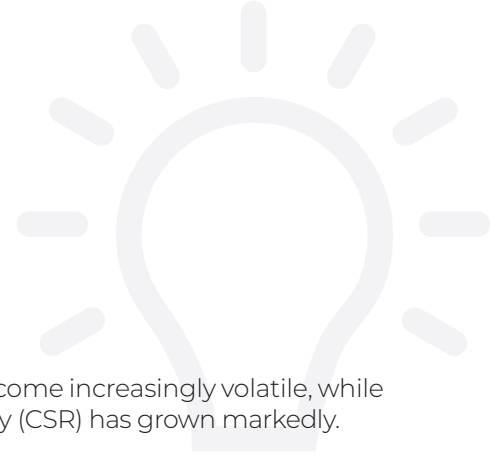




Navigating a dynamic energy landscape

A briefing for office-based businesses

Critical insights



Over the last ten years energy prices in Australia have become increasingly volatile, while interest in sustainability and corporate social responsibility (CSR) has grown markedly.

Office-based businesses are diverse, ranging from micro-businesses that rent space in a much larger building, to big organisations that are owner-occupiers of large buildings themselves. However, regardless of size, most office-based businesses rely on electricity for most of their energy needs. While electricity prices have come down from the peaks of 2017, the underlying fundamentals in energy markets suggest that this is a temporary reprieve. And with the world grappling with the economic impact of the COVID-19 pandemic, there is a higher premium than ever on managing costs.

Beyond cost, emissions are emerging as a strategic driver for many office-based businesses. All Australian states and territories have adopted the goal of net zero emissions by 2050, while the Australian Government is targeting net zero emissions in the second half of this century. Businesses are also reporting that larger customers are looking to reduce the carbon intensity of their supply chains. For many office-based businesses, electricity makes up the largest portion of their greenhouse gas emissions, making energy management investments a cost-effective way of meeting these expectations.

Understanding net zero

Net zero emissions means achieving an overall balance between greenhouse gas emissions produced and greenhouse gas emissions removed from the atmosphere.

To learn more, see *Learn the lingo: understanding net zero emissions* in Section 2 of the ***briefing for Australian businesses***.

1 Commonwealth of Australia 2020, ***Australian Energy Update 2020***, p. 17.

2 pitt&sherry 2012, ***Baseline energy consumption and greenhouse gas emissions in commercial buildings in Australia part 1 report***, p. 2.

With commercial buildings accounting for 7.6 per cent of Australia's electricity use,¹ and offices making up over a quarter of the total commercial building stock,² offices have a critical role to play in reducing Australia's emissions.

Whether driven by cost or emissions, many office-based businesses are paying closer attention to their energy use. Some businesses are just getting started, and can identify quick wins without much external support. However, leading office-based businesses have gone further, benchmarking their energy performance with a ***National Australian Built Environment Ratings Scheme (NABERS)*** Energy rating, and integrating a focus on energy management in their day to day systems and processes to drive continuous improvement.

As businesses deal with monumental shifts in flexible working arrangements, and the biggest economic shock since the Great Depression, their priorities are shifting. Cost management is more crucial than ever. But for some, planned capital investments have been scaled back or stopped, with focus shifting to tuning and system optimisation.

However, leading office-based businesses are running the ruler over the Australian Government's new, time-limited immediate expensing provisions. They have recognised that the immediate deductions of the full cost of new, eligible assets and improvements to existing depreciable assets is an unprecedented opportunity to make strategic investments that drive major energy productivity improvements in their operations.

Leveraging tax incentives for energy upgrades

In October 2020, the Australian Government announced an additional, significantly more generous scheme available to companies with an annual turnover of up to \$5 billion; leading businesses are exploring opportunities to leverage this new provision for energy management upgrades.

To learn more about leveraging tax incentives to improve energy performance read the ***guide for Australian businesses investing in smart energy management***.

This briefing for office-based businesses is designed to guide businesses through the process of identifying and implementing energy management upgrades, illustrating businesses that are doing just that, and showcasing innovative financing and funding mechanisms that can support businesses to invest in energy upgrades.



Figure 1: Leaders in energy strategy are leveraging their energy data to drive investments behind the meter, and to optimise their energy procurement. They are actively monitoring the performance of these initiatives, which yields fresh data, informs future actions and enables continuous improvement.

Sector spotlight: December 2020

This briefing accompanies ***Navigating a dynamic energy landscape: a briefing for Australian businesses*** and a series of **sector spotlights**. It considers the specific issues faced by Australian office-based businesses and guides them in improving their energy strategy and management.

To download the latest edition of the energy briefing for business, sector spotlights and other resources, sign up for updates or provide feedback, visit **energybriefing.org.au**

Navigating this briefing

This briefing for office-based businesses is a companion to the annual **briefing for Australian businesses**. It is designed to provide additional information that is relevant for office-based businesses, especially office tenancies, that are acting to better manage their energy.

Section 1 Energy landscape for office-based businesses



Pages 5 - 10

Office-based businesses, and especially office tenancies, have a range of particular factors they need to consider when recalibrating their energy strategy.

Section 2 Identifying energy management opportunities



Pages 11 - 16

There are a number of ways in which office-based businesses can identify energy management opportunities, enabling them to move from quick wins to strategic energy management.

Section 3 Energy management opportunities for offices



Pages 17 - 22

Office-based businesses can work proactively to address energy consumption, with a range of both simple and advanced measures available that will deliver energy and emissions savings.

Section 4 Taking action: cutting your energy costs



Pages 23 - 26

Office-based businesses successfully navigating Australia's dynamic energy landscape are working with building owners and their wider support networks to realise the multiple benefits of strategic energy management.

Section 5 Resources for office-based businesses



Pages 27 - 28

Information and support are available.

Glossary Page 29

Acknowledgements Page 30

The energy management journey

We talked with office-based businesses that are leading the field in energy strategy and management, and they told us there were three key milestones in the journey towards improving their energy performance:

1. Start with what can be seen



Pages 12 – 13

Changing habits and routines, and scanning the office for issues leverages the knowledge of the team on the ground to identify quick wins.

2. Benchmark performance with a NABERS Energy rating



Pages 13 - 14

Getting the NABERS Energy rating that is right for your office will benchmark your energy performance against your peers, and help you identify simple energy saving initiatives.

3. Adopt energy management as a discipline



Pages 15 - 16

Establishing processes for continuous improvement in energy performance internalises smart energy management as a part of company culture, and drives ongoing, year-on-year improvements in energy performance.

For owner-occupiers and larger tenancies, energy audits give you a detailed understanding of energy performance and upgrade opportunities, and build the case for more significant investments.

The wider sustainability journey

Reaching out for support from CitySwitch, local councils, industry associations and landlords provides office-based businesses with resources and support to improve not just their energy performance, but their wider sustainability credentials:

4. Achieve carbon neutrality



After exhausting efficiency and renewable energy opportunities, purchasing offsets for any remaining emissions enables your business to become carbon neutral, ensuring you are playing your part in Australia's energy transition and net zero transformation.

5. Explore other sustainability opportunities



After undertaking the energy management journey and achieving carbon neutrality, your business can explore other sustainability opportunities like improving your office's water and waste consumption, indoor air quality and more.

Energy landscape for office-based businesses

1.1 The relationship between tenants and landlords

Many Australian buildings are old and inefficient, and need upgrades to meet modern health, comfort and sustainability standards.

While building owners bear the costs of most office building energy upgrades, tenants reap the rewards of reduced energy costs and improved comfort. This split incentive means energy upgrades often are not a priority for lessors. However, leading building owners are utilising their NABERS Energy rating as a selling point, which in turn makes substantial cost savings available to tenants.

National Australian Built Environment Rating System (NABERS)

NABERS is a simple, reliable and comparable sustainability rating for the built environment. Like the efficiency star ratings that you get on your fridge or washing machine, NABERS provides a rating from one to six stars for building efficiency across energy, water, waste and indoor environment.

This helps building owners and tenancies to understand their building's performance versus other similar buildings, providing a benchmark for progress. And over ten years, NABERS Energy rated buildings have saved an average of 30-40 per cent on their energy.

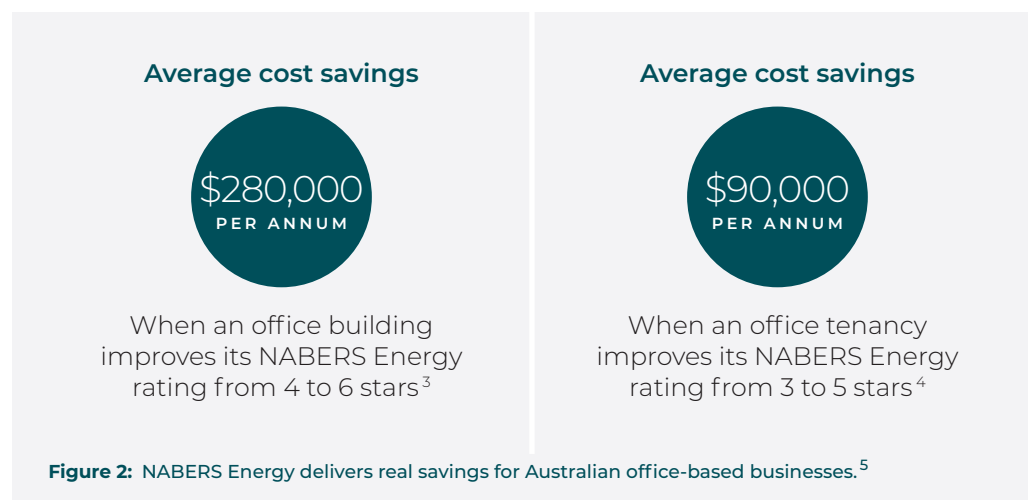
To learn more, see [Section 2.2.1](#).

