RATING THE EXISTING HOUSING STOCK FOR ENERGY PERFORMANCE- DEVELOPMENT OF AN AUSTRALIAN NATIONAL SCHEME

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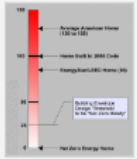
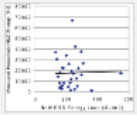
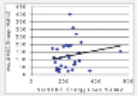

Energy and Buildings
Volume 108, 1 December 2015, Pages 433–440

Review and evaluation of using household metered energy data for rating of building thermal efficiency of existing buildings

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doi:10.1016/j.enbuild.2015.09.018

Highlights

- We monitor actual energy use across two sets of Australian houses.
- We compare models of housing energy disclosure.
- We argue that using monitored (billed) energy use data is problematic for disclosure of energy performance of a dwelling.
- Energy modelling of the shell is a more valid means to disclose house energy performance.
- In milder climates the behavioural effects on energy demand are more variable.


A

National Scheme Mandatory disclosure options

Option 1 - independent assessment with full thermal simulation
Option 2 - independent assessment with simplified thermal simulation
Option 3 - online self-assessment

Option 4 - checklist assessment

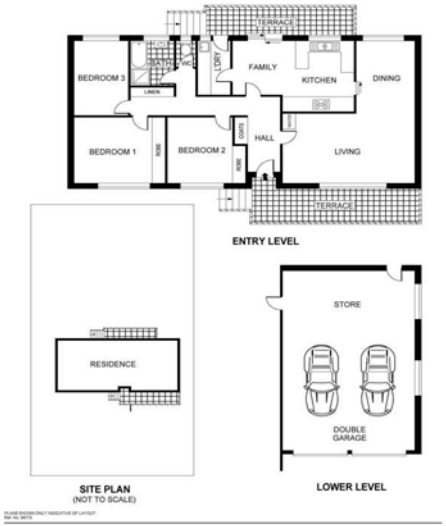
Non-regulatory options

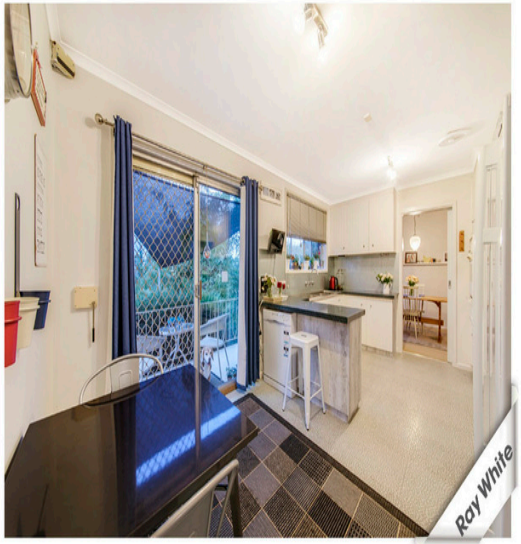
Voluntary opt-out options

Option 5 – voluntary uptake via public awareness and information campaign

Option 6 – variant of mandatory disclosure option with opt-out provision

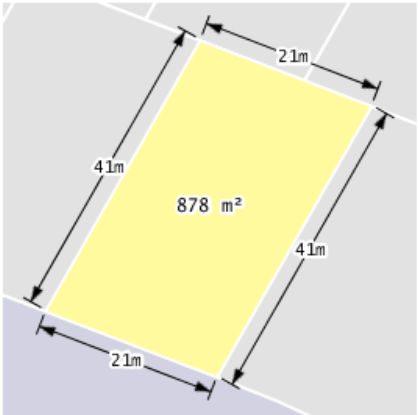
SELLING A HOUSE IN the ACT under the ACTHers EER scheme





Property Info:	15 Gillespie Street
Street Info:	Gillespie Street
Suburb Info:	Weetangera
Postcode Info:	2614
ACT Info:	ACT Market Trends Report

NOTE
Always verify block details with the agent or vendor. These maps are generated by cross referencing with our spatial information database, but this does not mean they they will always correspond with the listed property. Measurements are estimates only.



