

NABERS Policy Toolkit

Using NABERS to plan, procure, target and achieve better environmental outcomes in Australia's buildings

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Overview



NABERS, the National Australian Built Environment Rating System, provides a simple, reliable sustainability rating across building sectors like hotels, shopping centres, apartment buildings, offices, data centres, and more.

Like the efficiency star ratings on your fridge or washing machine, NABERS uses ratings of one to six stars to help people understand the energy or water efficiency, waste management practices or indoor environment quality of buildings. NABERS is a universally understood language when articulating sustainability goals and achievements, and this makes it easy to integrate into policies and to use as a standard for goals and targets.

NABERS ratings report how a commercial building's energy, water and waste efficiency and indoor environment quality compare with other buildings of the same type. By assessing how a commercial property performs in operation, NABERS ratings encourage better performance with lower costs and fewer carbon emissions.

Managed by the NSW Government, NABERS is overseen by a National Steering Committee with representatives from all states and territories, the Australian Government and a large number of industry bodies.

Like any reporting protocol, NABERS takes a little time to learn. We've developed this toolkit as a 'crash course' for government policy makers and people influencing the design, construction and operation of buildings.



Figure 1: NABERS ratings by stars

How to use this NABERS Policy Toolkit



Solar panels in Sydney city

NABERS empowers sustainable choices in procurement, portfolio management and planning.

This toolkit will give you the information and resources you need to use NABERS ratings to make the best possible decisions when purchasing, leasing or operating commercial buildings, when designing for new commercial developments or within planning policy.

This toolkit comprises three sections that can each be used independently or together:

Procurement

→ For government and private sector businesses that lease or purchase buildings such as office space, hotel accommodation and data centres.

Portfolios

→ For government and private sector businesses accountable for setting environmental policies or operating buildings.

Planning

→ For approval authorities using NABERS ratings targets in planning policies and for organisations developing new buildings. This toolkit will also show you how to successfully apply NABERS in policy making to:

- → Combine the NABERS suite of tools to drive action towards net zero and a circular economy
- → Set short term minimum targets alongside ambitious longer term targets
- → Align with and exceed the minimum requirements set out in the National Construction Code
- → Examine different strategies you can employ, like disclosure of ratings, minimum thresholds and requirements to progressively upgrade buildings over time.





NABERS + CBD Conference 2024

This toolkit is just one of many resources that the NABERS team has developed to support better buildings. We can offer:

Training

→ NABERS has a suite of free and paid-for training courses available on <u>our website</u>. <u>NABERS Essentials</u> is a free online course that provides an overview of the NABERS program.

Market intelligence

→ Find a rating allows you to search our database of public ratings. The <u>NABERS Annual Report</u> has sector and state-based data summaries of current performance levels to help you compare buildings with their peers.

Case studies and fact sheets

→ The <u>NABERS website</u> hosts a range of resources categorised by rating type and by sector which can offer insights into the potential for your buildings.

Data

→ The <u>NABERS Sustainable Portfolios Index</u> is a globally unique, public, whole portfolio view of actual performance in terms of energy emissions, water usage, waste and indoor environment quality.

Guides

→ The Global Guide for Energy Efficiency in Commercial Buildings outlines the key success factors of NABERS Energy ratings in Australia and provides valuable insights for a range of professionals worldwide, from policy makers to investors.

Please contact the NABERS team if you'd like support to use NABERS in your organisation. We are here to help.

nabers@environment.nsw.gov.au

1. Introduction to NABERS

NABERS was established in 1999 and owes much of its success to visionary policy makers and procurement specialists who wanted to make the benefits of energy efficiency visible to commercial building owners and tenants, and to encourage investments that improved energy performance.

Over the last 14 years, Australian offices rated using NABERS Energy have reduced energy consumption by an average of 42% and have reduced greenhouse gas intensity by 55%.

This is one of the fastest, large-scale building transformations recorded anywhere in the world and it started with deliberate policy application.

You can read more about how Australian federal and state governments have set minimum standards for office accommodation, using NABERS, in Section 3.

Similar trends are now underway with other building types, like shopping centres, as illustrated in Figure 2, and for other environmental outcomes beyond energy efficiency, such as water and waste efficiency which can now be measured using NABERS ratings.

Average reduction after multiple ratings: NABERS Energy for Offices (Base and Whole Buildings):

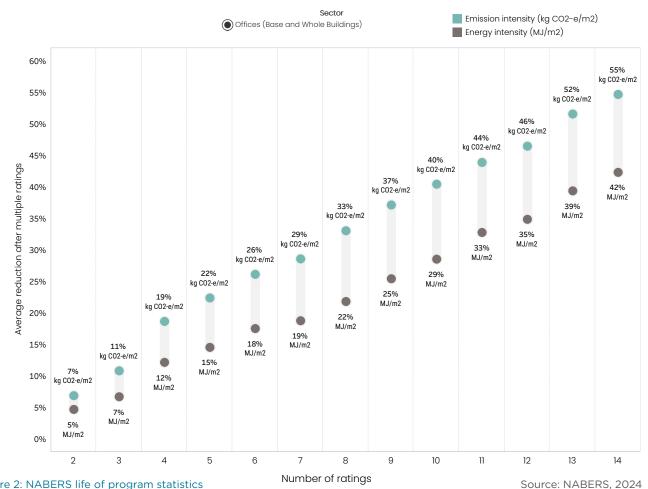


Figure 2: NABERS life of program statistics



Since 1999, NABERS has helped asset owners and tenants save:

\$1.7 billion costs

11.5 million tonnes

of carbon emissions each year



This is equivalent to powering 109,000 homes for a year.

In 2024, NABERS ratings are currently available across 12 building sectors and will continue to expand into new ones.

Ratings are now available across a range of environmental outcomes including energy, water, indoor environment, waste and carbon neutrality. From June 2024 the NABERS Energy Performance Indicator will be available across 36 new sectors that have not had NABERS Energy ratings before. A full list of NABERS ratings is found at Appendix A and B.

NABERS ratings are available for existing buildings and there are also two pathways to certify new buildings at the planning and design stage:

- NABERS Commitment Agreement
 requires new buildings to commit to achieve
 a specific star rating; and
- 2 NABERS Agreement to Rate requires a new building to undertake NABERS rating once it is in operation.

A NABERS embodied carbon tool will be released later in 2024 that will also be a part of the new buildings planning and design stage. More information on these pathways and how they can be used in planning is found in <u>Section 5.1</u>.

This suite of NABERS ratings can support policy makers when they are considering:

- → Owned and procured office space
- → Corporate hotel stays
- Government-owned assets such as public schools and public hospitals
- → Procurement of services from data centres
- → Design guidelines
- → Capital works budgets.

This toolkit assumes readers have a working knowledge of NABERS, although we do provide a glossary of terms and a suite of appendices with additional information for you to refer to when needed. With that in mind, let's dive into the detail.



2. NABERS and government leadership

The federal, state and territory governments are among the largest employers in Australia, accounting for approximately 15% of our country's workforce. Because of their size, these nine governments are some of the largest procurers of goods and services from the private sector across many sectors of the economy, and they are among the largest renters of office space. This multibillion-dollar purchasing power can make a major difference in driving climate action in buildings.

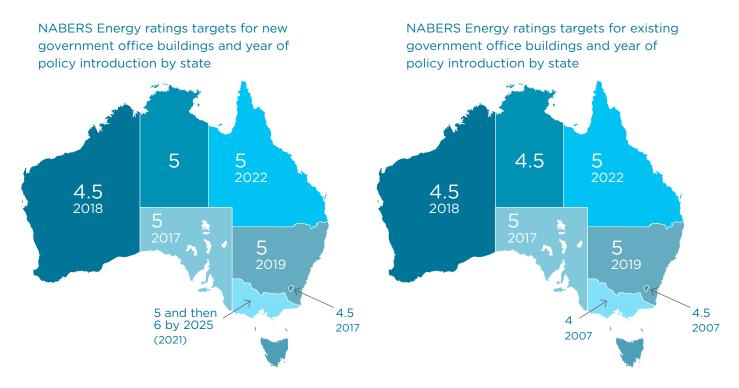


Figure 3: State government adoption of NABERS Energy

The Australian Government's Energy Efficiency in Government Operations (EEGO) Policy, established in 2007, set a minimum NABERS Energy rating requirement for government-leased offices. State governments followed the lead, with almost all the states and territories adopting a sustainability strategy which included NABERS Energy targets.

Source: NABERS, 2024

More than 15 years of NABERS data shows the impact of these policies on the trajectory of energy efficiency in the office sector in Australia. The number of buildings annually obtaining a NABERS Energy rating quadrupled in a single year (2005) and kept growing until NABERS Energy ratings were mandated in the large offices sector in 2010. Energy use and emissions in hundreds of large office buildings in Australia fell at a scale and speed never seen before.



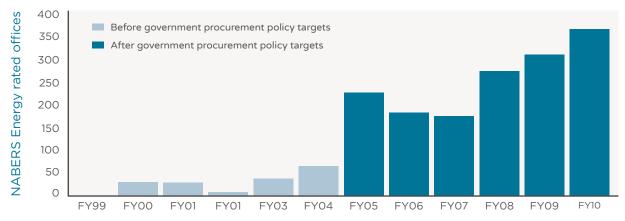


Figure 4: Office buildings undertaking annual NABERS Energy ratings



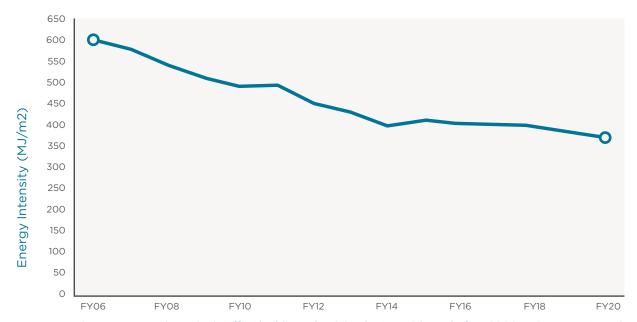


Figure 5: Energy intensity in office buildings that joined NABERS by or before 2006 Source: NABERS

Mandatory disclosure of energy efficiency for office buildings over 2,000 square metres was introduced by the Australian Government in 2010. This was hailed as a 'gamechanger' because it demonstrated how transparency leads to better building operations. The <u>Australian Commercial Building Disclosure (CBD) Program</u> has since expanded and now requires energy efficiency information – notably a NABERS Energy rating – to be provided when commercial office space of more than 1,000 square metres is offered for sale or lease. This has motivated the market to upgrade the energy efficiency of building stock because tenants can make easy comparisons.

