# A new approach to non-domestic energy efficiency policy

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# The energy efficiency story

- Energy efficiency policies started after the 1973 oil crisis
- But energy efficiency still doesn't happen even when it appears to be very cost-effective
- For most companies energy efficiency is a non-core, operational, discretionary issue
- 1980s – neoclassical economics – hidden costs erode the apparent cost-effectiveness of the investment
- Early 2000s – organisational, economic and technical "barriers" prevent investments going ahead

# But policies aren't delivering

- The Carbon Reduction Commitment – due to be scrapped to simplify the policy landscape
- Carbon Trust energy audit programmes only implemented 30-40% of cost effective measures
- Other countries have similar experiences:
  - Energy audits in Sweden
  - Long Term Agreements in the EU
  - Industry programmes in the US
- The Clean Growth Strategy promises a "package of measures" to deliver a 20% improvement by 2035…

# Focus on the investment process - salience

- US “Green Lights” programme – companies treat the same investment very differently
- This is because they assume strategic value, or “salience” to the company
- Salience drivers: reputation, compliance, staff retention
- Investment options become salient early in the decision-making process
- Policy and research focuses later on when the option could have been discarded

# Salience drivers

- External
  - Reputation – positive (retail) and negative (chemicals)
  - Risk – compliance, regulatory etc.
- Internal
  - Size – larger organisations have more resources
  - Staff – productivity, welfare and recruitment
- Sectoral ("social")
  - Sector "coherence" – e.g. b2b networks, trade bodies
  - Supply chain – peer pressure, competitiveness

# Office buildings – the "Circle of Blame"

# Salience drivers

- For developers – asset value
  - Increased rent and occupancy rates
  - Increased income and capital return
  - Lower voids and operating costs
  - More government tenants
- For tenants – reputation
  - Strong, tangible reputational benefit e.g. for HQ offices
  - Some evidence of increased productivity, welfare and employee satisfaction

# NABERS* in Australia

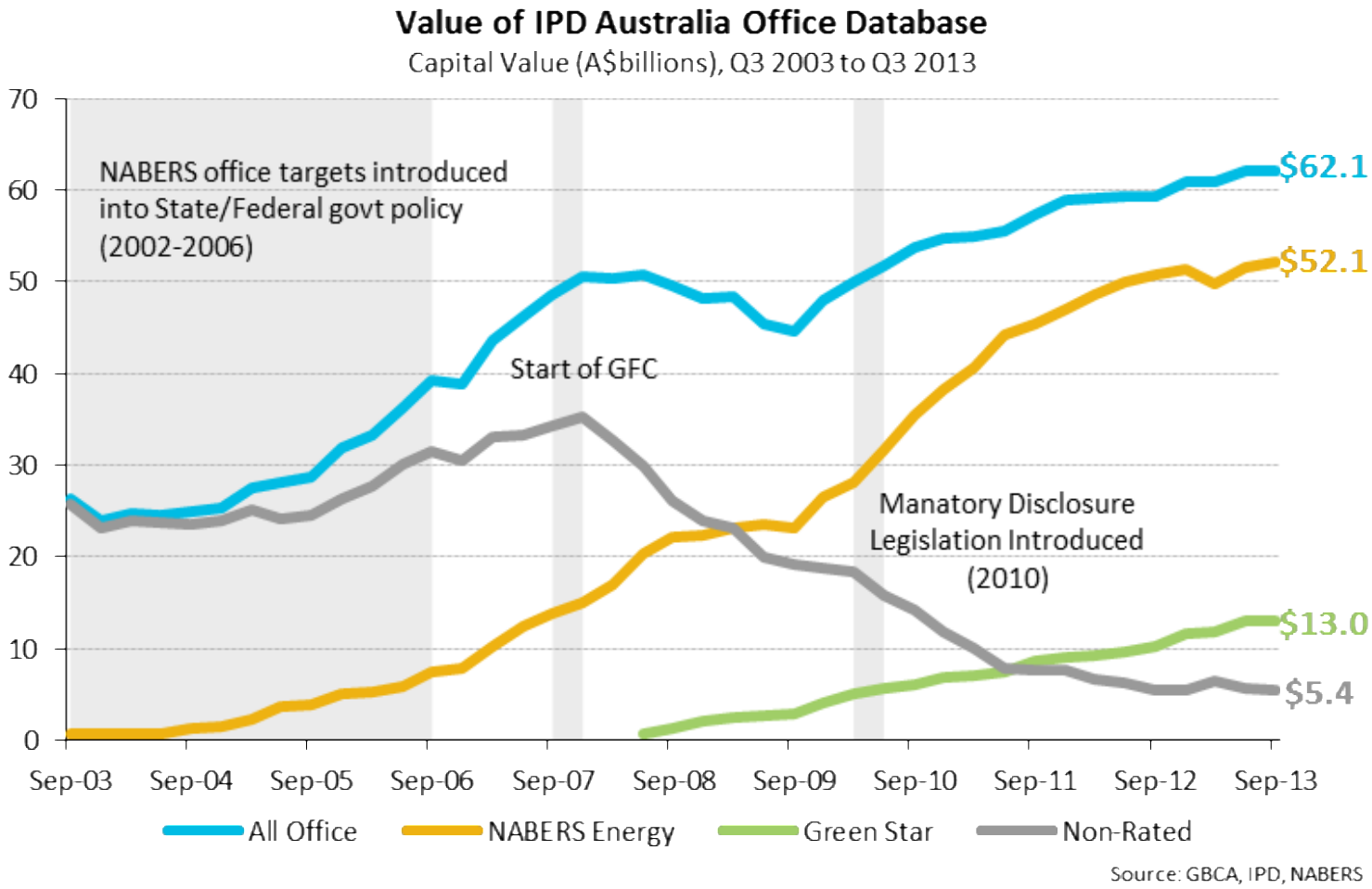
- 6 star building labels based on the energy performance of the base building
- 3 stars is average, 4.5 stars is “best practice” and 6 stars is approaching zero carbon
- The NABERS rating must be published when the building is let or sold
- Offices for the Federal government must be perform better than 4.5 stars