Block:	33
Section:	3
Block Size:	878.0 m² (approx)
House Size:	133 m² (approx)
EER:	1.5
UV*:	2015 - $403,000

* (UV is for entire block at 15 Gillespie Street)

allhomes

Buy Rent Share New Homes Commercial Agents Research News Advice Address, Suburb or Postcode

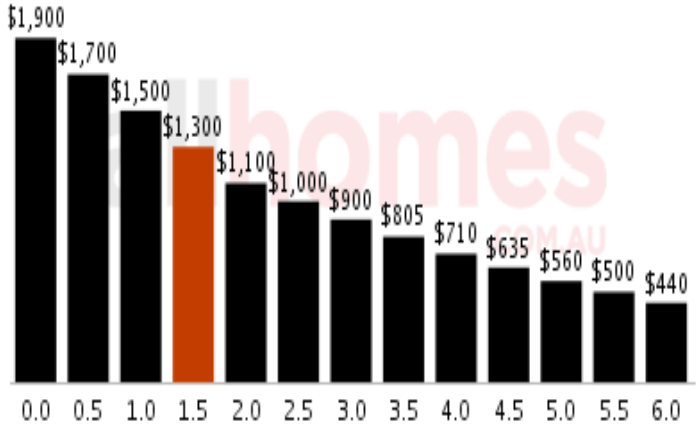
Home › Buy (ACT) › Canberra › Belconnen › Weetangera › 15 Gillespie Street › Energy Efficiency Rating

Energy Efficiency Rating

Australian Capital Territory (ACT) residential property advertising must specify the assessed Energy Efficiency Rating (EER) for any dwelling being sold.

This property's EER is reported as "**1.5**". The graph supplied here includes an estimated dollar guide to the annual heating and cooling costs for an average 150 m^2 home (according to its energy efficiency rating).

More energy efficiency for house sales information is available at the ACT Planning & Land Authority website.



COMPARISON OF REGULATORY OPTIONS

	Option 1 (Full thermal assessment)	Option 2 (Simplified thermal assessment)	Option 3 (Self assessment online tool)	Option 4 (Self assessment checklist)
Assessment method	Full thermal performance simulation + other building component information	Simplified thermal performance assessment + other building component information	Simple online thermal performance assessment + other building component information	Checklist of building component information
Drawings required?	Full floor plan drawing required [f]	No	No	No
Data collection requirement	High complexity & high volume [g]	Mid complexity & mid volume [h]	Low complexity	Limited
Compliance approach	Mandatory	Mandatory	Mandatory	Mandatory
Rating provided?	Yes	Yes	Yes	No
Rating type	Quantitative	Quantitative	Quantitative	Binary (present or not present)
Assessor requirements	Approved assessor	Approved assessor	Unskilled (non trained) e.g. householder or agent	Unskilled (non trained) e.g. householder or agent
Registration required?	Certificate lodgement required	Certificate lodgement required	Certificate lodgement required	No
Assessment cost[a]	$774 – Assessor [b] $50 – Householder waiting cost [c]	$172.50 – Assessor [b] $25 – Householder waiting cost [c]	$68 – Self-assess [d] $165 – Assessor [b,e] $18 – Householder waiting cost [e]	$41 – Self-assess [d] $150 – Assessor [b,e] $14 – Householder waiting cost [e]
Level of information provided	• Comprehensive assessment of a building's thermal performance. • High level of accuracy about thermal performance of a building's components. • Ratings for the various components of the overall building performance.	• Simplified assessment of a building's thermal performance. • Mid level of accuracy about thermal performance of a building's components. • Ratings for the various components of the overall building performance.	• Low level of accuracy about thermal performance of a building's components. • Ratings for the various components of the overall building performance.	• Information about the various components of the overall performance provided in a checklist format without a rating.

Notes: a) reflects the cost of a house assessment in an urban area in Victoria. Costs of assessments in non-urban areas are assumed to be higher and costs of assessments on apartments are assumed to be lower. Costs in other jurisdictions vary according to relative average weekly earnings. b) excludes certificate lodgement fee; c) assumes householders will need to be present whilst house is being assessed; d) cost to householder in undertaking the assessment by themselves (based on the cost of their time); e) if householder decides to outsource the assessment to an assessor. Additional details about the methodology and assumptions used to derive these costs are provided in Appendix B and Appendix C. f) Assumes that a floor plan is required to import into the software. Full working drawings (plans and elevations) are not assumed. g) Assumes no house data or plans available, all data collected manually on site and limited software default values for existing properties. h) assumes basic measurements are taken and collected manually on site