Government policies have continued to drive change. Examples in recent years include South Australia becoming the first state to request 5-star NABERS Energy ratings for new leases in 2017, which was followed by New South Wales in 2019, and Victoria and Queensland in 2021.



Sydney city

In early 2024, the Victorian Government has the most ambitious state-level policy (released in 2021), with a 5-star NABERS Energy target for new government office buildings. This will rise to a 6-star target from 2025. Ratcheting up targets over time demonstrates government commitment to continuous improvement while giving the market time to adjust.

The NSW Government's <u>Sustainable Buildings</u> <u>State Environmental Planning Policy (SEPP)</u>, introduced in 2023, requires new commercial developments over a certain size to achieve minimum NABERS Energy and Water ratings in operation, alongside the measurement of embodied carbon using the NABERS standard. See the NSW SEPP case study on <u>page 27</u> for more information.

In November 2023, the Australian Government released its <u>Net Zero in Government Operations</u> <u>Strategy</u>, which superseded the aforementioned EEGO Policy from 2007 and outlines the approach to achieve net zero in government operations by 2030. This includes a commitment to NABERS Energy rated government office space.

From 1 July 2025, where a lease is entered into for 4 or more years of an office space of 1000 square metres or more, then the office space and the building in which it is located must have and maintain 5.5 star or higher base building and tenancy NABERS Energy ratings.

In April 2024, the Australian Government published its Environmentally Sustainable Procurement Policy which will be implemented in three phases, the first of which covers government construction services (for projects over \$7.5 million) from July 2024. This policy includes an option to use the new NABERS embodied carbon tool for reporting on construction, with a requirement for a 4-star NABERS embodied carbon rating.

These are just a few examples of how governments have used NABERS ratings in their own procurement policies to drive change throughout Australia's commercial built environment. If you'd like to take a deep dive into the history, check out our guide to energy efficiency in commercial buildings. More information on government targets and policies in place today can be found in Appendix C.



"The Sustainable Buildings SEPP in NSW includes a requirement for large commercial developments to enter into a NABERS Agreement to Rate or Commitment Agreement. The agreement is entered at the development application stage and progress checked at various times in the building lifecycle up to 24 months after occupation.

The inclusion of the NABERS products allows the NSW Government confidence that buildings are being built and operated in compliance with the policy's energy and water standards, and the standards set in the National Construction Code."

Abbie Galvin, Government Architect NSW



3. Using NABERS in procurement

NABERS ratings are powerful tools when they are used as part of a procurement policy because they enable organisations to set targets and make comparisons between buildings, based on a robust and renowned technical assessment, which then inform their procurement decisions.

When NABERS ratings are part of organisational procurement policies, commercial building owners and managers are motivated to demonstrate their assets have high NABERS ratings in order to maintain high occupancy, revenue and capital valuations. Or, put another way, building owners want to avoid their buildings being ruled out by prospective tenants because they do not meet the tenant organisation's procurement policy's defined NABERS targets.

The power of procurement policy in market transformation can be leveraged as more consumers (tenants in the case of office leases) set similar, ambitious targets. Australian federal and state governments already use NABERS Energy ratings targets for office space, as do many private sector organisations.



Office building

tion	Select best in class	Market mover
Ambition	Market taker	Market influencer
	Influe	ence ———

Governments, primarily through their scale and ambition, have powerful influence in markets. Influence is amplified by the private sector adopting similar, ambitious targets. This potent mixture of influence and ambition moves the market.

Figure 6: Sustainable procurement and market influence



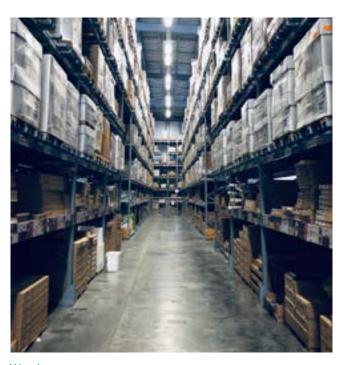
Procurement policies can have a powerful influence over all building types in the commercial property sector, but especially the following segments.

This suite of NABERS ratings can support policy makers when they are considering:

- → Office buildings
- → Hotels
- → Warehouses and cold stores
- → Shopping centres
- → Data centres

These are the commercial building types most commonly leased and where there is competition of supply.

Procurement of **new** commercial buildings presents a different set of opportunities, where ambition and influence can also move the development and construction markets. We will unpack this further in <u>Section 3.5</u>.



Warehouse

3.1 Managing benchmarks through leases

Leases and group procurement contracts are often long-lasting agreements. Leases can be struck on 10-year terms with blocks of extensions stretching out to 20 years or more. During this time, expectations and requirements will change.

To some extent, a lease might forecast future needs and include them in a schedule but in most cases, a lease must offer the flexibility to review and reset environmental benchmarks.

In November 2023, the Australian Government published its <u>Net Zero in Government Operations Strategy</u>. This outlined a commitment to **electrification**, including:

- → From 1 July 2024, all-electric buildings must be prioritised for office leasing.
- → From 1 July 2026, any contracts for the purchase or construction of office space by or for the Australian Government must prioritise all-electric infrastructure, where feasible. This commitment extends to building heating, cooling, and water heating systems, excluding backup generation, pending the 2026-27 review.
- → By 1 January 2030, 100% of Australian Government electricity must be renewable.
- → By January 2040, Australian Government entities are urged to exclusively lease or own office spaces that adhere to all-electric standards.

In December 2023, the Victorian Government released its updated <u>Gas Substitution Roadmap</u>. Among many other measures, this encourages Victorian Government agencies to "consider opportunities to build all-electric and remove gas when undertaking construction activities at existing buildings and sites with requirements to include an electrification option in business cases for government construction projects".

3.2 Sending market signals

NABERS provides tools that allow organisations to set building policy with ambitious net zero and broader sustainability goals. This sends a market signal that encourages efficient buildings powered by renewable energy and that apply best practice waste, water and refrigerant management.

The strongest signal that can be sent to a market is always a mandate. While a requirement for a particular NABERS rating is optimal for moving the market, it can lead to friction when there is limited availability of skills, for instance, or additional costs. Careful use of requirement descriptors, such as those that are outlined below, can guide the market to the right outcomes. A building may have certain attributes at the commencement of a lease. However, this can change. Best practice today may not be best practice in even a few years' time. Considering this from the outset allows a lease to be structured to encourage or require continuous improvement, particularly where strategies such as electrification or solar installations require planning that may extend well into the lease period.

NABERS recommends the following hierarchy of requirement descriptions:

1. Mandatory:

This sends the strongest signal to the market that buildings that don't meet the target will be rejected as unacceptable. A mandatory requirement is the basis of the most successful policy-making in Australia.

2. Preferred:

Nominating a preference for a specific rating sets a clear expectation that not meeting the target puts a property at risk of being filtered out of contention during the procurement process.

3. Preferred now - mandatory by [date]:

Nominating a preference for a rating guides the market and allows a lease to be struck at a lower rating with a commitment to improve through the lease period.

4. Acceptable with commitment to improvement:

Where a property meets all the other criteria but is lacking NABERS ratings, a lease can outline how the property performance will be improved through the period.

5. Commitment to rate and for continuous improvement:

In cases where the relevant NABERS rating has not been achieved but the building is acceptable for other procurement criteria, the lease may be agreed on the condition that NABERS ratings will be achieved in future. In this case, there is a commitment to continuous improvement through the life of the lease.

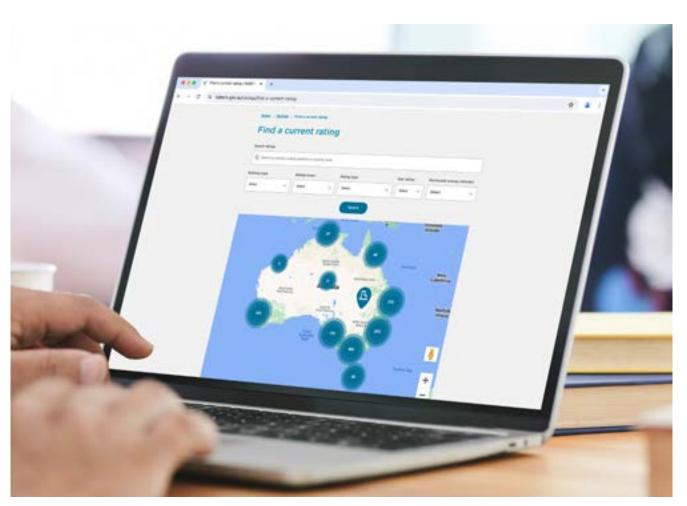
NABERS ratings and certifications cover a broad range of environmental outcomes. They can be used in combination or selectively to focus on the most significant environmental impacts of a particular building type. As NABERS continues to expand the suite of ratings, check the NABERS website for the latest information.



3.3 Checking market supply

The availability of buildings with specific NABERS ratings varies from location by location. The NABERS website is a useful resource when checking for each rating type.

Check out the Find a current rating page.

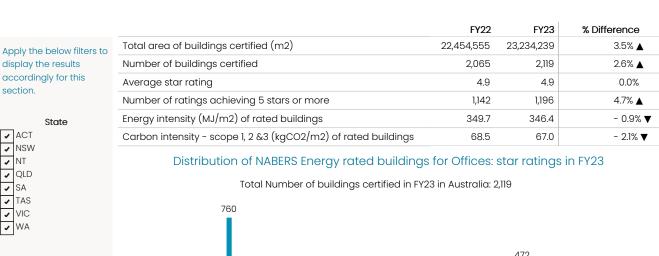


NABERS data by building type and region

Source: NABERS, 2024

The <u>NABERS Annual Report</u> offers an interactive dataset that can be interrogated to understand the distribution of existing ratings by state and by type. This provides insight into the capability and capacity of the market on a yearly basis. Figure 7 shows the depth of data available.

NABERS ENERGY FOR OFFICES - Key Insights: Summary



Rating scope

Base Building

Tenancy

Whole Building

333 228 169 29 21 21 ACT NSW NT QLD SA TAS VIC WA

(Affects KPI Table and Heatmap)
Include
Exclude

Green Power

Note: Premises that have been rated more than once in the financial year are included in the below heatmap, as it includes all certified ratings within FY23. These are displayed as a percentage of total ratings for each state. Total values for Australia are also provided when all states are selected.

