



WATTBLOCK

Understanding Your Wattblock Energy Report

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Wattblock reports indicate the building address, category, size, and the overall utility expenditure estimates for common areas and apartments.

FAST PAYBACK OPPORTUNITY

Highlights fast payback savings across all utilities for both apartments and common areas.

SUSTAINABILITY ROADMAP

Compares the current and optimal annual utility costs possible through tariff optimisation, energy and water efficiency, and solar energy for both the common areas and for the apartments.

LOW HANGING FRUIT

Provides a list of the top projects which have been identified in terms of annual savings opportunity, project costs and payback.

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WATTBLOCK ENERGY REPORT

PREMIUM ASSESSMENT

Prepared For: Owners Corporation
Sample Building
Street Address QLD 4000
Block Type: High Rise
Total Floors: 16 + 4 Parking
Total Units: 82
Age of Block: 16 Years
Date: 22 July 2016

Common Energy: \$30,515 p.a. | Apartment Energy: Est. \$174,000 p.a. | Water: \$35,381 p.a.

FAST PAYBACK OPPORTUNITIES

Wattblock estimates the annual energy costs for your common areas can be reduced by 42% after all identified projects meeting fast payback criteria.

ESTIMATED
COST
REDUCTION

42%

Includes Maintenance

ESTIMATED
ANNUAL COST
SAVINGS

\$17,238

Includes Maintenance

ESTIMATED
PROJECT COSTS

\$52,999

ESTIMATED
PAYBACK

3.1

Note: All figures are GST inclusive.

SUSTAINABILITY ROADMAP

Energy efficiency upgrades, solar installation and power factor correction can lower your energy bill by reducing grid usage and providing feed-in revenue.

Water savings can be achieved by targeting water leakages and efficiency.

Annual Utility Costs

Common Energy Apartment Energy Water



Current



Optimal

42%
Combined
Savings
Potential

LOW HANGING FRUIT

Wattblock recommends the top projects for your block as summarised in the table.

Note: Solar installation may be available under a no upfront cost Power Purchase Agreement.

Projects	Description	Est. Savings	Est. Cost	Est. Payback
1 Carpark Lighting	Replace fluoro tubes in basement carpark with LED.	\$6,067	\$16,988	2.8 Years
2 Common Area Lighting	Replace common area lighting in foyers, floors and fire exits with LED.	\$6,668	\$30,006	4.5 Years
3 Rooftop Solar	Install a 16 kW solar energy system on your roof.	\$2,419	\$20,800	8.6 Years
4 Water Sub-metering	Install water sub-metering for enhanced analytics on apartment water usage.	\$10,141	\$26,491	2.6 Years
5 Swimming Pool Pump	Improve the efficiency of water pumps in the swimming pool.	\$443	\$714	1.6 Years

NOTE: Energy and water savings opportunity identified in the first section is designed to highlight the combined return on investment results from projects with rapid payback. Solar Energy is often excluded due to longer payback.

ENERGY WHEEL

This pie chart separates common area electricity and gas usage costs into five main categories: lighting, mechanical, HVAC (heating, ventilation, and air conditioning), water, and facilities.

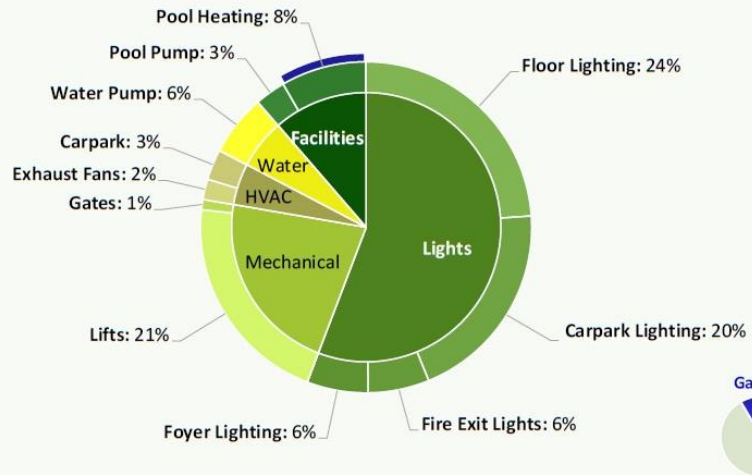
Each of these is broken down further to show where energy costs are greatest. The blue indicates which costs are for gas.

