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Energy management plan – Common Ground, Hope Street, South Brisbane

Engineroom and Elucid

A plan for managing energy cost-effectively at Common Ground community housing

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1. Introduction

1.1. Purpose

The purpose of this energy management plan (EMP) is to identify actions at Common Ground, Hope St, South Brisbane that could reduce the cost of electricity for tenants and CG management, without sacrificing the amenity of electricity usage in heating, cooling, and running appliances. This plan recommends a set of actions that could save tenants and CG management (in relation to common area use) money in relation to electricity supply charges.

The energy market is undergoing rapid changes, and there are now a range of new opportunities for reducing energy costs beyond traditional energy efficiency strategies and use of renewable energy technologies. The introduction of new tariffs, the emergence of competition in provision of metering and new business models for the supply of bulk supply of electricity all offer opportunities for cost savings. This EMP therefore identifies a wide range of opportunities to reduce energy costs including purchasing more efficient appliances, more careful energy use, better tariff choice, the retrofitting of embedded networks, and solar generation and battery use.

It also identifies options for funding energy investments by Community Housing Providers (CHPs) and briefly outlines some of the concession arrangements available for tenants.

Some of the savings recommended in this report accrue to CG management, while other savings accrue to tenants, e.g. savings from more efficient fans, fridges, or reduced energy costs for cooling from installation of external shading. This is known as a 'split incentive'.

It is important for community housing providers to ensure energy costs for tenants are as low as feasibly possible as the running costs of a home are ultimately just as important as the rent charged in making sure housing is affordable. In fact, if tenants face high energy costs, then these costs may negate the benefit of lower rents at community housing properties.

This plan acknowledges this split incentive by identifying against specific savings measures, whether the saving is enjoyed by CG management or the tenants. Savings to both tenants and CG management are important in moving towards reducing the cost of electricity without reducing tenant amenity.

There may be limited options for CG management to recover this expenditure from tenants under tenancy agreements. Tenants may be willing to undertake some of this expenditure themselves if they are educated about the benefits and the upfront costs are small.

1.2. Process

The process used to develop this EMP between May and October 2017 included:

- Consultation with CG management to understand both the characteristics of the site and energy infrastructure, including energy management strategies undertaken to date, and of the housing services provided.

- Arranging for an energy audit of the Common Ground property by a qualified and local energy auditor (Trevor Berrill). Trevor Berrill's audit included a site assessment of Common Ground to determine existing energy use and provide recommendations about potential savings. The results of the energy audit were presented separately to CG management.
- Conducting on-site interviews with five tenants and participating at a meeting of tenants to gain an understanding of how tenants at Common Ground are using energy, their attitudes towards and understanding of energy costs, and individual or group characteristics that impacts on their energy use. The interviews sought to identify typical usage levels, times of use, and appliance type. Tenant interviews were conducted over August and September. CG management also granted access to tenant usage data to enable an analysis of tenant usage and billing.
- Undertaking further research and investigation of the costs and benefits and business models associated with various energy management options, for example the operation of embedded networks.

All these inputs were used to inform the recommendations provided in this plan.

2. Context

2.1. Property

Common Ground at 15 Hope Street, South Brisbane, is a 14-storey unit block with 146 studio- and one-bedroom units, of which 33 have wheelchair access. Tenants consist of mix of unemployed and low-income workers, many of whom were formerly homeless. It has a range of services on-site for tenants, as well as common spaces, and a 24-hour concierge service.

CG had major input into the design of the building. The building was constructed in 2012 and has a 6-star energy rating. The building was designed with environmental principles in mind (e.g. natural ventilation, open air, wall and ceiling insulation, tinted glass). Ventilation is assisted by open corridors, vents above door, and vents up lift shafts to allow air movement. Ceiling fans are installed in all units and the common areas of the building have sensor lighting to minimize energy use. However, the building cannot rely fully on passive cooling. This is because the building is oriented at 30 degrees to the ideal orientation of true north, meaning that the north-east facing units have more access to breezes and less exposure to afternoon sun, while the south-west facing units have less breeze and greater exposure to afternoon sun.[1]

Low energy devices have been installed. The lights are fluorescent tubes, and lights in common areas are controlled by motion sensors (although these have been unreliable and expensive to replace at $300 each).

The building has a green wall and a vegetable garden upstairs.

[1] Trevor Berrill energy audit, p. 5

Hot water is provided by a bulk hot water electric system consisting of three large heat pumps in series with some redundancy. There is also a hot water storage unit. Each unit has a hot water meter which measures the amount of hot water used. Providing accurate billing for the hot water costs is a significant challenge for CG management. CG management must convert the hot water use into bills which proportionately recover heating electricity costs from tenants. In addition, the hot water meters must be double-checked frequently as they seem inaccurate. Meters are located inside the units, so CG management must enter units to double-check the meters. It is possible to do auto-reads but signals get mixed up leading to some inconsistencies. CG management has looked at having a third-party manage the bulk hot water arrangements but have not yet been able to find a provider that they consider has the appropriate skills and knowledge.

Each of the units has a smart meter to measure usage.

A 44kW solar system was installed on the roof to provide energy for the common areas of the building. However, it is costly to maintain as the panels need regular cleaning due to inner city particulate deposits and the difficult-to-access location of the panels. This means that the solar system costs about $4,800 per year to maintain compared with annual revenues estimated at between $7,200 and $13,500.

To help tenants manage their energy costs electronic CENT-A-METER energy monitoring devices were installed in all the units. These monitors can be programmed by the tenant and can tell tenants their monthly and daily costs allowing them to monitor their usage. The monitors can be programmed with an alarm to indicate when usage has reached a preset high level. However, CG management have found that the potential for tenants to use the displays without further support is limited. The monitors require a wireless signal to the meters and need batteries. Tenants also need to understand the tariff and rate they are paying and to input this information as required. While the tenants were initially shown how to use the displays the organization is unable to continually assist meaning they are not getting as much use as they have potential for.

Other strategies to assist tenants have included putting tenant energy bills into graphs so that tenants could more easily understand their usage, and negotiating competitive rates with Origin energy and offering that rate to tenants throughout the building.

The standard arrangement is that electricity bills are sent to CG management and charges are passed on to all tenants, including shops, MICAH, and unit tenants. CG management pay the charges for the common areas. It is understood that all tenants except one are currently on the deal that CG management negotiated with Origin, which is tariff 11 at a 17.5% discount (for a usage rate of 23.495 cents per kWh including GST plus a daily service charge of 95.846 cents per day including GST).

CG management is currently investigating the costs of retrofitting an embedded network so they can purchase energy at bulk prices and on-sell to tenants at the lowest possible price. While it would have been more economical to install the metering for this arrangement at the time the building was built they had been unable to obtain permission from the department of housing who owns the building at

the time, due to the organization initially having only a 5-year lease of the property and concern about future legislative changes making management of such a system difficult. The organization now has a 15-year lease on the building and is keen to understand the cost/benefits of an embedded network, and of an exempt network/retailing arrangement. They have spoken with a specialist retailer offering retrofit services followed by direct customer billing for tenants.

2.2. Baseline usage

The common ground building is occupied by community housing tenants, some commercial premises, and common areas used by CG management and tenants.

Units

There are 146 units for tenants across the top 12 storeys of the building. Below the units, on the ground floor, there are offices, conference rooms, and a café, which are individually metered. On the first floor are more conference rooms and a kitchenette shared by CG management and MICAH. There are also some conference areas on higher floors.

Electricity is the only energy source for the unit block at Common Ground. This electricity is supplied by the electricity grid and by an on-site 44kW solar panel system.