Number of certified ratings:

	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
6	3.4%	7.0%		5.0%	6.5%		6.0%	3.8%	5.7%
5.5	29.9%	24.7%	44.8%	25.7%	20.6%	13.6%	16.5%	14.0%	22.2%
5	29.3%	29.6%	17.2%	33.6%	16.8%	18.2%	20.2%	26.3%	26.8%
4.5	18.4%	14.0%	6.9%	12.0%	20.6%	36.4%	22.2%	14.4%	16.4%
4	9.2%	9.1%	3.4%	8.5%	18.7%	13.6%	15.9%	13.1%	11.4%
3.5	4.0%	5.1%	6.9%	2.9%	6.5%	9.1%	6.0%	9.3%	5.5%
3	1.1%	3.8%	6.9%	3.8%	3.7%	4.5%	5.2%	4.2%	4.0%
2.5	1.1%	2.2%	3.4%	1.2%	0.9%	4.5%	3.0%	2.1%	2.1%
2	1.7%	1.0%		2.6%	0.9%		1.0%	3.8%	1.6%
1.5	0.6%	0.5%		0.6%	0.9%		0.6%	1.7%	0.7%
1	0.6%	0.4%	3.4%	0.3%			1.2%	1.7%	0.7%
0	0.6%	2.6%	6.9%	3.8%	3.7%		2.0%	5.5%	2.9%

Source: NABERS, 2024



Rating data in detail

Apply the below filters to display the results accordingly for this section.

Show Overall Average Star Rating by FY

This will display the overall national average rating for each FY, regardless of the states / scopes selected.

This provides a fixed comparison.

State

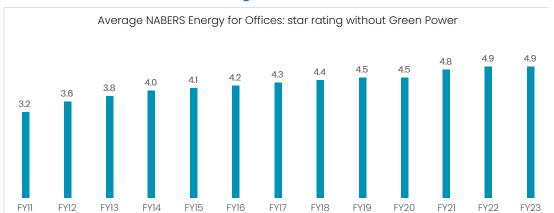
ACT
NSW
NT
QLD
SA
TAS
VIC

✓ WA

Rating scope Base Building

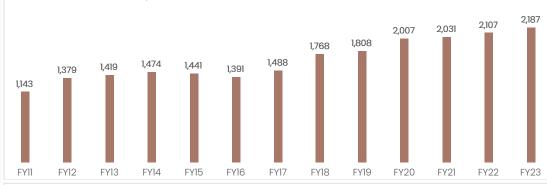
✓ Tenancy
✓ Whole Building

Energy Intensity or Emissions intensity Energy Intensity Emissions Intensity



Number of certified NABERS Energy for Offices ratings FY11 - FY23:

 $\ensuremath{^{*}}\textsc{This}$ includes premises which have rated more than once within each Financial Year.





Accumulated carbon emissions saved (tCO2). Baseline = FY10



3.4 Aiming for accountability

An inherent feature of any effective policy is measurement. A system to determine if policy objectives are being met should include disclosure to stakeholders of where and how the policy has been implemented to demonstrate the rate of adoption. This disclosure communicates to the market that the policy is taken seriously.

The NABERS team can assist your organisation with disclosures of NABERS certifications and ratings at a building or portfolio level. As an example, the Sustainable Portfolios Index allows commercial property owners to nominate portfolios for ranking performance across the range of NABERS ratings.

Figure 8: Sustainable Portfolios Index

Source: NABERS, 2024

Rank	Portfolio (as at 2023)	Co		rtfolio Energy Rat rithout GreenPow		Portfolio rated %	Assets rated	Total Portfolio Area (m2)
1.	Parramatta Square	Wo	alker Corporation		5.8	100%	2	105,449
2.	Lendlease Barangaroo International Towers	Ler	ndlease		5.7	100%	5	269,155
3.	Cbus Property	Cb	ous Property		5.5	100%	8	219,028
3.	Charter Hall (LWF)	Ch	narter Hall		5.5		2	13,839
3.	Collins Square	Wo	alker Corporation	•	5.5	100%	4	177,698
4.	Cromwell Diversified Property Trust	Cro	romwell Property Group		5.4	100%	10	227,562
4.	QIC Office Fund	QI	C Real Estate	_	5.4	100%	4	38,189
5.	Cromwell Direct Property Fund	Cro	romwell Property Group		5.3	100%	8	72,354
5.	Local Government Property Fund	Ac	ctive Super		5.3	100%	4	27,949
5.	Property NSW GREP Sustainability Plan	Pro	operty NSW		5.3	100%	24	73,195
6.	Brookfield Premier Real Estate Partners Australia	Bro	ookfield		5.3	99%	6	101,775
6.	Growthpoint Properties Australia Limited	Gro	owthpoint Properties Australia Limited		5.2	100%	25	289,274
6.	Investa Gateway Offices (IGO)	Inv	vesta		5.2	100%	5	90,163
6.	Mirvac Wholesale Office Fund (MWOF)	Mir	ivac		5.2	100%	11	295,032
7.	Australian Prime Property Fund (APPF) Commercial	Ler	ndlease		5.1	100%	18	257,882
7.	Brookfield Property Partners	Bro	ookfield		5.1	100%	6	176,905
7.	GARDA Diversified Property Fund	GA	ARDA Property Group		5.1	100%	3	23,764
7.	ISPT	ISP	PT	_	5.2	99%	31	659,627
8.	Charter Hall (CHOT)	Ch	narter Hall		5.0	100%	7	165,453
8.	Charter Hall (CPOF)	Ch	narter Hall		5.0	———— 100%	27	503,423
8.	DWPF Office	De	exus		5.0	100%	15	274,470
8.	HISOT	EG	•		5.0	100%	4	14,919
8.	Investa Commercial Property Fund (ICPF)	Inv	vesta		5.0	100%	13	281,333
8.	Sentinel Regional Office Trust	Sei	entinel Property Group		5.0	100%	13	73,057
8.	Stockland Office	Sto	ockland		5.0	100%	12	163,912
9.	ACE	EG	;		4.9	——— 100%	4	35,354
9.	Charter Hall	Ch	narter Hall		5.0	99%	82	1,536,808
9.	Charter Hall (CLW)	Ch	narter Hall		4.9	100%	15	136,530
9.	Charter Hall (DOF)	Ch	narter Hall		4.9	100%	16	203,764
9.	Charter Hall (PFA)	Ch	narter Hall	_	5.2	96%	19	203,198
10.	Abacus Funds Management Limited	Ab	oacus		4.8	100%	14	114,038
10.	Centuria Office Fund (COF)	Ce	enturia Property Funds		5.0	97%	21	209,485
10.	Dexus Group Office	De	exus		4.9	99%	64	1,081,916
11.	Frasers Property	Fro	asers Property		4.7	100%	5	48,464
11.	GPT Wholesale Office Fund (GWOF)	GP	PT		5.1	94%	15	436,207
12.	Charter Hall (CCT)	Ch	narter Hall		4.6	100%	2	43,059
12.	Dexus Office Partnership	De	exus		4.8	96%	13	208,762
13.	Australian Unity Office Fund (AOF)	Au	ustralian Unity		4.5	100%	3	25,426
13.	GPT Group Office	GP	PT		5.1		23	739,341
14.	Charter Hall (BSWF)	Ch	narter Hall		4.4		2	90,538
14.	Elanor Commercial Portfolio	ELA	ANOR INVESTMENTS NOMINEES PTY LTD		5.2	86%	8	90,645
14.	Rest Direct Office Portfolio	New Re	est Nominees No2. Pty Ltd		4.4	———— 100%	4	95,119
15.	Charter Hall (CHPIP2)	Ch	narter Hall		4.5	94%	7	59,860
15.	Charter Hall (DVP)	Ch	narter Hall		4.2		7	36,865
16.	Charter Hall (CQE)	Ch	narter Hall		4.1	100%	2	12,144
17.	GPT Office	GP	PT		5.0		11	254,755

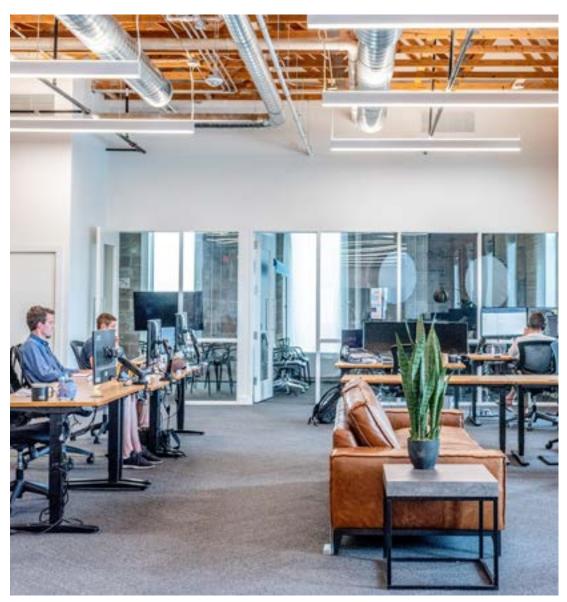


3.5 Procuring new buildings

Securing a large government tenant is often a precondition of final approval for a new development. In this case, a developer can use a NABERS Commitment Agreement to communicate the design and performance objectives for the building.

Commitment Agreements (see <u>Section 5.1</u> for more information) are available for NABERS Energy ratings across a range of building types.

Green Star, administered by the <u>Green Building Council of Australia</u>, incorporates NABERS ratings and commitments while also providing guidance on broader environmental and social impacts.



Office environment

3.6 Procurement checklist: Office buildings

The following tables are suggested examples of best practice requirements that can be included in a specification. Note the short- and long-term target setting to ensure the longevity of the policy.

Base buildings

Certification type	Required minimum rating today	Required by 2030	Further information
Energy	5.5	6	Can be a whole building or base building rating. Commitment Agreements should be used for new buildings and major refurbishments.
Renewable Energy Indicator	Existing buildings: 80% + Plan for electrification to be developed New buildings: 98%	98%	The target is 98% to allow for some backup diesel use.
Water	5	5	
Waste	4	5	Any policy should include a requirement to weigh all waste.
Climate Active certification	Certified	Certified	
Indoor Environment – base building only	4.5	5	
Embodied carbon	Certified as soon as a certification becomes available	4	
Public disclosure	All ratings	All ratings	Disclosure should be as part of the Sustainable Portfolios Index if part of a portfolio.

