

Energy guide for apartment buildings



Apartment buildings can easily cut electricity bills by a third with low or no-cost solutions.

What you do in your building really does make a difference.

The environmental, financial and social benefits of using less energy aren't only significant for your building. The more energy efficient we all are, the more resilient our communities will be.

Follow the steps in this guide to manage your building's energy use and save money along the way.

Energy is an umbrella term that refers to both electricity and gas. When referring to electricity only, we will use the word electricity.



Become **energy wise**

This guide covers:

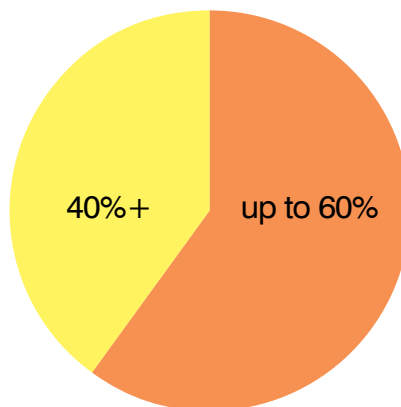
Where energy is used and who pays for it	4
Tips for Embedded Networks	4
Measure, track and prepare	5
• Rate your building's performance	6
• Case study: Aquilon	7
• Get an energy action plan	8
• Monitor your energy use	9
• Case study: Oaks Harmony	10
• Understand your common property energy bills	11
Go the extra mile	12
• Switch to buying GreenPower	13
• Install solar	15
• Go all electric (electrify everything)	16
Case study	17
Learn how The Galleria future-proofed its building with solar, batteries and a heat pump	17
How to set your building up for success	18
• Go from good to better to best practice	18

Where energy is used and who pays for it

Up to 60% of an apartment building's total energy use may come from common property, particularly buildings with centralised plant equipment, underground car parks, gyms and swimming pools.¹

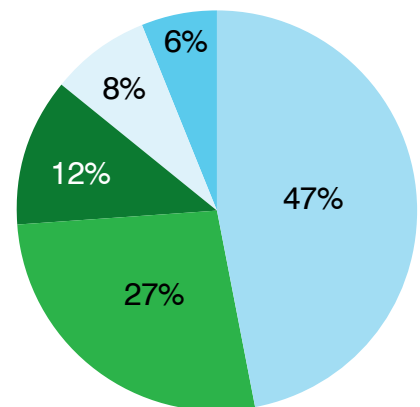
Typically, common area energy costs are shared by apartment owners through strata fees.

Energy use breakdown – large apartment buildings



● Common area
● Within apartment

Common area energy use breakdown



● Heating, ventilation and air conditioning and pumps
● Lighting
● Pool
● Lifts
● Other

Tips for embedded networks

Buildings that have energy supplied through an embedded network (EN) should contact their provider to understand:

1. What meters and appliances are covered by the EN
2. How much energy the building uses
3. What the rates are, and if you're getting value-for-money – seek expert advice.

¹ Source: <https://www.nabers.gov.au/ratings/spaces-we-rate/apartment-buildings>

Note that switching to GreenPower (discussed later) is still possible on an EN.

Measure, track and prepare



Rate your building's performance

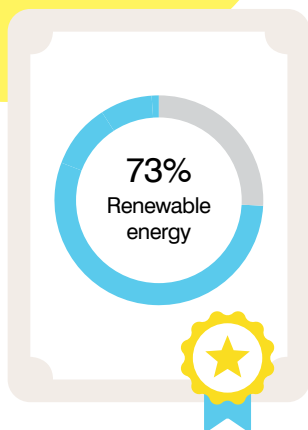
Measuring your building's performance can help you take control of your energy use and costs.

Get your whole building's energy use measured yearly with a National Australian Built Environment Rating System (NABERS) rating.

This will show how your building's energy use compares to other similar buildings. It provides a benchmark and will help you monitor progress over time.

The 6-star scale helps you understand and communicate your building's energy use.

The Renewable Energy Indicator on a NABERS certificate highlights the amount of renewable energy the building uses. It is separate to the efficiency of the building or star rating.



The rating is completed by an accredited NABERS assessor.

If you get a below average rating, it isn't the end of the world. It simply signals you can improve and save money.