Source: Provided by NEEF BIC

Source: RBMD Regulatory Impact Statement – Allen Group 2011

NON-MANDATED OPTIONS FOR DISCLOSURE

- Non-regulatory option
- Public education program & publicity campaign
- Educate & raise awareness about energy efficiency
  - Attributes
  - Opportunities to improve
  - Benefits of improving
- Range of assessment tools could be used
- Not facilitate direct comparison between two properties

1. FULL THERMAL ASSESSMENT

- *Site-specific*
- *Most accurate*
- *Based on NatHERS thermal performance*
- *Requires homeowner to engage with assessor which enables the transfer of information*
- *Recommendations tailored to homeowners specific needs*
- *Requires full house plans and/or significant assumptions that increases the costs and may reduce effectiveness of recommendations*
- *May create additional confusion for homeowners and the marketplace about NatHERS and the difference between NatHERS and* ***RBMD***

2. SIMPLIFIED THERMAL ASSESSMENT

- *Focuses on the 'built-in' capacity of a house to achieve sustainability outcomes, rather than the 'bolted-on' features such as water tanks etc.*
- *More cost effective than option 1*
- *Good transition option to facilitate long-term adoption of option 1*
- *Requires homeowner to engage with assessor which enables the transfer of information*
- *Recommendations tailored to homeowners specific needs*

- *Less accurate (than option 1)*
- *Requires a number of assumptions that reduces the site-specific accuracy, and which can cause confusion*

3. ONLINE SELF ASSESSMENT

- *Easy to create and track data*
- *Contains a minimum judgment of thermal performance*

- *Does not require an assessor which can lead to errors and requires the assessment to be overly simplistic and/or rely on large assumptions*
- *Does not provide homeowners with new and tailored knowledge about their property*
- *Almost impossible to provide quality assurance*
- *Will tend to focus consumers on 'bolted-on' features such as water tanks, rather than those aspects which are 'built-in' and reduce consumption*

4. SELF ASSESSMENT CHECKLIST

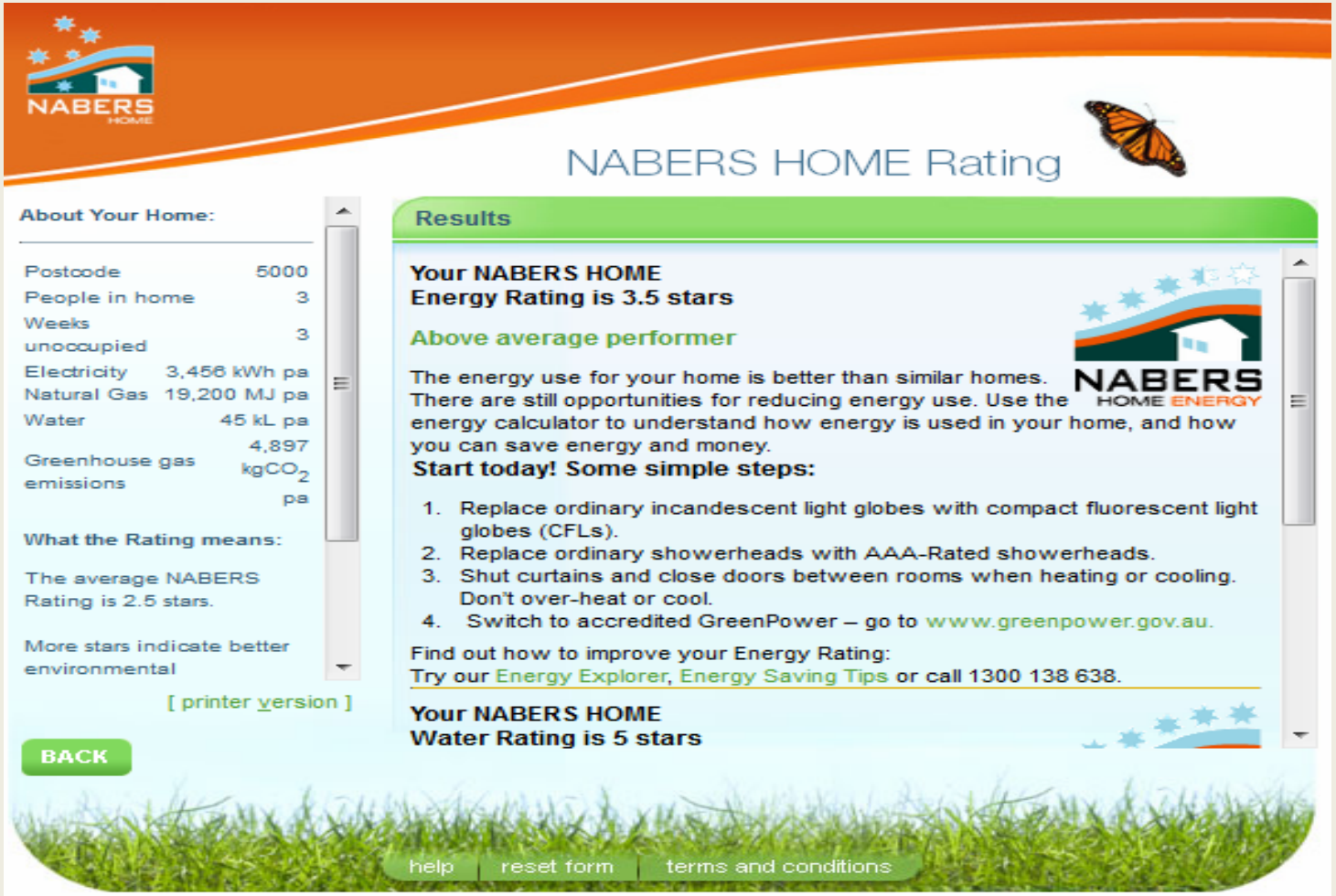
- *Identifies the houses which have easy to understand sustainability features (ie water tanks, solar hot water, PVs)*

