

NABERS UK Energy for Offices

5th July 2022

David Heaford

MANAGING DIRECTOR, DEVELOPMENT,
LANDSEC



Agenda

1. **Welcome** – David Heaford, Managing Director, Development, Landsec
2. **Background to NABERS UK**– Sarah Ratcliffe, CEO, Better Buildings Partnership
3. **Energy for Offices**– Robert Cohen, Technical Director, Verco & Technical Lead for NABERS UK
4. **Driving Sector-Wide Energy Performance Improvements in Buildings** – Carlos Flores, Director, NABERS
5. **Panel Discussion** – chaired by Sarah Ratcliffe, CEO, Better Buildings Partnership
 - Nick Deacon, Head of Offices, Europe, Nuveen
 - Shamir Ghumra, Head of Building Performance, BRE
 - Victoria Herring, Director, Sustainability Programme, Grosvenor
 - Luke Menzel, CEO of Energy Efficiency Council of Australia
6. **Closing Comments** –Janine Cole, BBP Chair, Sustainability & Social Impact Director, GPE

Sarah Ratcliffe

CEO, BETTER BUILDINGS PARTNERSHIP



Why is NABERS UK important?



Bridging the performance gap to make sure new buildings perform as intended



Driving improvements in energy efficiency of existing buildings

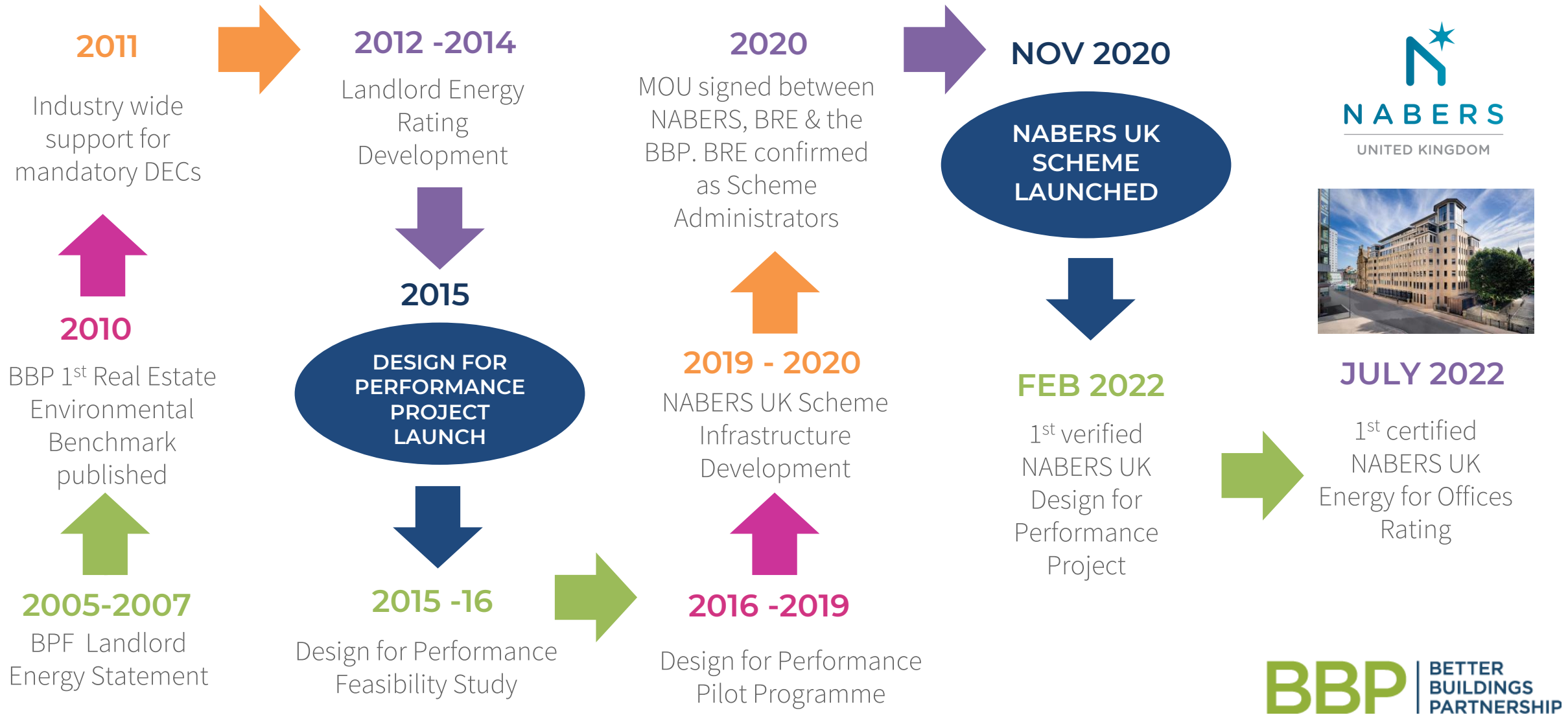


MEASURES
ACTUAL
(METERED)
PERFORMANCE



PROVIDES A
FAIR
COMPARISON

Over a decade in the making ...



Radical collaboration in action

NABERS UK STEERING COMMITTEE



DESIGN FOR PERFORMANCE PIONEERS



NABERS UK SUPPORTERS



TECHNICAL ADVISORS



NABERS UK - embedded in industry standards & guidance



BCO GUIDE TO
SPECIFICATION



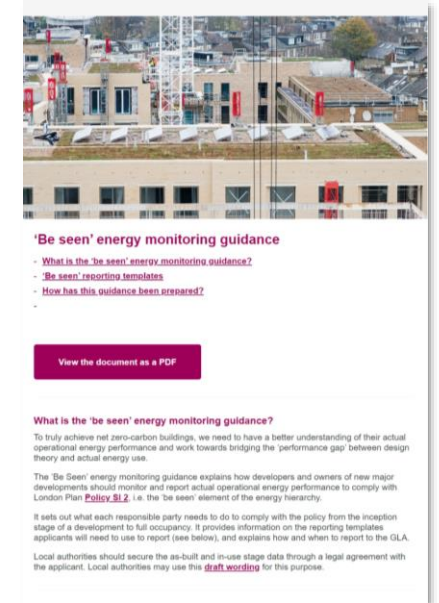
RIBA PLAN FOR
USE GUIDE



UKGBC TARGETS &
WLC ROAD MAP



BREEAM NEW
CONSTRUCTION



GLA 'BE SEEN'
POLICY



CIBSE
TM54



BSRIA SOFT
LANDINGS



LETI TARGETS &
GUIDANCE



GRESB
CREDITS

The industry is upskilling to deliver

NABERS UK ASSESSORS



194
ASSESSORS
TRAINED

35
LICENSED
ASSESSORS

29
ASSESSOR
ORGANISATIONS

INDEPENDENT DESIGN REVIEW PANEL



Stephen Hill
Arup



Darren Coppins
Built Physics



David Kingstone
Buro Happold



Jim Saywell
Buro Happold



Jennifer Elias
Cundall



Grace Foo
Delta Q



Hugh Gordon
Hilson Moran



Glen Irwin
Hydrock



Claire Das Bhaumik
Inkling



Greg Waring
Verco



Robert Marshall
Watkins Payne

CIBSE ADVANCED SIMULATION MODELLING

The screenshot shows the CIBSE website with a navigation bar at the top. The main content area features a course titled 'Advanced Simulation Modelling for Design for Performance' with a 'Back To All Courses' link. The course is rated 9.0 CPD Hours. To the right, under 'Upcoming dates', there are three dates with 'Book Now' buttons: 11-13 Jul 2022, 05-07 Sep 2022, and 07-09 Nov 2022.

30

Delegates attended training in 2021

MANAGING FOR PERFORMANCE

A framework and accompanying methodology for property managers

BBP | MANAGING
AGENTS
PARTNERSHIP

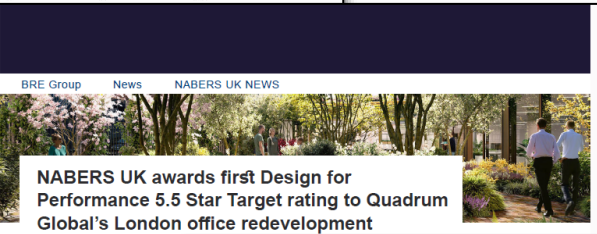
BBP | BETTER
BUILDINGS
PARTNERSHIP

Market competing for industry firsts ... and driving performance outcomes



Landsec's Timber Square achieves a 5-star Design Reviewed Target Rating, making it the UK's first Design for Performance project to complete its Independent Design Review.

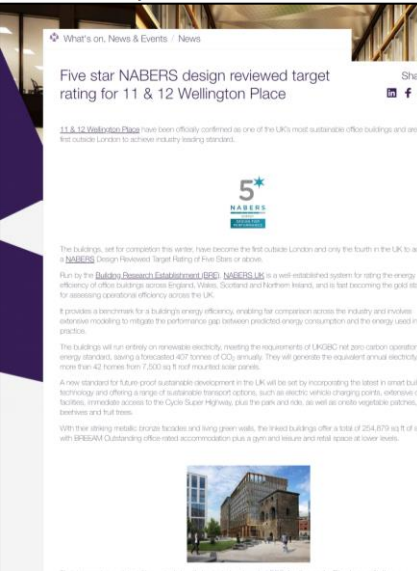
Author: Paul



11 Belgrave Road will be a carbon office accommodation

NABERS UK, a collaboration between BRE and the Buildings Partnership Establishment (BRE), stars to the redevelopment

What is Design for Performance? The energy efficiency of buildings is a key factor in the performance gap between project teams to target and verify it once they are in use for Offices rating scheme



11 & 12 Wellington Place have been officially confirmed as one of the UK's most sustainable office buildings and are the first outside London to achieve industry leading standard.

The buildings, set for completion this winter, have become the first outside London and only the fourth in the UK to achieve a 5-star NABERS Design Reviewed Target Rating of five stars or above.

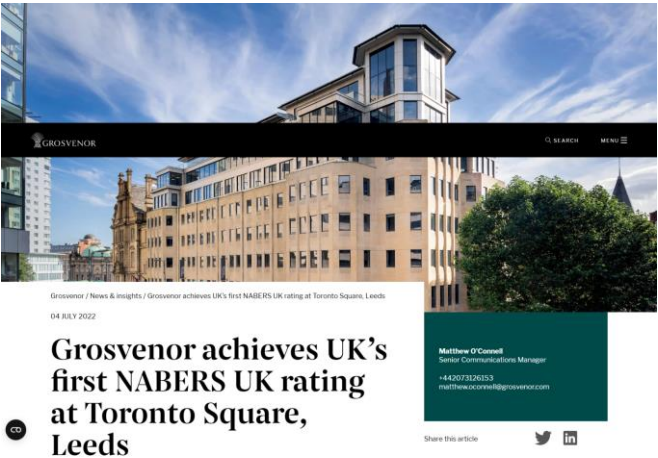
Run by the Buildings Partnership Establishment (BRE), NABERS UK is a well-established system for rating the energy efficiency of office buildings across England, Wales, Scotland and Northern Ireland, and is fast becoming the gold standard for assessing operational efficiency across the UK.

It provides a benchmark for a building's energy efficiency, enabling for comparison across the industry and involves extensive modelling to mitigate the performance gap between predicted energy consumption and the energy used in practice.

The buildings will run entirely on renewable electricity, meeting the requirements of UKGBC net zero carbon operational energy standard, saving approximately 407 tonnes of CO₂ annually. They will generate the equivalent annual electricity of more than 42 homes from 7,500 sq ft roof mounted solar panels.

A new standard for future proof sustainable development in the UK will be set by incorporating the latest in smart building technology and offering a range of sustainable transport options, such as electric vehicle charging points, extensive cycling facilities, immediate access to the Cycle Super Highway, plus the park and ride, as well as on-site vegetable patches, beer gardens and full trees.

With their striking metallic bronze facades and living green walls, the linked buildings offer a total of 254,079 sq ft of space with 18,600 sq ft of office space, 18,600 sq ft of retail space and 18,600 sq ft of leisure space.



Grosvenor / News & insights / Grosvenor achieves UK's first NABERS UK rating at Toronto Square, Leeds

04 JULY 2022

Grosvenor achieves UK's first NABERS UK rating at Toronto Square, Leeds

BRE has awarded its first NABERS UK Energy rating to Grosvenor's 67,500 sq ft office building, Toronto Square in Leeds.

While NABERS is already being used to inform the design of buildings under construction, this is the first time in the UK that an existing office has received a NABERS UK rating.

The 4.5* rating was confirmed after 12 months of data from the building was collected and analysed by NABERS UK Licensed Assessor EP&T Global and independently certified by BRE.

NABERS UK is an adaptation of the highly successful rating programme NABERS that operates in Australia. Launched in 2009 NABERS is widely considered to be a world leading environmental performance tool for commercial buildings. In Australia, the initiative has helped customers save an average of 30%-40% on their energy over 10 years. It plays a vital role in bridging the performance gap between the design and actual in-use energy performance of offices and creates much needed transparency for the market.

The rating programme measures and verifies the actual energy use of operational offices, ranging from one star to six stars, helping building owners like Grosvenor to more accurately measure, improve and communicate the energy performance of their buildings. This demonstrates whether offices are on a net zero carbon trajectory and provides investors and occupiers with the confidence that the buildings they own and occupy are aligned with their climate ambitions.

Grosvenor's UK property business is working to stretching environmental goals. Its 2030 net zero commitment will see it reduce emissions across existing buildings, developments, and its supply chain by at least 52% by 2030. The business' aim is that all its office buildings over 1000sqm will have a NABERS UK rating above 4.5* by the end of 2025.

Fully refurbished in 2009, Toronto Square, which also holds a BREEAM Excellent rating, provides Grade A offices across eight storeys in the heart of Leeds' commercial business district. The rating will provide more information on the building's performance, helping Grosvenor work collaboratively with its occupiers to target additional improvements. Grosvenor will also be undertaking other improvements to Toronto Square to ensure it remains one of the best offices in Leeds.