Tenancies

Certification type	Required minimum rating today	2030 requirement
Energy	5.5	6
Renewable Energy Indicator	100%	100%



3.7 Procurement checklist: Data centres, hotels, public hospitals, public schools, residential aged care and retirement living, shopping centres, warehouses and cold stores

Certification type	Required minimum rating today	Required by 2030	Further information
Energy	5	5.5	
Renewable Energy Indicator	Existing buildings: 80% + Plan for electrification to be developed New buildings: 98%	98%	The target is 98% to allow for some backup diesel use.
Water	4.5	5	
Waste	NABERS verification NABERS Waste rating (public hospitals only)	NABERS verification NABERS Waste rating (public hospitals only)	Any policy should include a requirement to weigh all waste.
Climate Active certification	Certified	Certified	(Climate Active may not yet be available for all sectors)
Embodied carbon	Certified as soon as a certification becomes available	4	
Public disclosure	All ratings	All ratings	Disclosure should be as part of the Sustainable Portfolios Index if part of a portfolio.



Data centre

4. Using NABERS in building portfolios

Setting targets is a critical step towards net zero and a circular economy. Targets provide direction, focus, motivation and establish priorities.



Office building

There is a wide range of portfolios across the private and public sector that can use sustainability targets to cut costs, improve services and reduce environmental impacts.

When asset owners and managers set sustainability targets for a portfolio of commercial properties usually, but not always, properties with similar characteristics – they can create scale, elevate ambition and generate momentum. They can share knowledge, identify best practice and rapidly replicate it. They can harness economies of scale to move further and faster towards net zero emissions.

A portfolio target also influences the entire ecosystem of service providers and stakeholders that engage with the portfolio, raising expectations and inspiring further action. Portfolio targets can, therefore, be a powerful catalyst for system-wide transformation.

Targets can be **committed**, which means the steps to achieve them are clear and the resources, including funding, have been dedicated. Or they can be **aspirational**, where the steps to achieve them may not be clear but there is an organisational imperative to drive innovation.

"The Victorian Department of Health is a strong advocate for using NABERS to rate the environmental performance of Victorian public hospitals. NABERS provides a consistent and recognised metric to measure the performance of our individual assets and our portfolio of hospitals across the state. We use NABERS to set energy benchmarks for capital projects, and to prioritise energy efficiency opportunities in our existing hospitals."



4.1 Setting NABERS specific targets

Sustainable, net zero buildings can be encouraged by combining targets for individual NABERS ratings. The following provides a suggested example of a portfolio-wide target:

"Our aim is to have our portfolio certified by 2030 as follows:

- → NABERS Energy portfolio average of at least 5 stars
- → Renewable Energy Indicator portfolio average of at least 98%
- → NABERS Water portfolio average of at least 5 stars
- → NABERS Waste portfolio average of at least 5 stars
- → All buildings achieve a Materials Recovery Score for all material streams
- → A NABERS Indoor Environment portfolio average of at least 4 stars.

We will measure our progress at least annually using NABERS ratings and will show our progress in the NABERS Sustainable Portfolios Index.

Our net zero goal also includes eliminating organics from landfill waste, transitioning to low global warming refrigerant gases and only using emissions offsets that restore the natural environment."

This goal would be further enhanced by setting longer-term targets:

"We will maintain our net zero performance by continually improving:

- → Energy efficiency rating to beyond NABERS 5 stars
- → Maintaining a Renewable Energy Indicator score of at least 98%
- → Water efficiency rating to beyond NABERS 5 stars
- → Waste rating to beyond NABERS 5 stars
- \rightarrow Maintaining a materials recovery score of 6 for all material streams
- → Indoor Environment rating to beyond 4 stars
- → Eliminating global warming refrigerants
- → Reducing reliance on carbon offsets."

For further details on each rating described, and their benefits, see <u>Appendix A</u> of this toolkit.

Where the management of a portfolio is not mature enough to support a goal of this type today, the sub-targets of net zero can be addressed individually.

For example:

"Our NABERS Energy portfolio average target is 5.5 stars to be achieved by 2030."

Or, where the management of a portfolio's environmental impacts is just starting, the target might be:

"Our target is to have each property within our portfolio rated using NABERS for energy, water and waste."

5. Using NABERS in planning

The buildings we construct today will be standing for many decades. This makes new buildings a critical component of a sustainable future. Designing commercial buildings to be energy, waste and water efficient, and powered by renewable energy must be non-negotiable.



Construction site

Planning policies can be documented in the National Construction Code (NCC) or in local government instruments such as Local Environment Plans (LEPs), State Environmental Planning Policies (SEPPs) or Development Control Plans (DCPs).

NABERS Energy ratings are already used in the planning process via the NCC and this section of the toolkit encourages the extension of these uses to include the breadth of rating tools and building types.

A careful distinction must be made between the physical or technical elements of a building that support efficient use of resources versus the behavioural characteristics such as procurement of renewable electricity that may be more difficult to verify over years of operation of a building. Focusing on the physical or technical attributes first supports inherently efficient use of resources.

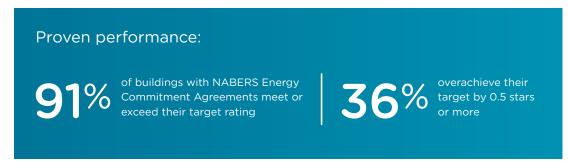


5.1 NABERS Commitment Agreement and Agreement to Rate

A NABERS Commitment Agreement is a contract signed by a building developer or owner to commit to design, build and commission a building to achieve a specific NABERS Energy rating. The minimum star target rating for a NABERS Commitment Agreement is 4 stars for all sectors, except offices (base building) where it is 5 stars. Commitment Agreements can be signed for new and refurbished buildings.

With a NABERS Commitment Agreement, a project team can set ambitious energy performance goals as a building comes to life and use the trusted NABERS brand to share their sustainability story with tenants, investors, financiers and more. There is a requirement for modelling during the design phase as well as an independent design review.

NABERS Commitment Agreements are a powerful policy lever, as 91% of buildings with NABERS Energy Commitment Agreements meet or exceed their target rating, and 36% overachieve their target by 0.5 stars or more.



Source: GBCA, Closing the performance gap in Australia's commercial office sector, 2021

An Agreement to Rate is a contract signed by a developer or owner to commit to obtaining a NABERS rating once their building becomes operational. This contract can be used for multiple NABERS rating types, including Energy, Water, Indoor Environment, Waste and Embodied Carbon.

An Agreement to Rate is cost-effective, with no requirement for modelling during the design phase but it also means that a specific NABERS rating cannot be marketed during the design phase.

Unlike the NABERS Commitment Agreement process, the Agreement to Rate process does not include a mandatory design-stage independent review, so it works best within a policy framework that has checks and compliance measures.

Read more about <u>NABERS Commitment Agreements</u> and <u>NABERS Agreement to Rate</u> online.

5.2 NABERS Energy in the National Construction Code

The National Construction Code (NCC) sets minimum standards for energy efficiency in new buildings through its 'Section J'. The 2022 update of <u>Section J</u> recognises a NABERS Energy Commitment Agreement or a <u>Green Star Buildings rating</u> as pathways to demonstrate compliance.

If a NABERS Commitment Agreement is used to meet Section J, the minimum star energy efficiency target ratings that apply for relevant space types are as follows:

→ Office base building: 5.5 stars

→ Apartment building: 4 stars

→ Hotel: 4 stars

→ Shopping centre: 4.5 stars

Using the NABERS Energy or Green Star pathways eliminates the need for additional energy modelling and documentation, which can save time and money. This new requirement may, with time, see the NCC evolve from a compliance tool to a method of assessing a building's performance in operation.

Moving beyond NCC targets in a planning policy can be challenging. This is because Commitment Agreements are limited to half star increments; the higher the rating, the greater the risks for friction in the planning process as local governments manage non-compliance.

Targets higher than those in the NCC can instead be encouraged, rather than mandated. This can be through incentive schemes that support innovation and are linked to NABERS Commitment Agreements to verify outcomes.

Planning can also ensure that there is no 'performance gap', meaning that buildings are operated as designed. This can be achieved by requiring minimum star rating targets in operation. This is not currently required by the NCC. The NSW Sustainable Buildings State Environmental Planning Policy (SEPP) is an example of a policy which now requires this (see case study on page 27 for more information).

Note: The NCC referenced in this section is the 2022 version.



Shopping centre



Case study: NABERS in the NSW Sustainable Buildings State Environmental Planning Policy

The New South Wales Government introduced the Sustainable Buildings State Environmental Planning Policy (SEPP) on 1 October 2023. The state's planning system now has controls governing the performance of energy, water and emissions, and the measurement of embodied carbon, covering new residential and non-residential buildings, and alterations and refurbishments over certain thresholds.

Below is a summary of how the SEPP uses NABERS:

Measure	What does the policy do?	Why is it needed?	Where does it apply?
Net zero statement	Demonstrates at development application and construction certificate stages that the development is designed with sufficient space and infrastructure so that all energy needs can be sourced from renewables by 2035.	Prompts developments early in design process to consider how they will achieve net zero in operations by 2035 to avoid costly retrofits later.	Large commercial and certain state significant development.
2. Energy performance and offsets (Post occupancy verification of energy and offsets)	Independently verifies that the development has met the energy performance required by the NCC, through NABERS post-occupancy assurance. Encourages purchase of carbon offsets for onsite fossil fuel use and to rectify any performance gap for energy efficiency.	Reduces energy performance gap between the design and the as-built development and incentivise net zero ready construction.	Large commercial.
Water performance (Post occupancy verification of water)	Independently verifies that the development has met a minimum 3-star NABERS Water rating.	Increases transparency of operational water performance.	Large commercial.
4. Embodied carbon emissions reporting	Discloses at the development application stages the quantities of key materials (super-structure, substructure, façade) and associated embodied carbon emissions. Describes how embodied carbon emissions were minimised (by reused or recycled content). Uses simple template at outset and NABERS embodied carbon verification framework once it is finalised later in 2024.	Enables critical data collection to support potential future benchmarks for embodied carbon emissions. Impacts early design decisions and follows material selection and emissions through to construction. Enables incremental shift in industry practice and seeds low-emissions supply chain.	All non-residential development.

For more detail on how NABERS and the NSW SEPP work together to drive transformation at speed and scale, <u>read our fact sheet</u>.

5.3 Understanding your options

Introducing NABERS targets in planning policies allows governments to require a commitment to building performance that aligns with net zero goals. Energy is the area of environmental impact which best lends itself to planning policy and can include:

- → A NABERS Energy Commitment Agreement
- → An embodied carbon target using the NABERS embodied carbon tool, before offsets
- → Climate Active Standard for Buildings certification, applying the <u>Guideline</u>: Upfront Carbon for Buildings
- → Applying the principles outlined in the <u>Carbon offsets</u>, <u>last but not later</u> guide, published by the Green Building Council of Australia and Property Council of Australia in 2022
- → Ongoing NABERS Energy ratings, an operational Renewable Energy Indicator of 98% and ongoing Climate Active certification.

