope of this report. Any review will likely need the service or project manager to meet with the fleet manager and maybe operators to assess the impact of any changes beyond fuel use, including customer service impacts, any workplace, health and safety issues, costs to implement and other factors.

The Council only has a small amount of fuel use other than fleet (ie less than 0.5% of overall energy use) with the largest consumer being the St Marys Community Hall which is heated by LPG. It is planned to replace this heating system to one based on electric radiant panels, which will reduce operating costs, energy use and emissions.

Assessment of Electricity Use and Efficiency Actions

Most of the energy used at sites and facilities is electricity, though a small number use LPG, including somewhat more significant usage at sites such as St Marys Town Hall and the Stadium at St Helens, with smaller amounts used at other sites such as public barbeques.

The following table shows the fifteen highest electricity usage sites in 2023/24. It was noted that there may also be council owned sites, such as sporting facilities, where the tenants or lessees pay for electricity used at those sites.

Site	Usage
Council Main Office	94,727 kWh
Visitor Information Centre/History Room	31,283 kWh
St Helens Works Depot	15,927 kWh
Portland Hall	15,668 kWh
St Helens Stadium Complex	13,839 kWh
Scamander Waste Transfer Station	11,279 kWh
Fingal Park (RV park/toilets/shower)	8,828 kWh
Mountain Bike Trailhead	7,321 kWh
Fingal Depot	7,186 kWh
St Marys Recreation Ground	7,039 kWh
St Helens Wharf Toilet Black	5,736 kWh
St Marys Works Depot	5,145 kWh
St Helens Waste Transfer Station	4,509 kWh
Old Hub4Health House	4,451 kWh
St Helens Airport	3,606 kWh

For comparison a standard house only using electricity and without solar consumes on average about 7,000 kWh per year in Tasmania.

The above 15 sites comprise approximately 90% of the Council's metered electricity use and are likely to have the largest opportunities for savings, depending on previous work on identifying and implementing energy efficiency measures and how recent major refurbishments.

In addition to the metered sites, there are the unmetered streetlights provided by TasNetworks and some small unmetered supplies including the bollard lights at Kings Park and lighting of the "mushroom" tourist information structure at St Marys.

The total annual usage at these sites was 95,952 kWh in the 2023/24 year. Of the 703 lights provided on these unmetered supplies, 589 (or 84%) were energy efficient LED as at January 2024. Older lights are gradually being replaced with LED as they reach the end of their useful life.

Metered Electricity

The Council's buildings and facilities management personnel are very aware of energy use and the costs of electricity being used at various facilities. A range of major and minor works have been undertaken to improve the energy efficiency of buildings and other facilities.

An inspection of some of the larger electricity using sites found that those sites which had recently undergone significant refurbishments appeared to have been well designed from an energy efficiency point of view. These sites had LED lighting, heat pumps for heating and cooling, some had air lock main entries and energy efficient building structural features such as low emissivity roofing and at least one instance of double glazing.

Where there haven't been major refurbishments, actions have been taken, are in progress or are being planned at other high electricity using sites (such as the Council Offices in St Helens), to reduce energy use, such as replacing all lighting with LED technology. The priority has been for upgrades at buildings which are used for a greater proportion of the week and thus use more energy per fitting. Replacing

older technology lights such as fluorescent tubes with LED can halve electricity use and reduce maintenance costs as the LED lights have much longer lives.

From comments made by employees working at some of the sites inspected, there appeared to be a reasonable awareness of the benefits and cost savings from minimising energy use through such behaviours as turning lights and/or heating off when leaving a room.

Overall, it appears that those responsible for managing Council buildings and facilities are doing a good job at identifying and implementing energy efficiency improvements, though there is likely to be some further scope for energy savings.

At the Council Offices, there is a centralised air conditioning system with some local heat pumps. A past review of the control of the main system significantly reduced energy use, but there may be potential for further optimisation or additional controls such as occupant sensors. There appeared to be significant heat load from north facing windows, which may also contribute to occupant comfort issues. This load could be reduced by the installation of awnings designed to reduce solar heating in summer but allow winter sun through the windows.

Much of the lighting in the Council Offices has been upgraded to more energy efficient LED technology, which reduces maintenance costs as LED lights last up to 3 times as long as fluorescent tubes. Potential exists for occupant sensors to turn lights off when a room is not in use.

