LOW CARBON LIVING CRC

Insight into the property valuer's perspective of energy efficiency in housing

Australian Government
Department of Industry,
Innovation and Science

Business
Cooperative Research
Centres Programme

LOW CARBON LIVING
CRC

Acknowledgements

Disclaimer

Peer Review Statement

The CRCLCL recognises the value of knowledge exchange and the importance of objective peer review. It is committed to encouraging and supporting its research teams in this regard.

The author(s) confirm(s) that this document has been reviewed and approved by the project's steering committee and by its program leader. These reviewers evaluated its:

- originality
- methodology
- rigour
- compliance with ethical guidelines
- conclusions against results
- conformity with the principles of the Australian Code for the Responsible Conduct of Research (NHMRC 2007),

and provided constructive feedback which was considered and addressed by the author(s).

Contents

List of Tables

LOW CARBON LIVING CRC

List of Figures

Acronyms

API   Australian Property Institute

ACT   Australian Capital Territory

CRC_LCL   Cooperative Research Centre for Low Carbon Living

EE   Energy efficiency

EER   Energy efficiency rating

NatHERS   Nationwide Housing Energy Rating Scheme

NCC   National Construction Code

Executive Summary

The research examined the role of energy efficiency initiatives on overall residential property value and explored the ability of residential valuation professionals to incorporate energy efficiency into the valuation process, focusing on their use of currently available tools.

In the context of curbing greenhouse gas emissions through energy efficiency, passive and active energy-efficient design needs to be reflected in residential property values. This enables investment and affects the availability of finance for added energy efficiency options in new and existing housing.

While the Nationwide Housing Energy Rating Scheme (NatHERS) rating tool is available as an indication of energy efficiency in new homes, survey respondents' (valuers) knowledge of NatHERS was very limited. Our research indicated that energy efficiency features were considered to have a minimal contributory effect on assessments of market value by the valuers surveyed.

The research identified that there are limited means available to a valuer when he or she considers applying a premium or discount that reflects energy efficiency initiatives, or the lack thereof, in a dwelling. Affirming the findings of other Australian and international studies, our research suggests that mandatory disclosure and certification are essential if energy efficiency is to be considered in residential valuation. Mandatory disclosure of energy efficiency directly indicates its importance in the home, creating an additional factor for consumer consideration. Mounting evidence signals a stronger relationship between energy efficiency in the home and market value.

Photo 1 Source: Authors

Introduction

Greater energy efficiency in the residential sector is paramount for increasing the built environment's contribution to meeting Australia's emission targets. However, engagement in residential energy efficiency across the board has been limited to incentives provided by the different levels of government. Lorenz et al. (2008) suggested that broader level engagement can be achieved by determining value relationships. In Australia, the value of energy efficiency in the residential sector has attracted limited research from a valuation perspective; however, valuation has significant implications for future borrowing and the direction of increased investment in energy efficiency by homeowners.

Most buyers seeking to purchase a home require finance and lenders' approval which is contingent on a valuation. To better understand the relationship between energy efficiency and value, this research seeks to explore:

- the residential valuation process and the role of energy efficiency initiatives on the overall value of a residential property; and

- the use of tools currently available to residential valuation professionals.

It is currently unknown how or whether energy efficiency is considered in the residential property valuation process. This research examined residential valuers' knowledge and understanding of energy efficiency, ratings and value metrics used in the valuation process. An online survey was distributed via the Australian Property Institute (API), with responses collected from 59 experienced residential valuers across Australia.

Photo 3 Source: Authors

Photo 4 Source: Authors

Photo 2 Source: Authors

Background

Carbon emissions reduction is paramount to ensure that global warming is limited to 1.5 degrees and to mitigate some of the catastrophic effects of climate change (IPCC 2018). The residential sector is a significant contributor to Australia's greenhouse gas emissions and there is opportunity within this sector for large-scale reductions (O'Leary 2012; Nejat et al. 2015). The energy efficiency agenda for the residential sector is two-fold: first, from an affordability perspective (maintaining and minimising energy bills); and second, from an emissions reduction potential, which is linked to energy consumption of the home. Driving greater energy efficiency in the home has been the focus of governments for several decades; however, broad-scale engagement across the sector appears to be limited. Lorenz et al. (2008) suggested that identifying value in sustainability and energy efficiency would drive increased investment and engagement in energy efficiency throughout the property life cycle.