6
NABERS UK
DFP
PROJECTS
VERIFIED

34
NABERS UK
DFP
PROJECTS
REGISTERED

19
NABERS UK
DFP
PROJECTS
EOI

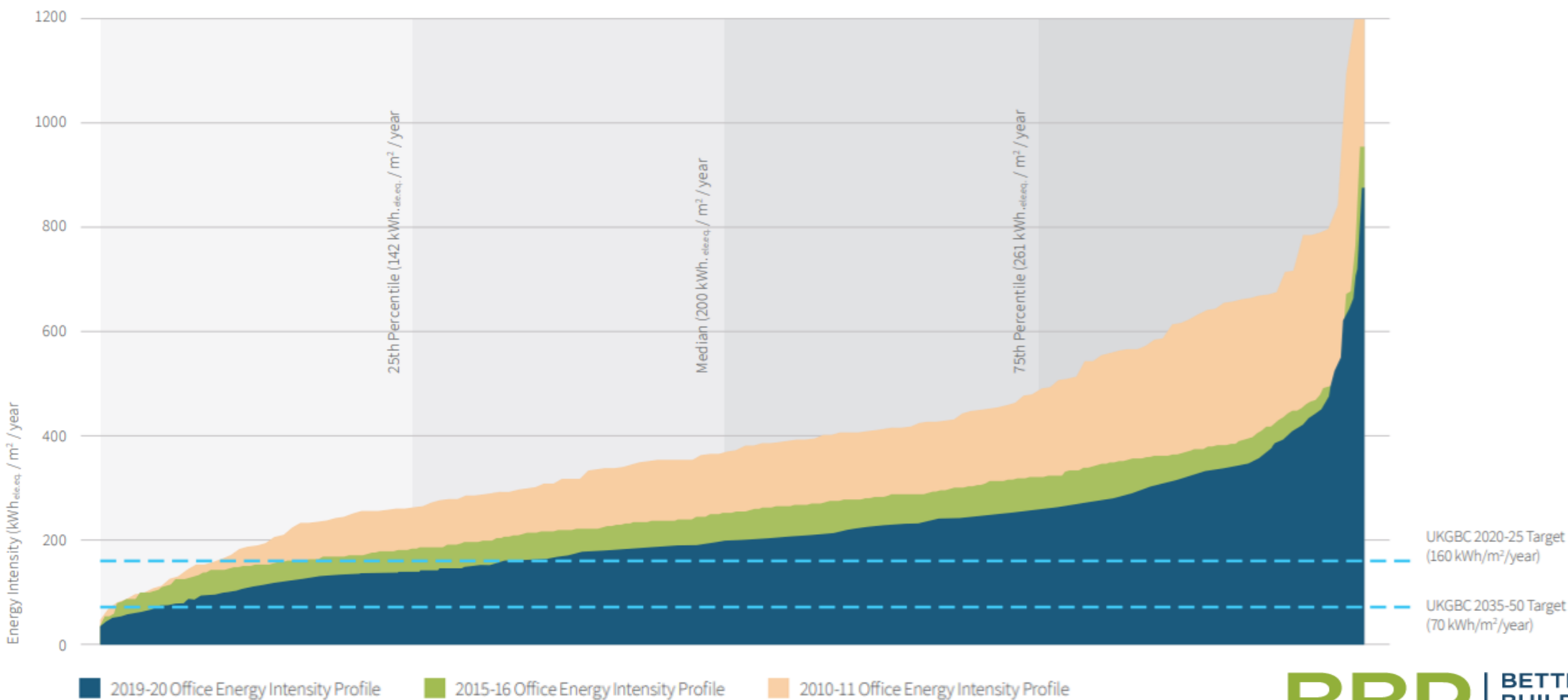
1
NABERS UK
ENERGY FOR
OFFICE
CERTIFIED

2 (+8)
NABERS UK
ENERGY FOR
OFFICES
REGISTERED

47
NABERS UK
ENERGY FOR
OFFICES
EOI

Existing Offices need to improve (fast)

REEB Office Energy Intensities against UKGBC NZC targets





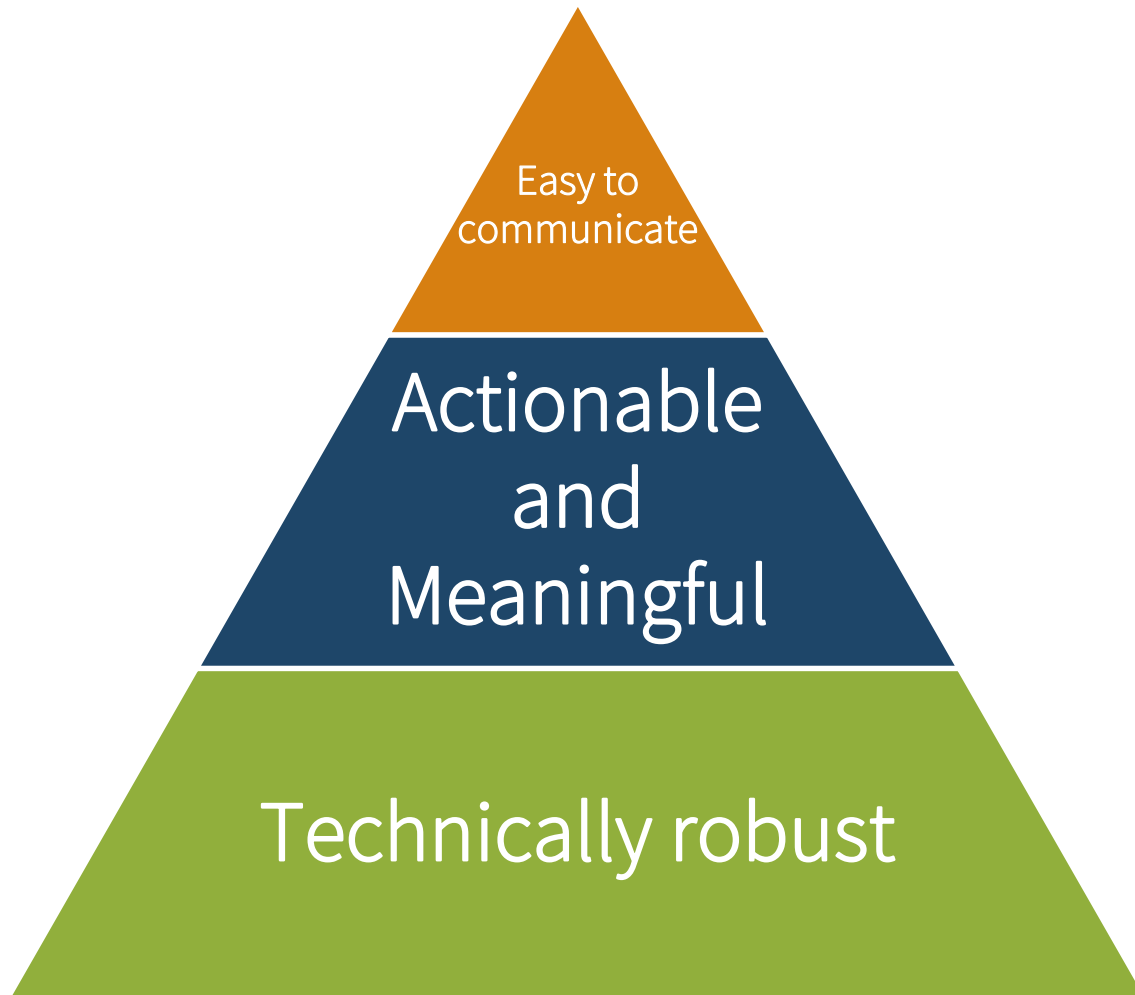
NABERS UK Breakfast Event 05 July 2022:

Energy for Offices Ratings

Robert Cohen
Technical Director, Verco



USPs of NABERS Ratings



The success of NABERS is underpinned by seven key principles

1. Measure **actual impact**, not intent
2. Assess **building operations**, not design
3. Deliver **meaningful ratings** that the market can understand
4. Support a **simple** and **easy-to-perform** rating process
5. Achieve **reliable ratings** that everyone can trust
6. Foster **strong governance** and **trustworthy management**
7. Encourage **collaborative** rating tool development

Energy efficiency in commercial buildings: How NABERS transformed the market, May 2022
<https://www.nabers.gov.au/file/101477/download?token=kdpossbI>

EASY TO COMMUNICATE

NABERS communicates through 1 to 6 star scale

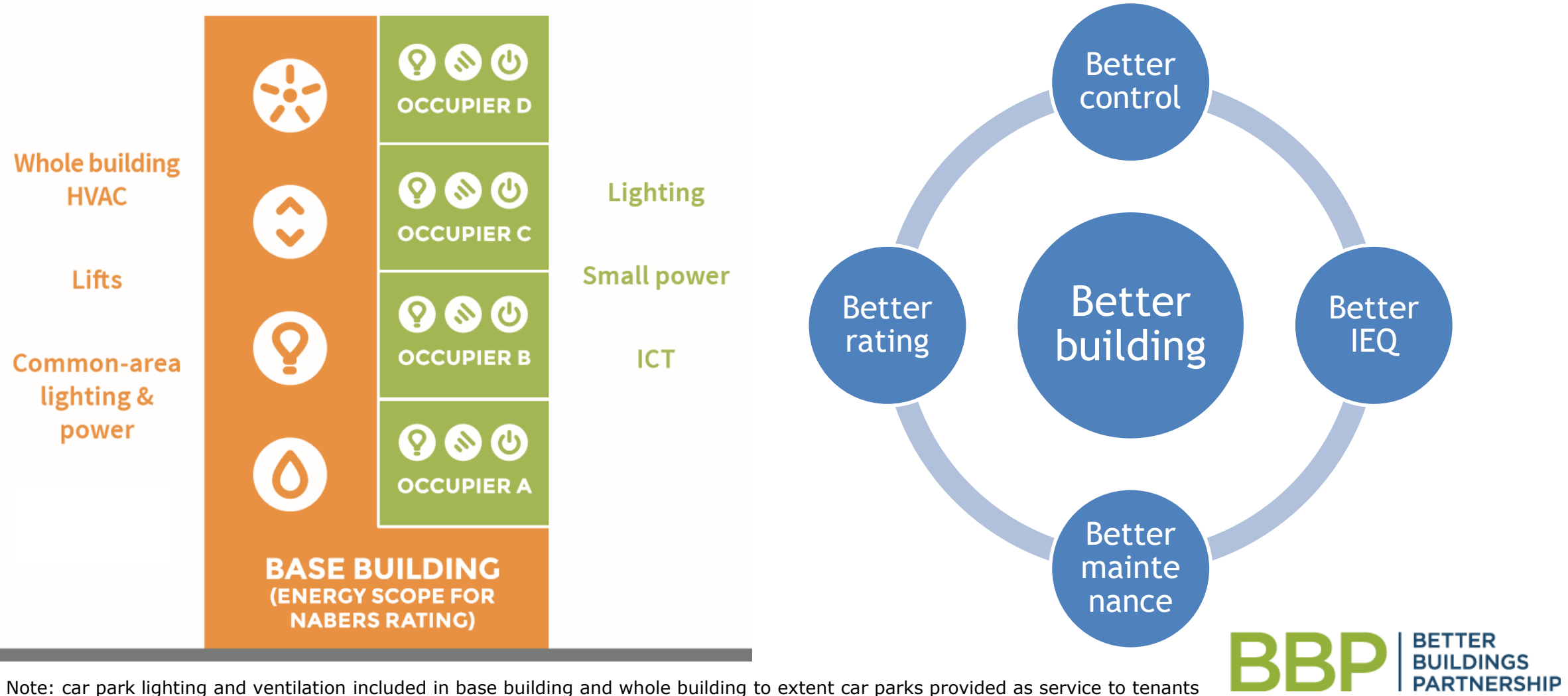
Simple metric for investors, owners and occupiers:

measured assessment of how efficiently a building is being operated over a year

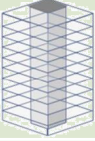

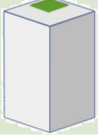


ACTIONABLE AND MEANINGFUL

Responsibility for energy uses aims to align with party in control



Definition of 3 scopes in full suite of ratings

Type of rating	Responsibility	Scope
Base Building 	Landlord	Energy to supply building central services to <u>office</u> NIA and common spaces, incl FCU motors, on-floor fans, tertiary pumps.
Tenancy 	Tenants	Energy used by the Tenancy to be rated, typically for lighting and power, plus special tenancy requirements or local a/c.
Whole Building 	Split	Assessment of energy used by <u>office</u> Tenancies and by Base Building services to office lettable and common spaces.