5.4 Applying NABERS Energy

Because a NABERS Energy rating can reveal primary performance characteristics of new developments, Commitment Agreements are highly recommended for use in planning scenarios. Development proponents should be encouraged to aim for best practice to avoid designing and delivering buildings that do not operate efficiently which leads to them being expensive to operate and create excess demand on the electricity system.

For example, the National Construction Code requires all newly built and major refurbished shopping centres to achieve a NABERS Energy rating of at least 4.5 stars. The 2023 NABERS Annual Report confirmed that 41% of shopping centres rated by NABERS have already achieved Energy ratings of 5 stars or more.

Flexible planning documents move with the contemporary experience of operating best practice buildings and this benchmark of best practice is informed by the data collected by NABERS.

A suggested example of using NABERS Energy in planning policy:

The development will commit to achieving an operational NABERS Energy rating higher of:

- → the top 15% of ratings as shown in the NABERS Annual Report for the relevant state; or
- → the current NCC requirements for the relevant building class for the relevant state.

	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
6		9.0%		24.1%	20.0%		8.2%	5.0%	12.0%
5.5		18.0%		7.4%	10.0%	50.0%	8.2%	5.0%	11.6%
5	25.0%	18.0%	100.0%	13.0%	10.0%	50.0%	18.0%	10.0%	16.9%
4.5	25.0%	25.8%		18.5%			24.6%	20.0%	21.9%
4		9.0%		9.3%	20.0%		13.1%	10.0%	10.3%
3.5		9.0%		7.4%	10.0%		9.8%	15.0%	9.1%
3	25.0%	5.6%		5.6%			8.2%	10.0%	6.6%
2.5	25.0%	1.1%		3.7%	10.0%		3.3%	15.0%	4.1%
2		1.1%						5.0%	0.8%
1.5		1.1%		1.9%			1.6%		1.2%
1					10.0%		1.6%		0.8%
0		2.2%		9.3%	10.0%		3.3%	5.0%	4.5%

Figure 9: NABERS Energy for shopping centre ratings, excluding GreenPower

Source: NABERS Annual Report, 2023





Apartment building

5.4.1 Using the Renewable Energy Indicator

The Renewable Energy Indicator displays the proportion of the building's energy that comes from renewable energy generated on-site, and the percentage procured off-site. This information is displayed on the NABERS Energy certificate, providing more transparency to building users.

The Renewable Energy Indicator is maximised when:

- → A new building is not connected to fossil fuel gas systems
- → When renewable electricity is generated and used on-site
- → When renewable electricity is purchased through the grid.

Where not already established, planning policy can require that new developments are not connected to fossil fuel gas. For instance, the Australian Capital Territory (ACT) Government's Climate Change and Greenhouse Gas Reduction (Natural Gas Transition) Amendment Bill came into force in December 2023, placing a ban on gas connections in all new homes and businesses built in the Territory. The ACT is already powered by 100% renewables and the gas ban will further drive electrification.

5.5 Applying NABERS Water

The water efficiency of a new building is driven by the design of air conditioning equipment (water versus air-cooled equipment) and the efficiency of the installed water-consuming appliances.

The NABERS Annual Reports provide useful information on the distribution of ratings by state that can inform expected water consumption of new developments. This information can also be used to set planning targets.

A Commitment Agreement for NABERS Water ratings has not yet been developed. Anecdotal evidence suggests that modelling skills for water use are less developed across the industry when compared with energy modelling proficiency.

NABERS WATER FOR OFFICES - Key Insights: Summary

	FY22	FY23	%Difference
Total area of buildings certified (m2)	14,822,681	15,535,005	4.8% ▲
Number of buildings certified	917	988	7.7% ▲
Average star rating	4.7	4.7	0.0%
Number of ratings achieving 5 stars or more	396	422	6.6% ▲
Average water intensity (kL/m2)	0.41	0.45	9.8% 🛦

Distribution of NABERS Water rated buildings for Offices: star ratings in FY23

Total Number of buildings certified in FY23 in Australia: 988



Number of certified ratings:

Note: Premises that have been rated more than once in the financial year are included in the below heatmap, as it includes all certified ratings within FY23. These are displayed as a percentage of total ratings for each state. Total values for Australia are also provided when all states are selected.

	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
6	6.2%	9.2%	12.5%	4.5%	6.3%		26.1%	2.8%	10.7%
5.5	20.0%	12.8%	25.0%	5.1%	15.6%		19.7%	4.9%	12.5%
5	35.4%	17.1%		7.7%	21.9%		26.6%	12.6%	18.1%
4.5	16.9%	31.9%	12.5%	46.2%	18.8%		12.3%	27.3%	28.0%
4	7.7%	9.7%	25.0%	21.2%	21.9%	50.0%	5.4%	16.8%	12.0%
3.5	4.6%	8.7%	12.5%	9.0%	3.1%		2.0%	10.5%	7.2%
3		3.4%	12.5%	4.5%	3.1%		3.9%	11.9%	4.7%
2.5	6.2%	3.6%		0.6%		50.0%	0.5%	3.5%	2.6%
2	1.5%	1.7%		0.6%	3.1%		0.5%	0.7%	1.2%
1.5		0.5%					1.5%	2.1%	0.8%
1		0.2%						2.1%	0.4%
0	1.5%	1.2%		0.6%	6.3%		1.5%	4.9%	1.9%

Figure 10: Summary of NABERS Water ratings for office buildings

Source: NABERS Annual Report, 2023

5.6 Applying NABERS Waste

NABERS Waste ratings measures how well a building manages waste generation, recycling and resource recovery, and supply chain management.



6. Overcoming policy barriers

This section details some of the common questions about NABERS ratings that, if unanswered, can become barriers to implementation. We also share how they can be overcome. If you need more help to address internal barriers or communicate the benefit of NABERS, please contact the NABERS team.

How do we justify the cost of certified NABERS ratings?

Since 1999, NABERS has proven that "what gets measured gets managed." A NABERS rating helps you to accurately measure, understand, and communicate the environmental performance of your building while identifying areas for cost savings and future improvements. When an organisation has not previously budgeted to conduct NABERS ratings, the savings in energy, water and waste services to be made from identifying cost savings and future improvements can be enough to repay the cost of ratings many times over.

Certified ratings, verified by a trusted third party, avoid any accusations of greenwashing or misrepresentation of data. NABERS ratings are a powerful risk mitigation measure. NABERS ratings also correlate with superior financial performance. Compelling data and independent evidence to support your business case is available at Appendix D.

With many rating systems to choose from, which ones should we use?

It is true that there is a range of ratings available for buildings: Green Star, NatHERS, BASIX and others, as well as NABERS. Each rating scheme has a role to play in improving the performance of buildings and it's a case of making sure we apply the right tool for the right job. As a starting point, Appendix A provides more information on each of the NABERS rating types and their benefits. If you are still unsure, the NABERS team is always here |to help.

How do we collect the right data to measure and monitor performance and still focus on our day jobs?

Taking a systematic approach to tracking performance in energy, water and waste means data is collected frequently through automated systems. Service agreements can bring performance management into the hands of the people best placed to monitor and respond to unexpected energy consumption or water leaks.

How do we demonstrate that our net zero claims are substantiated when we are reliant on carbon offsets?

A coherent net zero strategy for the building sector relies on several key pillars. A combination of energy efficiency, electrification and procurement of renewable energy is essential. Then, for the residual emissions that can't be eliminated, the industry-agreed approach recommended by the Property Council and the Green Building Council of Australia is to invest in high-quality carbon offsets on a "last but not later" basis. This means that offsets should be used last in a hierarchy of measures to reduce emissions in the built environment, but that they should be implemented without delays.

Why should we rush net zero when we have until 2050?

Australia's net zero target is an ambitious economy-wide target. This means every sector of the economy must be net zero by 2050 – including the sectors that are currently very hard to abate, like transport and agriculture.

To avoid the worst of climate change, and the associated high costs of its impacts, we must embrace every easy decarbonisation opportunity now. The built environment is a sector that can cheaply and rapidly decarbonise. This is why buildings are often called the "low-hanging fruit" of decarbonisation, and why many organisations, state and local governments have set more ambitious timelines and targets for the building sector.



How do we make green leases easy when they have a reputation for being difficult to implement?

Green leases, or leases that include sustainability performance criteria and obligations on lessors and lessees, do require a degree of understanding and determination in their application. Green leases offer several compelling advantages, including a lower environmental impact, savings through reduced energy costs and productivity and occupant health benefits. Importantly, a green lease can be a tool to promote a collaborative sustainability culture between tenant and landlord.

Resources from the <u>Better Buildings Partnership</u> may be useful to help you understand the various elements of an effective green lease.

How do we talk to leasing agents who say there aren't enough highly rated buildings?

NABERS issues more than 2,000 ratings each year. Use the <u>NABERS Find a current rating</u> page to see how many buildings in your area already meet your requirements.

How do we address the issue of 'split incentives'?

The split incentive barrier in energy efficiency occurs when building owners are reluctant to invest in energy-saving upgrades because the tenants, who benefit from lower utility bills, are not responsible for the investment costs. NABERS can help address this barrier by providing clear, transparent data on the energy efficiency performance of a building. This data can be used as a basis for negotiation between building owners and tenants and for encouraging shared investments in energy-saving measures that benefit both parties.

It's worth noting that offices in Australia's CBDs with NABERS Energy ratings of 5.5 stars or more can command 10% premiums on net face rents, 39 basis points sharper yields and 2.7% lower vacancy than the wider market, according to <u>JLL</u>. Knight Frank research in 2021 found that offices with NABERS Energy ratings of up to 4.5 stars are worth an average of 8% more than unrated buildings, on a per square metre basis. This premium jumps up to 18% among offices with 5 and 6 star ratings.

Real Investment Analytics has also found NABERS Energy ratings of 4 stars or above achieve superior financial performance when compared with those below 4 stars.

How do we address skepticism that sustainable buildings take longer to approve?

Councils around the country are using NABERS Commitment Agreements to accelerate the development application process. Yarra City Council is just one example of a council using NABERS to verify that a building will achieve best practice. Euan Williamson, Yarra City Council's Environmental Sustainability Development Adviser, says: "When we see a NABERS Commitment Agreement attached to a planning permit application, we know that the building will undergo an additional rigorous assessment." (You can read more about how Yarra City Council is using NABERS on the NABERS website).

How can we expect heritage buildings to achieve high performance?

Age isn't necessarily an impediment when it comes to superior environmental performance, and sometimes an older building can have advantages, like solar passive design, high thermal mass and good ventilation.