The Visitor Centre/History Room had the second highest electricity use in 2023/24. It is open 7 days a week and has longer weekly operating hours than most facilities. Being open for more time generally means that there are greater annual savings for any energy efficiency measure.

In terms of heating and cooling the building was using energy efficient heat pumps and appeared to be quite thermally efficient, with relatively little glazing and an air lock entry.

The customer services area is lit by energy efficient LED lights. The fifteen display light boxes above and behind the service counter have fluorescent tubes and could be switched to LEDs. The archives room (i.e. room to the left when facing the customer service counter has older fluorescent tube-based lights and could be upgraded to LED taking into account any illumination level requirements to ensure longevity of historic documents. There is a low level of lighting the historic display rooms, presumably to maintain condition of historic artefacts. While many lights were LED there were some halogen lights that could be replaced with LED.

The St Helens Works Depot has heat pumps for heating and cooling, but it could be worthwhile checking what level of insulation the office has. Most of the lights were fluorescent tubes and could be upgraded to LED.

The Portland Hall building consists primarily of two components, being the main hall and the Senior Citizen's Room. It was noted that the Senior Citizens area has a relatively low level of usage and consequently small electricity consumption, so would be a low priority for energy efficiency works.

The heating of the main hall area is provided by electrical radiant heat panels. While not as efficient as converting electrical energy to heat as heat pumps, they are a good choice for such a large high-ceilinged space. The radiant form of heat tends to make people feel warmer for a given space temperature. General space heating tends to result in the warm air rising to the ceiling, where some will be lost, and the area near the floor remains relatively cool. There did not appear to be any cooling other than that provided by ventilation air.

The Hall amenities have been recently upgraded and have LED lights. The lights in the main auditorium were mostly located high up on the wall and at a distance appeared to be halogen. LED equivalents would likely reduce lighting electricity use by about 50%.

The St Helens Sport Stadium building consists of a more modern main auditorium and extension, largely closing an older part of the building that contains the change rooms and showers. The main sports-hall has ventilation fans but no active heating or cooling. There are gas fired space heaters in the circulation spaces outside the entrances to the change rooms. It was noted that these are not frequently used. The size of the LPG bottle at the building is not overly large and tends to confirm that this is the case. The new circulation space has double glazing, and may contribute to low gas usage.

In the new sections of the Stadium building the lighting appeared to be LED. The older section had fluorescent tube type fittings, and these appeared to be in relatively poor condition. They could be replaced with LED lights controlled by motion sensors.

There were showers in the change rooms, and these were fitted with water saving shower heads. Depending on usage it may be worth investigating whether a more efficient hot water service would be cost effective.

The main tower lights on the oval appear to be LED and thus energy efficient. The total wattage is probably fairly significant, so depending on usage there may be a case to install timer or other controls to ensure they are turned off when not required.

The lights at the courts outside the stadium look like they are metal halide and could be replaced with LED. It was noted that the courts are only used once a week and lights on for a small number of hours each time. So the energy cost savings may well not be sufficient to justify an upgrade at this time, but they should be changed to LED when they need to be replaced.

The St Marys Hall had large LPG gas infrared heaters in the main auditorium and consume a lot of gas when in use. It was noted that these are to be replaced with electric radiant panels. This is considered to be a good option in the high ceiling hall as such a space is difficult to heat with systems such as heat pumps. The change from LPG to electrical heating would reduce greenhouse gas emissions by almost 1.5 tonnes CO_2-e per annum.

Various other sites with lower electricity use were inspected, and a number had energy efficiency lights and equipment. Sites which are only used infrequently may not be used enough to justify energy efficiency upgrades.

Unmetered Public Streetlighting

In addition to the metered sites, there are unmetered streetlights provided by TasNetworks and some small unmetered supplies including the bollard lights at Kings Park and lighting of the “mushroom” tourist information structure at St Marys.

The total annual usage at these sites was 95,952 kWh in the 2023/24 year, which was about 27% of the council’s electricity use.

Of the 703 lights provided on these unmetered supplies, 589 were energy efficient LED as at January 2024. Older lights are gradually being replaced with LED as they fail. As the majority of lights have already been upgraded and there can be challenges working with TasNetworks to replace lights, this area is considered a lower priority for efforts to reduce electricity use but may benefit from a regional or statewide approach.

The “mushroom” tourist information structure in St Marys is lit by an unmetered power supply feeding eight 20-watt fluorescent tubes at a cost of about $850 per annum. It may be cost effective to replace these lights and the TasNetworks connection with solar panels, a battery and LED lights.