Notes:

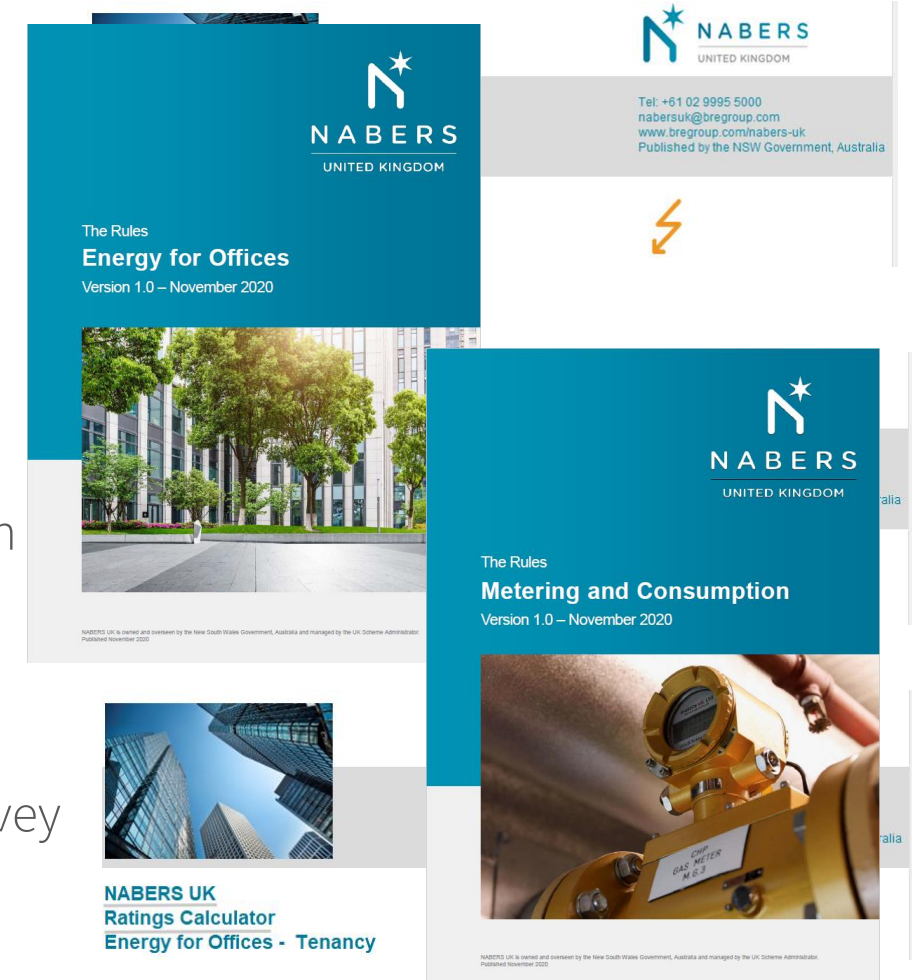
- Central DHW, e.g. circulating system from plant room, under landlord control so treated as base building energy (if it serves >30% of NIA). Local DHW, e.g. point of use electric water heaters, if under tenant control, treated as tenancy energy.
- Similarly, a/c for tenant servers allocated to base building (and benchmark compensated) if centrally supplied by landlord, or to tenancy if their supply

Whole building = base building + Σ (tenancies)

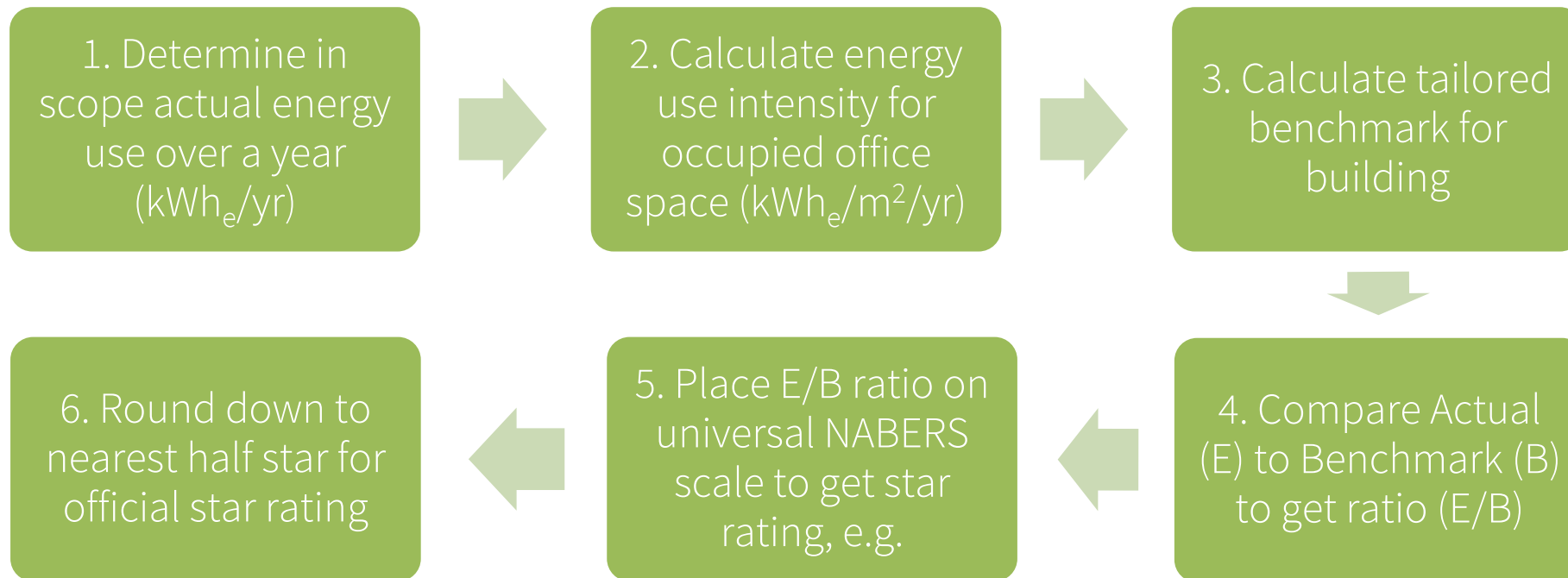
TECHNICALLY ROBUST

Tools and Rules

- Behind NABERS UK Ratings are:
 - The Rules (Energy for offices)
 - The Rules (Metering and Consumption)
 - The Rating Tools used by accredited assessors
- The Rules define how inputs into rating tool are determined
 - Rules are defined to encourage good/best practice design and operation. For example, landlord control and maintenance of whole building a/c system as an entity
 - Where metering not available, conservative defaults used
 - Independent Design Review (new build) or rateability survey (existing) will identify beneficial metering additions.

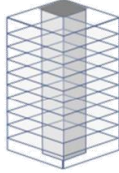

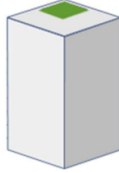
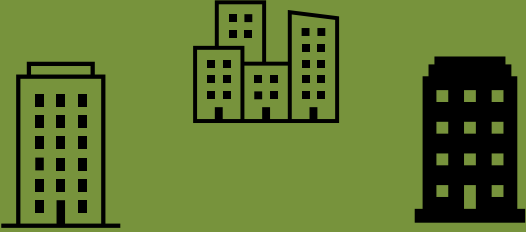


How the rating is determined



E/B Ratio	Star decimal rating
> 1.59	0 stars
1	3.2 stars
0.53	5.0 stars

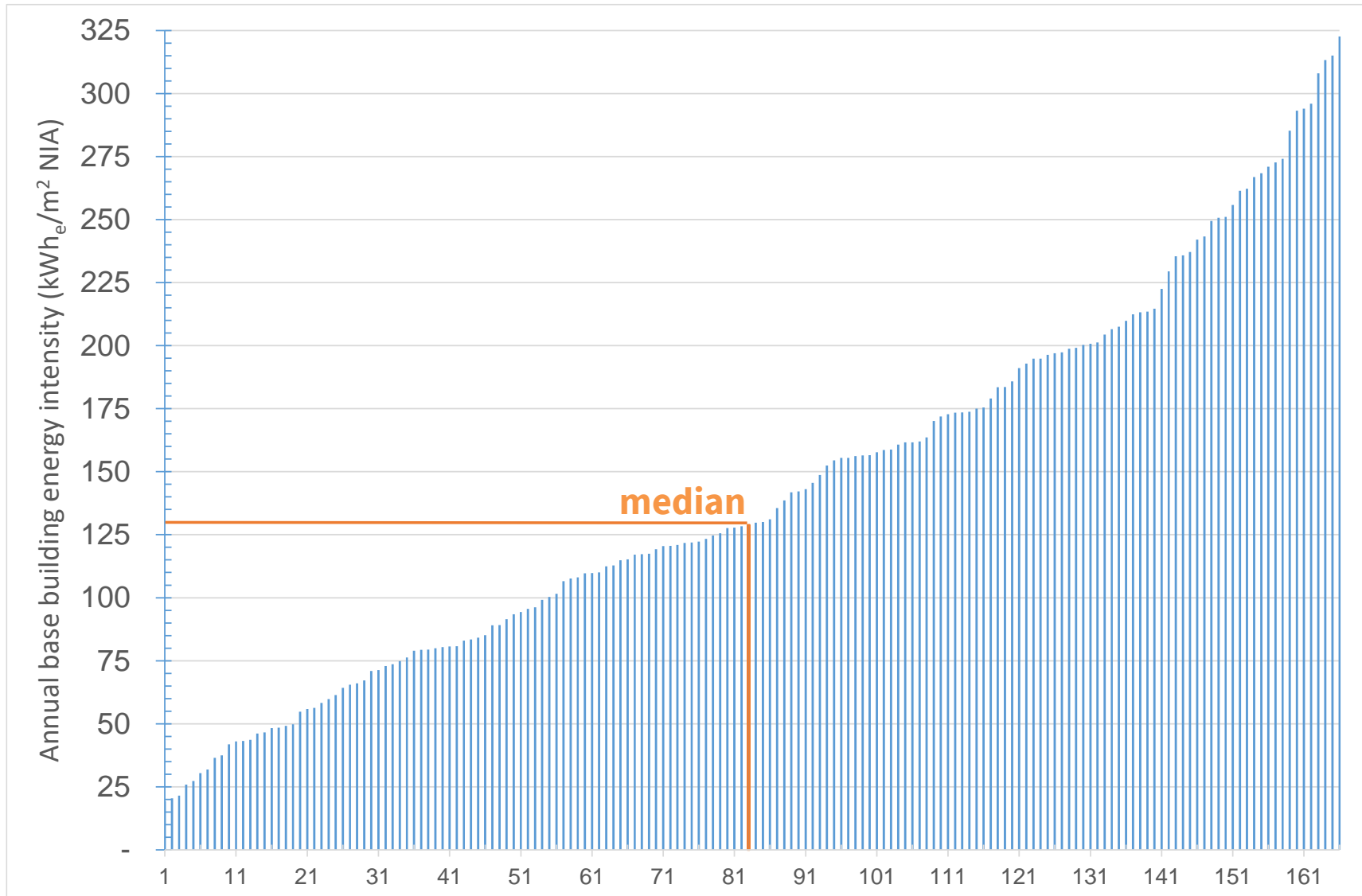
Tailoring the benchmark for each type of rating

Benchmarking Components		 Base Building	 Tenancy	 Whole Building
 Operational factors affecting the energy use intensity of the building	Median Energy Intensity	✓	✓	✓
	Climate Adjustment	✓		✓
	Hours Adjustment	✓	✓	✓
	Equipment Density Adjustment		✓	✓

For a fair comparison of different buildings on a single scale

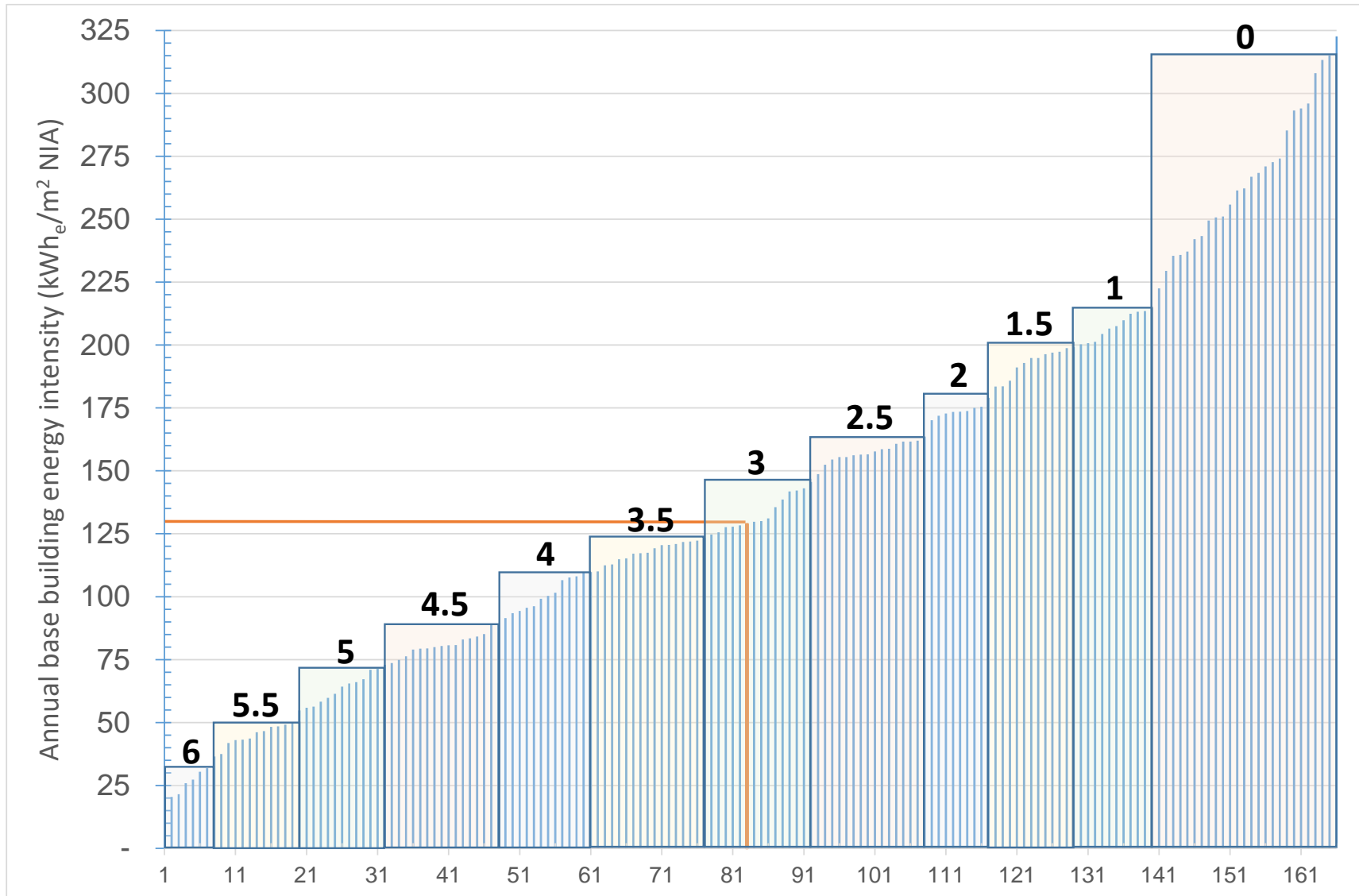
$$\text{Benchmark (Whole Building)} = \left(\text{Median Energy Intensity} + \text{Climate Adjustment} + \text{Equipment Density Adjustment} \right) \times \text{Hours Adjustment}$$