*NABERS - National Australian Built Environment Rating System

# Impact of NABERS

- Since 2000 average performance of new offices has doubled
- Carbon emissions down by 11.5% since 2011
- Significant improvement in asset value
  - Average rent 9% up
  - Lease length 44% up
- Offices in Melbourne are 2-4 times more efficient that in London

# NABERS and investment



# Comparison with the UK

- UK policy focuses on supply-side compliance and not demand-side performance and value
- BREEAM ratings reinforce this culture - only "outstanding" ratings measure performance
- The UK system makes it hard to separate landlord and tenant HVAC energy use
- There is no voluntary element so EU regulations allow an opt-out

# SME Energy Efficiency Networks

- Started in 1987 in Switzerland, best known in Germany
- Typically groups of 10-15 companies who agree an energy saving target
- Pool management resources and share experience best practice
- Government and business NGOs use networks to target support and resources
- Networks typically save 5-10% of overall energy use

# SME networks and salience

- Benchmarking and peer pressure eg in competitive markets
- Pooling of management resources eg in supply chains
- Reputational impact in customer-facing or highly regulated markets
- Reduced compliance cost for larger companies (eg sharing energy audit assessors)
- Access to trusted local advice and support from businesses, sector bodies and trusted local mentors
- Access to preferential finance, conditional on performance

# Conclusions

- Energy efficiency isn't happening at the rate we need
- A salience approach focuses policy on why companies invest rather than why they don't
- Salience drivers are predictable and policies are being designed to exploit this
- These policies focus on reputation, asset value, productivity, competitiveness and staff welfare