Property and Development NSW's (PDNSW) portfolio is instructive. Each year, this collection of 23 buildings ranks highly on the NABERS Sustainable Portfolios Index, despite the average age of these assets being 50 years. The jewel in the portfolio's crown is the sandstone colonial administration building at 121 Macquarie Street, Sydney which was built in the late 1800s.

The work of PDNSW shows that even the most challenging heritage buildings can begin working towards today's best practice sustainability benchmarks. However, upgrading the performance of heritage buildings is something best tackled on a building-by-building basis. The NABERS team can help you to assess how to best manage the constraints and understand the possibilities.

7. NABERS future focus

NABERS has transformed Australia's built environment over the last 25 years by adapting and evolving – and we continue to do so with a firm focus on the future.



Digital rendering of a building in Sydney city

7.1 Achieving net zero with NABERS

The net zero transition is an economy-wide challenge. Definitions of net zero vary widely because the range of activities in our economy require different perspectives on boundaries and scopes. This section outlines the emerging consensus around minimum requirements for a net zero commercial building. We acknowledge that this is a rapidly evolving area of discussion and debate.

The transition to net zero emissions presents us with many unknowns, and the net zero targets that are achievable today may be different to those achievable in 2050. We do know that having a credible and rational pathway to net zero today sends a clear signal to people buying, selling, leasing and operating commercial buildings – and increasingly, we are seeing this translate into value in the market.

How we calculate net zero emissions is complex and encompasses the carbon emissions generated upfront - in the extraction, manufacture, transport of materials and during the construction of buildings - and during ongoing operations. In the next section, we outline what this means for both operations and upfront emissions.





Solar panels

7.1.1 Net zero building operations

An Australian commercial building which is net zero in operations runs efficient electrified systems and sources its energy from renewable energy sources like solar and wind. The building management team is laser-focused on finding ways to decarbonise the operations and to engage with tenants to encourage good choices. Any residual emissions from fossil fuel-based energy systems or from refrigerants are offset, using high-quality carbon offsets, in the short-term while work progresses to eliminate them entirely over time.

There are pathways that can help building owners and managers to decarbonise and move towards net zero in operations. These include the NABERS Renewable Energy Indicator and Climate Active certification. NABERS Energy validates, benchmarks and incentivises higher energy efficiency; Climate Active demonstrates transparency in the use of offsets for residual emissions; and the NABERS Renewable Energy Indicator clarifies the transition to renewables.

7.1.2 Net zero building design

As commercial building owners and managers drive down operational emissions, their attention must turn to the second biggest emissions source: embodied carbon.

Embodied carbon refers to the emissions generated during the extraction of raw materials, during manufacture and transport, during construction, and then during maintenance, demolition and disposal. Tackling whole-of-life emissions is a significant challenge, involving every link in the value chain.

A commercial building that is net zero by design is one in which the embodied carbon emissions from construction materials, such as steel and cement, have been reduced through dematerialisation (in other words, by designing so the building uses fewer materials) and through the use or reuse of renewable, recycled or low-carbon materials.

A 'net zero by design' building is built to high energy efficiency standards with appropriate insulation, window glazing and shading, and with efficient controls for lighting, heating, cooling and ventilation. Residual emissions are offset in the short-term, while the building's owner looks for ways to eliminate these emissions from the construction lifecycle in the long-term. NABERS is collaborating with the industry and many of Australia's leading built environment associations to develop an embodied carbon rating tool. This is intended for release in late 2024.

Case study: Advancing Net Zero

The World Green Building Council, in collaboration with other green building councils, including the Green Building Council of Australia, developed the <u>Advancing Net Zero</u> program to accelerate the transition to net zero emissions buildings through combined action.

Many Australian real estate investment trusts, superannuation funds and financiers are signatories to the program, including: Cbus Property, Charter Hall, Commonwealth Bank of Australia, Dexus, Frasers Property Australia, GPT, Investa, ISPT, Lendlease, QIC, Rest Super, Scape and Stockland (Retirement Living and Logistics).

Importantly, the City of Sydney is an Advancing Net Zero signatory, as well as the managers responsible for several iconic Australian buildings: the Sydney Opera House and the Powerhouse Museum.

Signatories commit to the following...

- → "The Net Zero Carbon Buildings Commitment (the Commitment) recognises leadership action by businesses, organisations, cities and subnational governments in tackling operational and embodied carbon emissions from the building and construction sector.
- → This requires deep collaboration across the entire value chain, and radical transformation in the way buildings are designed, built, occupied and deconstructed. It requires new business models that promote circularity, reuse of buildings and materials, whole life cycle thinking, high performance operations, and ultimately a shift away from fossil fuels.
- The Commitment considers the whole lifecycle impact of buildings and builds on WorldGBC's Whole Life Carbon Vision and best practice principles for implementation.

The Commitment requires that by 2030:

- → Existing buildings reduce their energy consumption and eliminate emissions from energy and refrigerants removing fossil fuel use as fast as practicable (where applicable). Where necessary, compensate for residual emissions.
- New developments and major renovations are built to be highly efficient, powered by renewables, with a maximum reduction in embodied carbon and compensation of all residual upfront emissions."

Since signing up to Advancing Net Zero, many Australian property companies have set even more ambitious commitments, including net zero by 2030 or earlier.

The leading landlords are well prepared to meet demand for net zero buildings now. Policies that create demand for them will reward early leadership and encourage other building owners to join them.



Sydney city



7.2 Supporting a circular economy with NABERS

NABERS ratings and certifications influence markets in ways that are compatible with circular economy principles.

Designing out waste and pollution through efficiency: Efficiency makes the task of powering buildings with renewables easier, which means fewer turbines and solar panels, fewer transmission and distribution systems, fewer materials extracted, refined and produced, and less storage.

Reducing water usage: The effects of waterefficient buildings are system-wide, as they reduce demand on water infrastructure, dams, delivery systems, treatment, and desalination plants all the way through to wastewater treatment.

Keeping materials in use: NABERS Waste ratings benchmark the percentage of the waste stream diverted from landfill. The Materials Recovery Score aims to identify the destination of recovered materials and the likelihood that they can be reused. The new NABERS embodied carbon rating tool will also create demand for low emissions materials, encouraging the recovery, reuse and recycling of materials.

Lifecycle approach: NABERS encourages consideration of the entire lifecycle of a building, which promotes resource efficiency and waste reduction throughout the building's lifespan. The upcoming NABERS embodied carbon rating tool will assess lifecycle emissions and will encourage the use of low-carbon and recycled materials.

Stakeholder collaboration: The NABERS rating process encourages collaboration to improve building design and performance. This collaboration fosters a shared responsibility for sustainability, aligned with circular economy principles.

7.3 Moving to nature-positive operations with NABERS

NABERS ratings incentivise buildings to use energy, water and materials more efficiently. This reduces the upstream environmental impacts of resource extraction as well as land required for renewable energy systems, transmission and distribution lines, raw materials production, energy crops and more.



Sydney city

NABERS ratings also encourage the reduction of environmental impacts from the production of technical hardware used to manage these systems. Meeting human needs efficiently reduces impacts on the environment.

These broader, value chain impacts on nature will become more explicit as organisations, public and private, begin reporting through initiatives such as the global Taskforce on Nature-related Financial Disclosures (TNFD). The TNFD has developed recommendations and guidance to help organisations to report and act on evolving nature-related issues with the ultimate aim of supporting a shift in global financial flows away from nature-negative outcomes and toward nature-positive outcomes.

Net zero buildings align with this nature-positive agenda because they prioritise resource efficiency and direct organisations to invest in restoration of natural ecosystems through the careful selection of emissions offsets. The cost of offsets provides a feedback loop to an organisation's decision makers. Understanding the financial implications of emitting greenhouse gases enhances the business case to eliminate residual emissions to avoid future offset costs.

Next steps

Any policy has a more significant influence on the market when it is communicated effectively across the many people that play a role in delivering it.

In the case of sustainable buildings, everyone from leasing agents to building owners, facility managers to financiers have an influence and can be a positive agent for change. Therefore, a pivotal part of launching any new policy is the communication process.

NABERS, with its well-established network of industry champions and respected voice throughout the commercial property sector, can be a valuable partner. The NABERS team can help as you set new policies for procurement, portfolios and planning. We can help you reach a wider audience, create awareness and amplify your market signals.

Contact NABERS: nabers@environment.nsw.gov.au
We are here to help.





NABERS ratings

Understanding the purpose and benefits of each NABERS rating tool and certification is critical for best practice policy. NABERS is a common language that can be used to gain the acceptance and 'buy-in' of everyone in the property supply chain. The following brief descriptions focus on these benefits.

NABERS Energy

NABERS Energy is an energy efficiency benchmark for particular property types.

This performance-based rating assesses how much energy a building consumes in the rating year, the size of the building (for example, the net lettable area for offices) and other relevant variables such as hours of operation, occupancy and climate zone.

Benefits of improving NABERS Energy ratings:

- → Lower energy use and emissions
- → Reduce operational costs
- → Extend life of equipment
- → Support better managed and more valuable assets
- → Place less demand on energy generation, transmission and distribution.

For 36 sectors not currently rated by NABERS Energy, the NABERS Energy Performance Indicator (NEPI) will provide a verified measure of energy and emissions intensity, using energy usage and floor area. To compare buildings, this product will use a simple comparison indicator (such as a dial), and not a full NABERS star rating. This product is built for smaller sectors where it may not be feasible to get a full NABERS star rating, but it still is useful for them to have an energy performance indicator to improve building performance over time.

Renewable Energy Indicator

The Renewable Energy Indicator uses information gathered for the NABERS Energy rating to assess and display a building's sources of energy.

This indicator provides an incentive to:

- → Electrify fossil fuel gas-based systems such as heating, hot water and cooking
- → Install renewable electricity systems such as solar PV where feasible
- → Purchase renewable electricity through the grid using GreenPower or retiring largescale generation certificates (LGCs) as proof of renewable electricity purchase.

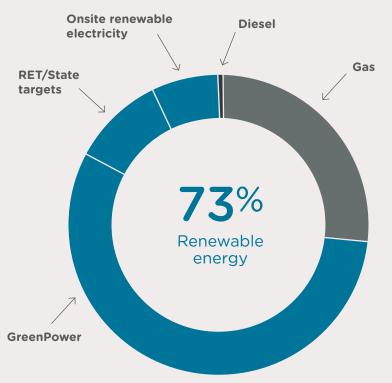
The Renewable Energy Indicator uses a method for accounting for energy that is compatible with the <u>Greenhouse Gas Protocol</u>. This means it also recognises the contribution of renewable electricity from the national Renewable Energy Target and state-based schemes, such as that implemented in the ACT, that rely on retirement of LGCs.