In the case of owner-occupiers, getting across these opportunities means that they can start cutting energy costs and carbon straight away.

³ Calculated averages from the NABERS dataset as of January 2020; based on a 15,000m² office building in Sydney CBD, rated over 50 hours.

⁴ Calculated averages from the NABERS dataset as of January 2020; based on a 6,400m² office tenancy in Sydney CBD, rated over 40 hours

⁵ NABERS 2020, *NABERS for Offices Fact Sheet*.



While office owners are compelled to seek and disclose their NABERS Energy rating at the point of lease or sale, they can also work with their tenants to undertake NABERS Co-Assess ratings, or tenants can choose to have their tenancy rated via a standalone NABERS Energy for tenancies rating. Like the building owners, this enables tenants to benchmark their progress against energy saving commitments.

Importantly, tenants can work with their landlords to overcome the split incentive, with **environmental upgrade finance (EUF)** being specifically designed to share the costs and benefits between the different stakeholders involved in an office tenancy upgrade, ensuring a mutually beneficial outcome.

Australia's first EUA at 460 Collins Street

Environmental upgrade finance (EUF) legislation in New South Wales, South Australia and Victoria allows banks to offer loans to building owners for energy upgrades, with repayments made via local government rates charges.

With ageing building equipment resulting in tenants experiencing significant energy costs as a result, the building owner of 460 Collins Street in Melbourne took action by replacing the old chiller with a high-efficiency new chiller. This was financed using an environmental upgrade agreement (EUA), which shares the costs and benefits of energy upgrades between tenants and owners. This delivered \$17,000 in annual energy savings and increased the building's NABERS Energy rating to four stars.

To learn more about environmental upgrade finance read the *EUF 101* found at energybriefing.org.au/euf-101

EML uses NABERS rating to assess the suitability of office tenancies

For over 100 years, **Employers Mutual Limited (EML)** has helped improve safety in workplaces across Australia through workers insurance and compensation claim management. EML is committed to reducing its environmental impact and has therefore committed to a minimum energy performance in its office tenancies.

Every office in Australia must have a minimum 4.5-star National Australian Built Environment Rating System rating with great public transport access before it's considered for tenancy.

Roger Stamford
National Building Services Manager
EML

Beyond these minimum standards, EML has undertaken energy upgrades at its offices around the country. For example, during a major refurbishment of the Adelaide office, EML worked with the building owner to install LED lighting. Further, the office now has minimum 3.5-star rated kitchen appliances, short-timed sleep mode functions on multi-function devices, monitors and laptops, and high-quality video conferencing facilities, reducing the need for interstate travel between offices.

Activity-based working (ABW) has been introduced to provide flexible settings for workers and maximise office density. This has created an increase in the use of collaboration spaces and flexible work areas, which in turn reduces the use of supplementary air conditioning units and printers.

These changes led to EML's Adelaide office achieving a NABERS 5.5-star Energy Tenancy rating, with an overall reduction in energy use of nearly 17,000 kWh per annum, or about three typical Australian households' annual electricity consumption – just from one office!

This significant achievement will enable EML to continue expanding its services in a sustainable and responsible approach, delivering positive outcomes for clients, the business and the environment.

1.2 The new normal

While flexible working arrangements have become common in the 21st century, the onset of COVID-19 has very much made them the norm, with many employees now working outside of the office on a semi-permanent basis. And with up to 60 per cent of employees who can work remotely wanting to continue doing so at least some of the time,⁶ that is unlikely to change.

This change presents both an opportunity for businesses to re-envision their working environments, and to minimise energy consumption.

1.2.1 Supporting productivity with flexible working environments

Flexible working arrangements often lead to greater productivity for employees, as well as improved resource efficiency in the office.

For example, with reduced occupancies from increased working-from-home arrangements, heating, ventilation and air conditioning (HVAC) requirements are minimised in the office, and proactive office tenancies are working with their building owners to ensure that controls are changed, reducing electricity costs.

Further, with additional flexibility many Australians are reporting improved engagement and work-life balance, leading to higher productivity.⁷

6 Matthey, C et. al. 2020, *'Personalisation for your people: how COVID is reshaping the race for talent'*, accessed 1 October 2020.

7 Ibid.

8 Learn more about the Equipment Energy Efficiency (E3) program and the Energy Rating Label in **Section 3.1.1**.

9 Sustainability Victoria 2019, *Comprehensive Energy Efficiency Retrofits to Existing Victorian Houses*, p. 46.

Reducing home office energy costs

With more people than ever working from home, leading businesses are supporting their employees with reducing their energy and emissions at home. There are several simple things that can be achieved in home offices, which include:

- **Upgrading to light emitting diodes (LED)**, which can reduce light energy usage by up to 80 per cent, or even better, maximising natural light to minimise the use of artificial lighting altogether;
- **Investing in energy efficient home appliances** by buying appliances with high star ratings;⁸
- **Using smart plugs** or energy saving power boards to reduce standby energy use; and
- **Making minor adjustments to heating and cooling** systems to set temperatures and timers, as we often forget to turn the heating or cooling off as the sun comes out or goes away, and a degree hotter or cooler can increase energy use by five to ten percent!

For those that own their homes, more complex upgrades that realise substantial financial savings and improve health and comfort include:

- **Draughtproofing and insulation upgrades** to improve thermal comfort, which can be quite significant, with combined building shell and heating improvements savings households over \$400 per annum;⁹ and
- **Rooftop solar installations** to reduce energy bills, and which are making increasingly more sense as working from home becomes the norm.

Owner-occupiers should also consider efficient electrification of space and water heating, replacing electric-resistive and gas heating with heat pumps. The economics of these energy upgrades often stack up best when the equipment is at end of life, but do offer substantial energy savings.

1.2.2 Enhancing productivity with healthy and comfortable office environments

While access to natural light is the gold standard for healthy and comfortable working environments, new LED designs enable artificial lighting to reflect the natural environment by adjusting colour and intensity throughout the day. Combined with smart air conditioning controls that respond to occupancy levels, and more accurately reflect seasonal temperatures – i.e. having office thermostats set to higher temperatures in summer than in winter – employees report increased comfort and productivity,¹⁰ and health outcomes are greatly advanced.¹¹

¹⁰ NSW Government 2019, *Code of practice: managing the work environment and facilities*.