Total average daily use is estimated at 1830 kWh, of which about 36% or 654 kWh is used by the tenants in the 146 units, 20% by the commercial tenants, and 44% by common areas, lifts, common lighting, mechanical services, pumps, and hot water. The solar panels supply 136 kWh or about 7.5 % of total use.

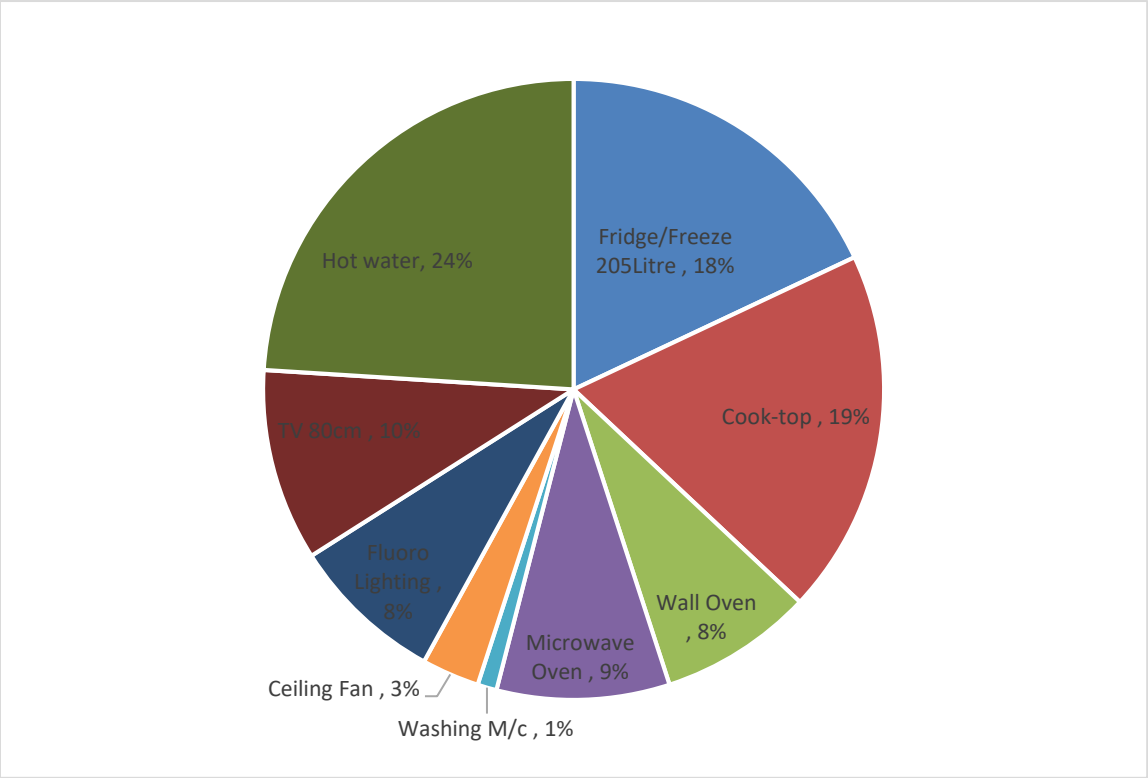
Units use on average 4.5 kWh per day. Each tenant's share of the hot water used by their units is an additional 1.4 kWh per day,[2] for a total average daily consumption of 5.9 kWh per day. Berrill notes that this compares with 11.8 kWh per day for older, all electric units across Brisbane.[3]

Trevor lists the main appliances and contribution to daily average usage in tenant units in Table 1 and Figure 1 below.[4] Hot water is the largest contributor, though cooking on the stove top, in the oven and in the microwave collectively account for around 36% of use.

[2] The 1.4 kWh per day is estimated on seasonal variations in hot water energy use based on a combination of the inlet water temperature and ambient air temperature.
[3] Trevor Berrill energy audit, p. 4
[4] Trevor Berrill energy audit, p. 33, with percentages added and hot water use added

Table 1 and Figure 1: typical breakdown of daily electricity use in tenant units

List of Main Appliances	Power (watts)	Daily of Use (Hrs)	Energy (kWh/day)	Percentage of total use
Fridge/Freeze 205Litre	105.00	10.00	1.05	18%
Cook-top	1500.00	0.75	1.13	19%
Wall Oven	2400.00	0.20	0.48	8%
Microwave Oven	1000.00	0.50	0.50	9%
Washing M/c	350.00	0.21	0.08	1%
Ceiling Fan	50.00	4.00	0.20	3%
Fluoro Lighting	80.00	6.00	0.48	8%
TV 80cm	80.00	7.00	0.56	10%
Hot water			1.4	24%
Total Daily Energy			**4.47**	



Use in the units ranges from 1.8 to 14.6 kWh per day (a factor of 8), probably due to usage behaviour and additional appliances brought into units for use. About 120 of the units use between 2-4 or 4-6 kWh per day, excluding their share of bulk hot water use. The hotter south-west facing units do not on average tend to use more than the cooler north-east facing units, probably because the units are not equipped with air-conditioning apart from overhead fans.

Hot water is supplied by three centralised heat pumps. Hot water use is metered in the units, enabling CG management to recover the costs of hot water use as a proportion of total use.

Units used on average 27.9 litres per day of hot water, for an average of 1.4 kWh per day. This compares with an average use in south-east Queensland one- to two-person units of 3 to 4 kWh per day using electric heaters or about 1 kWh per day using heat pump systems. This would suggest that the heat pumps are not as efficient as could be expected. Hot water electricity consumption was measured over 8 days in May when temperatures were around average for the year. Over that period, hot water heating consumption was around 280 kWh per day, or 39 Wh per litre. This compares with best practice of about 15 Wh per litre.

Commercial terms and common areas

For the commercial tenants, the café uses about 128.5 kWh per day, MICAH about 14, the CG offices/reception/computer room and toilets about 62, and the conference rooms and kitchen about 163 kWh per day.[5] The CG offices/reception have very consistent consumption over the year, while the conference room/kitchen use peaks in summer at about twice the level of use in winter.[6]

Commercial tenants pay a quarterly bill at a flat rate for unit energy costs (28.4 cents per kilowatt-hour including GST(c/kWh)), plus a fixed supply charge ($1.55 per day including GST).

The common services bill is a monthly bill, about $4,400 per month at current rates. It is based on the Energex interval meter which charges peak (9.15c per kWh) and off-peak (5.52c per kWh), and a demand charge ($24.04 per kVA), all including GST. In addition, there are service and environmental fees, some of which include a usage-related charge. The demand charge is based on the average power (kVA) used in the peak half-hour period in a month.