If you have a good rating, you can promote this as part of your building's environmental performance and inspire your residents and prospective owners.

nabers.gov.au/apartment-buildings



What was done

- Common area lighting was upgraded to LEDs with integrated sensors
- The existing carbon monoxide monitoring system was reinstated in the car park
- Switched to purchasing 100% GreenPower for common areas

Results

- Avoided more than 200 tonnes of carbon dioxide emissions per year
- Between May 2017 and May 2022 electricity use dropped by 60%

Aquilon's switch to 100% GreenPower wasn't fully reflected in its 5-star NABERS energy rating. It achieved this rating before NABERS introduced the renewable energy indicator (REI).

If Aquilon decides to get another NABERS rating next year, the switch to GreenPower will be highlighted separate to its energy efficiency score. We expect Aquilon would get a 73% REI rating – a big jump from 15% (without GreenPower).

Built in 2004, Aquilon is a residential apartment building in Camperdown. It has 129 apartments and is one of 11 strata schemes in the City Quarter Community Association.

The owners corporation received 2 green building grants from the City of Sydney, one in 2017 and one in 2022.

The initial report identified several ways the building could improve its energy efficiency and performance, one of which had a **payback period of only 10 weeks.**

Get an energy action plan

Identify opportunities for improvement with an energy action plan. This ensures owners corporations can make informed decisions. It can also be a great way to find quick wins for your building.

An energy action plan is prepared by an expert and should include a site visit to your building. Hidden assets and complex metering are often discovered, which can otherwise go unnoticed.

An energy action plan can include:

- a breakdown of energy guzzlers – items using the most or an unusual amount of energy
- opportunities for efficient alternatives – from behaviour changes to equipment replacements
- tariff switching
- rooftop solar.

Tip: Look for funding
City of Sydney grants and NABERS often offer funding. From time to time the NSW Government or Federal Australian Government may too.



Monitor your energy use

Stay efficient, respond quickly and avoid unnecessary costs.

As well as a NABERS rating, your owners corporation should stay on top of energy demand and energy bills. A spike in the building's peak use can push energy bills into a higher demand category. This could affect energy costs for up to a year. Avoid this shock by:

1. Find and read your energy meter regularly

This can be done by the retailer or distributor but be sure to allow them access if you don't have a smart meter.

2. Install submeters strategically

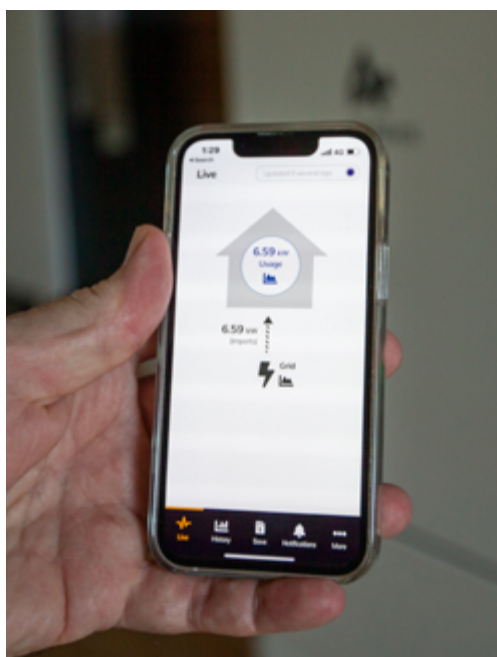
This is especially important if a single meter currently services multiple stakeholders/lots. For example, owners corporation, residents, and commercial lots.

3. Set up easy monitoring systems

Keep track of your energy use and patterns over time to identify and respond to discrepancies quickly.

4. Track your progress

Real-time tracking helps manage day to day operations. Long-term allows you to communicate and celebrate achievements with current or potential owners and renters.





Oaks Harmony is a 21-storey building in Haymarket with 190 residential and 12 commercial lots.

Amenities include a heated indoor swimming pool, spa, sauna, gym, and games room.

The building also has centralised plant equipment that supplies hot water, space heating and cooling to individual apartments and common property.

In 2017, Oaks Harmony started looking for energy and water savings. The City of Sydney green building grants enabled the owners corporation to understand the building performance through obtaining National Australian Built Environment Ratings (NABERS). It identified opportunities to improve energy and water use through energy action plans.

What they did

- Installed variable speed drives on the condenser water pumps
- Installed carbon monoxide sensors and adjusted the timers on car park ventilation fans, locking in a new contract with a gas retailer to get lower rates
- Completed a full lift refurbishment to more energy efficient machinery

The building manager also consolidated contractors to provide a holistic understanding of the building's mechanical services.