REEB empirical data is used to set median energy intensity



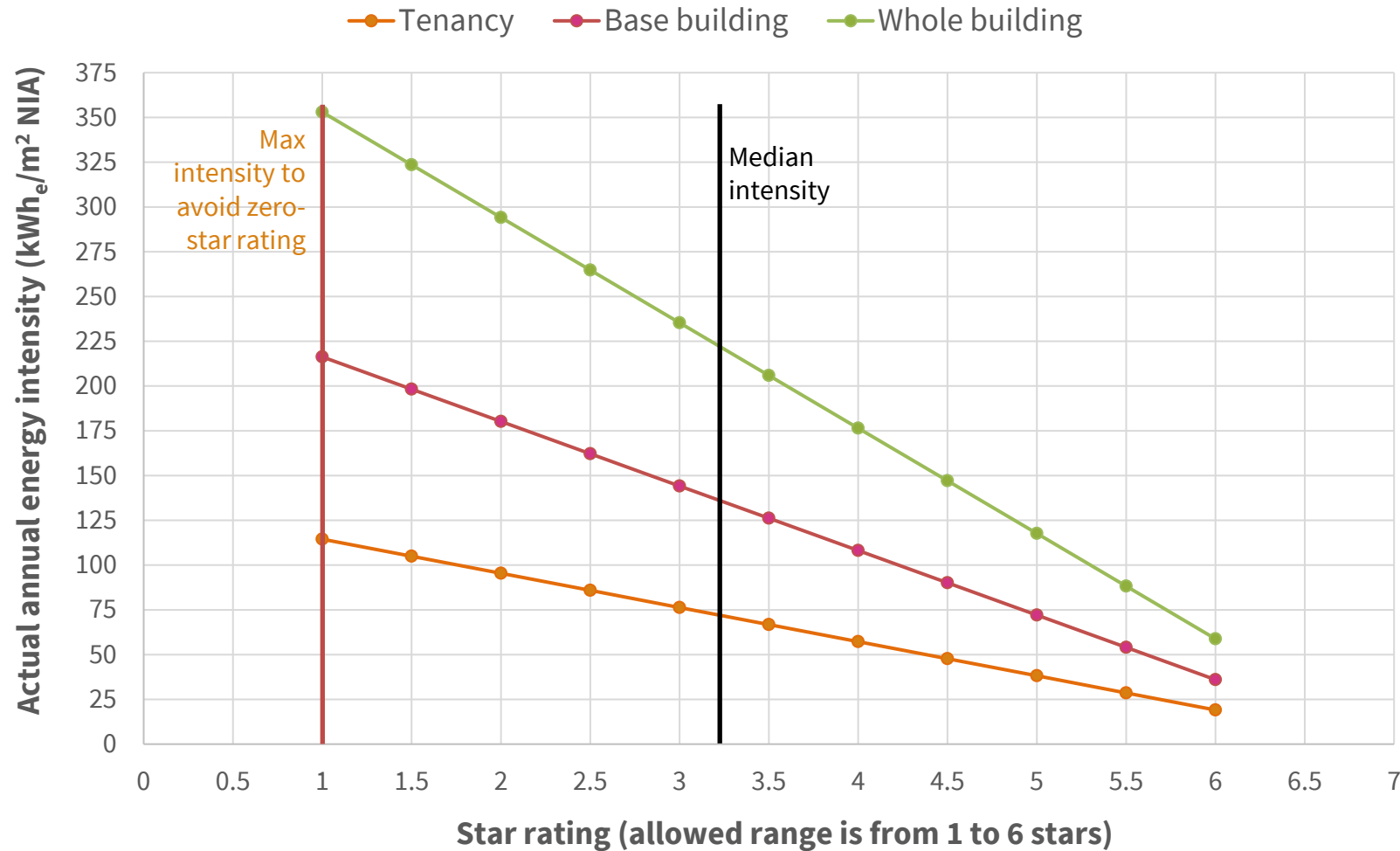
- Example shown for Base Building data
- $N=166$ ex outliers. Median = $129 \text{ kWh}_e/\text{m}^2$
- Benchmark = $136 \text{ kWh}_e/\text{m}^2$ after allowing for FCU motors included in metered data for tenants' use

Indicative star ratings of dataset before tailoring benchmark



- Example shown for Base Building data
- N=166 ex outliers. Median = 129 kWh_e/m^2
- Benchmark = 136 kWh_e/m^2 after allowing for FCU motors included in metered data for tenants' use]

Benchmark scale 6:1 range from 1 to 6 stars



Star Rating	Benchmarking Factor (E/B*100)
6	$0 < \text{BF} \leq 26.5$
5.5	$26.5 < \text{BF} \leq 39.75$
5	$39.75 < \text{BF} \leq 53$
4.5	$53 < \text{BF} \leq 66.25$
4	$66.25 < \text{BF} \leq 79.5$
3.5	$79.5 < \text{BF} \leq 92.75$
3	$92.75 < \text{BF} \leq 106$
2.5	$106 < \text{BF} \leq 119.25$
2	$119.25 < \text{BF} \leq 132.5$
1.5	$132.5 < \text{BF} \leq 145.75$
1	$145.75 < \text{BF} \leq 159$
0	$159 < \text{BF}$

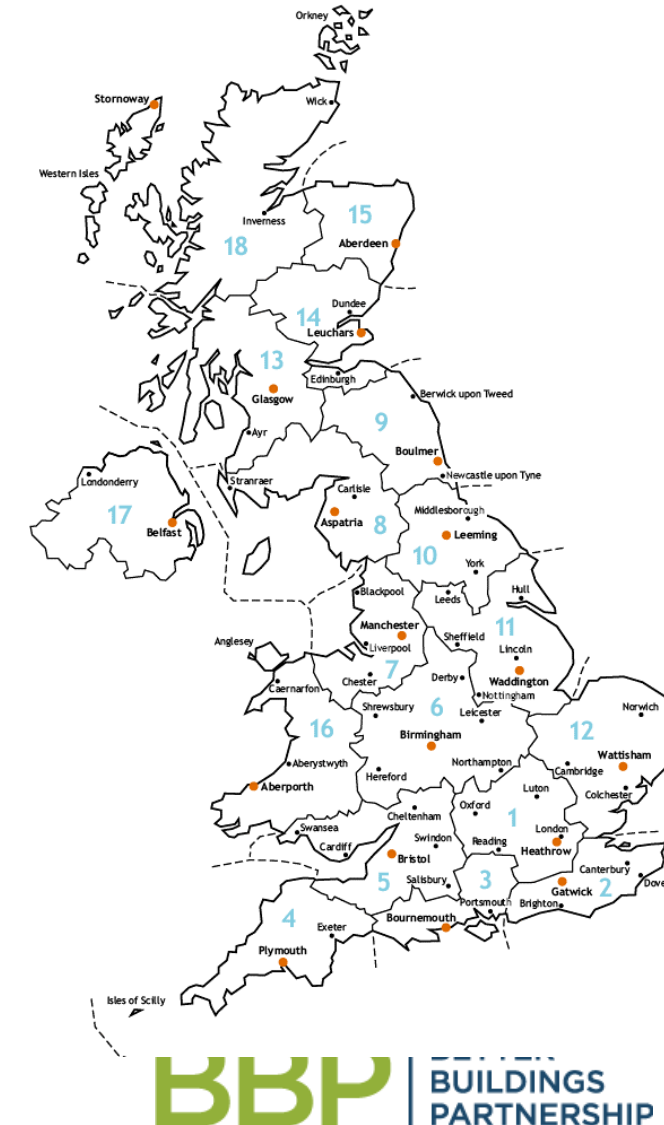
Basic normalising inputs are floor area and hours of use

- **Floor area** based on RICS Net Internal Area used for ‘office-like’ uses
 - NIA represents productive area of the building, financially for landlord and tenants
 - Exclusions:
 - Non-office spaces (retail, data centres)
 - Vacant areas (time adjusted)

- **Hours of use** for the building = area-weighted average of the hours for each functional space (including documented after hours air conditioning requests)
 - No credit given for a space which is conditioned when it doesn’t need to be

Regional heating and cooling degree days moderate benchmark

- ❑ Postcode defines climate zone
- ❑ Heating and cooling degree days 20 year average from weather station in that zone represent building's climate
- ❑ Adjustment for climate *not* weather



Intensity of use also taken into account



3.1 For whole building and tenancy ratings

- 1. Your assessed number of workstations is [assessor to fill in number].
- 2. Your current assessed occupancy percentage, based on observation by your assessor is [assessor to fill in number]
- 3. Over the rating period, roughly what percentage of these workstations were utilised/occupied mid-morning/mid-afternoon on an average normal working day:

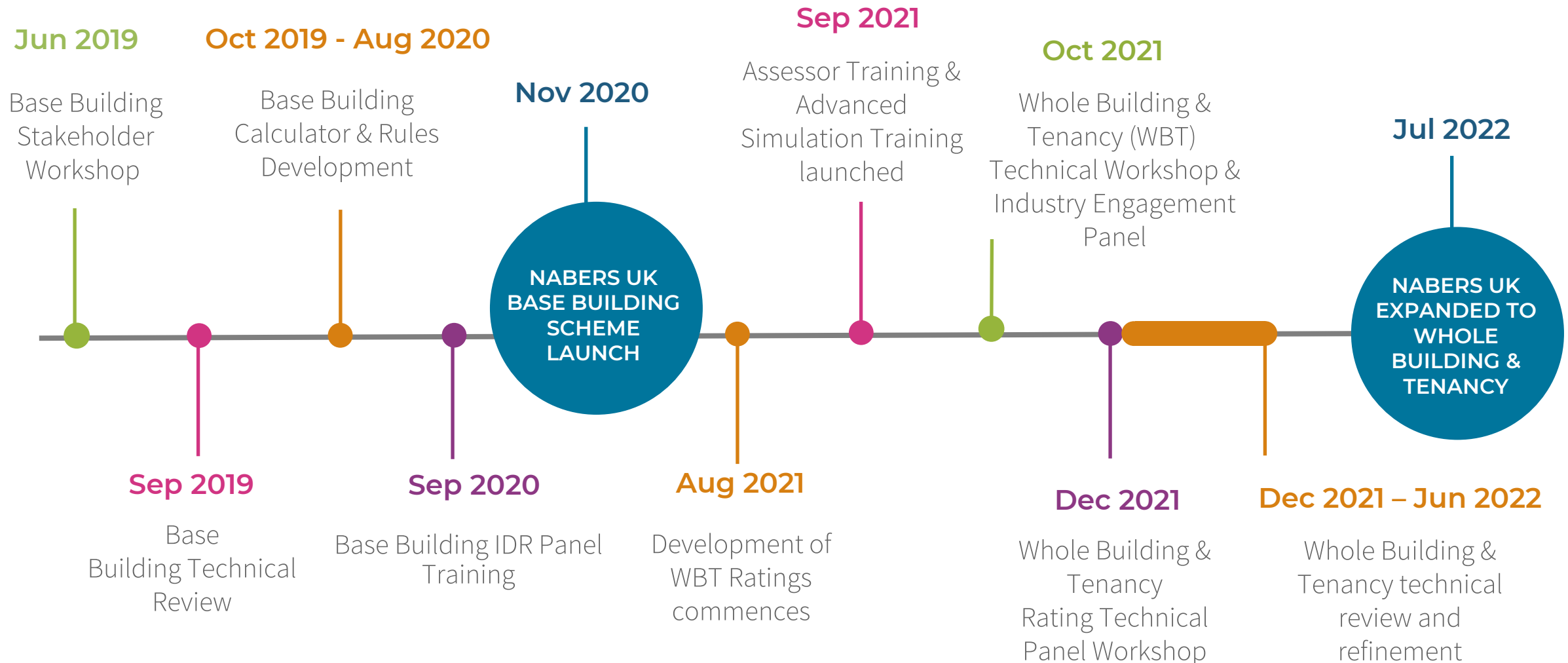
Dates	Q1 <i>[assessor to fill in dates]</i>	Q2 <i>[assessor to fill in dates]</i>	Q3 <i>[assessor to fill in dates]</i>	Q4 <i>[assessor to fill in dates]</i>
	Tick ONE as appropriate	Tick ONE as appropriate	Tick ONE as appropriate	Tick ONE as appropriate
All/nearly all: 80-100%				
Most: 60-80%				
About half: 40-60%				
Some: 20-40%				
Few: 0-20%				

Table 1. Estimated average occupancy for the four quarters of the rating period.

Tenancy manager to fill in their answers in Table 1

Any explanatory comments:

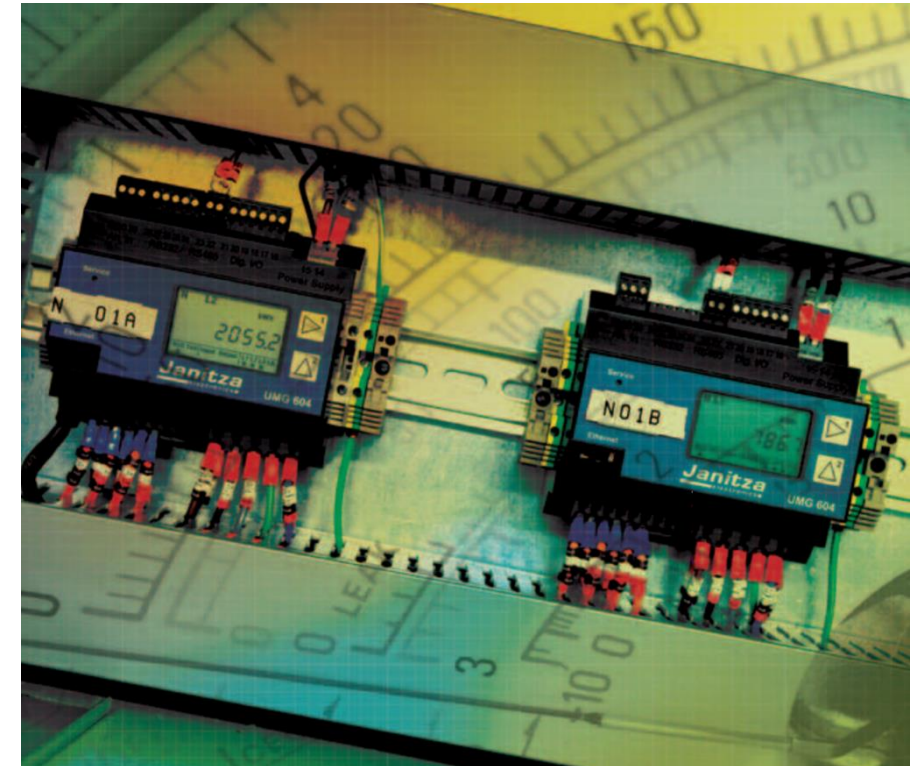
Methodology development - stakeholder engagement