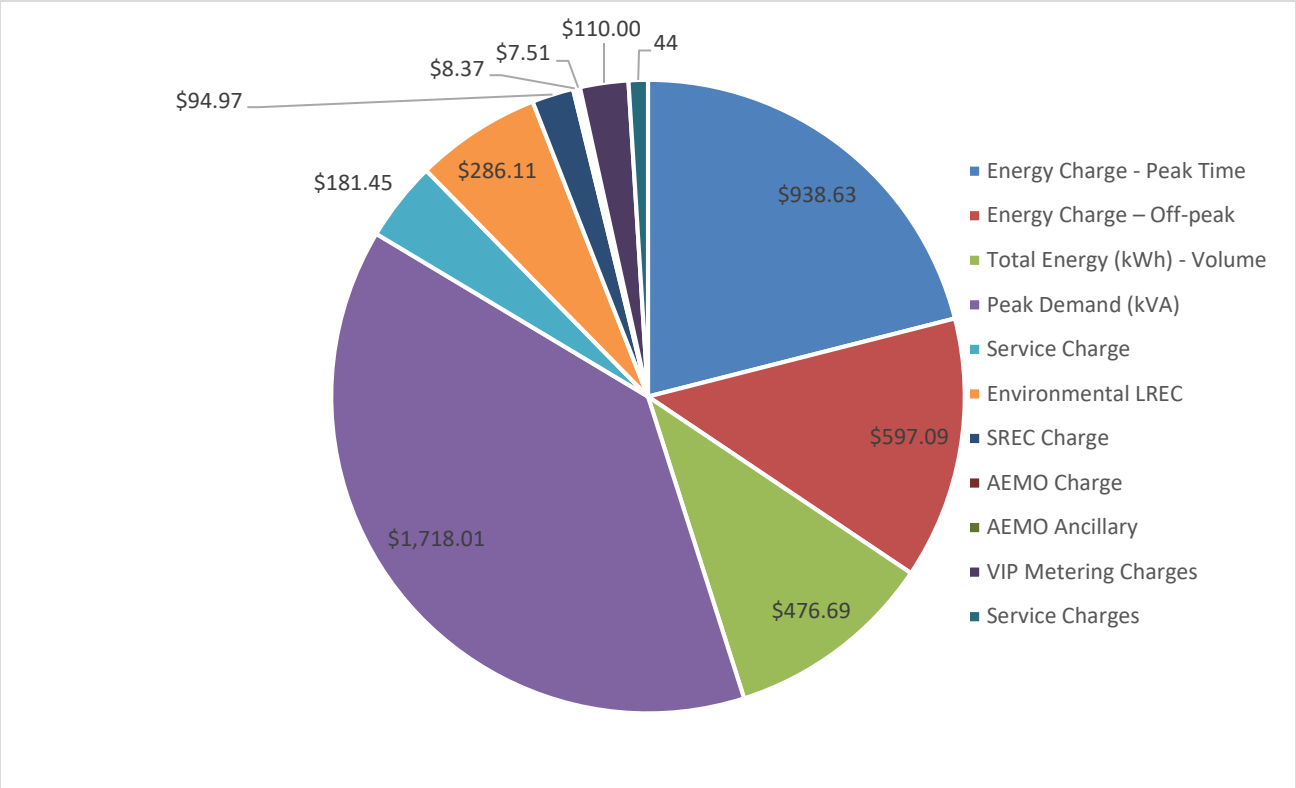
The full breakdown of costs for December 2016 is shown in Table 2 and Figure 2 below.

Table 2 and Figure 2: Full breakdown of electricity costs for common areas

Component		Unit	Cost/Unit excl. GST	Units	Cost/Unit inc GST	Costs including GST	Totals
ENERGY (kWh)							
Energy Charge - Peak Time	10262.22	kWh	8.3150	c/kWh	9.15	$938.63	
Energy Charge – Off-peak	10815.47	kWh	5.0188	c/kWh	5.52	$597.09	**$1,535.72**
NETWORK							
Total Energy (kWh) - Volume	21077.69	kWh	2.0560	c/kWh	2.26	$476.69	
Peak Demand (kVA)	71.45	kVA	21.8590	$/kVA	24.04	$1,718.01	

[5] Trevor Berrill energy audit, p. 18
[6] Trevor Berrill energy audit, p. 19

Service Charge	31.00	Days	5.3210	$/Days	5.32	$181.45	**$2,376.15**
OTHER CHARGES							
Environmental LREC	21077.69		1.2340	c/kWh	1.36	$286.11	
SREC Charge	21077.69		0.4096	c/kWh	0.45	$94.97	
AEMO Charge	21077.69		0.0361	c/kWh	0.04	$8.37	
AEMO Ancillary	21077.69		0.0324	c/kWh	0.04	$7.51	
VIP Metering Charges			100.0000	$/Bill	110.00	$110.00	
Service Charges			40.0000		$44.00	44.00	**$550.96**
MONTHLY TOTAL including GST							**$4,462.83**
Weighted Average Unit Energy Cost					11.43	c/kWh including GST	



As noted by Trevor Berrill, the two biggest components of this bill are:

- Total energy consumption and consumption-related costs, of $2,409 or 54 percent, at a combined weighted average energy unit cost of 11.4 c/kWh. This includes energy charges for peak, off-peak periods, network, Australian Energy Market Operator (AEMO) and environmental charges.
- Peak power demand charges of $1,718 or 38 percent

2.3. Unit tenant views

One on one interviews were held with 5 residents. For the interviewed tenants, usage ranged between 2.93 kWh and 7.91 kWh per day. In addition, a tenant meeting was arranged at CG to provide tenants with advice on eligibility for energy concessions and a general discussion with the 20 or so attendees followed.

Three key factors appeared to impact on the energy use of tenants: the physical location of their unit within the building, the personal circumstances which could include health and mental health issues, and the appliances they used. In general, their energy behaviours and consumption are not likely to be modifiable without addressing these key issues.

Tenants on the south-west side of the building consistently complained of the heat during summer and this impacted strongly on their behaviour. For example, one tenant on the western side of the building used more lighting because they kept windows covered to prevent the unit heating up. This tenant also left fans running all day and night. Even when the tenant was not in the unit the fans are left on as the tenant has a cat. One tenant on this side of the building reported not being interested in energy efficiency citing a preference for having an air conditioner installed.

Some of the tenants had medical issues or a disability that impacted on their energy behaviours.

In addition to the location of their units and their personal needs, the differences in energy consumption could be attributed to appliance use. Most appliances were originally supplied by CG, however some tenants have added to or replaced these appliances. Lack of control over appliance choice was generally viewed negatively.

Fridges originally supplied were the same brand (LG) and model (270L). Some tenants have since purchased their own appliances either because the supplied one was faulty or wasn't large enough for tenants needs. One tenant purchased a 120L freezer as well as a new fridge as shopping is onerous for him as he is blind. The same tenant had difficulty with appliances that used LED displays and setting adjustments rather than adjustable knobs.

While bulk purchases of identical appliances would be economical at the time of fit-out, as items are individually replaced there may be a case for providing greater flexibility in the choice of appliances for tenants based on their individual needs. Tenants with a disability may have specific requirements, e.g. fridges and washing machines with mechanical controls (not LED displays) for blind tenants.

As CG tenants have limited financial resources there is a higher risk of them inheriting or purchasing second hand appliances with higher energy use to add to their units. The tenant with the highest energy usage interviewed had a large older model TV. This TV saw a lot of use due to the tenant having medical issues which kept him unit bound. From the description provided the interviewer concluded it may have been a plasma TV and may have been contributing to his higher than average bills.

Despite experiencing disadvantage and having varying levels of existing energy knowledge, the tenants interviewed and at the meeting at CG were both interested in and capable of being energy literate. Many of the tenants were interested in using information from the CENT-A-METERS but noted they were not operating. Where tenants have shown interest, energy monitors may be a useful tool in promoting energy efficiency. The existing energy monitors could be re-activated or replaced. Most tenants also liked and used the kill switch when they were leaving the unit for any length of time.

One key observation from the interviews at CQ is that there is some level of concern from tenants about the billing arrangements and the tariffs for their electricity and hot water. While tenants did not necessarily want to be responsible for setting up and maintaining their own electricity account, there did seem to be a demand for more information and greater transparency about the arrangements.

Some tenants had previous experience of cheaper (off peak) tariffs and did not understand why these were not available at CG. Some tenants are concerned they are being overcharged or wrongly charged for their energy use. Many of the tenant concerns can be attributed to a lack of understanding about the current costs of energy and the options available to them, and about CGs supply arrangements method of passing on costs. Tenants may not understand the daily service fee and how that contributes to their cost of energy. For low usage tenants such as those at CQ service charges are likely to make up the bulk of their daily costs.

