

POWERING THROUGH



As a child, Saxon Mailey was fascinated by electronics.



He knew all about how electricity travels through the air to make storm clouds flash. How a flow of electrons races around a circuit to make a light bulb glow. How a light's wattage measures the electricity it uses, rather than its brightness.

As an adult, Saxon is still interested in electricity. These days, he finds himself looking up at lights to calculate their electricity use and estimate how much more efficient they could be.

When he joined the council of his 54-unit West Perth apartment block, he was determined to find ways make it more energy efficient.

The block is an unusual three-story complex that comprises twelve separate buildings connected by breezeways. While it does not have the common apartment block problem of internal corridor lighting that runs 24/7, the large grounds and car park are dotted with inefficient outdoor lights.

Irritated by their unnecessary electricity use, Saxon saw a great opportunity to stop wasting energy and start saving money.

A visual snapshot

CASE STUDY

“A lighting trial convinced us to invest new technology”



Peter Young & Malcolm Bish

Two keen residents sowed the seeds to make substantial energy saving improvements in their building. After a lighting trial and site visit, everyone was convinced.

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At first, Saxon faced the usual challenges of trying to convince a hesitant council about the merits of his plan. To get them onside, he installed a simple \$400 device to the complex's electricity meter to give power consumption data at two-minute intervals.

By monitoring snapshots of their energy use minute-by-minute, the owners' corporation could see exactly when the pool pump came on, when the outdoor lights went on and off or whether the reticulation pump was running.

Saxon believes this ability to visualise the building's energy use was critical. It enabled the owners to see exactly what was going on and where to focus their efforts. They could also compare graphs in real time to see the effectiveness of their solutions.

Natural light sensors

When the complex was first built in the late 1970s, it had daylight sensors that triggered outdoor lighting from dusk till dawn. Eventually the sensors needed replacing, and the owners' council decided to install less expensive timers instead.

But the timers were rarely in-sync with the available natural light. In summer, the lights came on well before the sun went down, and in winter, they came on when it was already dark.

The energy data showed replacing the timers with daylight sensors was an easy win. The owners committee agreed, and now the outside lights only come on when they need to.



Car park LEDs

Next, Saxon set out to replace more than 100 lights around the grounds with more efficient LED products.

Originally, each car park bay was lit by six very bright 1200mm-long 100-watt fluorescent tubes, which were actually using 200-watts of energy once the transformers were factored in. Although they were very bright, light spread poorly. Rust in the fittings also meant the circuits frequently tripped off in wet weather.

Rather than installing expensive LED tubes, an electrician replaced each strip with a standard ES bayonet light holder. These standard fittings were flexible and cost-effective, and enabled Saxon to simply retrofit 5-watt LED light globes.



The residents were surprised at the results. They expected the lower wattage LED lights would save energy and money. By they didn't expect the quality of light to improve. In each carport, by replacing six dazzlingly bright lights with 11 dimmer ones, the light was more consistent and there were no shadows.

Across the complex, the 101 efficient external lights are saving almost \$550 on electricity per year, plus reduced ongoing maintenance costs. Saxon estimates the change will pay for itself in 2.7 years.

Walkway LED tubes

Saxon says the success of this new lighting was a catalyst for residents to embrace further energy saving projects.

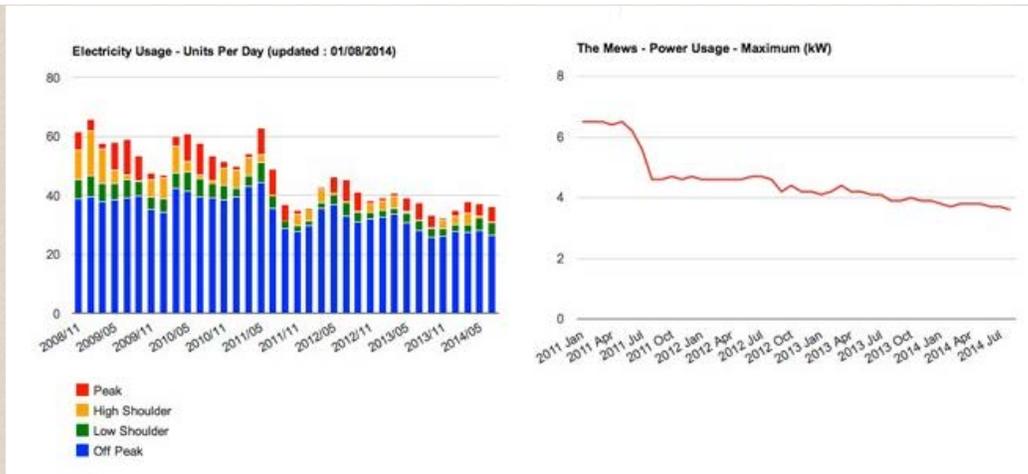
The latest project is a trial to test the benefits of replacing the existing 600mm fluorescent walkway lighting with LED tubes. An electrician has switched 12 tubes on one floor of the rear building, at an initial cost of \$600. The new LED lighting uses 60 per cent less energy, and if proven effective, it should pay for itself within eighteen months of installation.

So far, the trial has been a great success. The new lights consume 50 watts less electricity per light fitting, saving \$400 on their annual energy bill.

Communicating the benefits

Over the past three years, Saxon has discovered just how important it is to communicate the tangible benefits of each project. While he might be personally convinced of the merits of installing energy-saving technology, others need to see it on paper.

He now routinely collects statistics and shares energy data on the complex's online forum to demonstrate the financial benefits, and always calculates buy back periods to quantify the investment.



The benefits are impressive. Since the upgrades began in 2011, the complex has saved \$5300 on electricity bills for common areas so far, and the savings will continue.

Unsurprisingly, the feedback from his neighbours is glowingly positive.

Saxon can now walk around his block without the niggling irritation of electricity wasted — from the common area lights, at least.

Saxon Mailey's top tips

- **Install an energy-tracking device** to monitor your electricity use minute by minute. The data is invaluable and really convincing.
- **Communicate with the owners committee.** Measure the energy use and explain the savings – graphs and number crunching really helps!
- Research all of your options, but be mindful that **advice is not always unbiased or accurate.** Some of the electricians he spoke to didn't know much about energy efficient products, while others seemed to be pushing particular products for personal gain.



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