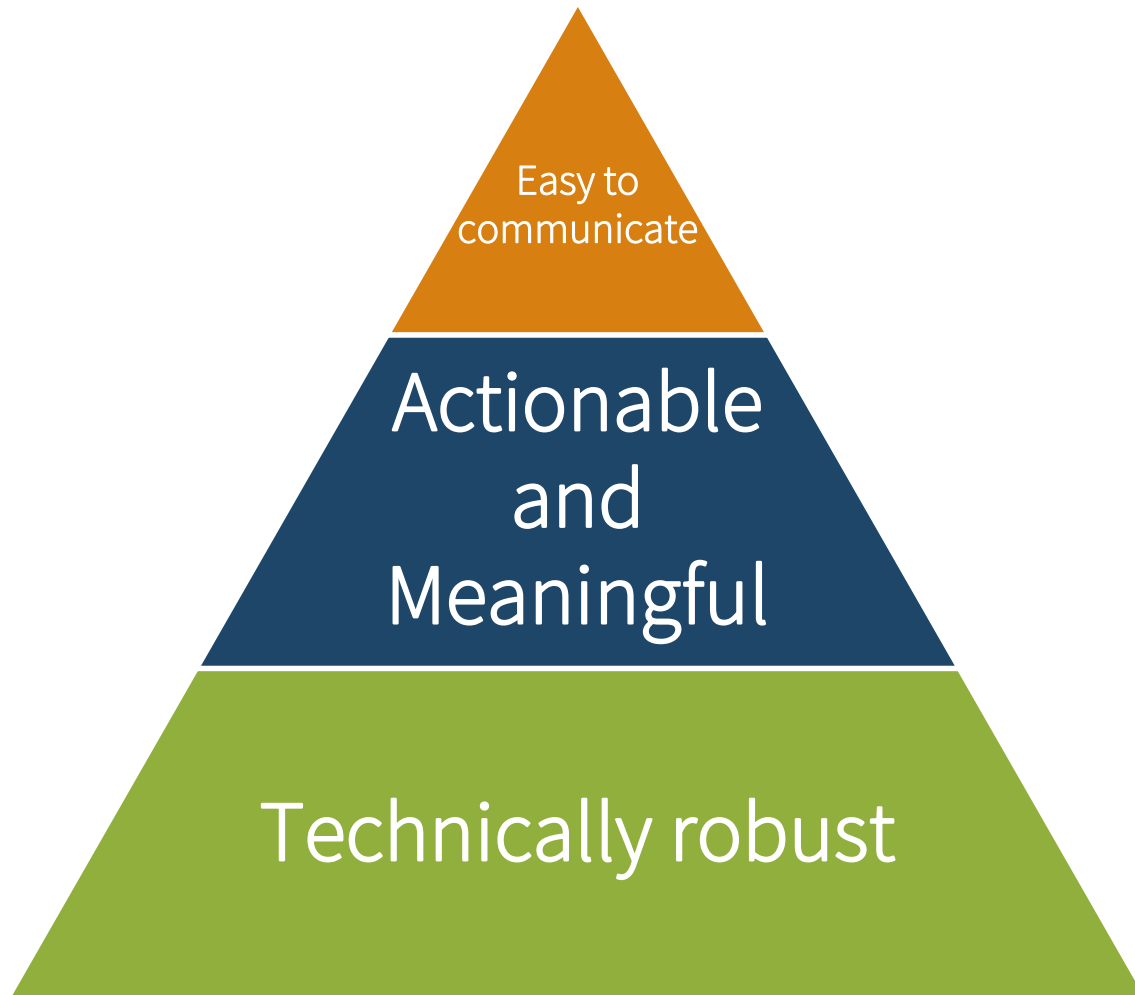
NABERS UK ENERGY FOR OFFICES RATINGS: GETTING YOUR BUILDINGS READY

Use rateability survey to assess readiness for different ratings

- ❑ Is NIA measured to acceptable standard?
- ❑ Is there digital logging of out of hours a/c requests by functional space?
- ❑ Is energy data logging system (EMS) in good working order (and does it reconcile with utility meter data over year)?
- ❑ Is there documentation validating existing metering (what is on each meter, CT ratios, gas pressure factors, etc.)?
- ❑ Absence of metering necessary to produce a compliant or optimum rating?
- ❑ Do all material meters including landlord sub-metering comply with NABERS quality standard?



Conclusion: “**delineate, measure, rate and disclose**”



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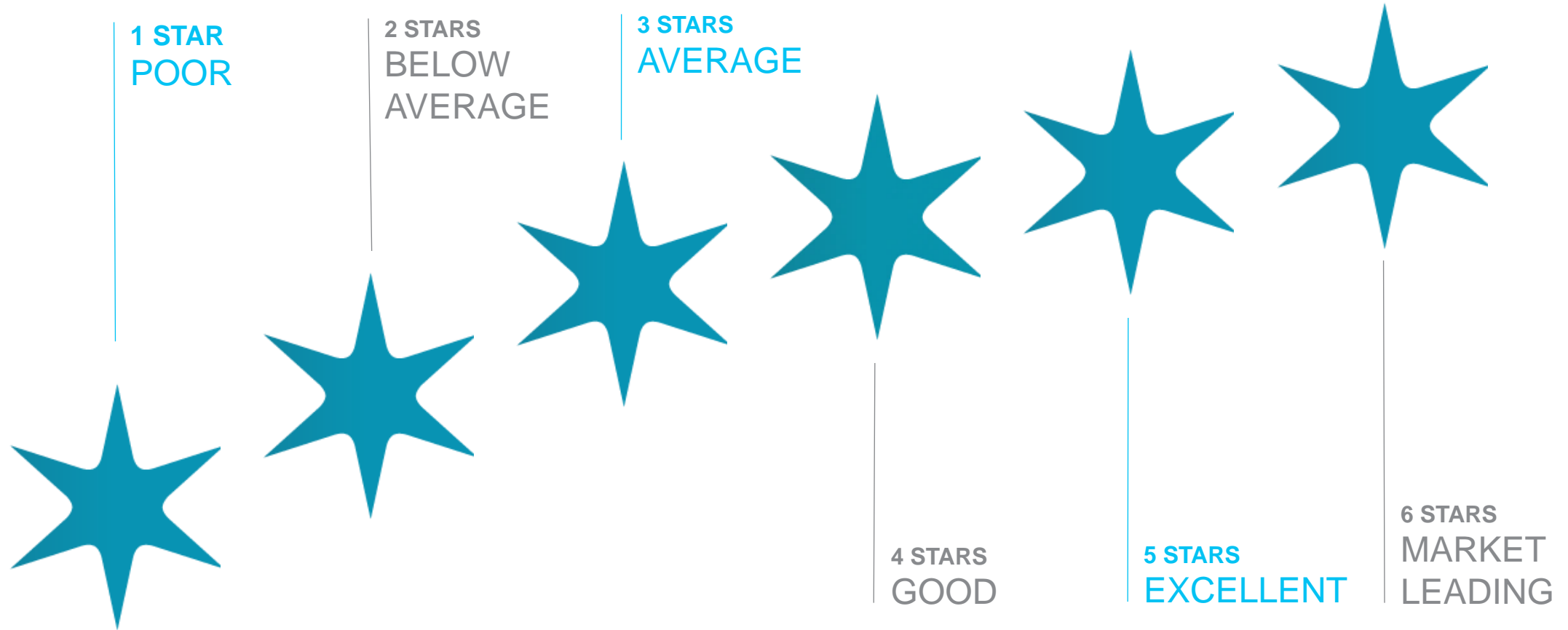
THANK YOU

**Driving sector-wide energy
performance improvements in
buildings**

**Carlos Flores | Director,
NABERS**



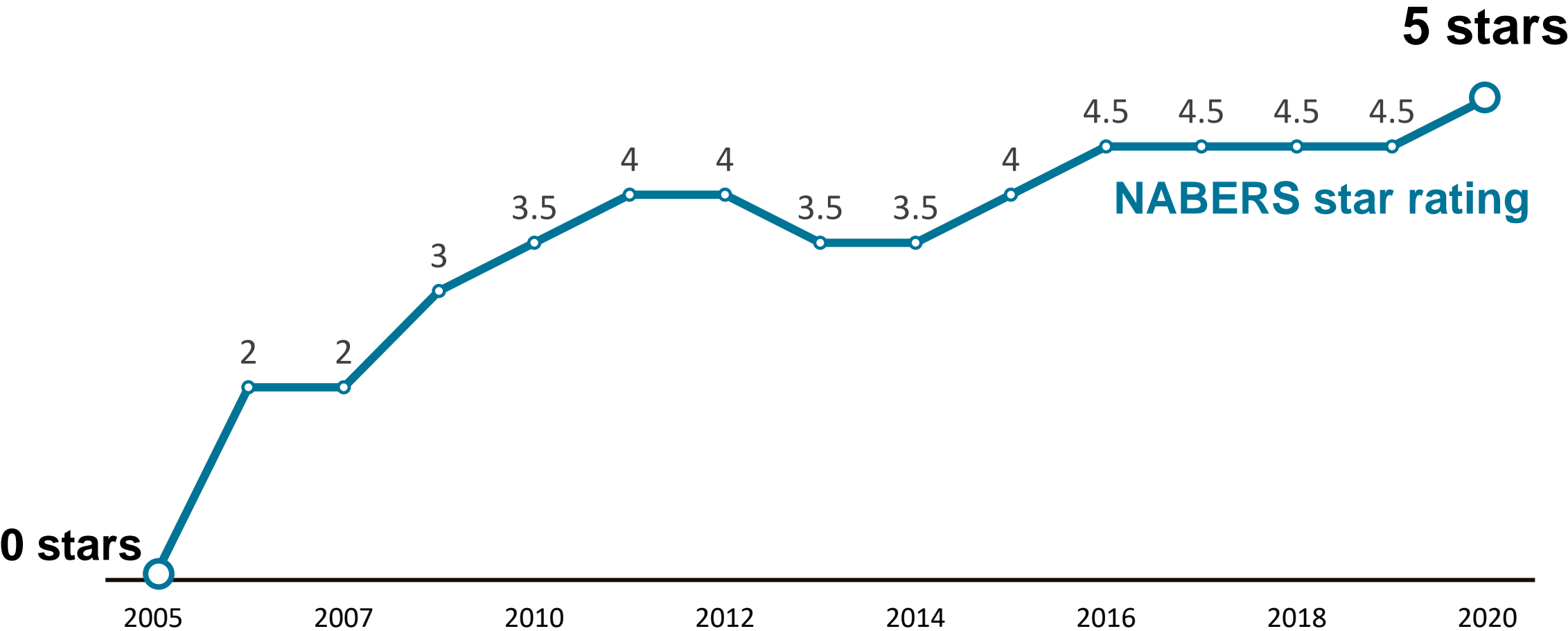
NABERS is Australia's language for building sustainability



**Driver for action #1:
Self-awareness of environmental performance**

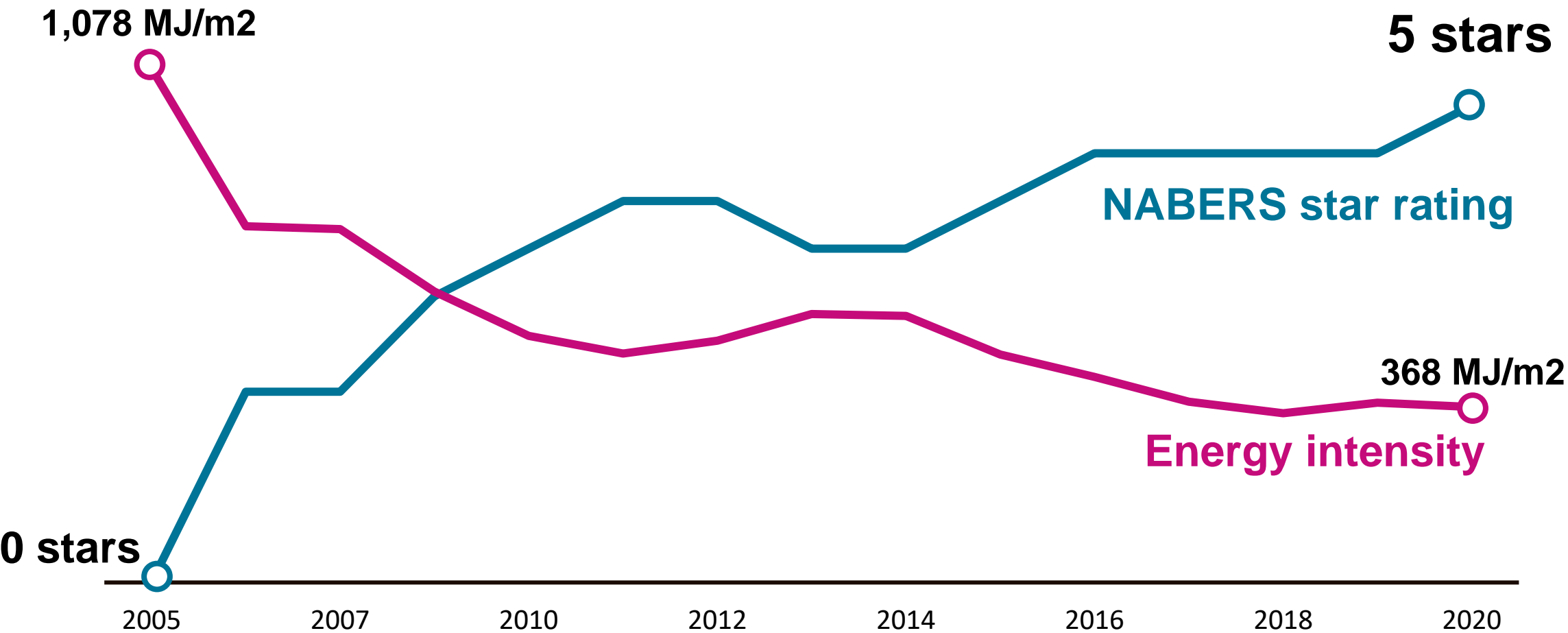


What the NABERS journey looks like



*Australia Square | 264-268 George St, Sydney. Co-owned by DEXUS and GPT.