In Australia, the importance of identifying the value of energy efficiency and sustainability has been demonstrated empirically by several studies, albeit to a certain extent. The Australian Bureau of Statistics (ABS) (2008; Berry, Marker & Chevalier 2008) identified a value premium for properties with higher energy-efficiency rated homes in the Australian Capital Territory (ACT). In a much larger study of the same region over a longer period, Fuerst and Warren-Myers (2018) also identified that premiums associated with energy efficiency ratings (EER) and features in the home were related to energy efficiency for both sales and rental prices. Despite these empirical demonstrations, understandings of the relationship between value and energy efficiency do not necessarily translate to market values and valuation practices, as found by Warren-Myers (2016) in her analysis of the commercial market and valuation practices. Moreover, this disconnection is not unique to the Australian market, as found by Michl et al. (2016), who also noted that valuers' knowledge of sustainability and energy efficiency rating tools was inadequate and, consequently, that application of value relationships was limited if not non-existent. The disconnection between empirical studies and valuation practice has been discussed at length by Warren-Myers (2012), who identified the use of information and the barriers involved in translating empirical evidence of this nature into practice.

Broader sustainability and energy efficiency consideration in the valuation process has been investigated by Michl et al. (2016), Lorenz and Lutzkendorf (2008; 2011), Lutzkendorf and Lorenz (2005; 2011); Warren-Myers (2016; 2013; 2012) and Thanh Le and Warren-Myers (2019). These studies have focused on both global and Australian scales, but have mainly focused on the commercial sector. Empirical evidence in relation to green buildings or ratings assessing energy efficiency is now abundant in most major commercial markets; however, the engagement and consideration of sustainability and energy efficiency is limited in valuation reporting (Thanh Le & Warren-Myers, 2019; Warren-Myers, 2016). Much of the reluctance of valuers to consider, acknowledge and

place value on energy efficiency has been found to reside in valuers' limited knowledge of sustainability and energy efficiency (per se, and its rating systems) as well as mechanisms to analyse the credentials for comparative analysis (Babawale & Oyalowo 2011; Michl et al. 2016; Thanh Le & Warren-Myers 2018; Warren-Myers 2016). However, there has been little, if any, significant focus on residential valuation processes and practices.

Considerable consumer research has focused on consumer uptake and willingness to pay for energy efficiency in the Australian residential sector (Crabtree & Hes 2009; Dalton, Horne & Maller 2008; Judge, Warren-Myers & Paladino 2019; Warren-Myers 2017). Such studies have suggested there is considerable demand and interest in energy efficiency in the home from a consumer perspective. However, persistent barriers remain to broader engagement in the sector, such as a lack of knowledge and understanding of ratings, benchmarks and opportunities (Pitt & Sherry 2014; Warren-Myers 2017; Warren-Myers, Judge & Paladino 2018; Warren-Myers & McRae 2017). This is further supported by empirical studies of the ACT residential sector, an established energy-efficiency reporting market, which suggested a value relationship (Australian Bureau of Statistics 2008; Fuerst and Warren-Myers, 2018). With so many indicators of the value relationship between energy efficiency and house price, surely greater consideration should be given to this factor in assessments of market value. However, as Wong et al. (2018) indicated, collection of sustainability and energy efficiency features can be challenged by limited information and knowledge.

Residential property valuation is one of the highest volume sectors in the valuation profession, particularly when compared to commercial, retail and industrial valuation work. Its prevalence is due to banks' requirements for residential valuations for mortgage purposes and other reasons. Indeed, valuation for mortgage purposes constitutes the bulk of residential valuation work. The residential valuation process is fundamentally approached from a comparative analysis standpoint, which entails a valuer considering comparable properties and their range of attributes, adjusted to match the subject, to determine a value for the subject property (Australian Property Institute, 2007). While this approach is relatively 'simple', with residential property considered a rather uncomplicated area of valuations, the residential market can be one of the most difficult markets to interpret because of the broad range of attributes to consider, especially the emotive decisions made by purchasers (Australian Property Institute, 2007). Energy efficiency is an attribute of a home that a rational consumer should consider as adding value through a reduction in electricity bills, thus reducing ongoing costs. From the perspective of economic theory, reduced costs over a period of time should equate to a discounting of a comparative property with higher bills or a premium paid for a property with lower bills. Empirical studies sampling the Australian market have identified premiums for energy-efficiency rated homes and certain energy-efficiency features (Australian Bureau of Statistics 2008; Fuerst & Warren-Myers 2018). However, the interpretation and incorporation of value considerations

for energy efficiency in the residential valuation process are relatively unknown in the Australian context.