Benefits:

- → Provides clarity of energy sources
- → Incentivises the transition to a fully renewable electricity grid
- → Encourages the replacement of fossil fuel-based systems.



NABERS Renewable Energy Indicator



Onsite solar capacity: 75 kW

	Quantity	% Of total site energy	
Renewable electricity			
Onsite renewable electricity	98,550 kWh	7.1%	
RET* and State/Territory targets	137,037 kWh	9.9%	
GreenPower	776,554 kWh	56.1%	
Other voluntary purchases**	- kWh	0.0%	
Total renewable electricity	1,012,131 kWh	73.1%	
Non-renewable energy			
Non-renewable electricity	1,205,010 kWh	30.0%	
Gas and LPG	1,302,637 MJ	25.1%	
Diesel	933 L	0.7%	

^{*} RET stands for Renewable Energy Target.

Figure 11: Example of the NABERS Renewable Energy Indicator

^{**} Includes voluntarily surrendered LGCs from both electricity generated offsite, and from electricity generated onsite that is exported to the grid.

NABERS Water

NABERS Water is a water efficiency benchmark for particular property types.

It is a performance-based rating that takes into account how much water a building consumes in the rating year, the size of the building (for example, the net lettable area for offices), and other relevant variables such as hours of operation, occupancy and climate zone.

Benefits of improving NABERS Water ratings:

- → Decrease water use and costs
- → Reduce demand on natural and alternative water systems
- → Send less water to waste and treatment
- → Reduce demand for water extraction, transport and distribution.

NABERS Waste

NABERS Waste is a waste reduction and recycling benchmark for particular property types.

It is a performance-based rating that assesses the measured proportion of materials recovered from a waste stream and diverted away from disposal.

A NABERS Waste rating sets a benchmark that helps building owners and managers understand how they can keep materials in circulation for longer.

Benefits:

- → Measures waste using consistent methods
- → Creates demand for recycling as a service
- → Incentivises source separation for lower contamination and higher quality recycling
- → Builds skills and knowledge to improve recycling practices
- → Reduces upstream extraction, refining, and manufacture, which in turn, reduces energy use and pollution
- ightarrow Keeps materials in use for longer.

Materials Recovery Score

The Materials Recovery Score is a supplementary score to the NABERS Waste rating and is an indicator of the quality of recycling.

The highest score is achieved when material is recovered and sent to a facility where it can be perpetually reused for a similar purpose. Aluminium is an example of a material where this is possible. A lower score is applied where a material is downcycled, such as glass crushed and used as road base. A zero score is applied where the destination of materials cannot be verified.

Benefits:

- → Educates on high-value re-uses
- → Incentivises better information exchange with waste service providers
- → Reduces land use, water, energy and pollution impact of resource extraction, manufacture and transportation.

NABERS Indoor Environment

A NABERS Indoor Environment (IE) rating measures the indoor air quality, lighting quality, temperature and thermal comfort as well as acoustic quality of a building.

The IE rating is currently available for office buildings.

Benefits:

- → Uplifts understanding of indoor environment quality
- → Supports improvements to staff satisfaction and productivity
- → Benchmarks health and wellbeing to support lower staff absenteeism.



Climate Active certification

Climate Active is an Australian Government program.

Climate Active certification recognises the value of voluntary climate action beyond business as usual. By **measuring**, first **reducing**, then **offsetting**, **validating** and **reporting** on greenhouse gas emissions, organisations and businesses can demonstrate the steps they are taking to decarbonise.

Climate Active is underpinned by the <u>Climate</u> <u>Active Standard</u>, which is informed by international best-practice standards including (but not limited to):

- → Australian Standard (AS) ISO 14064 series
- → International Standard ISO 14040 series
- → ISO 14065:2013 Greenhouse gases
- → The Greenhouse Gas (GHG) Protocol standards.

NABERS and the Green Building Council of Australia (GBCA) administer Climate Active certification for buildings using the <u>Climate Active Standard for Buildings</u>. The Building Standard outlines the requirements businesses and organisations must meet to achieve Climate Active certification.

The Building Standard can be applied to a broad range of building types, for example, commercial office buildings, universities, hotels, multi-unit residential buildings and public buildings, and can be applied to make a certification claim for base building operations or whole building operations.

In pursuing Climate Active certification through the NABERS pathway, businesses and organisations can use the data collected during the NABERS Energy, Water and Waste rating process to support 'measuring' their emissions as per the requirements of the Buildings Standard. This is also supported by other information, such as refrigerant use.

Emissions included for Climate Active certifications are:

- → Scope 1: direct emissions from the building from onsite combustion, refrigerant emissions, or fugitive emissions
- → Scope 2: indirect emissions associated with the generation of electricity, both location-based and market-based emissions are calculated; and
- Scope 3: upstream/downstream, relevant building emissions which can include emissions related to water supply and disposal, and emissions from waste disposal.

A NABERS Energy rating helps to determine a building's level of progress on energy efficiency. A requirement for a high percentage of renewable energy, verified by the Renewable Energy Indicator, ensures that a building is contributing to a renewable energy economy. This can support organisations and businesses to 'reduce' their emissions as per the requirements of the Buildings Standard.

Buildings can use offset units to support their emissions management activities. For example, buildings seeking to achieve Climate Active certification can use eligible offset units to compensate for emissions that cannot be completely reduced through energy efficiency. The Building Standard requires that emissions reduction activities are first undertaken within the building's operations where possible, before offsetting. The list of eligible offset units to achieve certification are available in Appendix A of the Buildings Standard.

The NABERS assessment process facilitates the validation requirements of the Building Standard – validation ensures the accuracy and completeness of carbon emissions calculations and claims. The assessment process includes standardised methods for calculating the carbon account and confirming offset retirements. NABERS quality assurance systems ensure that these methods are applied consistently in accordance with the requirements of the Building Standard.

A Public Disclosure Statement (PDS) must be made publicly available each year as part of Climate Active certification. Annual **reporting** keeps the public and other interested parties informed in an open and transparent manner and communicates achievements in managing emissions. Examples of a building PDS can be found on the Climate Active website <u>here</u> by filtering by certification type.

Embodied carbon

The NSW Government is funding the development of a world-leading framework for measuring, certifying and comparing emissions from construction and building materials.

The framework will be nationally applicable and will be incorporated as a rating tool within the NABERS suite. The framework will enable target setting for maximum embodied carbon, will boost transparency around building sustainability for investors, building owners and tenants and will help to create consumer-led demand for low-carbon construction materials.

NABERS is working in partnership with governments across Australia, as well as with industry associations, professional services firms and other experts across the built environment. The framework will be aligned with other widely used building sustainability schemes, such as Green Star.

The NABERS Embodied Carbon rating is due for release in 2024. For more information, get in touch with the NABERS team.

Pricing

The latest information on the pricing of NABERS products can be found on our website.

Information on costs charged by NABERS Assessors to undertake ratings can be found by contacting <u>our Assessors</u>. Alternatively, NABERS can assist with providing a typical range charged for undertaking a rating.



NABERS ratings available now and next

		Office base or whole buildings	Office tenancies	Apartment buildings	Hotels	Shopping centres	Biii Data centres	Retirement living	Residential aged care	Warehouses and cold stores	Retail Retail	Hill Public schools	
5	NABERS Energy	\otimes	\otimes	\otimes	\otimes	\otimes	\otimes	\otimes	\otimes	\otimes	-14	\otimes	\otimes
\(\rightarrow\)	NABERS Water	8	8	8	8	8		8	\otimes			8	8
ß	NABERS Indoor Environment	8	8										
O	NABERS Waste	8											8
	NABERS Waste Verification		8	8	8	8	8	8	8	8		-13	
<u></u>	Energy Commitment Agreement	8	8	8	8	8	8	8	8	8	-12	-14	
=1	Agreement to Rate	8	8	8	8	8	8	8	8	8	-12	-14	
9	Climate Active certification	8			\otimes	8	8		-14	8			-1/-
_	NABERS Embodied Carbon	-1/-	-14	-14	-14	-12	-12	-12	-12	-1.	-13	-14	-12





NABERS Energy Performance Indicator: for sectors not covered by existing NABERS tools

NABERS has launched a new Energy Performance Indicator tool which will provide a comparative energy indicator for 36 sectors not currently rated by NABERS such as universities, museums and gyms.

NABERS Embodied Carbon: a new national framework and tool

NABERS is developing a world-leading framework to measure, certify and compare embodied emissions in new buildings. This will be a national framework that is being built in close partnership with industry including the Green Building Council of Australia, the Australian Government and state governments.

If you are interested in learning more about the tools mentioned, please get in touch with the NABERS team.

NABERS in government procurement policy

The table below provides a general overview of existing NABERS targets across government procurement policy. The table is subject to change, as this is a fast-moving space, but was correct at the time of publication in mid 2024.

	Policy	Existing buildings	New buildings	Last update to targets	Building stock when update occured			
Federal	Environmentally Sustainable Procurement (ESP) policy	N/A	4 stars NABERS Embodied Carbon* (for construction projects over \$7.5 million)	2024				
Federal	APS Net Zero in Government Operations Strategy†	5.5/4.5 stars NABERS Energy (metro/non-metro [‡]) (office building and office tenancies >1,000m² of 4+ years)	5.5/4.5 stars NABERS Energy (metro/non-metro [‡]) (office building and office tenancies >1,000m² of 4+ years)	2023				
NT	Property Leasing Services	4.5 stars NABERS Energy (office base buildings >2,000m²)	5 stars NABERS Energy (office base buildings >2,000m²)	Unclear				
WA	Government Office Accommodation Sandard	4.5 stars NABERS Energy 4 stars NABERS Water (office buildings and office tenancies >1,000m²)	4.5 stars NABERS Energy 4 stars NABERS Water (office buildings and office tenancies >1,000m²)	March 2018	37% of buildings were 4.5 stars or higher in FY17			
SA	Green Policy Framework for Government Office Accommodation	5 stars NABERS Energy (leased) 4 stars NABERS Energy (owned) (office building and office tenancies in owned buildings >1,000m ²)	5 stars NABERS Energy (leased) 4 stars NABERS Energy (owned) (office building and office tenancies in owned buildings > 1,000m²)	2017	44% of buildings in SA were 5 stars or higher in FY16			
VIC	Whole of government emissions reduction pledge and Office Accommodations Guidelines	4 stars NABERS Energy (office building) 5 stars NABERS Energy (office tenancy)	5 stars NABERS Energy 6 stars NABERS Energy (office building and office tenancy)	2021 for new 2007 for existing	24% of buildings in VIC were 5 stars or higher in FY20			
NSW	Government Resource Efficiency Policy (GREP)	4.5 stars NABERS Energy (leased regional only) 5 stars NABERS Energy (the rest) 4 stars NABERS Water (office buildings and office tenancies >1,000m²) 4.5 stars NABERS Energy (data centres)	4.5 stars NABERS Energy (leased regional only) 5 stars NABERS Energy (the rest) 4 stars NABERS Water (office buildings and office tenancies >1,000m²) 4.5 stars NABERS Energy (data centres)	2019	44% of buildings in NSW were 5 stars or higher in FY19			
QLD	Office Accommodation Management Framework	5 stars NABERS Energy (office base building)	5 stars NABERS Energy (office base building)	2022	41% higher than 5 stars in FY201			
ACT	Follows the <u>National</u> <u>Green Leasing Policy</u> (see <u>evidence in</u> parliamentary response)	4.5 stars NABERS Energy 4 stars NABERS Water (office base building and office tenancy)	4.5 stars NABERS Energy 4 stars NABERS Water (office base building and office tenancy)	2010	60% of buildings in ACT were 4.5 stars or higher in FY132			
TAS	No known minimum requirement.							

f * As one option to comply with low carbon building materials requirement.