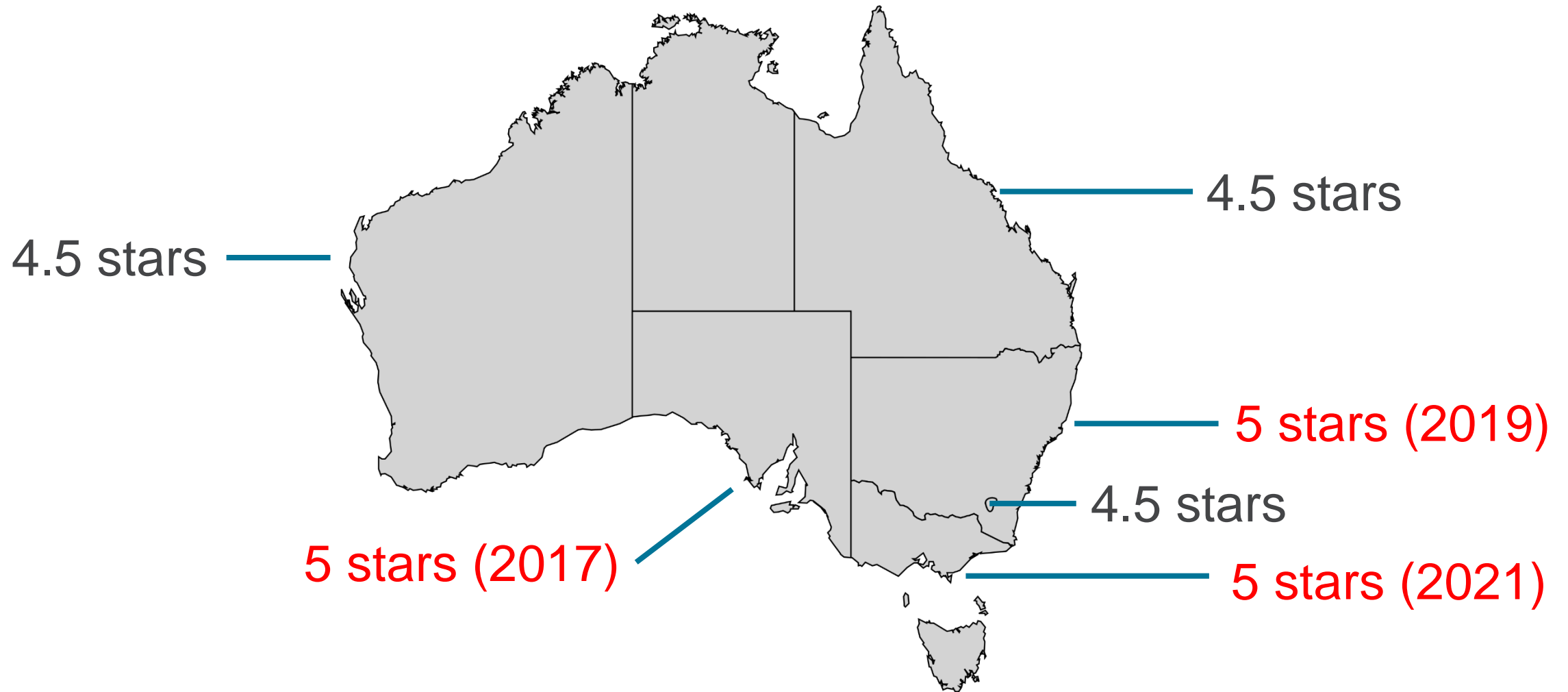
What the NABERS journey looks like



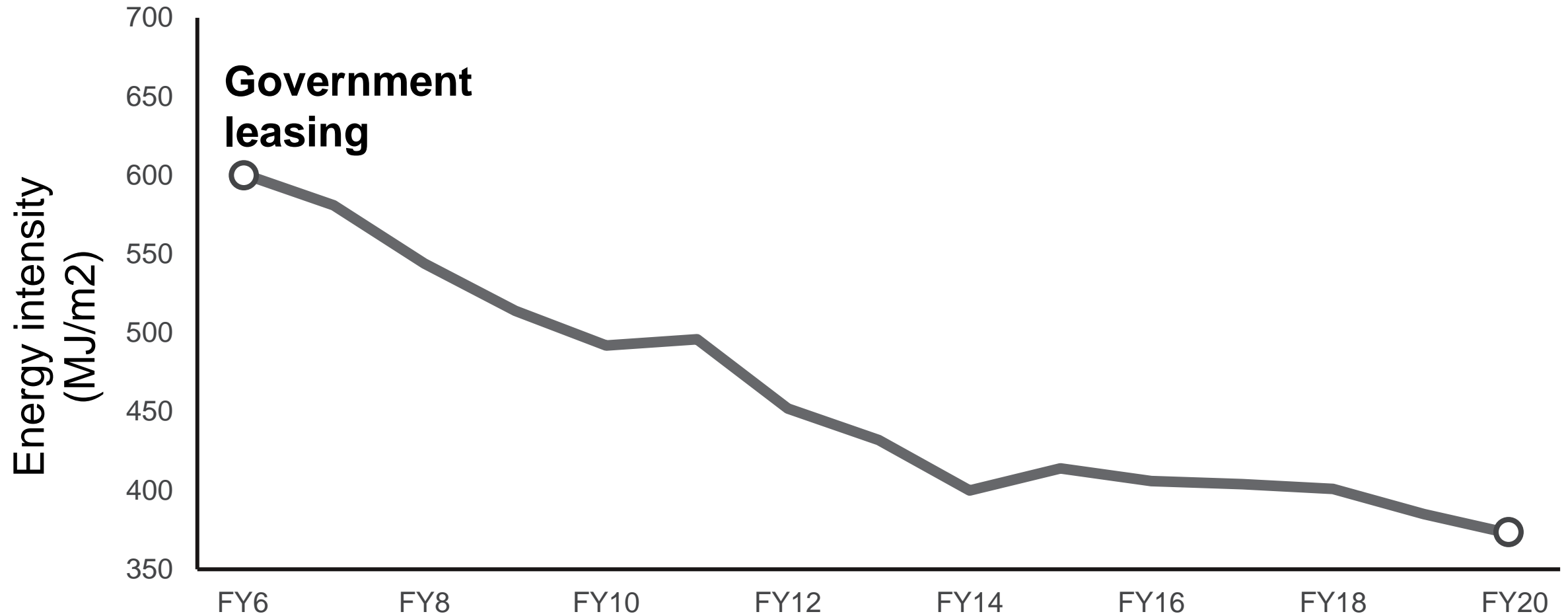
*Australia Square | 264-268 George St, Sydney. Owned by DEXUS and GPT.

**Driver for action #2:
Government as a tenant**

NABERS Energy requirements for government leasing of offices have been in place since 2006

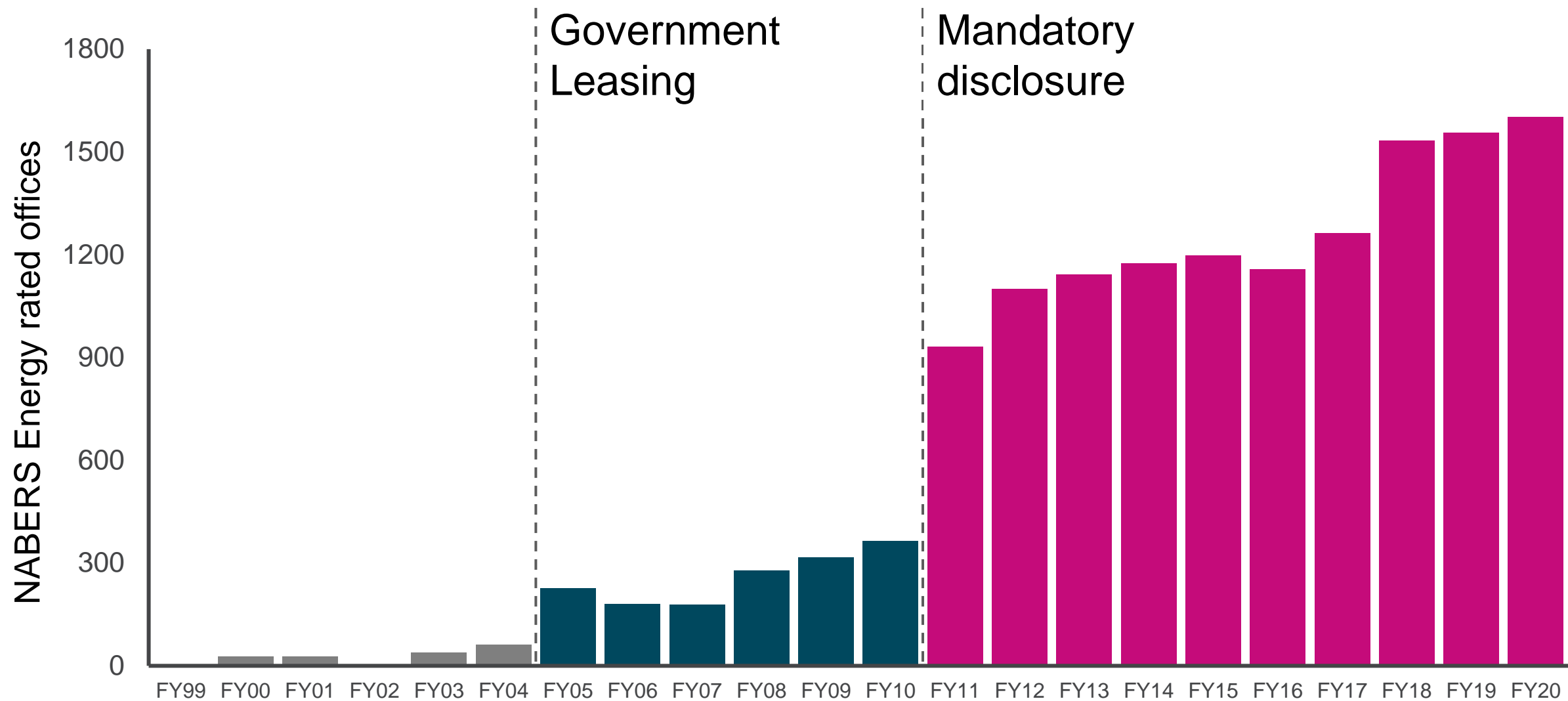


Energy savings since government leasing requirements were introduced

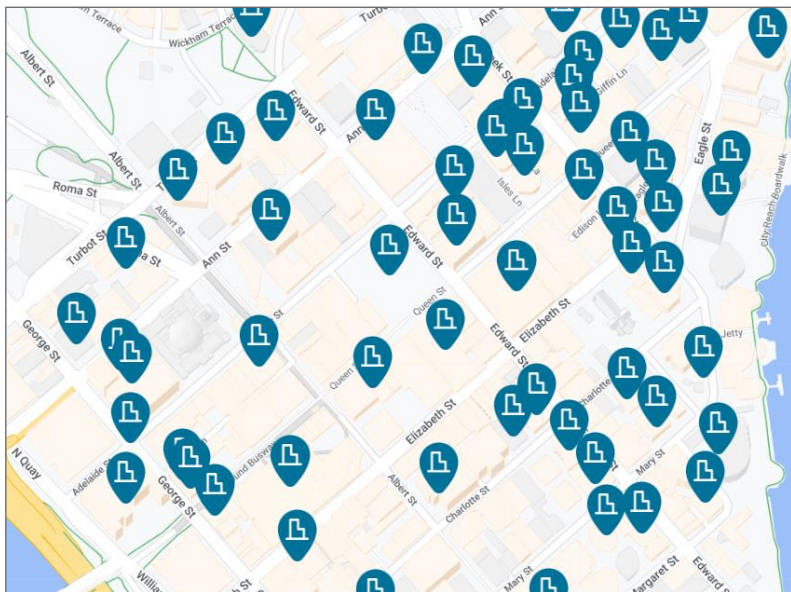


Driver for action #3:
Mandatory disclosure of energy performance

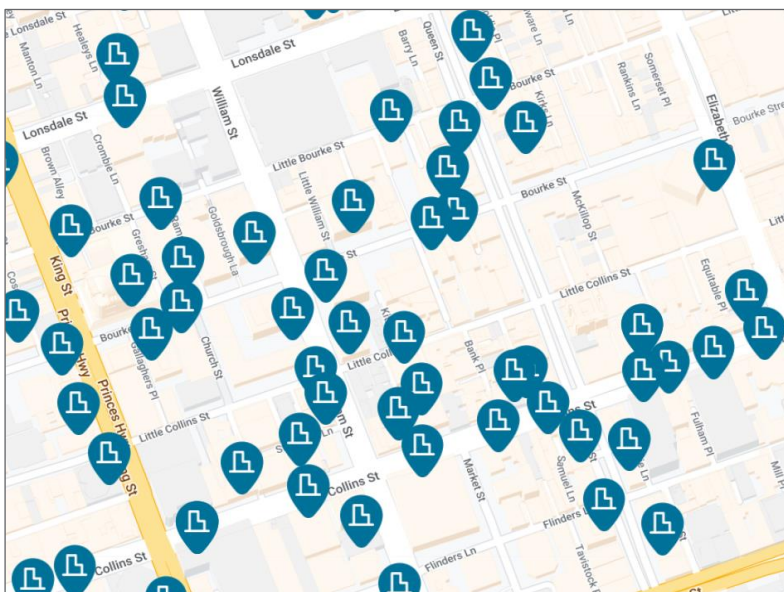
Government policies made building energy efficiency visible