Valuation

According to the Australian Property Insitute (API), a valuation is:

'An established, ethical and evidence based process for assessing the monetary value of an asset at a specified date, that is legally defensible and undertaken by a qualified, professional valuer'. (Australian Property Institute, 2019b).

A property valuation is an estimation of a properties' market value at a point in time and is defined as:

'*The estimated amount for which an asset or liability should exchange on the valuation date between a willing buyer and a willing seller in an arm's length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion'.* (Australian Property Institute, 2019a)

The property market is cyclical and market value can fluctuate in line with economic pressures. Market value is the price achieved on the open market by a willing buyer and seller, both acting with knowledge and without undue coercion. In the residential market, which is generally considered to be a regularly transacting market, the predominant approach to assessing value is the comparative approach. Valuers consider comparable properties to the subject, based on location, characteristics and features of a property. A valuer determines the price the market would pay for the subject property by making adjustments to the settled sales prices of comparable properties to make it like the subject.

Many residential valuations are commissioned from a lending institution for the purpose of mortgage security (Australian Property Institute 2019c). From a purchaser's initial mortgage enquiry, for refinancing or other mortgage purposes, the lending institution will seek a valuer's confirmation of the market value of the asset held as security. Upon receipt of a formal request, the valuer will assess the land, using statutory records and visual inspection. Property location, dimensions, shape, aspect, topography, zoning and development potential are factors influencing land value. A visual inspection of improvements on the land is also conducted, with consideration of size, layout, quality, age and condition (Reed & Australian Property Institute 2014).

Prevalence of the comparison approach across all valuations means that the comparison of characteristics and features that may have an effect on value is paramount. This is especially true of residential property valuations, where the comparison approach is the primary method. Accordingly, it is critical to establish valuer knowledge of sustainability, energy efficiency initiatives as well as perceptions of their influence on market value. Literature on perceptions of sustainability in valuation has broadly focused on commercial valuation; more specifically, understanding tools to assess green impacts on value (Warren-Myers 2013, 2016). Warren-Myers (2013) noted that elements of sustainability are

considered to positively effect valuers' assessments in Australia, with energy efficiency attracting the strongest positive response. However, this study also identified consideration inadequacies and inaccuracies of knowledge. As suggested in Warren-Myers (2013, 2016) and Michl et al. (2017), adequate and accurate knowledge of sustainability factors and tools is required to enable correct and reliable measurement and comparison. Historically, the focus has been on the commercial sector, with limited research examining the residential valuation sector's knowledge, considerations and utilisation of industry tools and benchmarks.

Building approvals are a key economic indicator, and approximately 222,000 new houses were built in Australia in 2018 (Australian Bureau of Statistics 2019; Housing Industry Association 2019). By extension, the convergence of economic factors of housing affordability, energy prices and energy efficiency would suggest value in improved energy efficiency in housing. However, no research has examined whether valuers are considering this factor in the valuation process. Further, no studies have examined the methods used for comparison nor valuers' extant knowledge and expertise in energy efficiency.

Valuers have a pitvotal role in providing a broad range of stakeholders with estimates of value. In the residential context they sit at the junction of developers/builders, finance, real estate agents and the purchasing market, as shown in Figure 1. Consequently, understanding their perspectives for value relationships with energy efficiency in the home, is an important factor for driving energy efficiency initiative adoption within the residential property market. Further, the value attributable then provides foundation for developers and builders to include in new product; a marketing advantage for agents; the financing of additional energy efficiency features in the home by financial insitutions; and the accrued benefits both financially and comfort related by the purchaser.
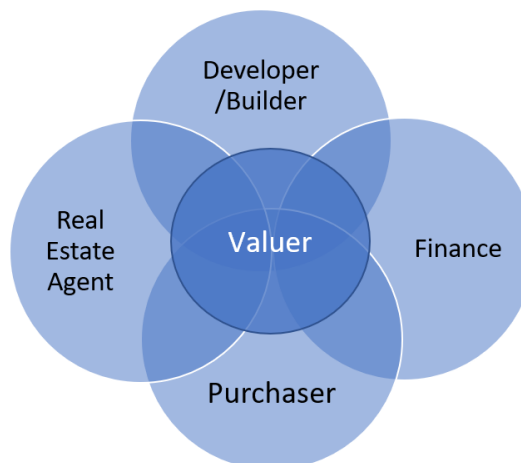