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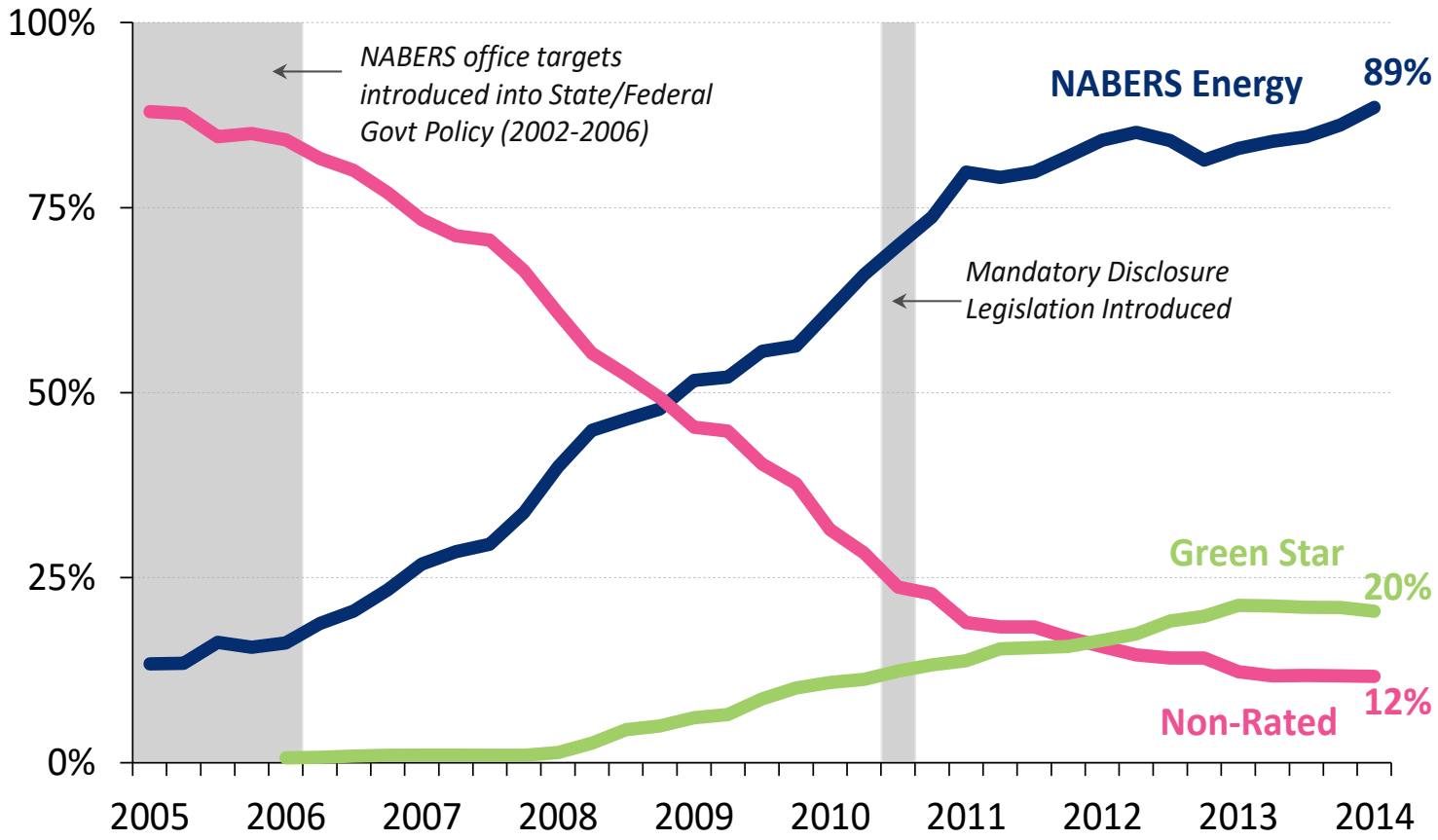
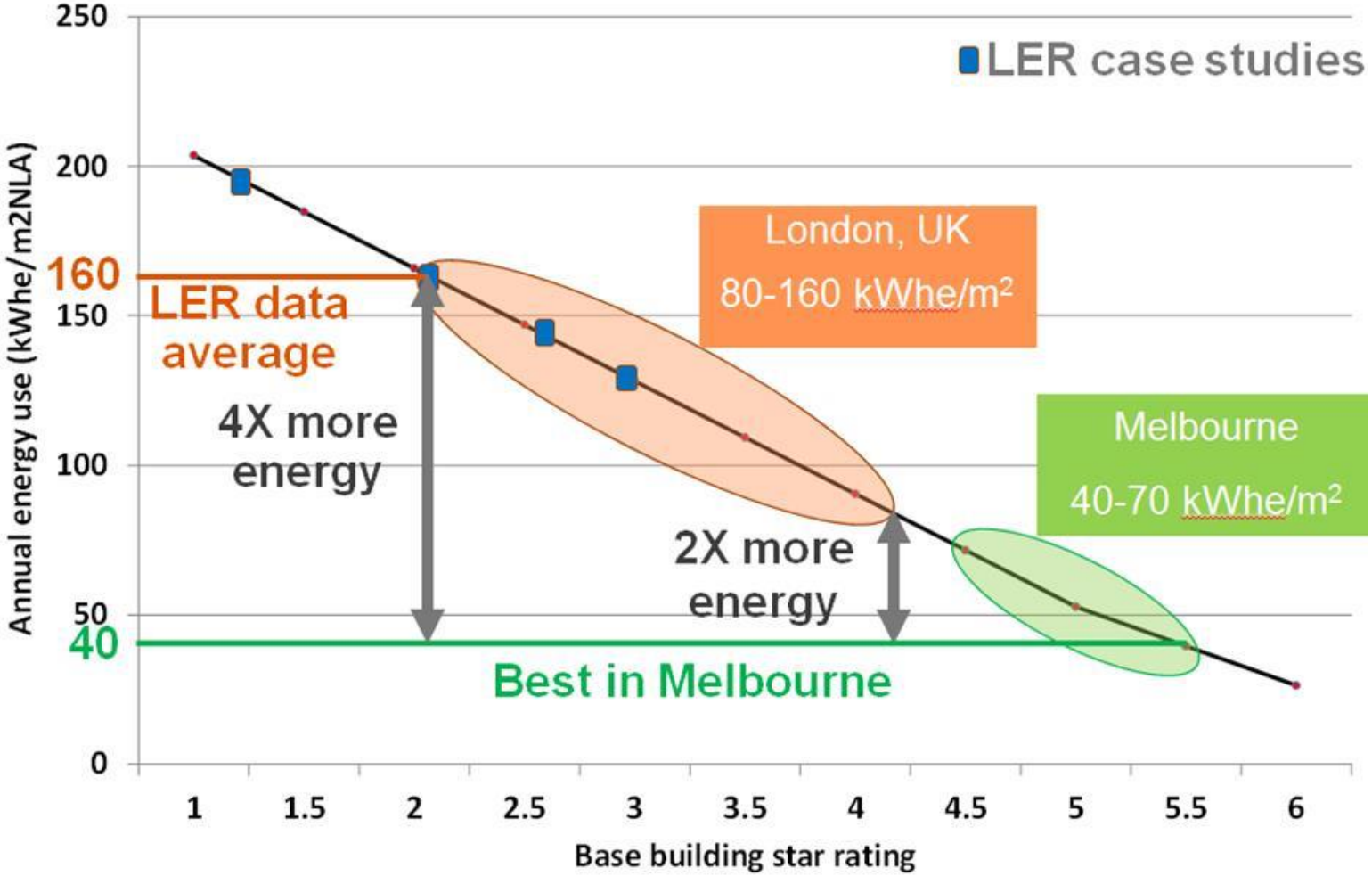
# NABERS and market penetration