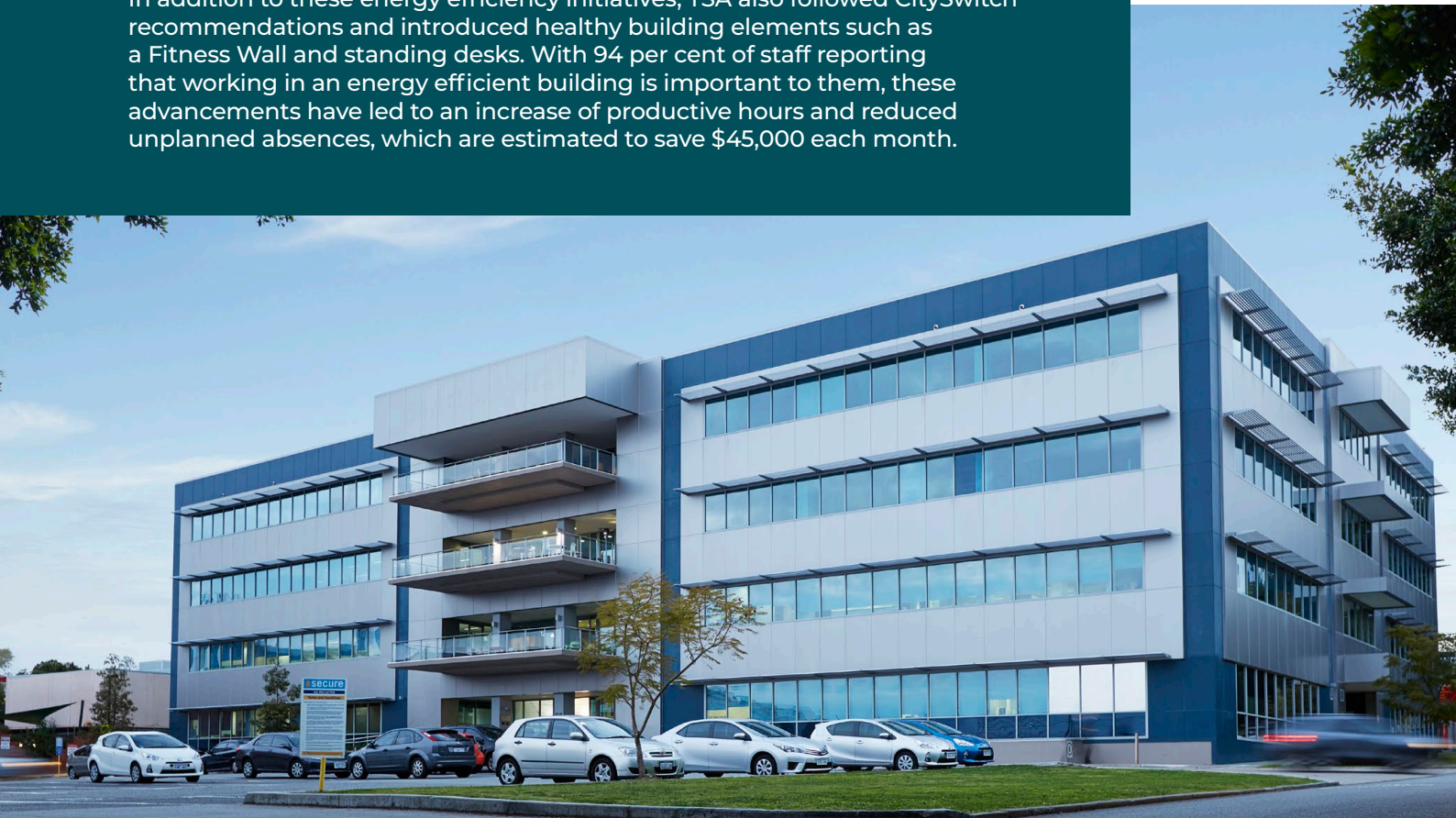
¹¹ Mendell, M & Mirer, A 2008, *indoor thermal factors and symptoms in office workers: findings from the U.S. EPA BASE study*.

Energy efficiency improves staff wellbeing and productivity for TSA Group

The TSA Group, founded in Western Australia with locations across the country and the Philippines, is a customer experience technology and services company that provides specialised services to support Australian brands in creating meaningful connections with consumers.

TSA's Perth office undertook several energy efficiency measures to achieve a 27 per cent reduction in electricity consumption over two years. This included the formation of a Green Action Team to support staff with driving sustainability, improved sleep settings for office appliances, as well as improved management of air conditioning, server room cooling and water heating systems. As a result of these efforts, TSA was able to achieve annual energy savings of over 94,000 kWh with a financial benefit of over \$30,000 each year.

In addition to these energy efficiency initiatives, TSA also followed CitySwitch recommendations and introduced healthy building elements such as a Fitness Wall and standing desks. With 94 per cent of staff reporting that working in an energy efficient building is important to them, these advancements have led to an increase of productive hours and reduced unplanned absences, which are estimated to save \$45,000 each month.



TSA Group's Perth office achieved a 27 per cent reduction in electricity consumption.

1.3 Leading the way to net zero

With all Australian state and territory governments committing to achieving net zero emissions by 2050, and the Australian Government also committing to the Paris Agreement, the business community is not just following suit, it is leading the transition.

Almost 1,000 companies around the world have committed to the **Science Based Targets** initiative, including 25 Australian companies. Moreover, almost 150 Australian companies are Climate Active certified, meaning that they have achieved carbon neutrality. And recent analysis by **ClimateWorks Australia's Net Zero Momentum Tracker** demonstrates that 29 per cent of Australian property companies listed in the ASX200 and those required to report their emissions under the National Greenhouse and Energy Reporting Act 2007 (NGER Act) have pledged to achieve net zero emissions by 2050.¹²

Science Based Targets

The Science Based Targets initiative champions science-based target setting as a powerful way of boosting companies' competitive advantage in the transition to the low-carbon economy.

It is a collaboration between CDP, the United Nations Global Compact (UNGC), World Resources Institute (WRI), and the World Wide Fund for Nature (WWF) and one of the We Mean Business Coalition commitments.

¹² ClimateWorks Australia 2019, *Net Zero Momentum Tracker: Property Sector*, p. 2.

¹³ Commonwealth of Australia 2020, *Quarterly Update of Australia's National Greenhouse Gas Inventory: March 2020*, p. 9.

These ambitions are also shared by everyday Australians, with changes in consumer behaviour highlighting the growing importance for companies to demonstrate their commitment to corporate social responsibility (CSR), and in particular, their support for a just transition to net zero emissions. But in addition to this consumer pressure – and potentially future regulatory pressure – businesses also face pressure from investor and supply chains, who are also championing the transition to net zero.

Noting this, with energy creating 70 per cent of Australia's emissions,¹³ leading businesses – including those operating in offices – are lowering their energy and emissions by embracing energy management, procuring renewable energy, and sharing their successes while doing so.

NGER Act

Since 2007, the NGER Act has required the largest energy users in the country to report all greenhouse gas emissions, energy production and energy consumption from facilities.

ANZ leads by example

As one of the top four banks in Australia, operating in 32 markets globally and with over 185 years of experience, ANZ is committed to supporting the transition to a net zero carbon economy. To achieve this, the organisation has embedded within its operations a focus on how ANZ can reduce its own impact whilst also supporting its customers with improving their environmental sustainability.

In line with this, ANZ recently undertook an energy and water audit of its ANZ Centre in Melbourne to identify potential energy savings. The audit presented several recommendations that would achieve a 12 per cent reduction in total energy consumption of 950MWh, equivalent to an annual savings of \$169,000. This included improvements to control and meeting room temperature management as well as reduction of unnecessary electrical load on weekends and public holidays. In addition, ANZ have commissioned a 400kW Solar Array, which is expected to deliver an output of 500,000kWh per annum.

ANZ's continuous energy efficient improvements have ensured that the ANZ Centre in Melbourne has continued to run at the 5.5-star NABERS Energy level, and that the business continues to demonstrate energy management and sustainability leadership.

We know we have a role in enhancing environmental sustainability and we are focusing our efforts on energy, water and waste.

Shayne Elliot
Chief Executive Officer
ANZ

The ANZ Centre is one of Australia's leading sustainable buildings.



Identifying energy management opportunities

Office-based businesses looking to take control of their energy position start by identifying energy management opportunities. It's possible – and sensible – to start simple and get some quick wins, by starting with what you can see and making simple changes to habits and routines. Over time, office-based businesses that are ahead of the pack go further; they invest in a NABERS Energy rating, act on cost-effective upgrades, and put in place an energy management system (EnMS) to drive continuous improvement.



Figure 3: Leaders in energy strategy and management typically follow this three-step approach to identifying energy management opportunities, starting with easier opportunities and progressing to more complex ones.

Where is my energy going?

56 per cent of the typical office building's energy is used by the base building, which provides air conditioning and other building services. Tenancies make up the remaining 44 per cent, with the breakdown of that energy consumption being quite variable depending on the existence of supplementary HVAC – or air conditioning – for meeting rooms.

Recent research of office tenancies' energy consumption demonstrated that supplementary HVAC can account for as little as one per cent of a tenancy's energy consumption, or as much as 79 per cent.¹⁴ Given this variability, office tenancy energy use, excluding supplementary HVAC, is estimated to be split as:¹⁵

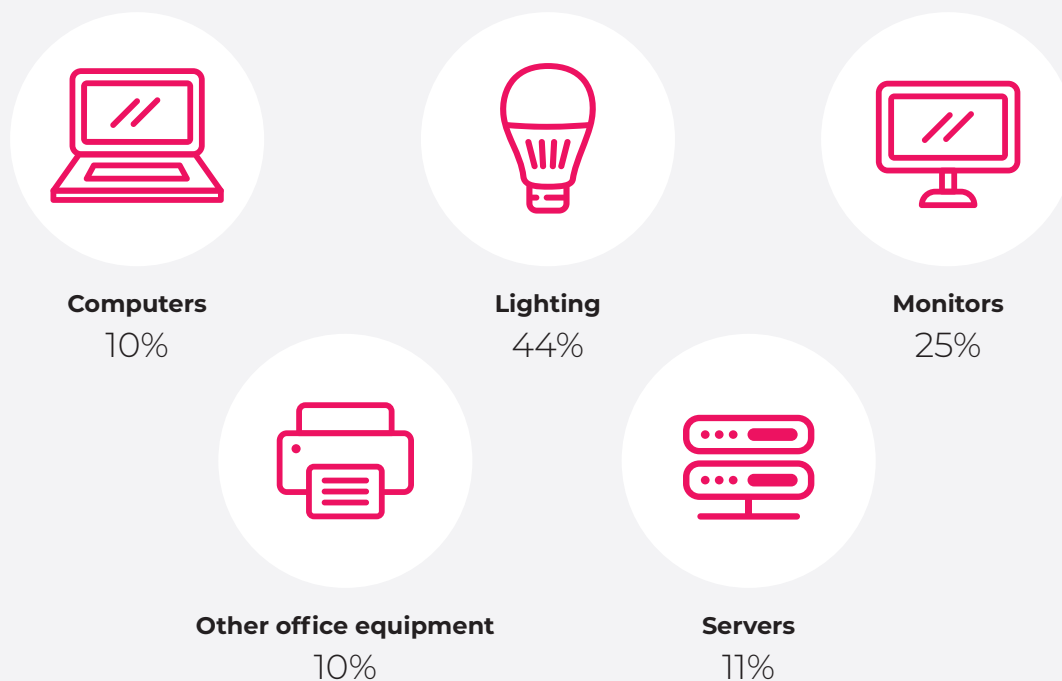


Figure 4: Office tenancies typical energy consumption split.