COMMON AREA ENERGY CONSUMPTION

Understanding which assets are likely to be contributing to your block's common area electricity and gas consumption is the first step in building an energy reduction roadmap.

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* Split by energy costs



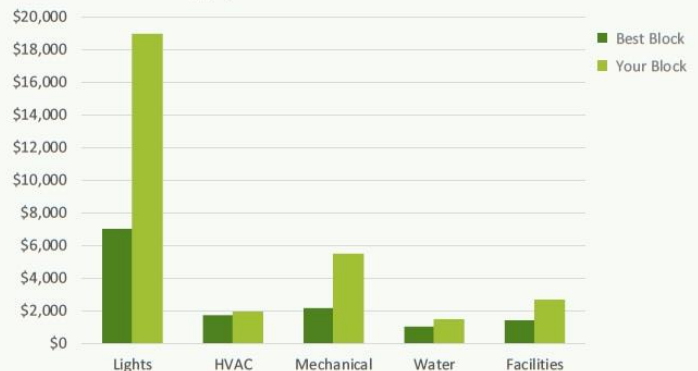
COMMON AREA ENERGY SAVINGS

Total annual common energy cost of \$30,515 includes \$24,772 in electricity billing and \$5,743 in light bulb replacements.

Best block compares your block with its optimal future state. This is based on proven savings in other best-in-class buildings.

Note: HVAC stands for Heating, Ventilation and Air Conditioning systems.

Annual Energy Spend



	Best Block	Your Block	Difference	
Lighting	\$5,656	\$17,609	\$11,953	✓
HVAC	\$1,211	\$1,420	\$209	✓
Mechanical	\$2,036	\$5,384	\$3,347	
Water	\$876	\$1,318	\$442	
Facilities	\$1,135	\$2,422	\$1,287	✓

✓ Low risk and easy upgrade opportunity

COMMON AREA ENERGY SAVINGS

The table and graph highlight areas that will save the most on energy bills when energy efficiency measures are implemented.

Potential savings are calculated by comparison to the best results that other buildings have achieved.

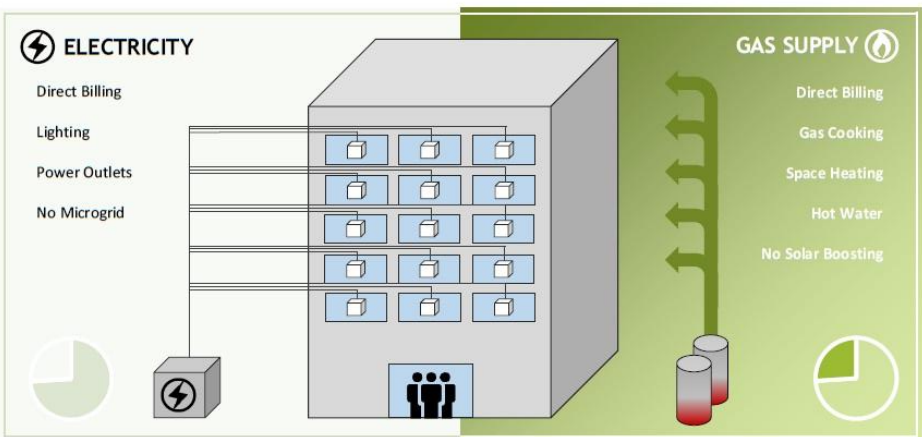
Green ticks highlight the main areas where upgrade opportunities are both low risk and easy to implement.

INDIVIDUAL APARTMENT ENERGY CONSUMPTION

A diagrammatic representation of the building is used to illustrate the way energy systems are set up for apartment energy usage. While some energy systems are direct user pays systems, others are common or shared systems.

INDIVIDUAL APARTMENT ENERGY CONSUMPTION

Coordinating electricity and gas purchases across common areas and individual apartments provides mutual benefit.



INDIVIDUAL ENERGY BILLING

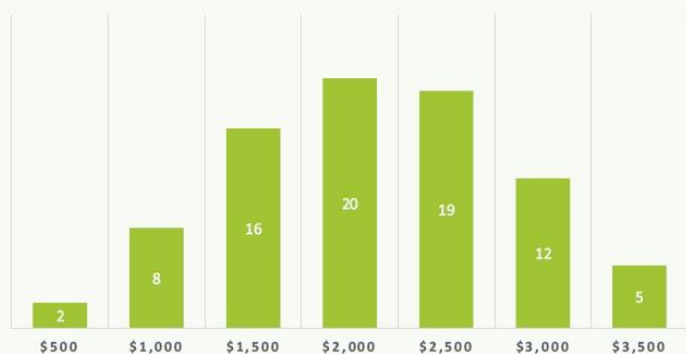
This graph uses statistics to distribute the individual apartments by their energy bills into different annual cost ranges.