This lack of understanding may be compounded by the billing arrangements at CG, especially the infrequency of billing and the information provided on the bills. For example, bills sighted during interview did not separate out variable (usage) and fixed (service) fees. Changes to CGs bills to include this information or alternatively provision of a copy of the original Origin bill may help to dispel some of the tenants concerns and help them to better understand energy charges. This may be of benefit in future tenancies or when choosing a retailer in the future.

3. Solar panels

Common Ground installed 44 kW of solar panels when the building was constructed in 2012. These panels are supported by three inverters, one of which failed for a period. The panels are checked and washed quarterly at an annual cost of $4,800.

The panels offset common area usage by CG management on NMI ending 303. This area is on a business tariff based on a combination of usage and network peak demand charges. The panels cost $66,000 to install and produce annual savings between $7,226 and $13,574 per year. The estimate of the saving produced by the panels varies because part of the savings depends on how much the tariffs reduce total energy demand given the tariff for the CG common area is based on a combination of use (peak and offpeak) and a network peak demand for a month.[7] As CG common area use peaks at around

[7] As well as service, metering, AEMO, and environmental charges: Trevor Berrill energy audit, p. 30

midday with a lower peak at 6pm, the panels are effective in reducing the network peak demand charge.

There is no more room to install further panels[8] so a business case to install more panels has not been made. Instead this report looks at recommendations around improving the financial performance of the existing panels.

Trevor Berrill measured the performance of the panels over the five years since installation and found that:

- The panels are generating an average of 136 kWh per day;[9]
- This compared to an expected performance of around 164 kWh per day based on Australian Standards and BOM climatic data;[10]
- However, the panels performed around or only a little under the average performance based on the output of the panels over 15-23 May 2017 compared to other panels in south-east Queensland.[11]

Trevor Berrill considered that the lagging performance of the panels over 5 years could be attributed to:

- The relatively flat orientation and tilt of the panels, which leads to faster build-up of dirt. This however, cannot feasibly be addressed as increasing the tilt of the panels would cause some panels to shade other panels;
- An inverter failure on the third inverter caused some of this loss of performance, with the panels feeding the third inverter averaging 38.8 kWh per day since installation compared with 51.5 and 45.9 kWh per day on inverters 1 and 2. Inverter 3 has been fixed;
- Shading by a lightning rod on the panels feeding inverter 3.

Trevor Berrill also considered the maintenance costs at $4,800 per year were about double a reasonable fee.[12]

The recommendations to improve the financial performance of the solar panels are:

- At present the graph of use over the day shows a peak after deducting the output of the panels at around 6pm.[13] Move some of the peak demand to the middle of the day (e.g. hot water) to

[8] Trevor Berrill energy audit, p. 28.
[9] Trevor Berrill energy audit, pp. 27
[10] Trevor Berrill energy audit, pp. 27 and 29
[11] Trevor Berrill energy audit, pp. 27-28
[12] Trevor Berrill energy audit, p. 31
[13] Trevor Berrill energy audit, p. 34

flatten the point of peak demand and reduce network peak demand charges. This could save perhaps 4 kVA per month in peak demand[14] which is around $100 per month or $1,200 per year.

- Investigating whether it is feasible to move the lightning rod to reduce the amount of shading it causes. If this moved the performance of inverter 3 panels towards the average of inverter 2 then the usage savings alone would be around $295 per year (and maybe more if it also reduced network peak demand).[15]
- Periodically testing the cost of maintenance on the solar panels to see if the cost could be reduced towards around $2,400 per year. This could save up to $2,400 per year. It is noted that the job does require specialist skills due to the height of the building, so it may be difficult to realise a full $2,400 saving per year.
- Monitoring the performance of the solar panels by checking the interval meters to detect variations in performance from design predictions.

4. Metering

Trevor Berrill made a correction to the metering diagram for the Common Ground building during his energy audit. The actual metering diagram is at page 13 of his report.

5. Tariffs

5.1. Retail competition

The retail electricity market in south-east Queensland is open to competition. This means that tenants are free to choose the retailer that offers the best terms and conditions. At the same time, a standard retail tariff has been approved by the Queensland Competition Authority. This standard tariff is reviewed annually in July.

At present, competition among retailers in south-east Queensland has driven tariffs down to about 75 per cent of the standard tariff.

At present, tenants are on a discount of 17 per cent to the standard tariff in a deal with Origin that has been negotiated by CG management. It would be worthwhile for CG management and tenants to look for better retail deals. A website such as the Australian Energy Regulator's Energy Made Easy website allows electricity users to compare retail electricity offerings from different retailers (see https://www.energymadeeasy.gov.au/). Currently, for example, Alinta is offering a discount of 25 per cent on the standard tariff.

5.2. Tariff selection

Currently, the tenants at Common Ground are on tariff 11, which is the standard residential tariff. CG management has negotiated a 17.5% discount on the standard rates

[14] Comparing the peak at 6pm with use at other times in the graph at Trevor Berrill energy audit, p. 34
[15] Moving average daily performance of 38.8 kWh to 45.9 kWh at a usage rate of 11.4c per kWh

Tariff 11 is comprised of a flat consumption charge of 28.479c per kWh plus a daily supply charge of 95.846c per day. The consumption charge does not vary by the time of the day.

At present, there are better deals in the marketplace, with the best deal likely to be that offered by Alinta Energy, at a 25% discount to the standard tariff 11 rates.

While the tenant meters are directly connected to the Energex network, a range of tariffs discussed below are available. If the Common Ground building converted to an embedded network, then the only relevant tariff would be the tariff negotiated for the parent meter.

Other possible tariff choices include:

- *Tariff 12, a time of use tariff* that charges more for use at peak times (4-8pm) and less for consumption at shoulder (7am-4pm, 8pm -10pm) and offpeak times (10pm – 7am), plus a higher daily service charge than tariff 11 (about 30 cents more per day)
- *Tariff 33 – an offpeak tariff,* that provides power for a minimum of 18 hours per day. It is suitable for appliances that can be interrupted for some part of the day, such as hot water systems with tank storage. It has a usage charge of 20.482 c/kWh (a 21% discount on the tariff 11 usage charge) and has no daily service charge. It can only be used in conjunction with another tariff, such as tariff 11 or tariff 12.
- *Tariff 31 – a super offpeak tariff* like tariff 31, but where supply is available for only 8 hours per day (generally these eight hours will be between 10pm and 7 am). Usage is 15.776 c/kWh (a 39% discount on the tariff 11 usage charge). It may be suitable for hot water systems with tank storage.

Tariff 12 (time of use tariff)

This tariff charges a significantly higher peak charge for use from 4pm – 8pm when network demand is at its highest.

This tariff is not worth considering at present because of the 17.5% discount that tenants receive of tariff 11, which brings the usage charge to 23.495 cents per kWh, which is below the undiscounted shoulder charge above (25.674 cents per kWh).

Tariffs 33 and 31 (controlled load)

Tariffs 31 and 33 are only available for part of each day (18 hours for tariff 33 and 8 hours for tariff 31). These tariffs are not normally available at peak times (afternoon to evening). These tariffs are known as controlled load tariffs as the distributor controls the load to reduce its peak supply.

Where these tariffs are used, an additional meter must be installed, at a cost per year of $11.07. Some meters have the capability to support a primary load such as tariff 11, a controlled load such as tariff 31

or 33, and even a solar PV load. If the existing meter does not have this capability, then a new meter may must be installed.