Figure 1. Valuers' pivotal role in the housing spectrum of stakeholders

Figure 1 is adapted from Warren-Myer's model (2013, Figure 1), which identified the pivotal role that valuers play among the variety of primary, secondary and tertiary stakeholders.

Research Approach

The research questions explored valuers' consideration, adjustment and value decisions in relation to energy efficiency in the residential valuation process. They were:

- What are the drivers of value in the residential market?

- Is energy efficiency an attribute considered in the assessment of market value?

- What tools or benchmarks are utilised to assess, compare and value the energy efficiency of a home?

- What is the depth of knowledge valuers have of NatHERS, the energy efficiency rating tool for residential property?

The research approach comprised a structured online survey distributed by the weekly newsletter of the API (an Australian property peak body). The survey comprised a combination of structured and unstructured questions relating to the following themes:

- characteristics or features that contribute to the value of houses and apartments

- tools and metrics used for comparison of energy efficiency in residential valuation

- consideration and knowledge of NatHERS.

In addition, demographic data were collected to assist in understanding the sample. This information and the summary statistics are found in Table 1.

There were some limitations to this research approach. The survey attracted 59 respondents from across Australia. Respondents were recruited via a national peak body newsletter; specifically, via an online survey link. Respondents were not offered an incentive to participate. Inherent challenges were encountered with recruiting the sample from the statistical population because control of recruitment was transferred to the valuation population on an opt-in basis. Due to the nature of third-party survey distribution, the researchers' had limited direct control: the anonymous survey link was also shared with heads of departments in large valuation firms within the researchers' professional networks to increase the response rate. Bias may exist if participants had a pre-existing interest in energy efficiency assessment or sustainability outcomes in residential valuation, or were acquainted with the research project because of professional association with one or more of the researchers. These factors would create bias because participants would be more engaged than non-participants.

To obtain a qualified opinion, selected questions contained a 'don't know' option to enable the respondents to choose the most appropriate answer without explicit guesswork.

The research sought a snapshot of the dominant collective opinion on various aspects of energy efficiency in residential valuation. Analysis of frequencies is presented along with indicators of the strongest sentiment. The following provides an understanding of the measures utilised in the survey and background for analysis.

Experience in Valuation:

- Practicing – *Closed response*: *previously valued residential; currently value residential; and none of the above (selection of the last choice ended survey)*

- Time – *Closed response: <5 years; 5-10 years; >10years*

- Residential type – *Closed response: houses; apartments/units/townhouses; both*

Value drivers for Residential Property:

- Attributes or characteristics in a house or apartment, that have an effect on value – *Closed response*: *Likert scale 1- 5 (no effect – high effect) and don't know option, e.g. location, layout, double glazing, heating system, solar panels, a/c and heating*

Tools for assessing and comparing Energy Efficiency in residential

- Use of tools, calculators, assessment techniques – *Closed response*: *yes, no, don't know*

  - *If yes, open response what are they?*

- Satisfaction with tools, calculators, assessment techniques – *Closed response Likert*: *extremely satisfied (1), satisfied (2) neither (3) dissatisfied (4) and extremely dissatisfied (5).*

Knowledge of NatHERS

- Awareness – *Closed responses*:

  - *Yes/No*

  - *Level: nil, a little, some knowledge, detailed knowledge and expert knowledge*

- Knowledge & Information– *Closed response:*

  - *Minimum star rating under National Construction Code (NCC): 1 – 10; >10 stars; don't know*

  - *Number of stars possible for NatHERS: 1 – 10; >10 stars; don't know*

  - *Provided with NatHERS information: yes, no, sometimes*

  - *Request NatHERS information: yes, no, sometimes*

- NatHERS implications for value (minimum and above minimum standards) – *Closed response Likert scale 1-5 (no effect on value - very high) and don't know*

- NatHERS implications for value (minimum and above minimum) – *Open response: state why and what effect does it have.*

Results

The survey results are presented in the following themes:

- *demographics*, including valuer qualifications
- *characteristics* of energy efficiency and passive design[1] in the home and the impact on the overall value of the property
- *tools*, including valuer knowledge and awareness of NatHERS and voluntary initiatives to assess energy efficiency in the real estate market.