Tenancies are encouraged to undertake sub-metering if supplementary HVAC is used as it is a common opportunity for reducing energy consumption.

2.1 Starting with what can be seen

Office-based businesses looking to improve their energy management start by identifying quick wins, scanning their operations for obvious issues that may be easy to fix, such as:

- Changing habits and routines that result in energy waste; and
- Scanning a site for issues that could be causing energy waste.

Acting on these issues can result in immediate savings, often at no or very low cost.

¹⁴ Energy Efficiency Council 2021, *Determining office tenancies energy end use*.

¹⁵ Ibid.

2.1.1 Changing habits and routines

Energy waste often occurs because saving energy hasn't been high on the list of operational priorities. In some cases, equipment is left on overnight and out of hours. More commonly, equipment is left on during breaks. One of the simplest things a business can do is ensure that equipment and lights are turned off when not in use.

Having signs on equipment and by doors reminding staff to turn things off during breaks and at the end of operating hours can help change behaviour.

Driving behaviour change

Incentivising action on energy saving activities can result in major cost savings in energy intensive businesses. Behaviour change is complicated, but experts agree that one of the simplest ways to encourage behaviour change is to facilitate high levels of both motivation and ability.

Motivation can be enabled by linking desired outcomes to professional development plans and key performance indicators. Whereas ability can be improved with training and resources.

Recognition and rewards can also help lock in self-sustaining culture around a given behaviour.

2.1.2 Scanning your office for issues

Simple energy savings opportunities – often related to maintenance issues – may be missed by people regularly using the office. Issues with equipment often build up over time, making it harder for regular users to notice. However, they can often be picked up by using eyes, ears and touch to see if things are behaving differently to how they should – i.e., are shakier, noisier or warmer – indicating that the office equipment is operating under strain.

This sort of scan is often most effective when undertaken by regular equipment users – i.e. the person in the office that's always getting the milk out of the fridge to make coffee – along with someone that doesn't typically use that particular type of equipment – i.e. the person that always buys their lunch. This gives you the benefit of both familiarity and a fresh pair of eyes, ears and hands, meaning that you're more likely to pick up that the fridge is overheating.

Check out **Section 3** for a review of common energy management opportunities that are recommended following office audits.

2.2 Benchmarking performance with a NABERS Energy rating

Most office-based businesses don't have an energy expert on the team. That means it can be hard to know how you are performing relative to your peers, and how to improve on that performance over time. Luckily, in Australia we have a simple, robust rating system designed to do just that - NABERS.

2.2.1 The National Australian Built Environment Rating System

The National Australian Built Environment Rating System (NABERS) is a simple, reliable and comparable sustainability rating for the built environment.

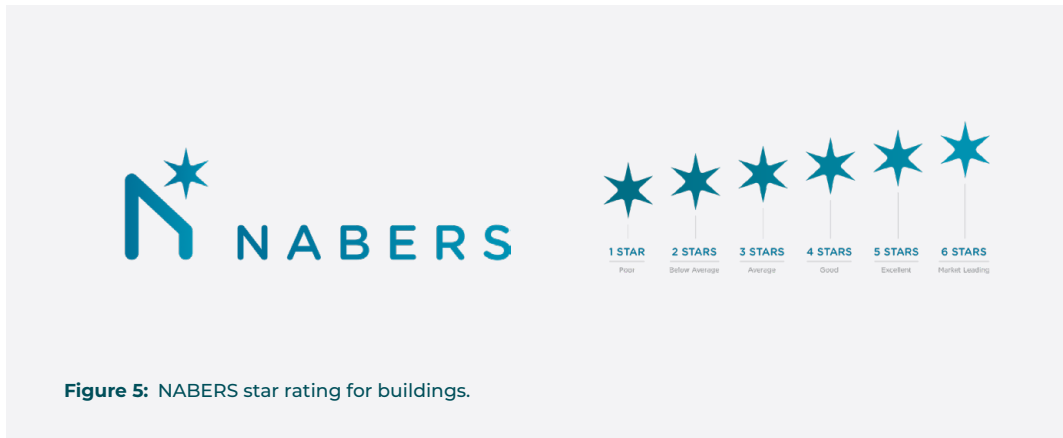


Figure 5: NABERS star rating for buildings.

A NABERS Energy rating is independent, based on real energy data and provides a comparison to similar buildings, giving owners and tenants a fair reflection of how they are progressing against their energy saving commitments.

There are three types of NABERS Energy ratings available for offices:

- **Base building Energy ratings** occur when central services like heating and cooling systems, lifts and lobby lighting are rated;
- **Tenancy Energy ratings** occur when businesses choose to rate the space they occupy within a building; and
- **Whole building Energy ratings** usually occur when there is a single owner-occupier or tenant occupying an entire building.

NABERS Energy is so useful that the Australian Government requires most sellers and lessors of office spaces of 1,000 square metres or more to disclose the **base building energy rating** to prospective buyers or tenants, so they can understand the building's performance as compared with other similar buildings.¹⁶

¹⁶ For more information on the Commercial Building Disclosure Program, go to cbd.gov.au.

The base building of office spaces under 1,000 square metres can also be rated on a voluntary basis. However, depending on your situation, going beyond a base building rating and supplementing it with either a tenancy or whole building rating can be worthwhile.

2.2.2 Tenancy and whole building NABERS Energy ratings

To effectively manage your energy, you need to understand how and when you are using energy, and a NABERS Energy rating is an essential step on that journey.

If you are a tenant, you can get a NABERS Energy for Office tenancies rating, which will give you an understanding of energy use associated with services you directly control, including lighting, office equipment and potentially supplementary air conditioning.

If you are an owner-occupier, a whole building energy rating will give you a strong understanding of your building's energy performance relative to similar buildings.

To learn more about NABERS ratings and which one is right for your office visit nabers.gov.au/ratings

2.2.3 What about energy audits?

A NABERS Energy rating is a crucial benchmarking tool, and for small offices and tenancies it can provide enough information to drive straightforward energy performance improvements.

However, a NABERS Energy rating does not analyse upgrade opportunities, make recommendations, or build a business case for investment. For owner-occupiers and larger tenancies, it can be worthwhile building on your NABERS Energy rating by getting the support of an external expert to undertake an energy audit that is compliant with the Australian standard. There are three key elements to a successful audit process:

- Finding the right auditor;
- Specifying the right type of audit; and
- Preparing a post-audit action plan.

To learn more, read the *Energy audits 101* found at
➤ energybriefing.org.au/energy-audits-101

2.3 Adopting energy management as a discipline

Office-based businesses that are leading in energy management have moved beyond capturing and analysing data to identify low hanging fruit, and using occasional energy audits to drive upgrade investments. Instead, they have implemented energy management systems that facilitate continuous improvement.

2.3.1 Energy management systems

Systematically tackling energy management on site provides the following benefits:

- **A framework to manage energy** with structured policies, processes and action plans to implement energy saving opportunities, enabling businesses to implement continual improvement in energy management and build on experience and trusted expertise;
- **Organisational engagement** with buy-in from senior management and other stakeholders, which facilitates the prioritisation of energy management practices throughout the business, including the ongoing allocation of resources rather than ad hoc project funding as a reflection of the organisation's acknowledgment of the cumulative benefits to the organisation;
- **Improved corporate social responsibility (CSR)** with a framework and organisational engagement to reduce emissions through strategic energy management;
- **Improved risk management** with a structured risk management mechanism through the implementation of an EnMS; and
- **Ongoing energy use and cost reduction** with the establishment, implementation and preservation of the necessary systems and processes to manage energy on site.

The international standard ISO50001 specifies an EnMS framework. ISO50001's Plan – Do – Check - Act continual improvement framework is a useful reference for all organisations establishing an EnMS.