The company identified the source of heating and cooling issues and rectified it by using a timer, which led to fewer resident complaints and savings on repairs.

Results

- Slashed energy bills by \$41,000 a year
- Improved NABERS energy and water ratings – added another star to each

Lessons

- Oaks Harmony's building manager, Billy Glover, recognises the importance of maintaining the good results and consistently monitoring building performance

The owners corporation is now considering installing rooftop solar and replacing the current gas boilers with electric water heaters when the boilers reach end-of-life.

Understand your common property energy bills

1. Check your bill

- Know what your electricity peaks are and when they occur.
- Look for the conversion factor on gas bills (also known as the common factor, correction factor or pressure factor).
- Confirm the bills are based on actual reads, not estimates.

2. Understand your bill

- Exceeding your electricity peak load cap – even for a moment – can increase your bill for the next year. Understand your plant equipment to remain below this cap. Do you have anything that could be made more efficient easily. Or could you use some equipment at non-peak times?
- If your gas conversion factor is above 0.4 or starts to creep, this may indicate an issue with the equipment running on gas.

3. Replace old meters

- Old-style, analogue meters need to be manually read and can only provide a crude measure of your building's energy use. They're being replaced with smart meters which can highlight more energy saving opportunities.
- If a single meter currently services multiple stakeholders/lots, install submeters.

4. Shop around

- Compare electricity and gas rates at the Energy Made Easy website. If your common area uses more than 100MWh, it's best to work with an energy consultant.



Why sub-meter?

When apartment buildings are mixed with commercial lots it can sometimes be unclear if the commercial lots are separately metered. Submetering can significantly increase NABERS ratings for common areas. Because if you can't differentiate energy use between lots, you must count it all. When in doubt, ask an expert to check the meters.

Go the
extra mile



Switch to GreenPower

Slash emissions overnight by switching to an accredited 100% GreenPower electricity plan for apartment building common areas.

Buying GreenPower is your fastest and easiest way to buy renewable electricity. And because electricity is considered part of ongoing building administration, your strata committee can switch plans without waiting for an annual general meeting.

How you get GreenPower depends on how much electricity your building uses.

Under 100MWh	Over 100MWh
<p>Step 1: Research</p> <p>Find the common property's current energy use and cost. Ask your strata manager for information.</p> <p>Check out the Green Electricity Guide for a ranking of all electricity providers.</p>	<p>Step 1: Research</p> <p>Gather information for an expert to create an energy action plan. This includes meter numbers (NMI's), site addresses, annual utility bills, and contract end dates.</p>
<p>Step 2: Get quotes</p> <p>Call providers and ask for their best 100% GreenPower deal.</p> <p>It's not always easy to see GreenPower on a provider's website, so it's best to call them.</p>	<p>Step 2: Get quotes</p> <p>Strata managers can either look for deals available to the portfolios they manage or purchase GreenPower certificates just for your building. Use a commercial electricity comparison website to find the best deals.</p>
<p>Step 3: Switch</p> <p>Choose a provider and make the switch. Check your first bill to make sure GreenPower is included.</p> <p>Celebrate your switch!</p>	<p>Step 3: Switch</p> <p>Choose a provider and make the switch. Check your first bill to make sure GreenPower is included.</p> <p>Celebrate your switch!</p>



Look for the official GreenPower logo

GreenPower is a government program that lets residents and businesses to actively help to increase the amount of electricity generated from renewable sources – like wind and solar farms – in Australia. Find out more at getgreenpower.sydney