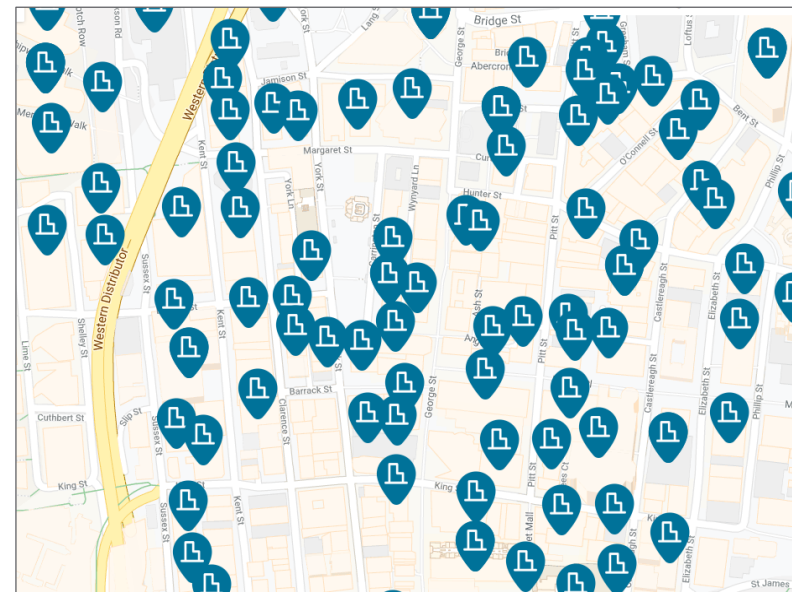
Brisbane



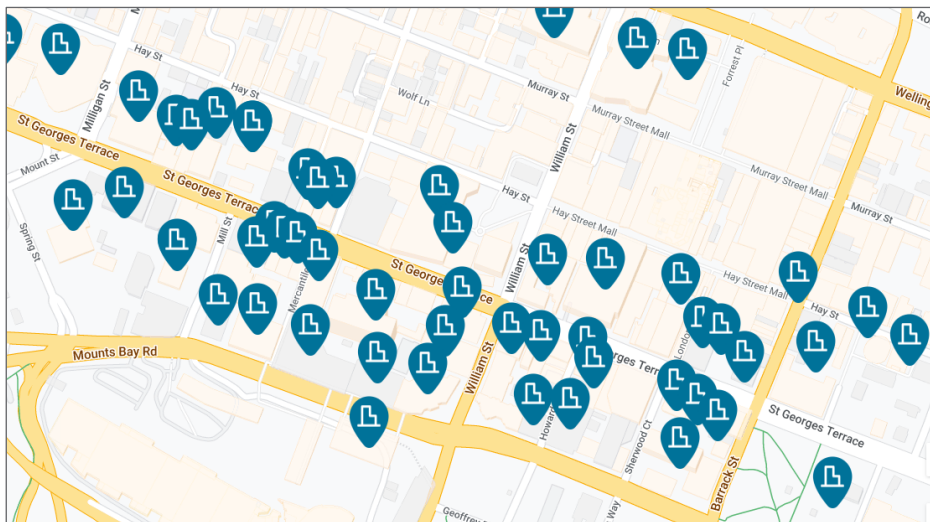
Melbourne



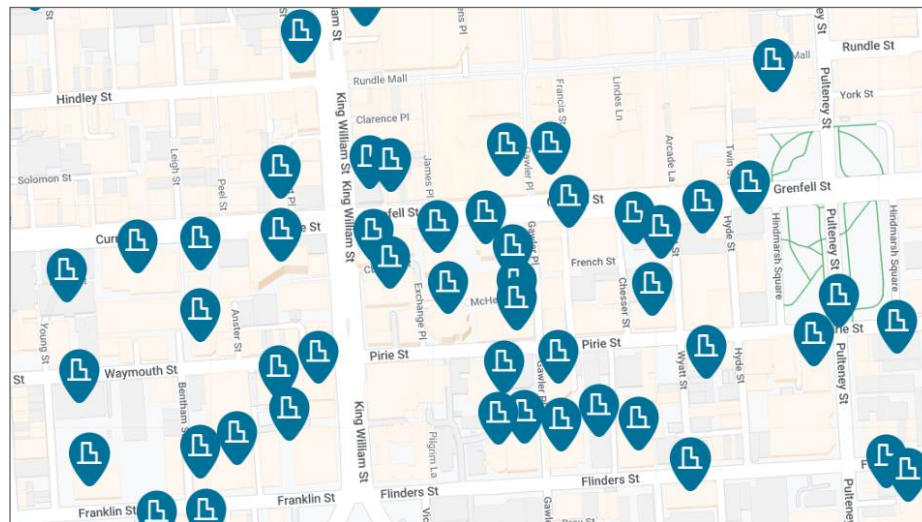
Sydney



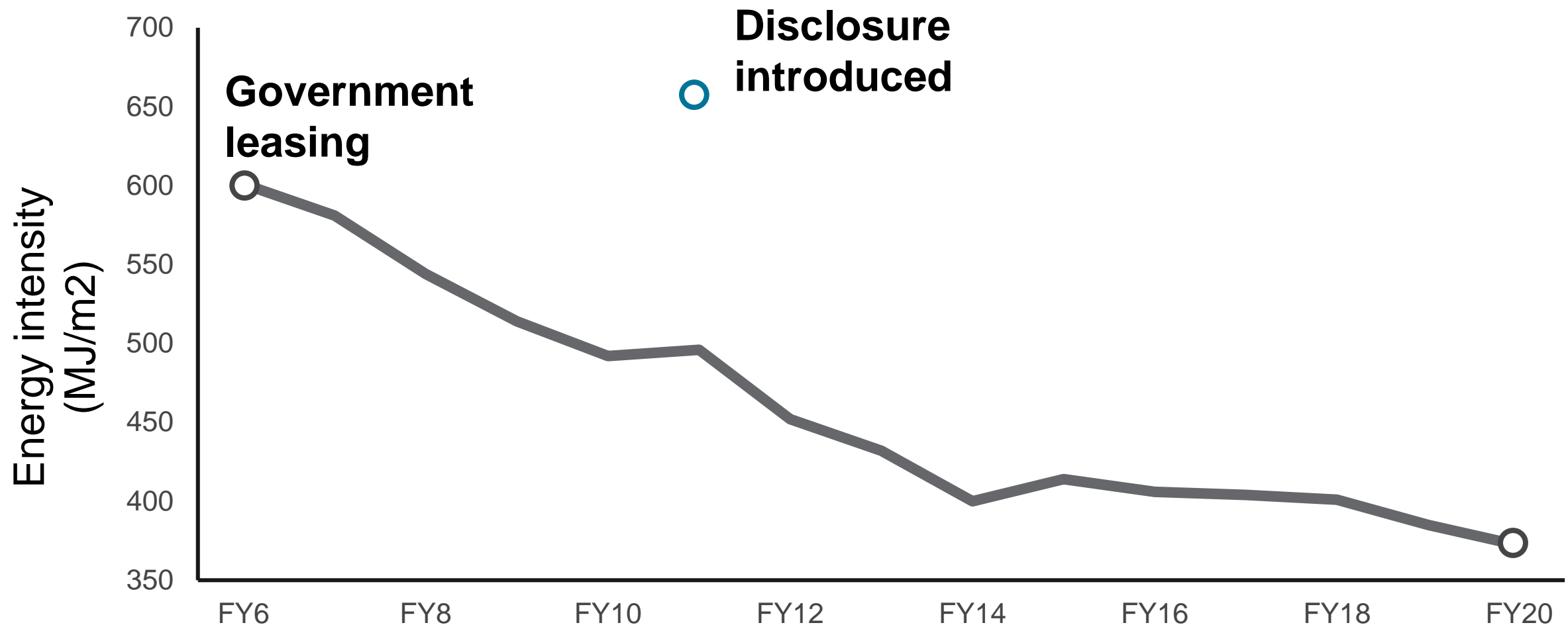
Perth



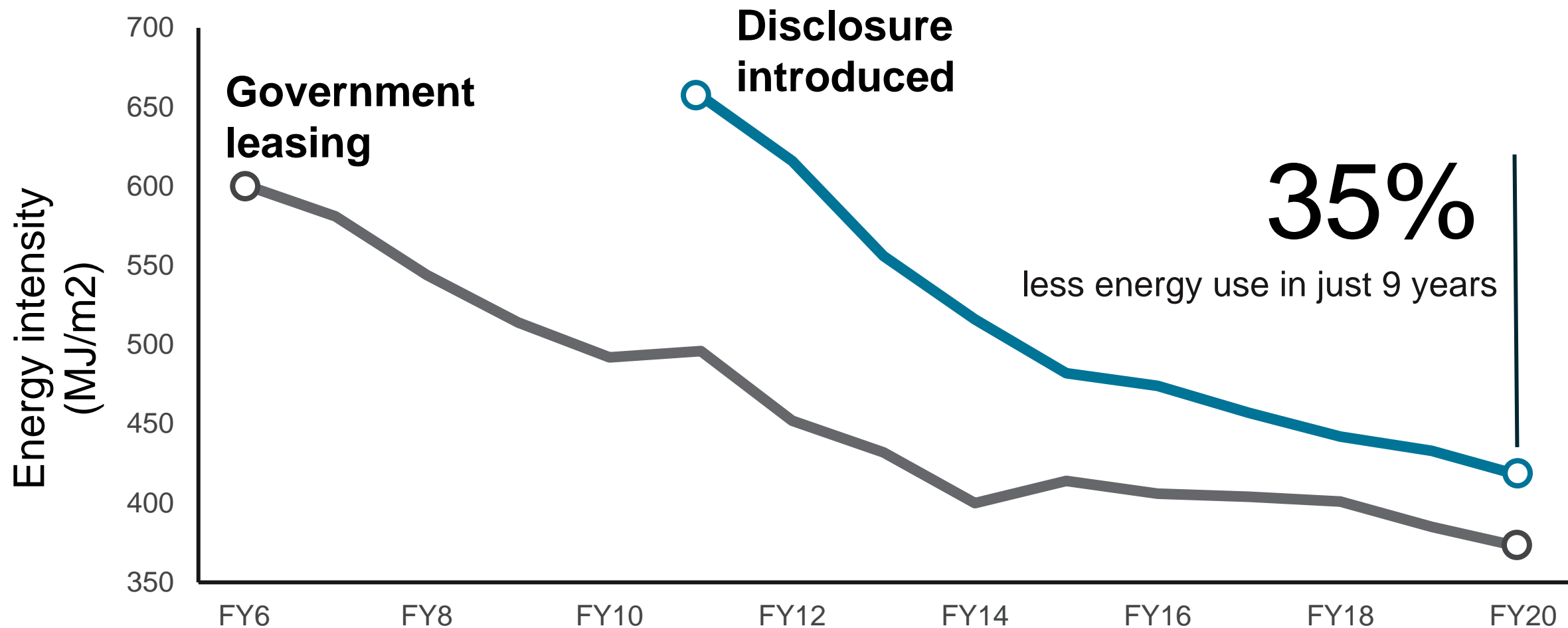
Adelaide



Energy savings following CBD Program

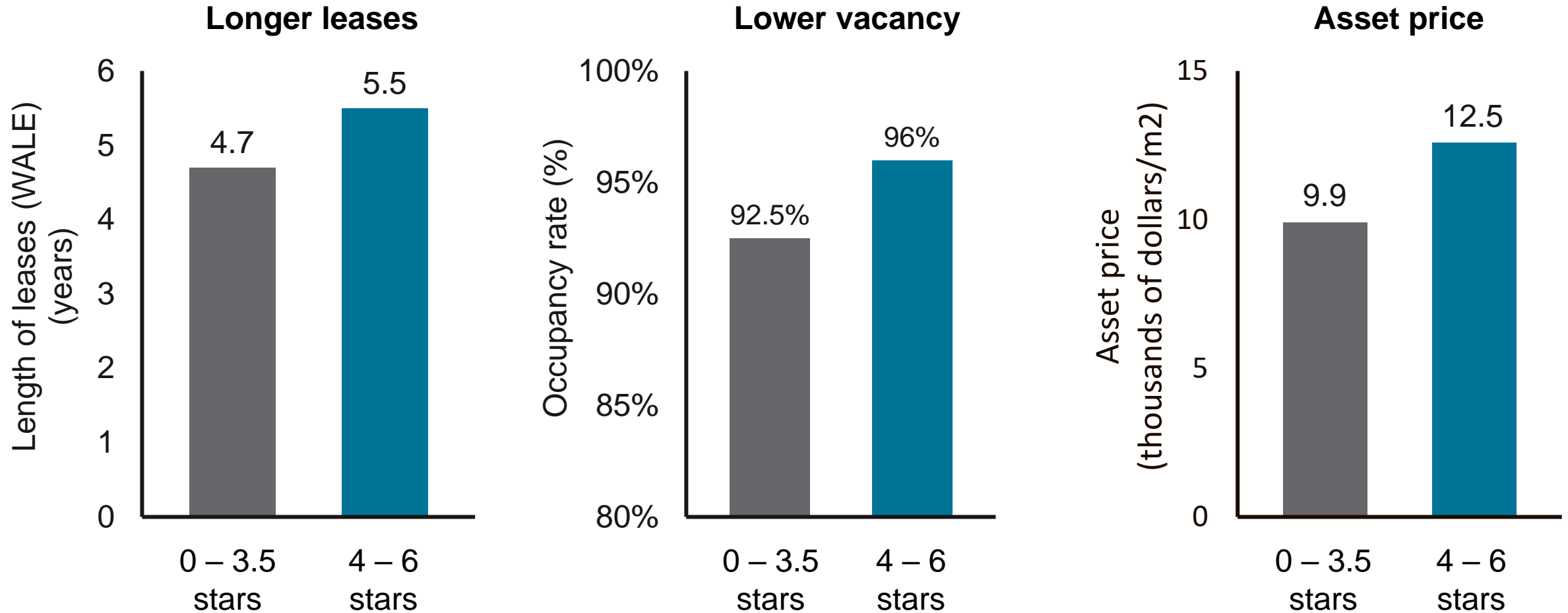


Energy savings following CBD Program



Driver for action #4: Market demand

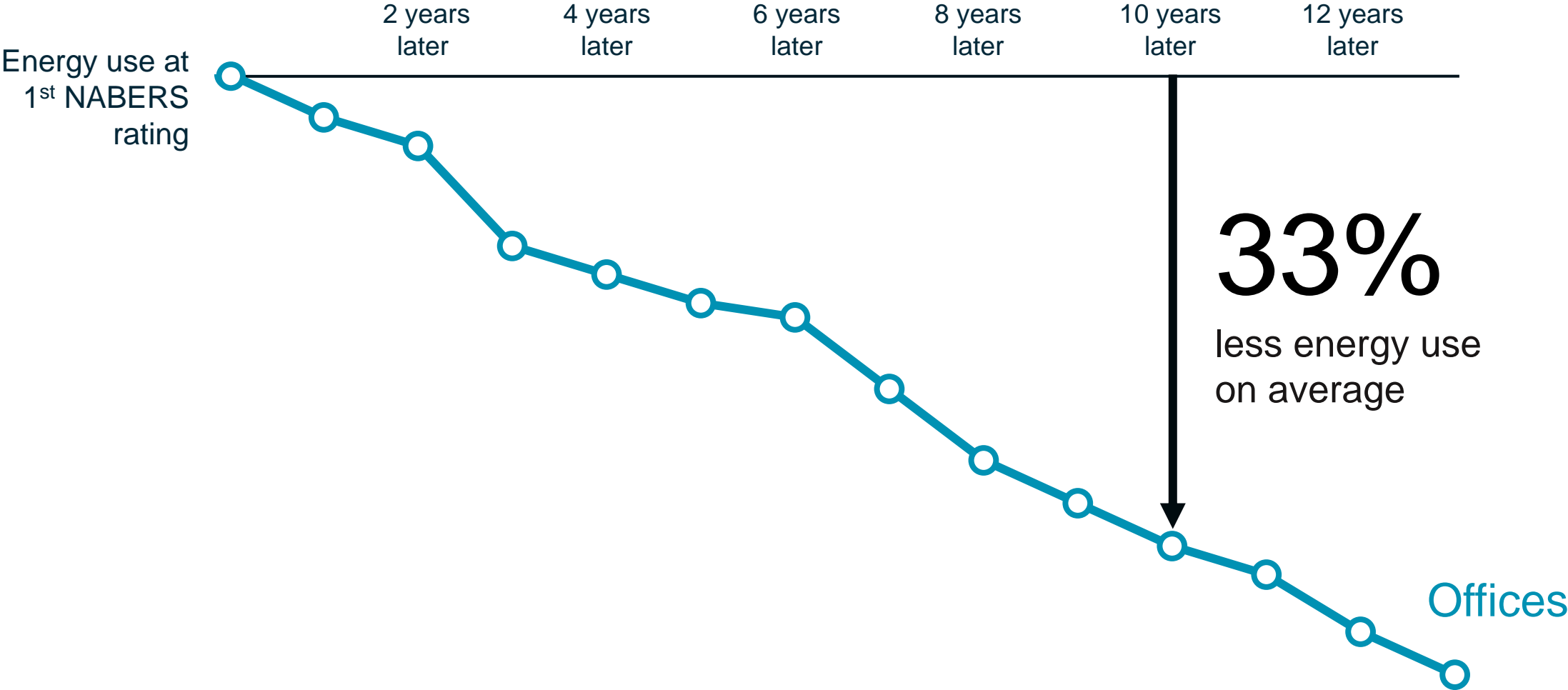
More demand for buildings with high NABERS ratings means substantially better financial returns



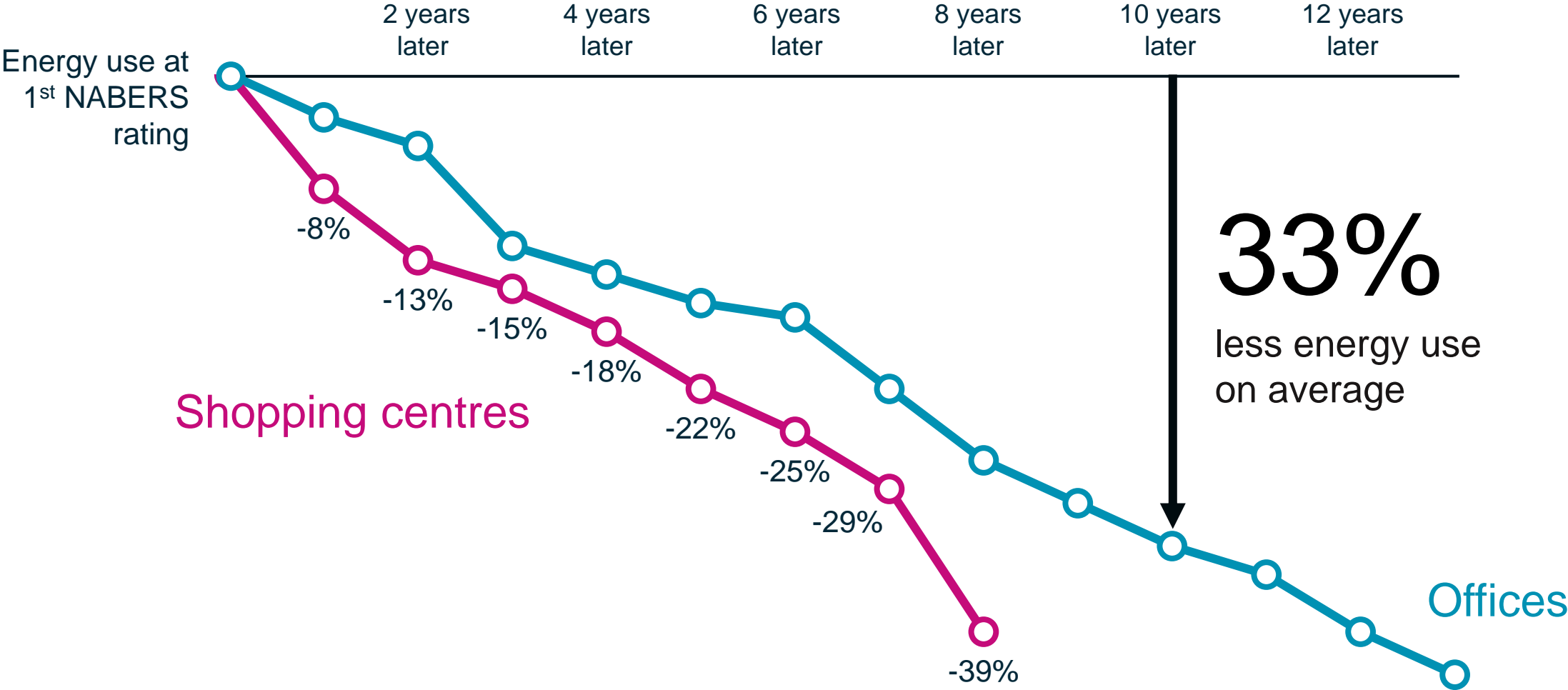
*Source: Real Investment Analytics, Australian Green Office Property indicators. Figures represent the 5-year average.

Driver for action #5:
Investor demand for disclosure and climate action

Buildings can reduce energy use, making room in the grid to electrify the broader economy



Buildings can reduce energy use, making room in the grid to electrify the broader economy



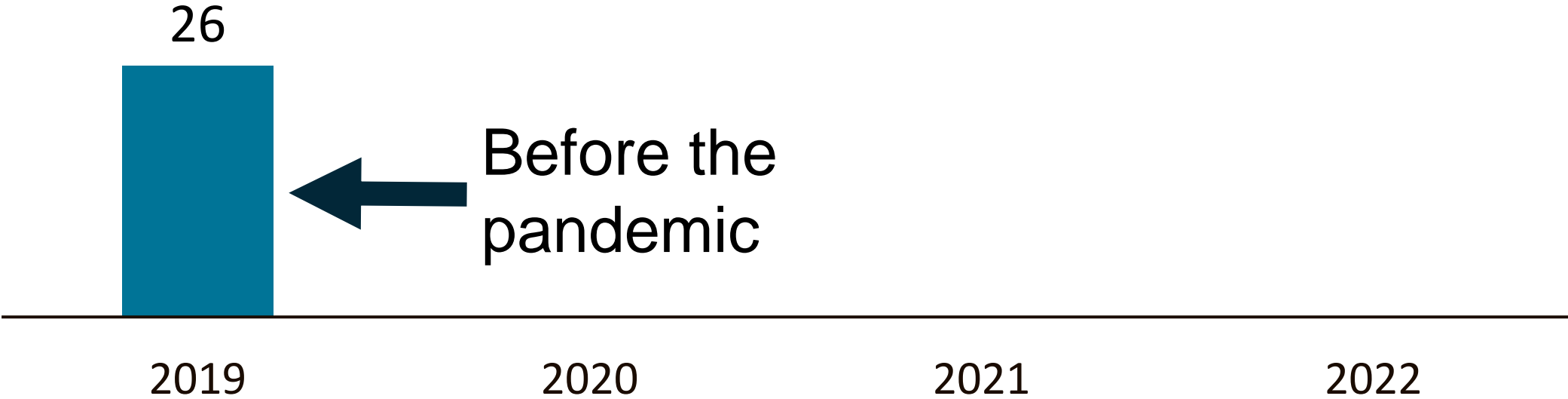
Driver for action #6: Sustainable finance

NABERS Sustainable Portfolio Index 2022

Property Portfolio	NABERS Energy rating (stars)	Buildings certified	% of Portfolio rated
Lendlease Barangaroo International Towers	5.6	4	100%
Cbus Property	5.5	7	100%
Parramatta Square (Walker Corp)	5.5	2	100%
Collins Square (Walker Corp)	5.4	6	100%
Brookfield (Premier Real Estate Partners)	5.4	4	99%
Local Government Property Fund (Active Super)	5.3	4	100%
Oxford Investa Property Partners	5.3	5	100%
Property NSW (NSW Government)	5.3	22	100%
QIC Office Fund	5.3	4	100%
Australian Prime Property Fund (APPF) Commercial (Lendlease)	5.2	15	100%
Charter Hall (CLW)	5.2	13	100%
Cromwell Direct Property Fund	5.2	5	100%
GPT Group Office	5.2	23	100%
GPT Office	5.2	11	100%