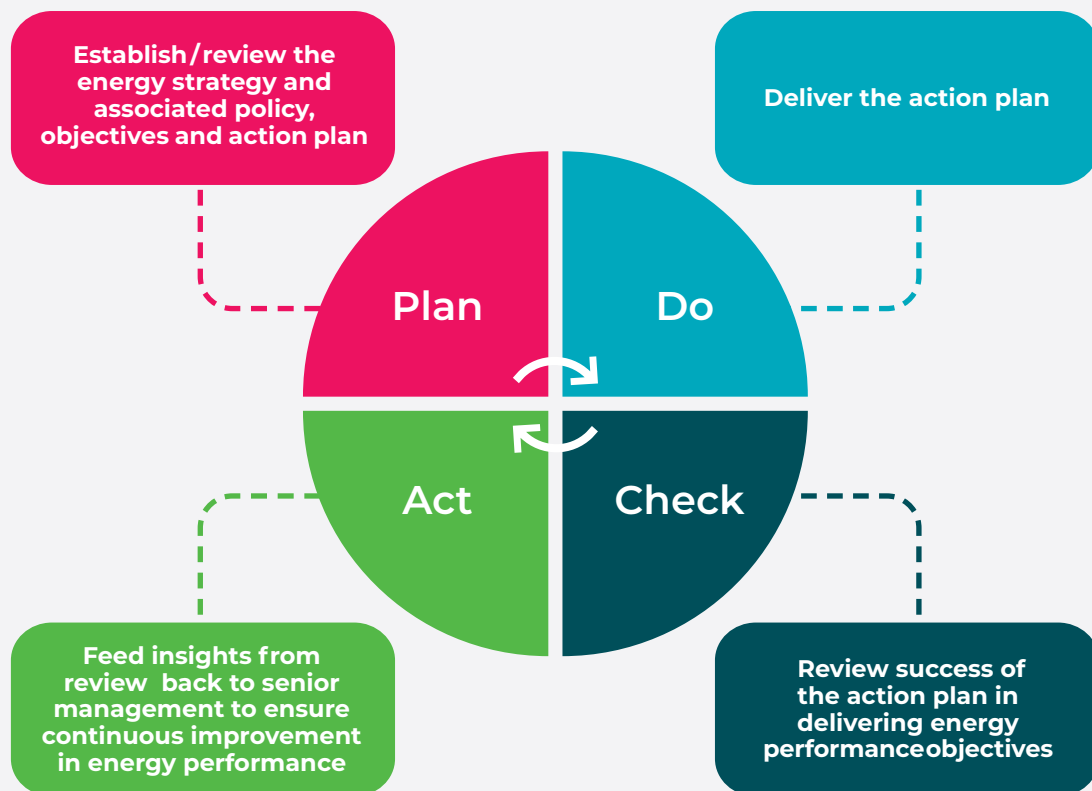


Figure 6: The Plan – Do – Check – Act cycle is central to EnMS, and management systems more broadly. It enables continuous improvement in energy management.

2.3.2 Energy management systems for office-based businesses

ISO50001 will be unsuitable for most office-based businesses, especially tenants of small office spaces. However, energy management systems are still a useful framework for enabling continuous improvement in energy management. As an example, undertaking the following activities constitute setting up an EnMS suitable for office-based businesses:

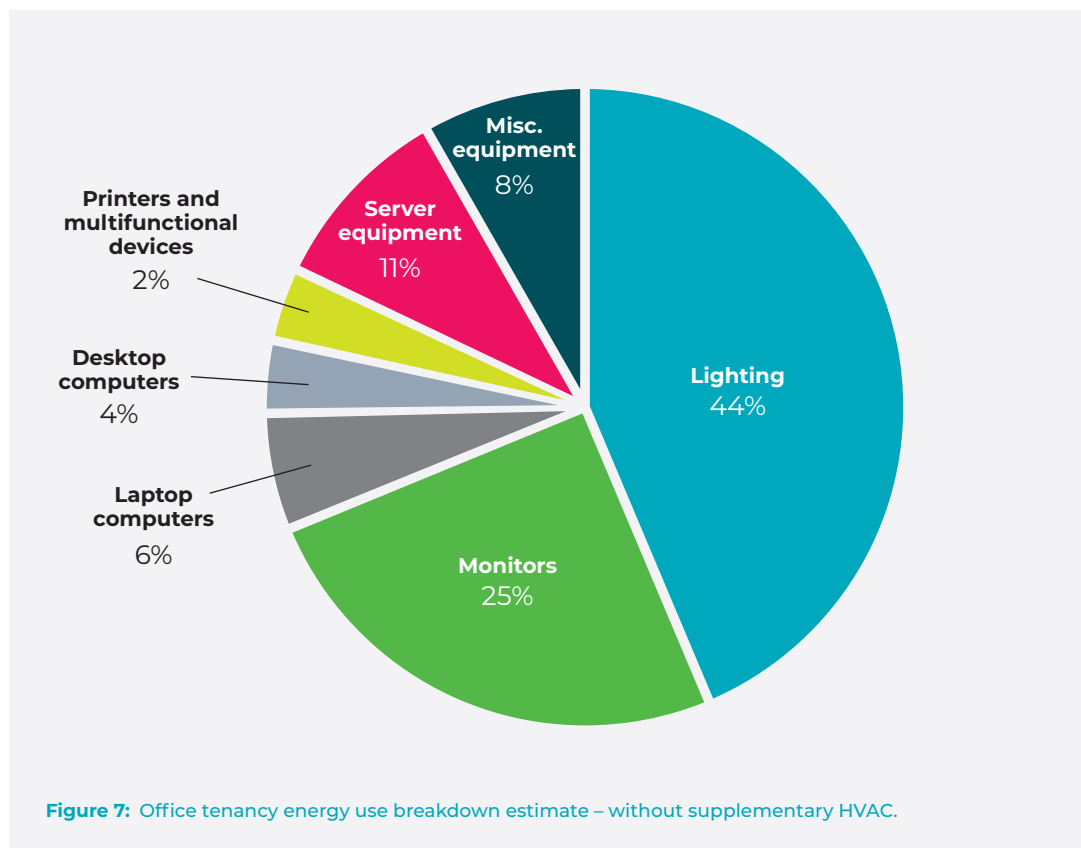
- **Undertake an annual NABERS Energy rating** and commit to making annual energy performance improvements - i.e. of 0.5 stars;
- **Develop an action plan of energy savings measures** to enable those improvements, and establish an energy management team to review and amend that action plan on a regular basis, for example, each month;
- **Hold quarterly reviews with senior management** to ensure that requisite buy-in is achieved and that senior management have oversight of the action plan, ensuring that targets are being set and met;
- **Develop an annual report** that highlights what worked, and what needs improvement; and
- **Report performance back to the organisation as a whole**, as well as external stakeholders, highlighting the financial, social and environmental benefits of the EnMS.

Importantly, energy savings measures could include running a behaviour change campaign where staff are encouraged to turn off the lights at the end of the day, it could also mean procuring 6-star office equipment, or undertaking a lighting retrofit.

To learn more about energy savings opportunities for office-based businesses, see **Section 3**.

Energy management opportunities for offices

With flexible working arrangements, offices are open for longer and have quite variable occupancy. This can lead to sub-optimal energy usage, with businesses losing out on savings. Leading office-based businesses are aware of this and are investing in smart energy management opportunities to lower their energy bills and emissions.



3.1 Office equipment

With **office equipment making up over half of the typical office tenancy's energy consumption**,¹⁷ choosing or leasing the right machines will have significant impacts on energy use and costs. And notably, with the rapid rate of development in equipment, efficiency of most items has at least doubled in the last ten years.¹⁸

Increasing the energy efficiency of office equipment means making better use of what is already in use and replacing older, inefficient models with modern alternatives for better performance. Office equipment includes all office basics such as computers, monitors, printers and photocopiers, as well as kitchen items such as fridges, microwaves, kettles and more.

¹⁷ Energy Efficiency Council 2021, *Determining office tenancies energy end use*.

¹⁸ CitySwitch 2020, *Energy efficient equipment*, accessed 1 October 2020.

3.1.1 What is the average energy performance of typical office equipment?

3.1.1.1 Computers, laptops and monitors

Computers, laptops and monitors typically make up a third of office energy consumption. Desktop computers remain a staple in many offices, but they use significantly more energy than laptops.

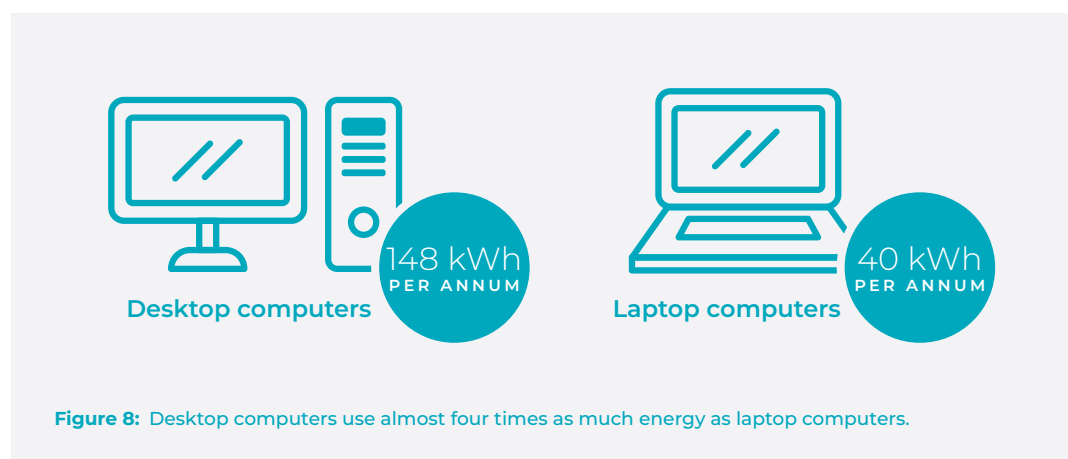


Figure 8: Desktop computers use almost four times as much energy as laptop computers.