INDIVIDUAL ENERGY BILLING

Wattblock estimates the annual energy cost for all individual units to be \$174,000 split between electricity (74%) and gas (26%).

This cost is distributed among 82 apartments as follows. For example, it is estimated that there are 19 apartments which are spending about \$2,500 per year on energy usage.

Annual Energy Billing Distribution



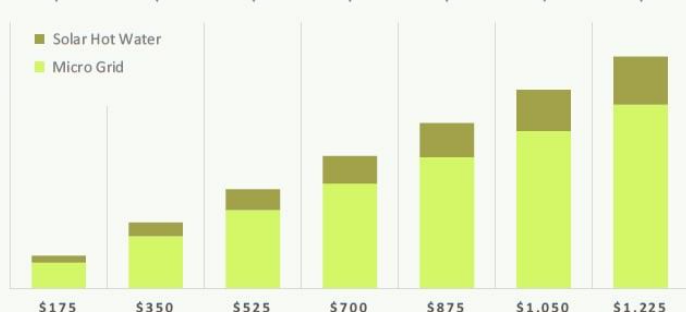
BULK BILLING ANNUAL BENEFIT

Shows the estimated savings for each group identified in the table above. Savings are broken into different types of opportunities such as solar hot water and 'Micro Grid'.

BULK BILLING ANNUAL BENEFIT

The Owners Corporation can secure energy for apartments at lower rates. Savings can be passed on to residents or provide additional income to the Owners Corporation.

For example, an individual unit currently spending \$2,500 p.a. could reduce their bill by \$875.



NOTE: 'Micro Grid' or Embedded Electrical Networks are when apartments buy energy from the strata at lower rates instead of directly from retailers. There are pricing, payment, and notification laws governing the resold energy from the strata to protect the apartments.

WATER SAVINGS OPPORTUNITY

This section shows the overall savings opportunity from water efficiency and elimination of water leaks in apartments and common areas.

DAILY USAGE PROFILE

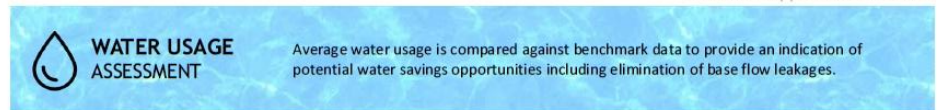
This graph shows the distribution of water usage over the hours of the day. Water efficiency and base flow water leakage are shown in colour.

TOTAL COST BREAKDOWN

Shows the estimated total water supply costs for the block including common areas & apartments. Base flow water leakage is shown separately.

The table lists the top five apartments in terms of water usage and estimates the number of people. The 'Biggest Waster' is also shown on the graph.

The scale at the bottom shows how the building compares to other apartment blocks.



WATER SAVINGS OPPORTUNITY

Estimated cost saving opportunity includes elimination of water leaks and other water efficiency measures.

DAILY WATER USAGE PER APARTMENT

546 L
Typical Usage

ESTIMATED ANNUAL COSTS PER APARTMENT

\$431
Avg 2.1 Bedrooms

ESTIMATED ANNUAL SAVINGS OPPORTUNITY

\$208

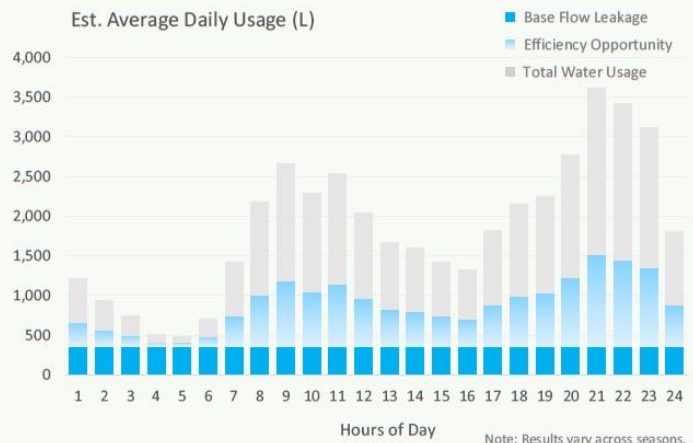
PERCENTAGE SAVINGS OPPORTUNITY

48%

DAILY USAGE PROFILE

Analysis shows higher daytime usage with peaks in the morning and evening.