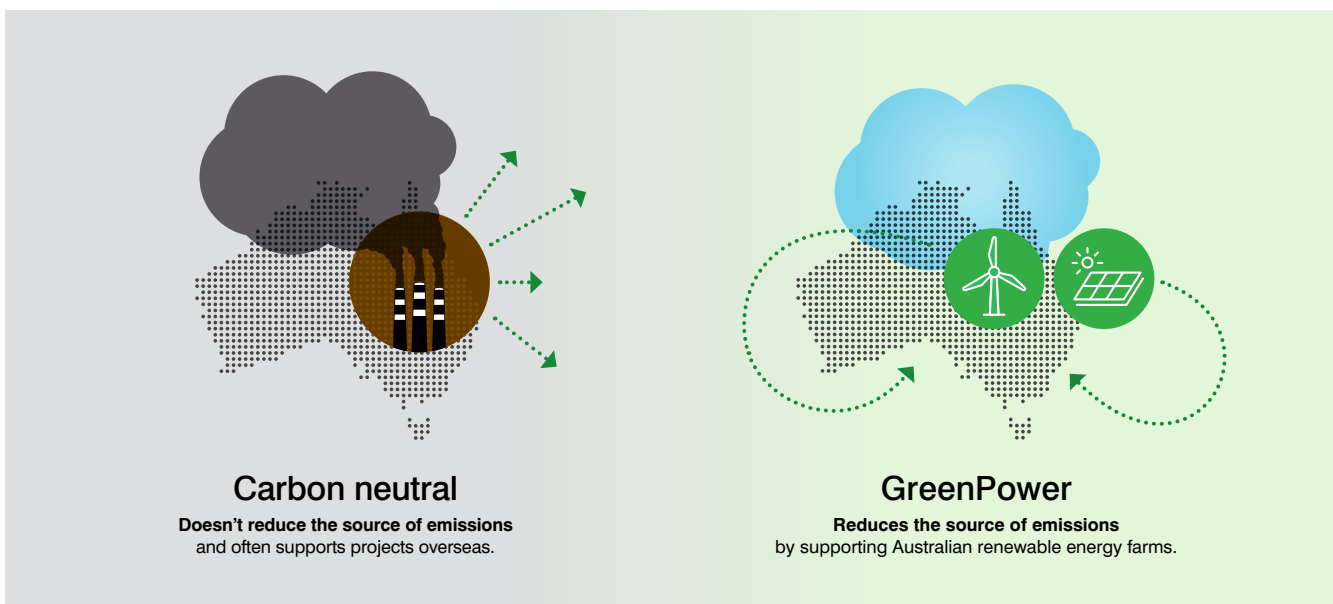
Switch to GreenPower

Myth bust

Many people believe a carbon neutral electricity plan is equivalent to a renewable electricity plan. **It's not.** Carbon neutral electricity plans, or buying from a carbon neutral company, doesn't help generate more electricity from wind and solar farms. They don't reduce our coal use and therefore they don't reduce the source of emissions.

When you have a carbon neutral energy plan, or buy from a carbon neutral electricity provider, your provider is simply offsetting emissions by buying carbon offsets. Companies buy these carbon offsets from climate action projects all around the world. It could be a project like planting trees in regional Australia, landfill management in Brazil, or swapping light fittings in India. It can take years and years for these projects to absorb the carbon in the atmosphere created today from electricity produced from coal.

To reduce your emissions and claim you're 100% renewable, you need to buy accredited GreenPower or LGCs – not simply buy electricity from a carbon neutral company.



Install solar

More and more apartment buildings are installing rooftop solar and lowering electricity costs.

There isn't a one-size-fits-all solution, but a solar feasibility study will help determine what's right for your building.

Here's a general rule of thumb:



Walk-up with few common area features
Individually-owned solar systems supplying individual apartments