However, lower energy consumption is not the only benefit of laptops, they also better support flexible working arrangements.

No matter if laptops or desktop computers are used, they are typically accompanied by monitors, which must be sold with an Energy Rating Label, depicting how energy efficient the monitor is. Leading office-based businesses choose which size – or capacity – model they need first, and then use the star rating to compare them.

Common and simple ways to reduce energy consumption in computers, monitors and laptops include:

- Changing sleep settings to enable deactivation after shorter periods of inactivity; and
- Turning off IT equipment when not in use for several hours, including overnight.

Equipment energy ratings and the E3 program

The Equipment Energy Efficiency (E3) program is a cross jurisdictional program through which the Australian Government, states and territories and the New Zealand Government collaborate to deliver a single, integrated program on energy efficiency standards and energy labelling for equipment and appliances.

Energy ratings inform consumers on how energy efficient appliances are in comparison to other products of an equivalent size, by using stars as the rating marker, with one star indicating the product has a low level of energy efficiency and ten stars indicating the product is highly efficient.

Beyond labelling, the Australian Greenhouse and Energy Minimum Standards (GEMS) program establishes the Minimum Energy Performance Standards (MEPS) for new products including fridges, televisions, computers and computer monitors, washing machines and dryers, dishwashers, and air conditioners.

¹⁹ Energy Efficiency Council
2021, *Determining office
tenancies energy end use.*

3.1.1.2 Printers and multifunctional devices

Like computers and laptops, printers and photocopiers – otherwise known as multifunctional devices – can use a substantial proportion of energy, with **printers and photocopiers making up two percent of energy consumption** in recently surveyed office tenancies.¹⁹

Determining office tenancies energy end use

Between July and October 2020, CitySwitch signatories participated in a survey that was used to create a model of office tenancies energy consumption. The results from that research are referenced in this sector spotlight, and are being used to influence future policy and programs to support office tenancies with lowering their energy consumption.

For more information on the research, visit energybriefing.org.au/research

This two per cent is representative of office tenancies having an average of 3.3 printers and multifunctional devices each, or 0.003 printers per m² and 0.03 printers per person. This demonstrates that a single printer can have a substantial power draw, meaning that for businesses with more printers, there is a large energy saving opportunity.

But not all printers are alike, with laser photocopiers and printers becoming increasingly less competitive when compared with inkjet printers due to their comparative capital expenditure and clear difference in operational costs. **Newer inkjet printers do not use heat in the printing process and as a result typically consume less than 50 per cent of the electricity of laser printers.** Inkjet printers also have fewer components to maintain and replace, further reducing their impact to the environment and potential maintenance costs.

Beyond these clear operational savings, leading businesses are also investing in multifunctional equipment that can print, copy, scan and fax to reduce the equipment required, and the energy costs.

Amplifon reduces printing costs by 90 per cent

Amplifon, an Italian company, is the world's largest hearing aid retailer. In Australia Amplifon is represented by National Hearing Care, with over 250 regional and metropolitan clinics, and in New Zealand Amplifon is represented by Bay Audiology and Dilworth Hearing, with over 100 clinics.

With minimal interventions and efficient performance as their key buying criteria, Amplifon selected heat-free Epson inkjet devices as the print solution across their entire retail network. High-yield consumables meant no projected consumable changes for Amplifon for three years, and low energy consumption reduced their printer energy costs and associated carbon footprint by over 90 per cent.

3.1.1.3 Kitchen appliances

While many of the kitchen appliances used in offices have limited operating hours, **fridges and dishwashers account for most of the average eight per cent of office tenancy energy consumption** attributed to office equipment other than printers and multifunctional devices.

Leading office-based businesses consider not just purchase price, but day-to-day running costs when evaluating purchase options for kitchen appliances, and with fridges running 24/7, like computer monitors, they have mandatory Energy Rating Labels.

Importantly, fridge operating costs can increase by up to 15 per cent if there is insufficient space around a fridge for air circulation. So, whilst energy ratings are important, so is the positioning of equipment.

Additional simple ways to further reduce energy consumption from kitchen appliances include:

- Selecting kitchen appliances based on their energy ratings, as an extra star on a dishwasher's energy rating could save up to 30 per cent on energy consumption; and
- Selecting whitegoods based on expected usage of employees, as 'oversizing' will increase cost.

3.1.1.4 Task lighting

Many offices have additional task lighting on employee desks. Switching to LED globes from compact fluorescent lamps (CFLs) cuts energy consumption by half, and switching from incandescent to LED can save up to 80 per cent of the electricity used by lighting. And with bright, cool fluorescent lighting increasing the risk of eye diseases,²⁰ installing dimmable, warm LEDs can also improve comfort by reducing eye strain.

20 Walls, HL, Walls, KL & Benke C 2011, 'Eye disease resulting from increased use of fluorescent lighting as a climate change mitigation strategy'.

21 Commonwealth of Australia 2020, *Your Home Appliances*, accessed 1 October 2020.

22 Commonwealth of Australia 2019, *Independent review of the Greenhouse and Energy Minimum Standards (GEMS) Act 2012*, p. 16.

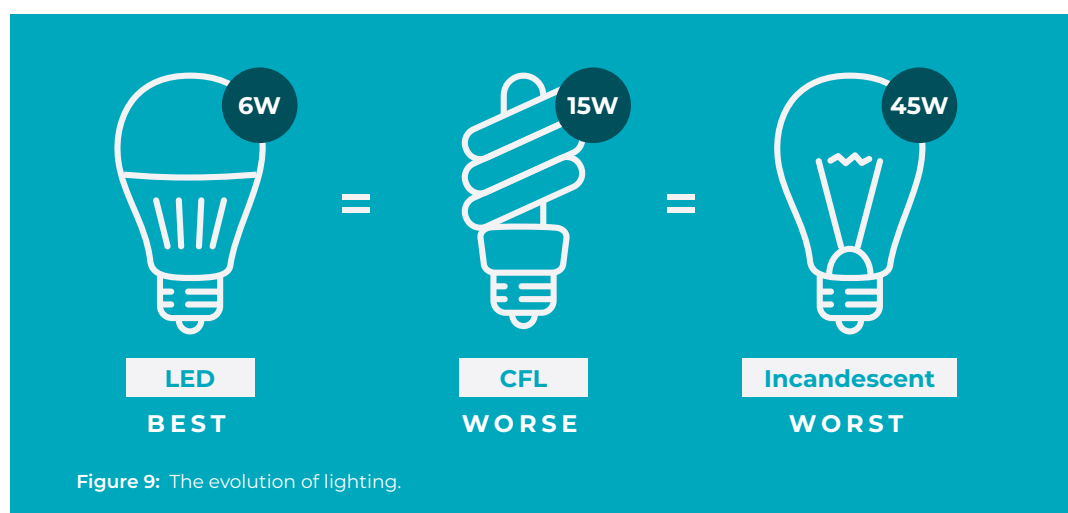


Figure 9: The evolution of lighting.

3.1.2 What difference can investing in energy efficient equipment make?

Minimum Energy Performance Standards (MEPS) have substantially improved the efficiency of equipment, with, for example, refrigerators using approximately 40 per cent less energy than equivalent refrigerators built 25 years prior.²¹ And the Energy Rating Label – and its ten star rating – is enabling substantial savings for businesses and households alike. For example, a four-star 600L fridge, on average, could save \$260 over its lifetime compared to a three-star fridge.²² While this doesn't seem like a lot, that's just one appliance, so the cumulative savings are significant.

For much of the equipment in the average office, there can be a 40 per cent decrease in energy consumption between modern and more efficient models as compared with versions from ten or more years ago.²³

3.2 Lighting and air conditioning

Beyond office equipment, lighting and heating, ventilation and air conditioning (HVAC) systems are two of the largest energy consumers in office environments. There are a range of simple measures that businesses can undertake to improve their energy efficiency, as well as larger investments in energy efficient products and systems that will deliver greater benefits.