The tariffs are typically used for hot water load or other use that can occur outside peak hours.

The tariffs would be suitable for Common Ground's hot water requirement, but at 15.776 c/kWh (tariff 31) or 20.482 c/kWh (tariff 33), look more expensive than the consumption rate that CG management currently pays (about 12.08 cents per kWh).

6. Moving to an embedded network

Embedded networks are private electricity networks that serve multiple customers and are connected to the distribution network through a parent meter. The embedded network is owned and operated by the building manager.[16] This party is known as an embedded network service provider. Generally, the embedded network service provider also purchases electricity at the parent meter and on-sells it to customers within the embedded network.

Common examples of embedded networks include shopping centres, retirement villages, apartment complexes and caravan parks. Embedded networks may occur as new developments or retrofits of existing buildings. In addition, they may, or may not, have distributed energy resources such as solar photovoltaic (PV) panels, battery storage, or diesel generators located within them.

The embedded network provider acts as the retailer and has similar obligations to a traditional retailer under the National Energy Consumer Framework. CG management would have to read the individual tenant meters and charge the tenants for services. CG management would also need to provide tenants with the consumer rights outlined in the exempt retailer guidelines. Many of these obligations can be provided by a third-party provider for a fee.[17] Third-party providers operate across Queensland.

The major reasons to move to an embedded network are:

- By moving to a single parent meter - only one set of daily service charges and meter reading charges are payable. The savings are larger for bigger blocks of units;[18] and
- The rate at which electricity is purchased is a bulk rate that is below the rate of tariff 11.

At Common Ground, tenants in the units currently pay 146 sets of daily service charges and daily metering charges (a total of about $56,000 per year). These service charges are substantial – about $1.05 per day or just on 50 per cent of total electricity charges for tenants using the average amount of

[16] The embedded network could also be operated by a building owner or a third-party.
[17] One provider is Meters2Cash, which charges a daily service charge around 27 cents per day to undertake meter reading and billing functions and bulk electricity purchase and supply to the embedded network.
[18] It would be possible to have an embedded network just for the unit tenants, and leave supply arrangements for commercial tenants just as they are.

4.5 kWh per day. This means that if these charges could be avoided, then tenants would pay only half as much per year for electricity.

There is the possibility also of saving on usage rates. It may be possible to negotiate a bulk rate for electricity 10 to 30 per cent below the rate for tariff 11.[19] At this time, to make a saving in usage rates the discount would have to be greater than the current discounted rate (17.5%). As discounts of up to 25% are available on usage rates in south-east Queensland (e.g. with Alinta), it may be that a discount of 25% or more would need to be negotiated to make a saving on the usage rate compared to rates available in the market place.

Moving to an embedded network does come with a range of requirements that must be met. Third parties can meet some or most of these requirements.

There are two types of third parties that can be contracted, retailers such as LPE and metering and billing agents such as Meters2Cash. A retailer like LPE acts as the retailer and fulfills all the obligations of a retailer, including reading the meters, providing a bill, and meeting obligations to register as a retailer in the market. A metering and billing agent like Meters2Cash provides the meter reading and billing functions, but is not registered as a retailer. This means that CG management would need to register with the AER as an 'exempt retailer' and would be responsible for meeting the customer obligations and protections required of retailers (although they are somewhat modified for exempt retail situations). Regardless of which model is adopted, CG will need to register to be an 'exempt network operator'. A decision between the two models and what each party can offer will involve consideration of the upfront costs for the retrofit, the best consumer outcomes for the tenants, and the ongoing price for energy that can be offered for tenants (including how long that price can be locked in for). These factors cannot be assessed without quotes and contract details from the parties.

To set up an embedded network, Common Ground would need to:

- Add a parent meter at the edge of the property (or convert an existing meter) and wire the existing meters into that parent meter;
- obtain the consent of tenants to be part of the embedded network;[20]
- choose a tariff for the parent meter. This could be done in conjunction with the third party providing the embedded network services; and
- buy existing meters off Energex. At an assumed rate of about $325 each,[21] this would amount to a one-off bill of about $48,000. It may be possible for a third-party provider to pay for the existing meters and then recoup this cost over time from tenants through electricity bills.

[19] Suggested by Meters2Cash
[20] From Dec 2017, there will be new rules to make it easier for tenants to leave embedded networks.
[21] This reflects the new cost for standard single phase meters less accumulated depreciation since 2012

Overall, there seem to be significant cost savings with moving to an embedded network. However, decisions would need to be made about the various obligations that are associated with the embedded network provider role which will generate work even when a third-party is engaged. However, with a clear understanding of these obligations and good stakeholder engagement with tenants to ensure they understand the arrangements and the financial benefits, this work should be largely upfront and not ongoing, and can be easily negotiated. One advantage for CG is that it is already familiar with passing on charges to tenants (and claiming concessions) for electricity. This means the organisation has some experience of the work involved which they could also lessen with the use of a third-party. Tenants are also used to energy contracts being managed on their behalf, however it will be new to them to receive their bills directly from another entity. The various pros and cons of moving to an embedded network are summarised in Table 3 below.

7. Concession arrangements

If tenants can access all the concessions and rebates that they are entitled to, this will significantly reduce their electricity bills.

There are four State-based concessions that could apply to tenants at Common Ground.

These are:

- *Electricity rebate*, worth $340.85 per year. This rebate is available to parties including age pensioners and low-income earners holding a Commonwealth Health Care Card;
- *Home Energy Emergency Assistance Scheme*. This is a payment of up to $720 once every two years to parties who are facing an unforeseen emergency or a short-term financial crisis. They must hold a current concession card, or have an income equal to or less than the Australian Government's maximum income rate for part-age pensioners. They must be part of their energy retailer's hardship program or be on a payment plan.
- *Medical cooling and heating electricity concession*, worth $340.85 per year. This is available to parties with an eligible medical condition who have an air-conditioner or heater at their place of residence; and
- *Electricity life support*, which is for people who are seriously ill, hold a concession card, and use a home-based oxygen concentrator or kidney dialysis machine. The payment is $694.18 per year for an oxygen concentrator, or $ $464.88 per year for a kidney dialysis machine.

The Department of Energy and Water Supply clarified during the writing of this report that Common Ground tenants are eligible to receive the electricity rebate even though they do not have a direct contract with a retailer and are not currently part of an embedded network. The Department subsequently clarified that tenants would be eligible for the other State-Government concessions and rebates. CQ had commenced a process to claim the concession on behalf of tenants at the time of this report.

Concession arrangements including full details about eligibility, payment amounts, and how to apply are summarised in Appendix A. Where the electricity account is in the tenant's name, the tenant should approach the retailer directly (with support from the community housing provider as required).

It may be that some tenants at Common Ground are eligible for concessions such as the Medical Cooling and Heating Electricity Concession but are not aware of it. It would be useful to hold periodic information sessions with tenants (say once every 1-2 years depending on the rate of turnover in tenants) to assess whether tenants are receiving all relevant concessions and rebates.

It is recommended that residents be informed of the four concessions and their eligibility checked every one to two years. Tenants can be eligible for multiple concessions at the same time.

8. Recommendations in specific uses

This section reviews the opportunities for savings in a range of areas of energy use within tenant flats.

8.1. Selection of appliances

It is important to choose appliances based on minimising the whole-of-life costs of appliances. The cost of electricity is an important consideration in the selection of appliances. Other whole-of-life considerations include maintenance and associated costs (such as water costs for washing machines and dishwashers), and the likely lifespan of the appliance.[22] For example, the Trevor Berrill energy audit notes that lower cost fridges rated only 2.5 stars typically cost more in whole-of-life terms than 3.5-star fridges, because of the long life of fridges and the cost of electricity (see section 0 below).