- *Does not provide a comparable rating*
- *Does not consider 'built-in' features of thermal performance that reduce consumption*
- *Does not require an assessor which can lead to errors and requires the assessment to be overly simplistic and/or rely on large assumptions*
- *Does not provide homeowners with new and tailored knowledge about property*
- *Impossible to provide quality assurance*

Queensland Sustainability Declaration – now defunct

1. Energy		Did you know?
Please tick if known		Potential savings in electricity costs per year of up to:
☐	**E1** Solar power (if known, size_____kilowatt [kW] system)	$763 or 43%
☐ ☐ ☐	**E2** Solar hot water system heat pump hot water system gas hot water system	$483 or 27% $367 or 20% $483 or 27%
☐ ☐	**E3** No swimming pool or spa **or** pool or spa pump connected to off-peak tariff (e.g. tariff 31 or 33)	$908 or 51%
☐	**E4** A covered outdoor living area attached to an indoor living area	$196 or 11%
☐ ☐ ☐ ☐	**E5** Insulation material in: • roof ☐ partial in _____ (location) • ceiling ☐ partial in _____ (location) • walls ☐ partial in _____ (location) • floors ☐ partial in _____ (location)	$404 or 23%
☐	**E6** Pale or light coloured roof	These design features can help control the temperature in your home and reduce your energy bill
☐	**E7** Roof ventilation (e.g. eave vents and/or whirlybirds)	
☐	**E8** ___ out of _____ eastern and western windows are shaded	
☐	**E9** ___ out of _____ windows have window treatment (e.g. tinted, high performance glazing)	$196 or 11%
☐	**E10** ____ out of _____ fixed internal and external lights for the dwelling are energy efficient (e.g. CFL, LED)	$115 or 6%
☐ ☐ ☐	**E11** Gas cooktop induction cooktop gas oven	$358 or 20%
☐ ☐ ☐	**E12** No air-conditioning **or** fixed evaporative air-conditioner **or** ___ out of ___ air-conditioners are energy efficient (minimum 2.9 Energy Efficiency Ratio [EER])	$570 or 32% $124 each system or 7% each system
☐ ☐	**E13** Ceiling fan/s in: ____ out of _____ bedroom/s ____ out of _____ living area/s	$35 or 2% $103 or 6%

On-line self assessment tool @ www.nabers.com.au



Further Information and RBMD RIS study links

www.absa.net.au

www.acilallen.com.au – for RIS study

www.nathers.gov.au

www.pittsh.com.au/projects/carbon-and-energy/energy-efficiency/national-energy-efficient-building-project

www.lowcarbonlivingcrc.com.au