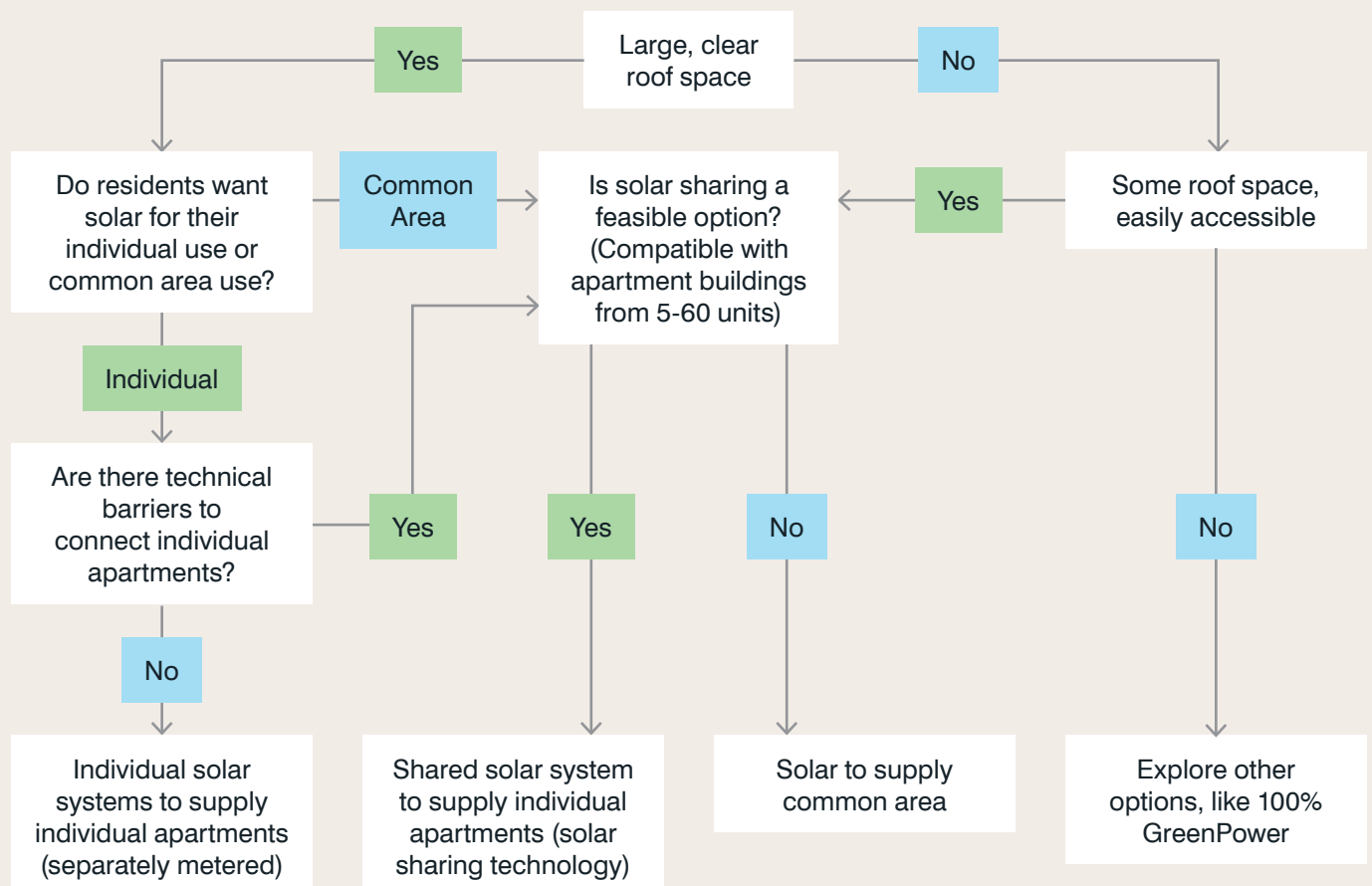


Mid-rise
Solar for common property and/or shared between individual apartments



Tall and skinny with lots of apartments
Solar for common property only

Solar decision tree



Go all electric

A 100% NABERS Renewable Energy Indicator can only be achieved in all-electric buildings buying or using renewable electricity. Buildings within larger governance structures must work together to phase out gas.

All-electric homes use electricity for heating, cooling, cooking, and hot water. They're more efficient to run and better for your health than using gas.

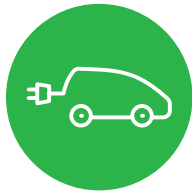
When you replace appliances with electric models you'll need to review your electrical capacity. But before you rush to increase your building's capacity, make sure you complete any possible energy efficiency upgrades first. This includes switching to LED lighting or installing sensors. This will free up electrical capacity.



Centralised hot water

Centralised gas systems are commonly found in mid- to high-rise apartment buildings. The most efficient and reliable alternative is a heat pump.

Think about replacements before the gas system reaches its end of life, so you're ready to make the switch when the time comes.



Electric vehicle charging

As of October 2023, all new residential apartment buildings will need to be built 'EV-ready'. While this change doesn't apply to existing buildings, owners and residents can see the benefits these retrofits could bring.

Don't let your building get left behind – get a feasibility study through an electrician or EV specialist. This could be part of your energy action plan.



Induction cooktops

Australians are starting to learn the benefits of induction cooking – it boils water at lightning speed, clean-up is a breeze, and occupants can breathe easier knowing their stoves aren't releasing harmful pollutants.

Usually cooktops are the responsibility of individuals. Make sure you know what your building switchboard capacity is to plan how your residents can upgrade their cooktops.