The running costs of the less efficient and more efficient appliance can be worked out.[23] The difference in running costs can be compared with the difference in upfront costs between the less efficient appliances and more efficient appliances to determine the simple payback period on buying the more efficient appliance.[24][25] A payback period of less than around 8-10 years would support buying the more efficient appliance. A shorter payback period may support retiring a less efficient appliance earlier than the natural end of its life.

If CG management buys the main household appliances, then any additional upfront costs associated with more efficient appliances would be borne by CG management. Noting that the tenant derives any benefit from the lower running costs of more efficient but more expensive appliances, it may be possible to come to some form of arrangement, for example that the tenant makes some contribution

[22] Trevor Berrill energy audit, p. 15

[23] See Ergon Energy website at https://www.ergon.com.au/retail/residential/home-energy-tips/calculators/appliance-running-cost-calculator

[24] A simple payback period is one that excludes the cost of finance, i.e. any borrowing costs of the funds used to finance expenditure

[25] For example, if a more efficient fridge is $100 more than a less efficient fridge, then assuming less efficient fridge costs 2c/hour more, then assuming 24-hour operation, the less efficient fridge will cost $175 per year to run and the simple payback period buying the more efficient fridge is about 7 months.

to the community housing provider to cover the cost of the more expensive appliance (options are discussed further in section 11 below).

8.2. Hot water

Heating water is a major component of tenant's total electricity costs (about 24 per cent on average). As noted above, tenants are supplied by a bulk hot water system. Tenants shower and tap fittings are understood to be of a WELS rating of 3, which means that they are water-efficient or low flow.[26]

Unit tenant hot water use is typical for new units at around 28L per day.[27] However, some tenants use significantly more, including one tenant using up to 295 litres per day.

It would be worth monitoring excessive hot water use by individual units and provide advice to tenants where use is say more than three times the average (i.e. about 87 litres per day). This is not intended to infringe on privacy but to ensure tenants understand the impact that hot water usage has on their costs and some of the options they might have.[28]

As noted by the Trevor Berrill energy audit, the current Rheem system is not performing at its rated coefficient of performance (COP) of 3.06, instead performing at about 1.69. If the system operated at its rated COP, then CG could expect to save about $5,186 per year.

It is recommended to:

- Discover the reasons why the Rheem heat pumps are not working at their estimated COP. The reason may be that more regular cleaning of the condensers and evaporators is required, a need for more insulation of the pipework, or a manufacturing flaw.
- If it is not possible to significantly improve the performance of the system, then it may be worth considering replacing the system in whole or in part. At a simple payback of 7 years, moving from a system with a COP of 1.69 to a system with a COP of 4.5 (a relatively high CPO) would save over $7,200 per year, making it worth investing $50,000 or more in a partial or full replacement of the existing system.

8.3. Fridges/Freezers

The fridges/freezers use about 18 per cent of energy within the individual units.

It is understood from tenant interviews that the fridges are mostly 270 litre fridges originally installed by CG management when the building was opened.

[26] The WELS (Water Efficiency and Labelling Standards) rating system is a system for rating the efficiency of water products. Information on the WELS rating system can be found at http://www.waterrating.gov.au/consumers/water-efficiency

[27] Trevor Berrill energy audit, p. 23

[28]

Trevor Berrill's energy audit estimated the fridges used about 1.05 kWh per day. This would equate with an estimated star rating of about 2 stars for a 270-litre fridge.[29]

Two stars is a low efficiency rating. It would suggest that a primary basis for the purchase of the fridge was the upfront price, rather than the energy efficiency level. When lifetime running costs are added, such a fridge may cost more over time than a more energy-efficient fridge.

Moving to a 3.5-star energy efficient fridge would save around $31 per year.[30] This means that it may not be worth replacing existing fridges as the payback period would be over 10 years.[31]

However, when buying new fridges (and other appliances), it would be worth considering the energy efficiency rating of the fridge to select the fridge with the lowest whole-of-life costs.

8.4. Lighting

The lighting inside units and in the common areas is understood to be fluorescent lighting.

The energy rating of these lights is not stated, but Trevor Berrill's energy audit estimates that they use about 48 cents per day or $175 per year.

These lights could be converted to LED lights. The cost would depend on whether the fitting around the current lights would need to be replaced and whether a bulk rate could be negotiated. An estimated price for replacement would be between $20 and $50 per light.

Assuming the existing lights are 36W fluorescent lights and the lights are on for 8 hours per day then the saving might be $22 per year,[32] meaning a simple payback period of less than one year.[33] Given these cost savings, it makes sense to install the new LED lights right away rather than waiting until the existing bulbs blow. The new bulbs do not need to be installed by an electrician unless the fitting for the light also needs to be changed.

[29] Based on the figures at http://www.sustainability.vic.gov.au/services-and-advice/households/energy-efficiency/at-home/appliances/fridges-and-freezers based on the midpoint between the 200 and 350 litre fridges and related electricity usage levels.
[30] At an estimated 383 kWh per year coming down to 251 kWh per year at the current discounted rate of 23.495 cents per kWh (17.5% discount to standard tariff 11 rate)
[31] At an estimated purchase price of $575 for a Samsung 270 litre fridge (advertised on Harvey Norman at https://www.harveynorman.com.au/kitchen-appliances/appliances/fridges/samsung-270l-top-mount-fridge-stainless-steel.html), the simple payback period would be over 18 years.
[32] At the tariff 11 usage rate assuming use of 12 hours/day.
[33] Trevor Berrill energy audit, p. 15

8.5. Thermal mass shading and insulation

Trevor Berrill's energy audit suggested some measures to reduce heat entering the building including:

- The existing ceiling fans could be replaced by high-efficiency fans to improve the liveability of the units on the south-west side of the building. It is noted that the payback period for doing this was more than 10 years.
- External vertical adjustable shading could be installed on the southwest-facing balconies. Again, the payback period is likely to be greater than 10 years, however the increased amenity for tenants may justify this expenditure decision. Fabric or aluminium fixed louvres are low cost options for external shading.[34]

In addition, there are some additional measures that could be considered:

- Choosing and maintaining lighter colours for future painting of the building to reflect heat and light coloured or silver roof sheeting to reflect heat from the sun;
- Choosing lighter colours internally to reduce the need for lighting during the day; and
- When replacing curtains, using thick or block-out curtain material, especially on the units on the south-west.

9. Batteries

Batteries are coming down in cost. One battery currently on the market is the Tesla Powerwall 2, which holds up to 14 kWh, which costs around $10,200 to 11,950 installed.[35] The battery could be used to supply some use at peak times, and then recharge at offpeak times. It may also be used to try to reduce the height of the network peak, producing a saving in the network peak demand charge.

However, the difference in price between peak and non-peak use is only about 3.3 cents per kWh,[36] meaning the battery would save only about $169 per year. It is difficult to estimate the saving in network peak demand charges, but as use is relatively flat across the day, the potential saving is quite small.

Accordingly, battery technology is unlikely to be a sensible investment for the foreseeable future.

10. Education programs

As noted earlier, tenants are currently generally quite efficient in their use of both electricity and hot water.

[34] See http://www.ecospecifier.com.au/knowledge-green/setting-priorities/eco-priority-guide-external-shading-devices/

[35] Plus any electrical upgrades (if necessary), permit fees, or any retailer / connection charges: see Tesla website at https://www.tesla.com/en_AU/powerwall

[36] Based on the figures in Trevor Berrill's energy audit at Table 10, p. 32

However, there are some tenants who use 3 times the average electricity or 10 times the average hot water.[37] This could in some instances be related to the personal circumstances of tenants, for example a health issue. In these cases, it may be difficult for tenants to reduce usage. However, to the extent that there are opportunities to reduce use, it may be worthwhile to provide some energy and hot water saving advice to tenants using at the upper end of the range of usage. In addition, energy and hot water saving tips could be reinforced through the tenant newsletter, say one tip per newsletter, or by posters in the common area.