3.2.1 What is the average energy performance of office lighting and air conditioning?

Lighting is the largest energy consumer in any office tenancy, typically contributing 44 per cent of the energy bill.²⁴ Lighting still has

a large power draw in offices generally, but HVAC services are commonly higher. HVAC typically accounts for 40 per cent of the total building consumption and 70 per cent of base building electricity consumption.²⁵

For office tenancies that have supplementary air conditioning, it can be the next largest user, and sometimes even higher.²⁶ To minimise the energy consumption, there are a range of simple measures that businesses can undertake to improve the energy efficiency of these fixed services, as well as larger investments in energy efficient products and systems that will deliver greater benefits.

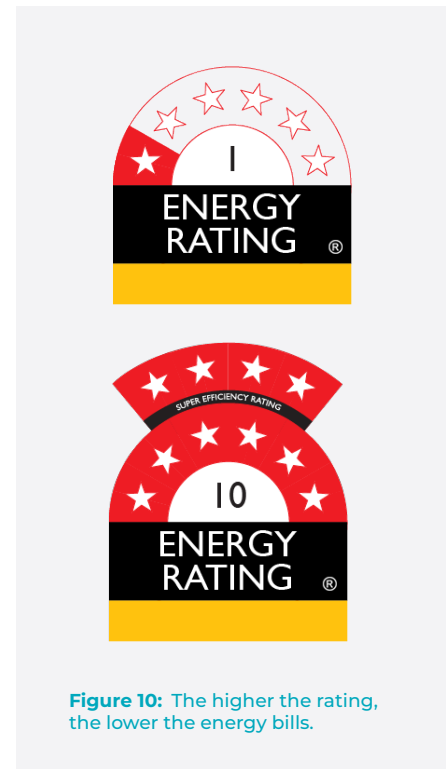
3.2.2 What difference can investing in efficient lighting and air conditioning make?

Making lighting more energy efficient in an office tenancy can mean replacing actual light fittings, changing the lighting types or improving the lighting controls – for example, installing motion or daylight sensors, timers, and automatic dimmers.

Lighting upgrades can be relatively straightforward, and offer very rapid returns on investment, with ongoing operational savings and reduced maintenance as LED lifespans far exceed that of both CFLs and incandescent lights. In addition, LEDs produce substantially less heat, lessening the load on the office air conditioner.

Installing automatic or manual controls can be a highly effective way of managing energy consumption from lighting and air conditioning. For instance, the installation of occupancy sensors that automatically turn lights off when people are not in the office or a meeting room can help reduce unnecessary energy load. Further, **resetting the indoor temperature by one degree can make an approximate five to ten per cent energy saving for the base building**, so a little flexibility in temperatures can offer big emission and energy savings without compromising occupant comfort.

Leading office tenancies only lease from high-performing buildings, as demonstrated by both high NABERS Energy ratings, and high NABERS Indoor Environment ratings that measure the indoor air quality, lighting quality, temperature and thermal comfort of a building. They also work with their landlord's facilities management teams to optimise the base building's heating and cooling efficiency, including the temperature settings.



²³ Commonwealth of Australia 2020, *Your Home Appliances*, accessed 1 October 2020.

²⁴ Energy Efficiency Council 2021, *Determining office tenancies energy end use*.

²⁵ CitySwitch 2020, *HVAC overview*, accessed 1 October 2020.

²⁶ Ibid.

Green Star – Interiors by the Green Building Council of Australia

The Green Building Council of Australia's (GBCA) Green Star – Interiors rating tool is another way for tenants to design an energy efficient office fit out that, if managed correctly, will ensure office tenants do not waste energy in operation. Importantly, this helps ensure that organisations are not paying more than they need to on their energy bills.

Covering a broad range of categories, the Green Star - Interiors rating tool addresses energy efficiency through assigning credit points based on the implementation of energy efficient lighting and equipment, as well as a design that not only consumes less power, but also allows occupants to better monitor and manage their energy consumption.

To learn more, go to new.gbca.org.au/rate/rating-system/interiors

dsquared Consulting uses Green Star – Interiors to manage energy consumption through good design

As a CitySwitch signatory, dsquared Consulting diligently manages its energy consumption. dsquared's office fit out, which achieved a 5-star Green Star – Interiors rating, included a number of initiatives to keep energy use low from the start. This ultimately helped dsquared secure a high NABERS Energy rating and win the South Australian award for CitySwitch Signatory of the Year in 2019.

These initiatives included making use of the naturally daylit office and low-energy appliances as well as staff efforts to reduce the use of heating and cooling.

Lighting is rarely needed during the day, and the landlord has installed motion and daylight sensors as part of the lease agreement.

Airconditioning is also unnecessary, with the balcony doors providing natural air flow through the space. During the coldest months of the year, manually controlled energy-efficient radiant panel heaters do the job.

All four staff use laptops, instead of desktop computers, and a kill-switch by the front door turns off all power when the office is vacant.

We are proud of the environment we have created for our staff and clients – it's a bright and fresh space to work and an example to our clients of how sustainability can be addressed and recognised without high upfront costs.

Deborah Davidson

Director
dsquared Consulting

The project achieved 12 points in the 'Greenhouse Gas Emissions' credit in Green Star – Interiors for energy efficiency, exceeding the NABERS 4-star benchmark by more than 60 per cent. In practice, the tenancy achieved a 5.5-star NABERS Energy certified rating in June 2014.

Taking action: cutting your energy costs

Taking action isn't just about making energy efficiency upgrades and procuring renewable energy; it's also about changing the behaviour of your employees and your business as a whole. Some of the simplest ways to cut office energy costs are behaviour-based changes, including turning off lights and computers when not in use, and waiting until the dishwasher is full, rather than handwashing or turning on a half-empty dishwasher.

Recent analysis demonstrates that even the office tenancies leading the way in energy management – i.e. CitySwitch signatories – still have plenty of room for improvement. The leaders, which represent the top quarter of CitySwitch signatories, are operating offices that are approximately 30 per cent more efficient than tenancies in the lower end of the market.²⁷ And with technology ever advancing, continuous improvement is still possible for even the best performers.

²⁷ Energy Efficiency Council 2021, *Determining office tenancies energy end use.*

4.1 Action plan

So where can office-based businesses start?



Figure 11: Leading office-based businesses in energy strategy and management follow the above checklist to leverage their networks and energy data to make smart investments in energy management, and move beyond energy management to realise wider sustainability goals.

4.1.1 Reach out to your networks

4.1.1.1 CitySwitch supports leading office-based businesses

CitySwitch helps office-based businesses to improve their energy and waste efficiency. The program, which is free to join, helps commercial office tenants around Australia to:

- Enhance energy efficiency and reduce costs;
- Manage energy price increases and mitigate business risks;
- Work towards a carbon positive future;
- Reduce waste; and
- Improve the health and productivity of employees.

When businesses join CitySwitch they gain access to one-on-one support and a wide network of other companies also taking steps to improve their sustainability.

CitySwitch leverages NABERS Energy to empower businesses that lease office premises to make smart energy management investments. CitySwitch also undertakes annual reviews of energy performance to facilitate continuous energy management improvement.

CitySwitch supports businesses with becoming carbon positive, which means achieving negative emissions by drawing more emissions from the atmosphere than what are being put in.

Learn more at cityswitch.net.au

4.1.1.2 Tenants and landlords working together

For tenants, undertaking NABERS Co-Assess ratings with landlords reduces the costs of a NABERS Energy rating, and also establishes a relationship with the landlord that could lead to building upgrades and energy performance improvements. Importantly, your landlord may already have an energy management system or sustainability plan that you can leverage to your advantage.

4.1.2 Begin your energy management journey

Following the steps to identify energy management opportunities identified in **Section 2** will enable office-based businesses to improve their energy and emissions performance. In particular:



- **Starting with what can be seen** by changing habits and routines, and scanning the office for issues leverages the knowledge of the team on the ground to identify quick wins.



- **Benchmarking performance with a NABERS Energy rating** that is right for your office will benchmark your energy performance against your peers, and help you identify simple energy saving initiatives.



- **Adopt energy management as a discipline** by establishing processes for continuous improvement in energy performance internalises smart energy management as a part of company culture, and drives ongoing, year-on-year improvements in energy performance.

Where does renewable energy fit?

Businesses should always start with energy efficiency upgrades in advance of installing renewable energy on-site or procuring renewable energy off-site. This ensures that the business does not over-invest in too much generation, as energy efficiency measures will reduce the business' electricity demand.

To learn more, see Section 3.2.3 of the *briefing for Australian businesses*.

4.1.3 Continue your sustainability journey

Following the steps to identify energy management opportunities identified in **Section 2** will enable office-based businesses to improve their energy and emissions performance. In particular:



- **Achieving carbon neutrality** by purchasing offsets for any remaining emissions enables your business to become carbon neutral.



- **Exploring other sustainability opportunities** enables your business to reduce its overall environmental impact and improve its corporate social responsibility (CSR).

4.1.3.1 Achieving carbon neutrality

After exhausting efficiency and renewable energy opportunities, office-based businesses can purchase offsets for any remaining emissions to become carbon neutral. In Australia this is achieved through **Climate Active** certification.

Climate Active is an ongoing partnership between the Australian Government and Australian businesses to drive voluntary climate action. The brand represents Australia's collective effort to measure, reduce, and offset carbon emissions to lessen our negative impact on the environment.