# Why does NABERS work?

- **Relevant** - it allows procurement decisions based on the actual performance of the building
- **Visible** - it provides tangible evidence of the commitment of the owner or tenant
- **Industry led** – focuses on winners, builds market capacity and credibility
- **Government backed** – using “soft” regulation (procurement) before mandatory standards

# London vs Melbourne



# Display Energy Certificate

## How efficiently is this building being used?

HM Government

Certificate Reference Number:

This certificate indicates how much energy is being used to operate this building. The operational rating is based on meter readings of all the energy actually used in the building. It is compared to a benchmark that represents performance indicative of all buildings of this type. There is more advice on how to interpret this information on the Government's website www.communities.gov.uk/epbd.

### Energy Performance Operational Rating

This tells you how efficiently energy has been used in the building. The numbers do not represent actual units of energy consumed; they represent comparative energy efficiency. 100 would be typical for this kind of building.

More energy efficient

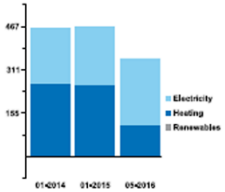
- A 0-25
- B 26-50
- C 51-75
- D 76-100 ◀ 89
- E 101-125
- F 126-150
- G Over 150

100 would be typical

Less energy efficient

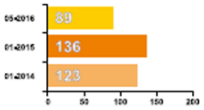
### Total $CO_2$ Emissions

This tells you how much carbon dioxide the building emits. It shows tonnes per year of $CO_2$.




### Previous Operational Ratings

This tells you how efficiently energy has been used in this building over the last three accounting periods.




### Technical Information

This tells you technical information about how energy is used in this building. Consumption data based on estimates.

**Main heating fuel:** Natural Gas
**Building environment:** Mixed-mode with Natural Ventilation
**Total useful floor area (m²):** 2977.17
**Asset Rating:** Not available

| | Heating | Electricity |
|---|---|---|
| Annual Energy Use (kWh/m²/year) | 191 | 146 |
| Typical Energy Use (kWh/m²/year) | 424 | 90 |
| Energy from renewables | 0.0% | 0.0% |

### Administrative Information

This is a Display Energy Certificate as defined in SI 2007/991 as amended.