It may also generally be worthwhile to remind tenants through support officers about the electricity-related concessions and rebates that they may be eligible for, including the electricity rebate, the medical cooling and heating rebate, and the Home Energy Emergency Assistance Scheme (as noted above).[38] The full list of rebates and concessions is outlined in Appendix A below.

11. Funding for energy investments

Community Housing providers may have limited funds to invest in energy efficiency as they often rely solely on income collected from rent which is lower than market value. At the same time, Government policy relating to community housing providers can constrain their ability to innovate and generate additional revenue.[39] Some decisions on assets and asset replacement are also outside of providers' control. For example, providers often manage housing that was built and is owned by the state government. While providers are responsible for maintenance, they may not be responsible for larger upgrade efforts which involve replacement of appliances or other renovations. Providers will also need permission for changes they may wish to make in some circumstances. This financial and policy context presents barriers that may need to be addressed concurrently with implementation of this plan, to realise the objective of providing affordable housing for tenants.

Despite these barriers opportunities exist for both providers and tenants. Possible sources of funding could be:

- *The No Interest Loan Scheme* (NILS) offers people on low incomes safe, fair and affordable loans of between $300 to $1,200 for fridges, washing machines and furniture. There are several NILS providers in the Brisbane area. The NILS scheme could be used to finance tenants to buy new energy efficient appliances.
- *The Clean Energy Finance Corporation* can provide capital to the community housing sector including for solar panels. It can provide finance on 10-year terms. CEFC is targeting the community housing sector to provide energy efficiency products such as solar panels, insulation,

[37] Maximum use was 14.5 kWh per day compared to an average of 4.5 kWh per day and 295 litres of hot water per year compared to an average of 29 litres per day.

[39] Ideally, providers may like to introduce more flexible rent policies, or own housing assets so that they can borrow against them.

LED lighting, energy efficient appliances, and smart meters.[40] The CEFC does not tend to operate at a small scale so loans may need to cover several community housing portfolios.

- *Tenant rental increases*. This would involve Common Ground upgrading appliances for tenants' benefit or providing low cost loans to tenants to support energy savings e.g. like the NILS. Loans could not be rolled into rental charges at present without a policy change from the Queensland government.

In addition, in October 2017 the Queensland Government announced that:

- An Asset Ownership Dividend of $50 a year will be paid for every household bill over the next two years, starting from January 2018 and showing on bills from the second quarter of 2018.
- Power bills are pegged to average inflation over the next two years.

Private retailers have provided significant funding to support energy efficient advice and appliance programs (e.g. Switched on communities,[41] SA Retailer Energy Program,[42] NSW appliance replacement program[43]), sometimes in conjunction with Government. The Queensland Government announced in October 2017 it would provide rebates of up to $300 to purchase an energy efficient fridge, washing machines or air conditioner starting from January.[44]

[40] See CEFC website at https://www.cefc.com.au/where-we-invest/community-housing.aspx
[41] See QCOSS website at https://www.qcoss.org.au/switched-communities-grants
[42] See for example AGL website at https://rees.agl.com.au/
[43] See NSW Office of Heritage and Environment website at http://www.environment.nsw.gov.au/households/appliance-replacement-offer.htm
[44] Media Release, Minister for Main Roads, Road Safety and Ports and Minister for Energy, Biofuels and Water Supply, 22 October 2017.

12. Summary

Based on the above analysis the recommendations in Table 4 below are made.

Table 4: Recommendations

Item	Action	Upfront cost to Common Ground	Saving	Saving accrues to
Use	Install a smart meter to measure the combined use by the individually metered tenants to better understand use. This can guide decisions such as whether to change to tariff 12 or the size of solar panels to install. Could also monitor the outcomes of the existing Ergon trial of smart meters installed at low income households to see if the tariff is effective in saving money for similar households.	Around $400	There are no current prices for smart meters in Ergon's network. Prices will be available from December 2017	NA
Embedded network	Set up an embedded network and hire a third-party provider to provide meter reading and billing services.	Parent meter at $400. Costs of buying existing meters – around $48,000. Any cost for obtaining a quote from a third party to set up an embedded network	Annual savings of around $27,200 (hiring LPE) to $42,100 (hiring Meters2Cash) net after third party fees	Tenants
Fluorescent lights	Replace fluorescent lights with LEDs	About $20-50 per light depending on if the light fitting needs to be replaced	$22-25 per year per light replaced	CG management in common areas and tenants in individual units
Hot water	Investigate and seek to fix the low COP of the existing hot water system. Consider replacing part or all the system with a high efficiency system if the COP cannot be raised to nearer 3.	Need to obtain quote	Around $5200 per year in raising the COP to the design rating of 3.06	CG management
Tenant use	Run an education campaign for tenants on energy use targeting tenants with high electricity or hot water use	NA	Difficult to quantify	Tenants
Rebates and concessions	Check tenant eligibility for rebates and concessions. Hold periodic information sessions with tenants (say once every 1-2 years depending on the rate of turnover in tenants) to assess whether tenants are receiving all relevant concessions and rebates	NA	Perhaps $350 in savings for each additional eligible tenant depending on the relevant concession or rebate	Tenants

13. Advocacy opportunities

There are a range of changes to energy policies in Queensland that could assist the community housing sector including tenants to save on their electricity costs. These include:

- Providing flexibility to community housing providers to agree with tenants to charge a fee within a rental agreement to cover the cost of solar panels where the output is being provided to tenants
- Expanding the current Queensland Government public housing initiatives for the rollout of solar power and digital meters from public housing clients in detached housing (see section 11) to community housing clients.
- Providing a simpler and more efficient process for providers to access electricity concession payments on behalf of tenants, than the current process (filing a form 502 every month or quarter) provides.

Appendix A

A1. Concession arrangements for tenants

Concessions are available at a State or Federal level.

At a State level, there are four main concessions available for electricity consumers.

The scope, eligibility, and application process for each concession type is outlined below. More information on these concessions is available at the Department of Energy and Water Supply website at https://www.qld.gov.au/community/cost-of-living-support/energy-concessions.

Where tenants meet the eligibility criteria for more than one concession, they can get receive each of the concessions for which they are eligible.

A2. Electricity and gas rebates[45]

The electricity and gas rebates are open to people who hold any of the below:

- Pensioner concession card;
- Department of Veterans' Affairs Gold Card (and receive the War Widow/er Pension or special rate TPI Pension)
- Queensland Seniors Card.
- Commonwealth Health Care Card (Electricity Rebate only)
- Asylum seeker status (residents will need to provide their ImmiCard details) (Electricity Rebate only)

The electricity rebate is $340.85 per year including GST. The Reticulated Natural Gas rebate is $71.30 per year including GST.

The scheme was expanded in January 2017 to Commonwealth Health Care Card holders and asylum seekers. The payment for these parties can be backdated to 1 January 2017 if they apply by 31 December 2017.

To be eligible the tenant must be the account holder and live alone or share the residence with:

- Their spouse;
- Other people who hold a Pensioner Concession Card or Queensland Seniors Card;
- Other people wholly dependent on them;
- Other people who receive an income support payment from Centrelink, the Family Assistance Office, or the Department of Veterans' Affairs and who do not pay rent; or

[45] See the Department of Energy and Water Supply website at https://www.qld.gov.au/community/cost-of-living-support/electricity-gas-rebates

- Other people who live with the card holder to provide care and assistance, and who do not pay rent.