From July 2024



From July 2025

[†] The APS Strategy contains many targets beyond 2025 and up to 2030 across multiple building sectors such as hotels, data centres as well as offices. Full information on NABERS and related targets can be found within the policy. Some are mentioned on page 10 of this toolkit.

[‡] In non-metro areas, a lease must achieve a 4.5 star or higher rating for the applicable NABERS Energy ratings. The lease should provide for the office space to achieve 5.5 stars within two years of lease commencement.



NABERS benefits and business case

Measurement leads to better management, and we have data to prove it. Whether you are planning commercial buildings, managing operations, or making environmentally conscious business decisions, your choices can support market transformation, improve environmental outcomes and uncover new sources of value. Here's how...

Drive down emissions

More than 90% of Australia's office space is rated by NABERS, and data collected over a 14-year period shows that buildings with NABERS Energy ratings reduced emissions by an average of 55%.

Save money on operational costs

As of 2023, NABERS has helped save \$1.7 billion dollars in energy bills over the life of the program. A 6-star NABERS Energy-rated office building consumes much less energy than a 4-star building, saving an average of \$280,000 a year on energy costs. Improving a data centre's NABERS Energy rating from 3 to 5 stars delivers an average \$2,226,000 in savings each year. Shopping centres rated with NABERS over an 8-year period reduced electricity consumption by a whopping 37%, a world-leading rate of energy improvement. These are just three examples.

Turn design intentions into real-world outcomes

Research by the <u>Green Building Council of</u>
<u>Australia</u> confirms a NABERS rating is a "critical success factor" in translating design intentions into real-world outcomes. In fact, 91% of buildings with NABERS Energy Commitment Agreements meet or exceed their target rating and 1 in 3 exceed their target rating by at least 0.5 stars.

Disclose to drive change

According to the <u>Low Energy High Rise Research</u> Report, the simple act of disclosing a NABERS Energy rating is linked to a 0.5 star improvement in energy performance.

Attract and retain top tenants

On average, offices in Australia's CBDs with NABERS Energy ratings of 5.5 stars or more can command 10% premiums on net face rents, 39 basis points sharper yields and 2.7% lower vacancy than the wider market, according to 2023 research from JLL.

Uplift asset values

Buildings with high NABERS ratings achieve superior financial performance. Knight Frank research in 2021 found offices with NABERS Energy ratings of up to 4.5 stars are worth an average of 8% more than unrated buildings, on a per square metre basis. This premium jumps up to 18% among offices with 5 and 6 star ratings.

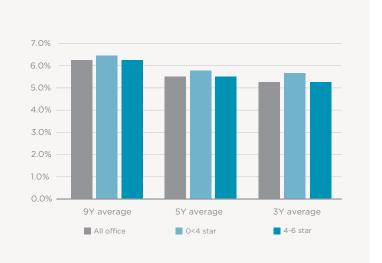
Real Investment Analytics has found NABERS Energy ratings of 4 stars or above achieve superior financial performance when compared with those below 4 stars.



NABERS Energy and office capitalisation rates

Capitalisation, or cap, rates, for higher NABERS Energy rated buildings are lower, and lower cap rates typically correspond to better valuation and prospect of returns and a lower level of financial risk. Whether there is a brown discount for lower rated buildings, or a green premium for higher rated buildings, the market prefers lower capitalisation rates.

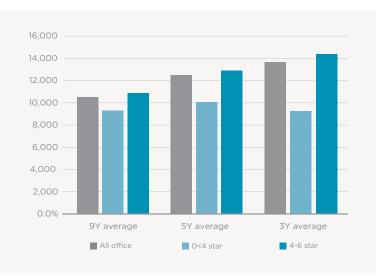
Source: RIA



NABERS Energy and office asset price

While there are many variables at play in property markets, higher NABERS Energy ratings correlate with higher market prices.

Source: RIA



NABERS Energy and office WALE

Weighted Average Lease Expiry (WALE) is a measure of the duration of leases and therefore an indicator of future income risk. The longer the WALE the more certainty in future income. Higher NABERS rated buildings are correlated with a longer WALE.

Source: RIA

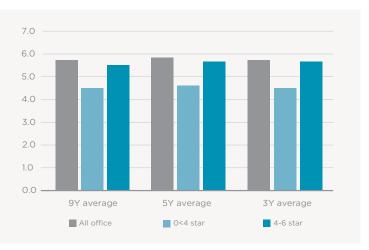


Figure 12: NABERS from the investor's perspective

Source: Real Investment Analytics, [2023]

For up-to-date statistics about NABERS' impact, check out the latest NABERS Annual Report.

Glossary of terms

Accredited Assessor: A person that has completed a NABERS training course and demonstrated competence in inspecting buildings and applying the NABERS Rules.

Advancing Net Zero: A program developed by the World Green Building Council to accelerate the transition to net-zero emissions buildings through collaborative action.

Australian Building Greenhouse Rating (ABGR): The forerunner to NABERS, ABGR was launched in 1999, and rebranded NABERS in 2008.

Base building: Assessment of the energy consumed in supplying building central services to office net lettable area (NLA) and common spaces.

Benchmark: NABERS calculates an energy benchmark, based on measured performance and normalised on a range of factors, to allow comparability between buildings of similar type and use.

Building lifecycle: The stages of a building from design and construction through to operation, maintenance, and eventually, demolition.

Carbon offsets: Investments in projects that reduce or capture greenhouse gas emissions to compensate for emissions produced elsewhere.

Certified rating: A rating that has been calculated using information validated by an Accredited Assessor against the NABERS Rules and granted a certification, lasting 12 months.

Circular economy: An economic system aimed at minimising waste and making the most of resources, where products and materials are reused, repaired and recycled to reduce waste and pollution.

Climate Active: An Australian certification scheme that verifies the carbon neutrality of businesses, operations and buildings, and verifies that they meet specific guidelines for reducing and offsetting carbon emissions.

Commercial Building Disclosure (CBD) Program: An Australian Government program established in 2012 requiring energy efficiency information, including NABERS Energy ratings, for commercial office spaces offered for sale or lease.

Decarbonisation: The process of reducing carbon emissions, typically by transitioning to renewable energy sources and improving energy efficiency.

Disclosure framework: Guidelines and requirements for disclosing environmental performance data, often used to promote transparency and accountability.

Embodied carbon: The carbon dioxide emitted during the lifecycle of a building, including during the extraction of raw materials, during manufacture, transportation and construction, and during maintenance, demolition and disposal.

Energy efficiency: The practice of using less energy to accomplish the same tasks, reducing energy waste and environmental impact.

Energy modelling: Using software to simulate and analyse a building's energy performance, often done during the design phase.



Green lease: A lease agreement that includes sustainability criteria and obligations for both lessors and lessees, aiming to promote environmentally responsible practices in the operation and maintenance of buildings.

Green Star: A certification system administered by the Green Building Council of Australia that assesses the design and performance of buildings and communities.

Greenhouse gas intensity: The amount of greenhouse gas emissions produced per unit of activity, often used to measure the efficiency of emissions reductions.

Greenwashing: Misleading or deceptive claims about the environmental benefits of a product, service or building.

NABERS rating: The NABERS benchmark is converted to a star rating, 0 stars equals worst practice, 6 stars equals best market practice, in half star increments.

NABERS: National Australian Built Environment Rating System.

Nature positive: Actions and practices that have a beneficial impact on nature and ecosystems.

Net zero ready: Buildings designed and constructed to achieve net zero energy consumption when equipped with renewable energy sources.

Net zero: Achieving a balance between the amount of greenhouse gas emissions produced and the amount removed from the atmosphere, typically through reducing emissions and then offsetting those that remain.

Performance gap: The difference between a building's designed performance and its actual performance in operation.

Renewable energy: Energy generated from renewable sources like solar, wind or hydroelectric power.

Residual emissions: Remaining emissions that cannot be eliminated through energy efficiency or renewable energy measures, often offset through carbon offset programs.

Sustainable Buildings State Environmental Planning Policy (SEPP): A policy introduced by the New South Wales Government in 2023 to require certain commercial developments to meet minimum NABERS Energy and Water ratings.

Sustainable procurement: Procurement practices that consider social, economic, and environmental factors to minimise negative impacts.

Task Force on Climate-related Financial Disclosures (TCFD): An initiative established in 2015 to develop voluntary, consistent climate-related financial risk disclosures for use by companies in providing information to investors, lenders, insurers, and other stakeholders.

Taskforce on Nature-related Financial Disclosures (TNFD): A global initiative established in 2021 to provide recommendations and guidance for organisations to report on nature-related issues.

Waste management: Processes and practices to reduce, reuse, recycle and properly dispose of waste materials.

Whole-of-life emissions: Total carbon emissions associated with a building or product throughout its entire lifecycle.

Sources

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Lead Author - Bruce Precious

Bruce Precious has been at the forefront of sustainability in the built environment for more than 20 years, working across the public and private sectors. A mechanical engineer, Bruce was sustainability manager at GPT, and prior to that a director at the New South Wales Sustainable Energy Development Authority.

Contact NABERS

 $\underline{nabers@environment.nsw.gov.au}$

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Editor: Karen Jamal



NABERS is administered by the NSW Government

12 Darcy Street, Parramatta NSW 2150 nabers@environment.nsw.gov.au

nabers.gov.au