Total savings opportunity of \$208 per apartment can be split between \$124 of water efficiency gains and \$84 of water leak fixes.

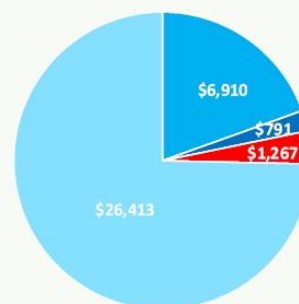


TOTAL COST BREAKDOWN

Water savings in common areas like pools and toilets can be achieved through inspection by plumbers and other professionals.

Further savings can be achieved through engaging residents with information and checklists.

Total Annual Cost Breakdown



Rank	Cost	kL	People*
1	\$1,267	584	8
2	\$887	409	6
3	\$802	370	5
4	\$676	312	4
5	\$633	292	4

*Estimated people based on usage

Daily Usage Per Apartment (L)



ENERGY SAVINGS OPPORTUNITY

This section shows the overall financial return on solar investment with and without batteries. Roof space and energy usage limit the size of solar.

LOAD PROFILE ASSESSMENT

The grey bars show the average hourly grid energy use over a day. Solar usage potential is shown in green. The yellow area shows energy usage from a larger combined solar and battery energy system.

SOLAR PAYBACK ASSESSMENT

This graph compares cash flow impacts of solar investments with and without batteries throughout a 25 year lifetime. The payback period is shown where the lines crosses \$0 on the year axis.

Allowance is made for replacement of inverters & batteries in year 12.

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SOLAR + BATTERY IMPACT ASSESSMENT

Solar energy viability depends largely on available roof space for solar panels, the electrical usage over the day and across seasons of the year. Adding batteries enables a larger solar system to be installed.

ENERGY SAVINGS OPPORTUNITY

This page assumes common area energy efficiency projects (e.g. LED lighting) have already been completed.

Add Batteries
Based on Tesla Powerwall

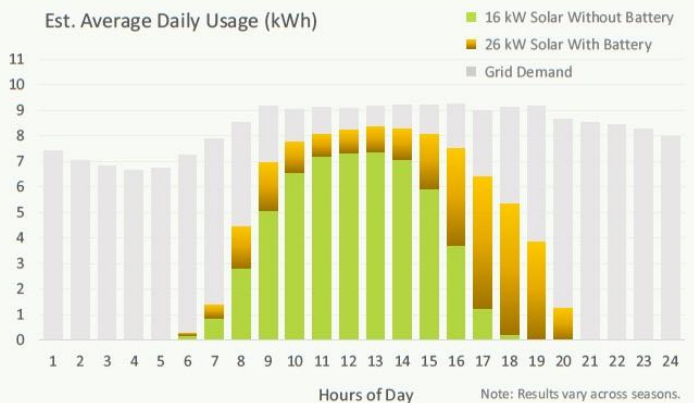
SOLAR SYSTEM SIZE	ESTIMATED ANNUAL COST SAVINGS	ESTIMATED PROJECT COSTS	ESTIMATED PAYBACK
16 kW Excluding Batteries	\$2,419 Energy & Maintenance	\$20,800 After Rebate	8.6 Years
26 kW	\$3,478	\$59,480	17.1 Years

Note: Contact Wattblock for alternative system configurations.

LOAD PROFILE ASSESSMENT

Wattblock predicts higher daytime usage with peaks in the morning and late afternoon.

Taking into account the available roof space and load profile, a 16 kW solar energy system is possible. This can be increased to a 26 kW system with 28 kWh of batteries.



SOLAR PAYBACK ASSESSMENT

Upfront purchase of the 16 kW solar energy system without batteries is estimated to cost \$20,800 with an 8.6 year payback.

The 26 kW system with 28 kWh of batteries is estimated to cost \$59,480 with a 17.1 year payback.

Solar energy suppliers may also offer no upfront cost installations via a power purchase agreement.



ELECTRIC VEHICLE CHARGING

A statistical estimation of the number of electric vehicles is provided as well as projected growth rate. At some point the energy demands of electric vehicles will benefit from energy management and this is shown in red.