Ask about meter disconnection fees and factor these into overall costs



What they did

- upgraded lighting
- integrated a small heat pump to the new gas hot water system
- installed a 22 kW solar system on the roof
- installed two 13kW batteries to store the excess generated power – the first apartment building in the City of Sydney area to do so

The staged approach to future-proofing the building includes plans to install EV charging points as part of its 10-year building plan and to integrate this with solar power and battery storage.

Involving residents

- Realtime electricity monitoring data is shared with residents through the Galleria's social media pages
- Residents are taught how to lower their energy bills, following the building's energy action plan
- The Galleria ran resident surveys to start building a community invested in these issues

Lessons

- The NABERS energy and water rating helped the owners corporation understand the benchmark and opportunities for improvement
- A second NABERS rating is planned, following the decommissioning of its cooling tower, and it's anticipated the star rating will reflect the ongoing upgrades in the building

The Galleria is a 64-unit residential building, spread over 6 levels. Michael, the strata committee treasurer, was keen to reduce both the building's operating costs and its environmental impact.

The Galleria was awarded a City of Sydney green building grant to rate current building performance and receive an energy action plan, showcasing efficiency opportunities.

How to set your building up for success



Good practice and recommendations

1. Plan

Encourage a standing agenda item at committee meetings and/or the building manager's report. Find a sustainability champion to lend a hand.

2. Assess your performance

Find out how much energy you use, when, and where it goes. Track it over time to make spotting discrepancies quicker and easier.

3. Communicate

Make owners aware of upcoming sustainability initiatives and prepare for additional levies, if required. Integrate sustainability into the capital works fund plan and long-term capital expenditure schedule.

4. Avoid waste

Cut costs by running plant equipment only as much as is necessary and testing it outside of peak hours. Consider timers, sensors, thermostats, and throttles.

Stakeholders will appreciate the ongoing value of sustainability initiatives and build momentum for future projects.

Remember: monitoring is a continuous process, not just a snapshot in time.

How to set your building up for success

Good practice and recommendations

5. Be efficient

Replace outdated lights, fans, and pumps with efficient alternatives.

6. Get clean energy

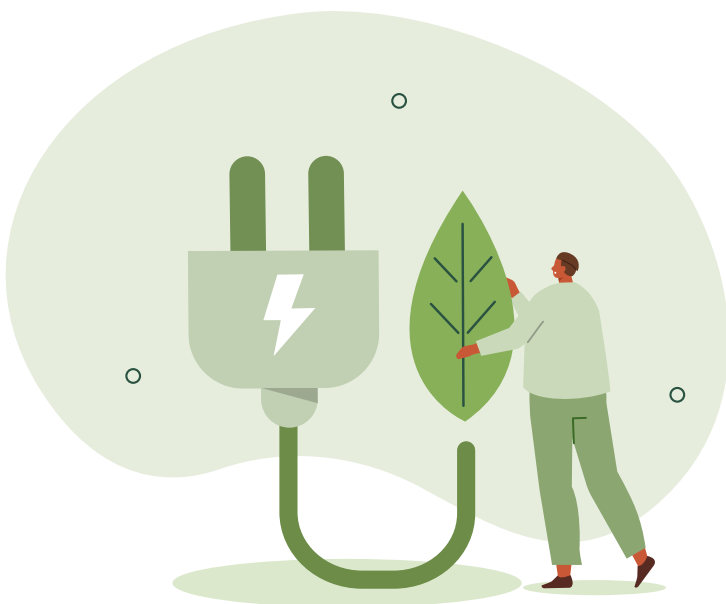
Make the switch to a GreenPower electricity plan and rooftop solar.

7. Go the extra mile

Swap out gas guzzlers for their electrical equivalents. Consider centralised hot water heat pumps, EV chargers and induction cooktops.

8. Share your wins

Showcase cost savings, energy and emissions reductions when talking to owners, residents, and prospective buyers.



Get extra help

- Sign up to our Sustainable Apartments newsletter
[cityofsydney/apartments-newsletter](https://cityofsydney.nsw.gov.au/apartments-newsletter)
- To get a NABERS rating visit
nabers.gov.au/ratings/spaces-we-rate/apartment-buildings#section-target-3
- Learn more about GreenPower at
getgreenpower.sydney
- To apply for a green building grant visit
cityofsydney.nsw.gov.au/environmental-support-funding/green-building-grants