Electricity users only receive the concession if they apply for it. To apply, they should contact their retailer.

As noted above, tenants must be individually metered to be eligible. This means that the eight rooms with shared bath/kitchen are not therefore currently eligible for the electricity rebate.

Owners or proprietors of residential home parks or multi-unit residences that operate an embedded network and retail or 'on-sell' to tenants are required to advise residents that electricity and gas rebates are available and claim the rebates on behalf of eligible residents.[46]

The electricity rebate is available for premises where the proprietor/owner:

- Is the consumer of the energy retailer and has the account in its name rather than in the tenant's name;
- Supplies electricity and/or reticulated natural gas to each of the separately identifiable vans, flats or home units; and
- Charges for electricity and/or reticulated natural gas used by residents based on metered consumption.

In these cases, the proprietor/owner is responsible for submitting the application form.[47] The retailer specifies the process for applying for the electricity rebate. Form 502 must be submitted to the retailer. This form can be found at the Department of Energy and Water Supply website at https://www.communities.qld.gov.au/resources/communityservices/community/government-concessions/502-electricity-proprietor-application-form.pdf

A3. Home Energy Emergency Assistance Scheme[48]

The Home Energy Emergency Assistance Scheme is for Queensland households experiencing problems paying their electricity or reticulated natural gas bills because of an unforeseen emergency or a short-term financial crisis. It is a one-off emergency assistance to help with paying home energy bills. The amount of the scheme is up to $720 once every 2 years.

To be eligible, a person must:

[46] See the Department of Energy and Water Supply website at https://www.qld.gov.au/community/cost-of-living-support/residential-homes-rebates

[47] Where electricity accounts are in the name of the tenant, then the tenant should approach the retailer directly or with assistance about obtaining the electricity rebate.

[48] See the Department of Energy and Water Supply website at https://www.qld.gov.au/community/cost-of-living-support/home-energy-emergency-assistance-scheme

- Hold a current concession card, or
- Have an income equal to or less than the Australian Government's maximum income rate for part-age pensioners. This maximum income rate can be advised by Centrelink.
- Be part of the person's energy retailer's hardship program or payment plan.

Full eligibility details can be advised by the party's energy retailer.

Parties can apply by contacting their energy retailer, or through their community group or financial counsellor.

A4. Medical cooling and heating electricity concession[49]

The Medical Cooling and Heating Electricity Concession Scheme helps with electricity costs for people who have a chronic medical condition, such as multiple sclerosis, autonomic system dysfunction, significant burns or a severe inflammatory skin condition, which is aggravated by changes in temperature.

The amount of the Medical Cooling and Heating Electricity Concession Scheme is $340.85 including GST per year. This is paid quarterly ($85.22 each quarter).

To be eligible, a party must:

- Be a Queensland resident and
- Have a qualifying medical condition and need cooling or heating to stop the party's symptoms becoming significantly worse. Qualifying medical conditions include:
    - multiple sclerosis
    - autonomic system dysfunction
    - loss of skin integrity or sweating capacity
    - severe compromise of functioning such as mobility at extremes of environmental temperature
    - hypersensitivity to extremes of environmental temperature leading to increased pain or other discomfort or an increased risk of complications and
- Live at a principal place of residence, which has an air-conditioning or heating unit.

The applicant and/or legal guardian of a minor with a qualifying medical condition must:

- Hold a current Pensioner Concession Card or a current Health Care Card and
- Be financially responsible for paying the electricity bill.

[49] See the Department of Energy and Water Supply website at https://www.qld.gov.au/community/cost-of-living-support/medical-cooling-heating-electricity-concession-scheme

Full details of eligibility for the concession including qualifying medical conditions, are listed on the application form. The party's medical specialist must fill out the medical certification section.

If there are multiple applicants living in the same group home with one electricity account, each person can apply separately.

If a party lives in a residential park, caravan park, or unit complex, he or she can apply and will need to show that his or her electricity usage is metered and billed (he or she should include an invoice or letter from the manager in his or her application).

A copy of the application form can be found at the Department of Energy and Water Supply website at https://www.qld.gov.au/community/documents/cost-of-living-support/heating-cooling-brochure.pdf.

Parties must reapply every two years. Parties must notify any changes of address, bank account details, or eligibility for the scheme immediately to Concession Services at Smart Service Queensland.

People should approach Smart Service Queensland (call 13QGOV or 3247 5941) through their doctor to make an application. People may be eligible for both this payment and the Essential Medical Equipment Payment administered by Centrelink.

A5. Electricity life support[50]

The electricity life support concession is for eligible people who are seriously ill and use a home-based oxygen concentrator or kidney dialysis machine.

Parties should contact their retailer and register their house as a life support household.

a. Oxygen concentrators

Parties are eligible if they:

- receive an oxygen concentrator free of charge through the Medical Aids Subsidy Scheme (MASS); and
- have been medically assessed in accordance with the eligibility criteria determined by MASS; and
- hold one of the following concession cards:
    - Pensioner Concession Card
    - Health Care Card
    - Health Care Interim Voucher
    - Child Disability Allowance
    - Queensland Seniors Card.

[50] See the Department of Energy and Water Supply website at https://www.qld.gov.au/community/cost-of-living-support/electricity-life-support

b. Kidney dialysis machines

Parties are eligible if they receive a home-based kidney dialysis machine free of charge through a Queensland Health hospital.

If the oxygen concentrator or kidney dialysis machine was not supplied by Queensland Health, the party is not eligible to receive the electricity life support concession. The concession is not available for any other machines supplied through Queensland Health or other agencies. Continuous Positive Airflow Pressure (CPAP) machine users are not eligible to receive the concession.

Full eligibility requirements for the concession are outlined on the application form.

The application form should be sent within 14 working days of receiving the oxygen concentrator or provided by the Renal Unit at Queensland Health Hospitals.

For eligible electricity users, the payment for each oxygen concentrator is $694.18 per year, or $57.85 per month ($173.55 per quarter), or for each kidney dialysis machine $464.88 per year, or $38.74 per month ($116.22 per quarter).

The concession is calculated monthly and paid quarterly around 1 January, April, July, and October each year.

Changes in address, bank account details, or eligibility must be notified immediately to Concession Services at Smart Service Queensland.

People should approach Smart Service Queensland (call 13QGOV or 3247 5941) through their doctor to make an application. People may be eligible for both this payment and the Essential Medical Equipment Payment administered by Centrelink.

A6. Selected assistance available through Centrelink

Essential Medical Equipment Payment – this payment helps with the additional costs of running essential medical equipment, medically required heating or cooling, or both. The maximum rate is $154 each year. Further details can be found at https://www.humanservices.gov.au/individuals/services/centrelink/essential-medical-equipment-payment?utm_source=eea&utm_medium=web-application&utm_campaign=eea-pf

Crisis payment – People are eligible for this payment if they are in a financial crisis. This one-off payment is equal to a week's pay at the person's existing income support payment rate. People can get up to 4 payments over 12 months. Further details can be found at https://www.humanservices.gov.au/individuals/services/centrelink/crisis-payment?utm_source=eea&utm_medium=web-application&utm_campaign=eea-pf

Special benefit payment – People are eligible if they are in severe financial hardship. The rate is usually the same as Newstart Allowance or Youth Allowance. Further details can be found at

https://www.humanservices.gov.au/individuals/services/centrelink/special-benefit?utm_source=eea&utm_medium=web-application&utm_campaign=eea-pf