Solar power

There are three solar power systems installed at Council facilities totalling about 40kW in capacity, generating approximately 60,000 kWh per annum, equivalent to about 20% of electricity used at council’s facilities.

Onsite solar power generation is becoming more cost-effective as the cost of the technology has dropped, though this has been at least partially offset by other cost components increasing and the deemed number of small technology certificates dropping. Feed in tariff rates have decreased, while rates for electricity use have risen, meaning that there is more value in solar being installed where much of the electricity use is during the day and can be supplied by solar.

However, the best approach is considered to be maximising energy efficiency prior to investigating a solar installation. The main reason for this is that the sizing of a system needs to consider the amount and patterns of usage at a site over the 25+ years life of the solar panel system rather than current consumption. For electricity generated by solar power used on site, the Council will typically reduce its electricity bill by about 25c/kWh. Any excess electricity can be exported to the grid; however this will receive a feed in tariff rate, which in 2024/25 is about 8.5c/kWh. The feed-in tariff is expected to decline in future years, as further new rooftop and utility solar generation capacity will put downward pressure on daytime prices.

Depending on the capital costs of an installation, where all or most of the solar electricity is used on site the payback period is typically in the order of about 5 years. Where a large percentage of the electricity is exported and fed into the grid the payback period increases and can be 10 years or more.

In terms of usage pattern, the best sites for solar are where there is steady daytime use. For Break O’Day Council, the Council offices and the Visitor Centre/History Room are sites that would have usage profiles that would suit the output of a solar panel system, as operate most days during normal business hours. Facilities with intermittent or mostly nighttime use will likely have longer payback periods, which may not achieve sufficient financial return .

Each site needs to be individually assessed based on its expected future electricity consumption and suitability of the roof and structure for installation of panels. If grants are available to support the capital cost of the installation of solar power, then this may make projects viable at sites where the savings are not as high.

It was noted that the Council office roof was not suitable for a solar panel system, but that there could be potential for a structure above the car park outside the offices if it could be built at a reasonable cost. The Visitor Centre/History Room appeared to have potential for a solar power system, as it appears to be relatively energy efficient, operates during the day and 7 days a week, and has a suitable roof area. Such an installation would need further investigation and costing to determine its financial viability.

Corporate Systems

The Council's corporate systems related to energy efficiency and emissions reduction were not reviewed as part of this work. However, there were discussions with employees about how they incorporated such issues into their roles, and about how energy efficiency works could be identified, and funding sought for implementation.

It is noted that there are processes within the Council to enable approval of funding of those energy efficiency works that have a reasonable level of financial return. This may be through either the annual operating budget for operational or maintenance level works or via the capital budgeting process for more significant works. Employees considered that the processes were working in terms of getting worthwhile projects funded.

Discussions with Council employees managing assets demonstrated that they were knowledgeable and already taking energy efficiency into account in undertaking and planning operations, maintenance and project work.

It did appear that employees knew a lot about the operations and upgrades to assets related to more efficient energy use, but that this may not be well documented.

With any organisation however when such personnel leave the organisation then this may reduce the capacity to identify and undertake works and future employees in these roles may not be considering energy use and emissions to the same degree.

The annual reporting of energy use and emissions, as per the CCEF, along with actions that had been taken to reduce these, is an important activity to measure the impact of the Council's operations and demonstrate the work that is being done on this front.

Both facility and asset managers should have ready access to energy use data, as both have significant, though somewhat different roles, in minimising energy use.

There are ways in which corporate systems, documents and processes may be able to support ongoing reporting and improvements to energy efficiency and emissions reduction.

Examples of this, some of which the Council may already be doing, are:

- Incorporate energy efficiency and emissions reduction into the position description or duty statement of relevant roles.
- Develop a corporate process for preparing annual energy and emissions inventory preparation and reporting based on CCEF.
- Incorporate energy efficiency and emissions requirements into the specifications of tenders for new assets or equipment, as appropriate.
- Document energy use and efficiency related action on assets such as buildings.
- Ensure electricity consumption data is being provided to asset and facility managers, so they are aware of consumption and can review abnormal electricity use and respond accordingly.
- Consider the inclusion of "Environmental/Sustainability Implications" heading in the templates for reports to the senior management team and to Council; this could cover a range of environmental issues not just energy and emissions, such as impacts on biodiversity, weed management, water and air quality and waste impacts.