RECHARGING SOLUTIONS

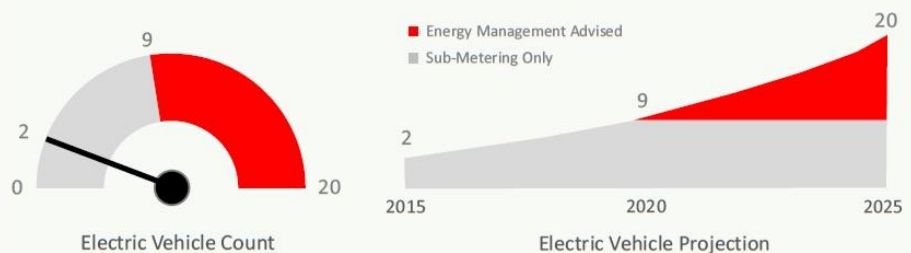
There are a number of solutions for electric vehicle recharging. This section shows how different alternatives compare for your building.

The recommended solution offers lower cost car recharging from common area power while still satisfying user pays criteria.

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ELECTRIC VEHICLE CHARGING

Understanding how Electric Vehicles (EVs) will affect common area and individual energy costs will help committees in working with current and future EV owners.



Wattblock estimates that your building has 2 electric vehicles today and growing to 20 by the year 2025. Your common area energy supply can support 9 electric vehicle recharge stations before an energy management system will be needed.

Energy management regulates EV recharge to avoid excess demand charges or disrupting other facilities such as lighting and lifts. Number of electric vehicles includes hybrids and is based on statistical averages unless an EV sub-metering system is in place.

Hazard Warning

SOLUTION 1 COMMON UNMETERED



This solution is most common where there are power outlets in the carpark. There are no set-up costs but the strata pays for the usage.

WHO PAYS
STRATA

SET-UP COST
\$0
Per Electric Vehicle

OPERATING COST
\$232 p.a.
Based on 15,500 km p.a.

COST PER 1,000 KM
\$14.97
Electric Powered km

RECOMMENDED

SOLUTION 2 COMMON METERED



User pays sub-metering of common power for EV recharge enables lower cost and helps with power management.

WHO PAYS
OWNER

SET-UP COST
Est. \$2,500
Excluding Charging Unit

OPERATING COST
\$592 p.a.
Based on 15,500 km p.a.

COST PER 1,000 KM
\$14.97
Electric Powered km

SOLUTION 3 PRIVATE CONNECTION



Connecting an EV charger to private power still requires strata approval. This can be costly to set-up and usage costs will be higher as well.

WHO PAYS
OWNER

SET-UP COST
Est. \$8,000
Excluding Charging Unit

OPERATING COST
\$421 p.a.
Based on 15,500 km p.a.

COST PER 1,000 KM
\$27.16
Electric Powered km

CUMULATIVE COST REDUCTION

This demonstrates an ideal step-by-step approach to the implementation of projects and the benefits after each step for apartments.

Ticks are used to indicate the projects that have been completed.

PROPERTY VALUATION IMPACT

Shows how reducing strata levies and utility bills through identified projects can increase the value of apartments.

ENVIRONMENTAL ACHIEVEMENT

The bottom row shows the potential impact of energy and water efficiency and solar power on the buildings carbon footprint. The last box shows how this will contribute to the National carbon reduction target.

CUMULATIVE COST REDUCTION

Individual units are estimated to save \$269 p.a. on strata levies, \$208 p.a. on water bills and \$589 p.a. on apartment energy bills after implementation of all identified initiatives.

Avg Annual Savings Per Apartment



PROPERTY VALUATION IMPACT

A building with lower operating costs is worth more because net income to property owners is increased.

Total valuation increase represents an average of \$21,314 per apartment.

Valuation Impact Per Apartment



Note: Valuation impact is based on 20x multiple of cash flow.

ENVIRONMENTAL ACHIEVEMENT

Following sustainability initiatives your block will exceed the national carbon reduction target of 5% set for 2020. If every block did this, we would be well on our way to exceeding the target.



PROPORTION OF POPULATION LIVING IN THIS BLOCK TYPE	AVERAGE OCCUPANCY RATE PER APARTMENT	NUMBER OF BLOCK RESIDENTS	ENERGY USE PER APARTMENT (MJ / YR)
3.8%	1.92	157	31,586
CURRENT BLOCK CO ₂ EMISSIONS (TONNES/YR)	EMISSIONS SAVINGS OPPORTUNITY (TONNES/YR)	EQUIVALENT NUMBER OF TREES PLANTED	NATIONAL CO ₂ REDUCTION TARGET 2020 CONTRIBUTION
763	239	3,590	628%

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