GPT Wholesale Office Fund (GWOF)	5.2	15	100%
Growthpoint Properties Australia	5.2	23	100%

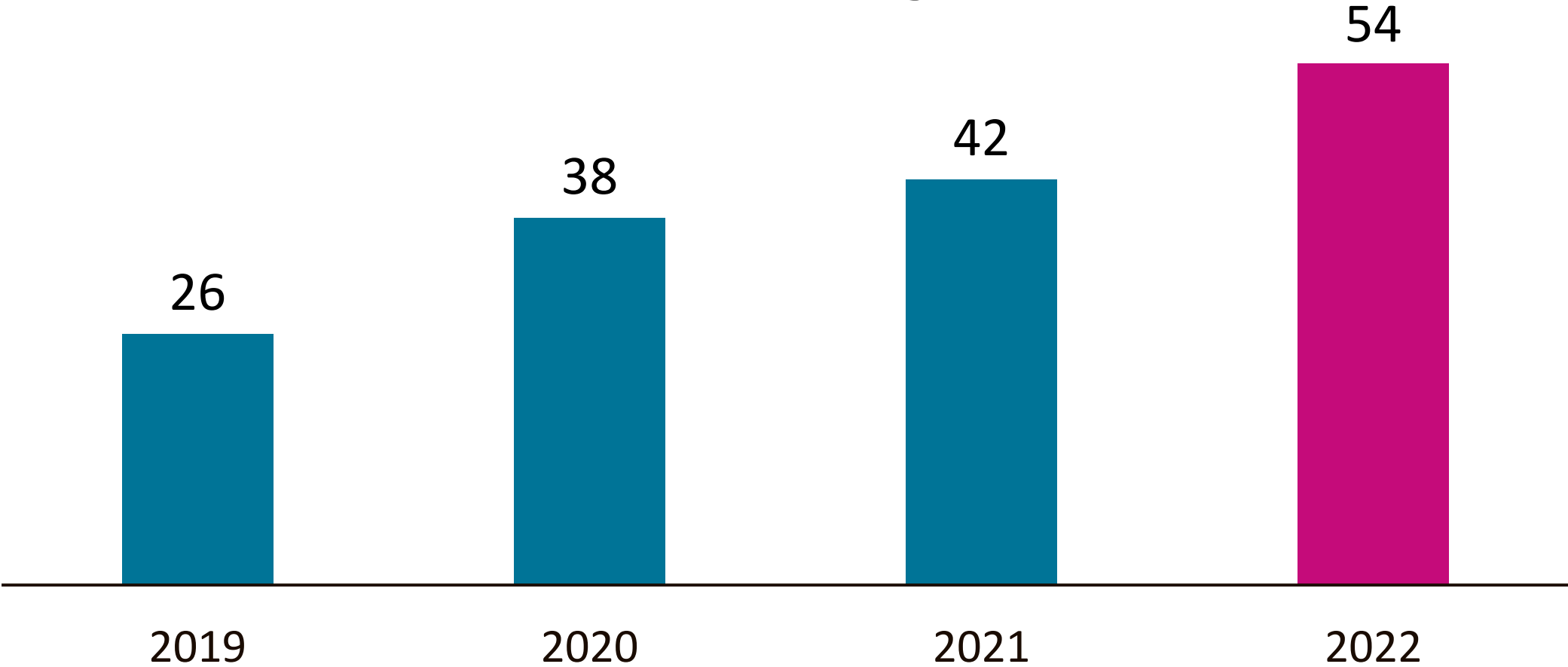
NABERS Sustainable Portfolio Index

Number of participating portfolios



NABERS Sustainable Portfolio Index

Number of participating portfolios

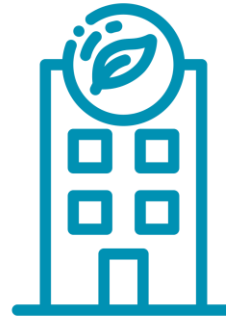


NABERS-based standard for certified green loans

3.5[★] → 5[★]

#1 Buildings upgrades

- For buildings targeting reductions in energy use of 30% or more



#2 Low-carbon buildings

- For buildings among the 15% lowest carbon emissions in the market



#3 Low-carbon portfolios

- For portfolios among the 15% lowest carbon emissions in the market

THANK YOU

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NABERS

Panel Discussion



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Panel Chair, CEO,
Better Buildings
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Head of Offices,
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Luke Menzel
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Efficiency Council of
Australia

Janine Cole

CHAIR, BBP

SUSTAINABILITY & SOCIAL IMPACT
DIRECTOR, GPE



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BURO HAPPOLD

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CIBSE

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LONDON

EDSL Tas

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EP&T
GLOBAL

EVORA

EVORA
EDGE

Federated
Hermes

GPE.
Greater together

Greengage

GROSVENOR

H M

HOARE LEA (H.)

INKLING

KJ TAIT ENGINEERS

Landsec

LAING O'Rourke

Legal &
General
INVESTMENT MANAGEMENT

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DELTA Q

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BUILDINGS
PARTNERSHIP

Thank you



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