**Assessment Software:**
**Property Reference:**
**Assessor Name:**
**Assessor Number:**
**Accreditation Scheme:**
**Employer/Trading Name:**
**Employer/Trading Address:**
**Issue Date:**
**Nominated Date:**
**Valid Until:**
**Related Party Disclosure:**

Recommendations for improving the energy efficiency of the building are contained in the accompanying Advisory Report.

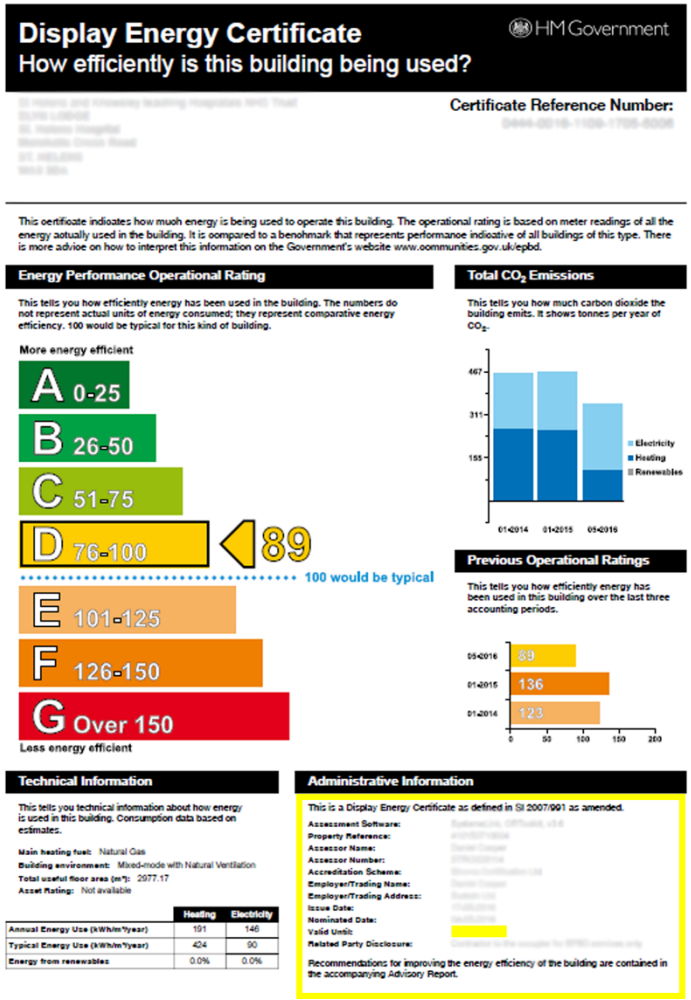
NABERS ENERGY

# Reputation

- Organisations that deal with the public can gain a competitive or positional advantage
  - Examples are banking, retail, consultancy, finance and investment, universities, government
- Companies can offset poor reputation or sensitive markets/products
  - Examples are banking, energy extraction and supply, forestry, defence, pharmaceuticals

# The UK policy landscape

- Building Regulations Part L2A
- Climate Change Levy and Agreements
- Enhanced Capital Allowances
- Energy Technology List
- Carbon Trust
- EU Energy Performance of Buildings Directive
- Climate Change Act
- CRC Energy Efficiency Scheme
- Energy Savings Opportunity Scheme
- Minimum Energy Efficiency Standards
- [New carbon and energy reporting framework]



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G Over 150

Less energy efficient

**Total $CO_2$ Emissions**

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467
311
155
Electricity
Heating
Renewables
01-2014 01-2015 05-2016

**Previous Operational Ratings**

This tells you how efficiently energy has been used in this building over the last three accounting periods.

05-2016 89
01-2015 136
01-2014 123
0 50 100 150 200

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# NABERS and salience drivers

- Performance-based
  - Shows real-world benefits and value
- Visible evidence of commitment
  - For clients, government and staff
- Industry led
  - Builds confidence and capacity
- Government backed
  - Removes compliance and technical risk
  - Rewards strong performance

# The UK policy gap

- The government has to cut emissions by 43% in 2020 and 57% in 2030, compared to a 1990 baseline
- It is on target for 2020, but this is largely due to supply-side policies (renewables and fuel switching)
- Significant energy efficiency improvement is needed – up from 1% to 3% a year
- The 2017 Clean Growth Strategy:

  *The Government will develop a package of measures to support businesses to improve how productively they use energy and will consult on this in 2018, with the aim of improving energy efficiency by at least 20 per cent by 2030.*