The Climate Active initiative and Climate Active Carbon Neutral Standard supports and guides businesses as they account for and reduce carbon emissions. The Climate Active stamp helps the community take action by making it easier to identify and choose brands that are making a real difference. It's about making good decisions today, for a more sustainable tomorrow.

The Climate Active certification is one of the most rigorous carbon neutral certification standards in the world.

To learn more, go to climateactive.org.au

4.1.3.2 Exploring other sustainability opportunities

After undertaking the energy management journey and achieving carbon neutrality, your business can explore other sustainability opportunities like improving your office's water and waste consumption, indoor air quality and more.

In Australia, **NABERS** and GBCA's **Green Star** ratings are the gold standard for benchmarking sustainability opportunities other than energy, but businesses are also increasingly aligning their sustainability plans with the **Sustainable Development Goals (SDGs)** through commitments like the **United Nations Global Compact (UNGC)**.

To learn more, go to un.org/sustainabledevelopment and unglobalcompact.org

4.2 Funding and financing options

Several options exist for funding and financing energy services, including:

- Traditional financing options;
- Service agreements; and
- Government grants and incentives.

To learn more, read the *Energy financing and funding 101s* found at energybriefing.org.au/financing-and-funding-101s and for the latest grants and incentives, go to energybriefing.org.au/business-support.

An accountant's perspective on behind-the-meter investments

If businesses set the right objectives and investment criteria, the financial outcomes of behind-the-meter investments are compelling.

A \$2 million investment in new LED lighting and rooftop solar, which yields annual savings of \$350,000 in energy and maintenance costs, is accounted for like this:

Operating statement impact:

The \$2 million capital investment is depreciated over 15 years, resulting in an annual expense of \$133,000. Additionally, there is an annual reduction in other expenses (energy and maintenance) of \$350,000. The net result of this is a \$216,000 annual improvement to the operating statement.

Balance sheet impact:

The net impact on the balance sheet at the time of investment is zero. The \$2 million capital investment increases non-financial assets by \$2 million. However, it either creates a liability (if you borrow to fund the project) or reduces financial assets (if you use cash to pay for the project) by \$2 million.

Net debt impact:

This impact varies over time, following the net cashflow for the project. At the time of investment, there will be an increase in net debt of \$2 million. Over six years, the net debt impact will reduce to zero. Over the remaining years, the annual savings will achieve a net reduction in debt.

Net present value (NPV):

Over a 15-year period, assuming a discount rate of 4% (real), the NPV is \$2 million. A positive NPV indicates it is worth investing in the project.

Resources for office-based businesses



The resources and information listed below complement those in Section 4 of the *briefing for Australian businesses*.

5.1 Industry support

Many businesses have existing relationships with trusted experts. For those that do not, sourcing a referral from professional networks is a natural first option. Beyond that, seeking out a member of a well-established, credible industry association – like those outlined in the *briefing for Australian businesses* – is a good starting point.

For a full list of relevant industry associations go to energybriefing.org.au/industry-associations

5.2 Government support

Further information about government support can be found in Section 4 of the *briefing for Australian businesses*.

5.2.1 CitySwitch

CitySwitch is run in partnership between local and state governments. The program provides free support, resources, and recognition to a growing network of Australian business leaders committed to addressing their environmental impact.

For more information go to cityswitch.net.au

5.2.2 Better Building Finance (BBF)

BBF is a shared service provider for environmental upgrade finance (EUF) and building upgrade finance (BUF). BBF works with local governments to help them offer this innovative form of finance, creating more sustainable businesses across Australia.

For more information go to betterbuildingfinance.com.au

5.2.3 Business Energy Advice Program (BEAP)

BEAP is a free energy advisory program for small businesses – those with 6-20 employees, or 0-20 employees for businesses that have been adversely affected by drought. The advisory services are delivered across Australia via face-to-face and phone consultations, helping small businesses to discover industry-specific energy saving opportunities.

BEAP provides advice on energy plans and energy efficiency opportunities to help small businesses manage their energy consumption and costs. The service also gives small businesses free access to information available online including case studies, fact sheets, and information on how businesses can access government grants.

BEAP is funded by the Australian Government and delivered by Business Australia.

For more information go to businessenergyadvice.com.au

5.2.4 CitySmart

CitySmart, an initiative of the Brisbane City Council, supports businesses and households with understanding the value of living and doing business sustainably, and provides the awareness, knowledge and tools to help them achieve it.

For more information go to citysmart.com.au

5.2.5 Government grants

To see the latest offers from the Commonwealth, state and local governments, go to energybriefing.org.au/business-support/government-support

5.2.6 State base energy efficiency schemes

Businesses in the ACT, NSW, South Australia and Victoria can access their energy efficiency scheme – the **ACT Energy Efficiency Improvement Scheme (EEIS)**, **NSW Energy Savings Scheme (ESS)**, **SA Retailer Energy Efficiency Scheme (REES)** and **Victorian Energy Upgrades (VEU) program** – to subsidise energy efficiency upgrades.

These schemes operate by requiring energy retailers to meet targets in relation to emissions reductions via energy efficiency upgrades. These reductions are generally met by providing subsidised energy efficiency products and upgrades to energy users, and can be used for a range of upgrades. In particular, lighting and HVAC upgrades are popular in office-based buildings.

5.3 Other resources

CitySwitch has a series of resources that support office-based businesses with strategic energy management and achieving other sustainability goals.

For more information go to cityswitch.net.au/resources

Several other resources that support office-based businesses with strategic energy management can be accessed at energybriefing.org.au/other-resources



Office-based businesses that are leading in energy management and strategy utilise energy efficient equipment like laptop computers, optimise lighting and air conditioning and take advantage of natural lighting to reduce costs and improve environmental performance.

Glossary

ABW	Activity-based working
BBF	Better Building Finance
BEAP	Business Energy Advice Program
BUF	Building upgrade finance
CFL	Compact fluorescent lamps
CSR	Corporate social responsibility
E3	Equipment Energy Efficiency Program
EEC	Energy Efficiency Council
EEIS	Energy Efficiency Improvement Scheme (Australian Capital Territory)
EML	Employers Mutual Limited
EnMS	Energy management system
ESS	Energy Savings Scheme (New South Wales)
EUA	Environmental upgrade agreement
EUf	Environmental upgrade finance
GBCA	Green Building Council of Australia
GEMS	Greenhouse and Energy Minimum Standards
HVAC	Heating, ventilation and air conditioning
ISO	International Organization for Standardization
kWh	Kilowatt-hour
LED	Light emitting diode
MEPS	Minimum Energy Performance Standards
MWh	Megawatt-hour
NABERS	National Australian Built Environment Rating System
NGER	National Greenhouse and Energy Reporting
NPV	Net present value
REES	Retailer Energy Efficiency Scheme (South Australia)
SDGs	Sustainable Development Goals
UNGC	United Nations Global Compact
VEU	Victorian Energy Upgrades Program
WRI	World Resources Institute
WWF	World Wide Fund for Nature

Acknowledgements

CitySwitch and the Energy Efficiency Council (EEC) gratefully acknowledge the many organisations and individuals that contributed to the development of this briefing.

In particular, we would like to highlight **Epson Australia**, without whose support the development of this document would not have been possible.

Further, we would like to acknowledge the significant expert contribution from:

- NABERS, particularly **Esther Bailey, Nichola Nicholson** and **Sara Rathborne**;
- Point Advisory, particularly **Charlie Knaggs** and **George Wang**;
- The City of Melbourne, particularly **Danielle King** and **Toby Lawrenson**;
- The City of Sydney, particularly **Emma Baird** and **Zoe Baker**;
- The Green Building Council of Australia, particularly **Sandra Qian**; and
- The Property Council of Australia, particularly **Tim Wheeler**.

We would like to thank the many EEC members and partners who have taken the time to review and refine the document – their feedback has been invaluable.

© Energy Efficiency Council 2020

This document and its contents are copyright of the Energy Efficiency Council. Apart from any use as permitted under the Copyright Act 1968, no part may be reproduced without prior written permission from the Energy Efficiency Council. Questions regarding reproduction and rights should be addressed to the Energy Efficiency Council, Level 7, 222 Exhibition Street, Melbourne, Victoria 3000.

DISCLAIMER. This report has been prepared and issued for the Energy Efficiency Council for public dissemination, and is provided solely for information purposes. Reasonable efforts have been made to ensure the contents of this publication are factually correct, however, the Energy Efficiency Council does not accept responsibility for the accuracy or completeness of the contents, and shall not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the contents of this publication. This report is not intended to constitute financial, tax, legal, regulatory or other professional advice or recommendations of any kind, and should not be used as a substitute for consultation with financial, tax, legal, regulatory or other professional advisors.



To learn more visit energybriefing.org.au

For more information, contact the **Energy Efficiency Council**

☎ (03) 9069 6588 ✉ energybriefing@eec.org.au