Fifty-nine qualified respondents completed the survey. After confirming informed consent, qualifying questions were presented. Questions were categorised into the following themes: NatHERS; characteristics of energy efficiency; tools used to assess energy efficiency in valuation; and demographics. Demographic questions were placed at the end of the survey to minimise participant fatigue.

Demographics

Table 1, provides the overview of demographic characteristics of the respondents, showing that 66% were male and 31% female. The majority of respondents (32%) were aged 36–45 years.

As shown in Table 2, the results demonstrated a higher representation from South Australia (37%) compared to other states. The second largest response rate was Queensland 24%. The majority of respondents worked in a metropolitan zone (68%), with 95% having experience within Australia only. As identified in Table 3, approximately half of respondents work for large firms (53%), with the remainder in small to medium-sized firms. Private valuation firms comprised 75% of the sample, with 5% from banks, 5% from the state government and the remainder declining to comment.

The expertise of the valuers was measured, with 74% indicating they were experienced residential valuers currently undertaking residential property valuation. The remaining 26% have previous residential valuation experience. In terms of residential expertise, 93% of respondents indicated they have broad experience in valuing both houses and apartments.

Table 1 Demographics: Gender and Age

Demographics: Gender	
Male	66%
Female	31%
Rather not say	3%
Total	**100%**

Demographics: Age	
< 25 years old	7%
26–35 years old	20%
36–45 years old	32%
46–55 years old	25%
> 56 years old	10%
Rather not say	7%
Total	**100%**

Table 2 Demographics: Location

Demographics: Location	
VIC	17%
NSW	15%
QLD	24%
WA	5%
SA	37%
ACT	2%
Total	**100%**

Demographics: Location (Zone)	
Metropolitan	68%
Regional	25%
Rural	7%
Total	**100%**

Table 3. Demographics: Organisation size and type

Demographics: Size of Organisation	
Small (< 50 employees)	29%
Medium (50–100 employees)	14%
Large (> 100 employees)	53%
Rather not say	5%
Total	**100%**

Demographics: Size of Organisation	
Private valuation firm	75%
State government	5%
Bank	5%
Other	5%
Rather not say	10%
Total	**100%**

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[1] Passive design utilises natural heating and cooling for thermal comfort and energy efficiency, reducing or eliminating the need for additional heating and cooling (McGee 2013).

Characteristics

The survey initially identified valuer perceptions of established characteristics in a dwelling, examining the perceived effect they have on a property's value (see Figure 2 and Table 4). Figure 2 shows the frequency of responses to the five points of a Likert scale, ranging from no effect to a very high effect on value, with an additional feature of 'don't know'. Table 4 provides the summary statistics of responses with the 'don't know' responses removed and provides means and standard deviations for each.

The housing characteristics and features were compiled through an examination of hedonic studies, which examine features that have a statistical effect on value. Also included were several features commonly reported in residential valuations and some sustainability and energy efficiency considerations. The results are displayed to show consideration of characteristics when valuing apartments and detached or semi-detached houses, as indicated by (A) and (H) respectively.

As expected, location was the most prominent variable to have an effect on value. A 98% response rate indicated that location had a very high effect on the value for both houses and apartments, with means of 4.98 and 4.92 respectively. Layout of the house or apartment (means of 3.81 and 4.17) and amenity of the dwelling (means of 4.19 and 4.20) were also considered to be desirable characteristics that had a high effect on value. Heating and cooling variables, including whether the dwelling had an air-conditioning unit, its orientation and type of heating system were subsequent features in the home that commanded some consideration by valuers. These variables had a moderate to high effect on value. As expected, the type of fixed appliances within the dwelling had a moderate effect on value, with a higher mean for apartments. Conversely, the builder and building materials had inverse weighting for houses versus apartments, suggesting that houses are gauged more by the materials, while valuers give greater consideration to the builder in the case of apartments. Overall, energy efficiency characteristics, such as double glazing, solar panels, window shading, lighting, ventilation, insulation and draft proofing are perceived to have minimal effect on value.
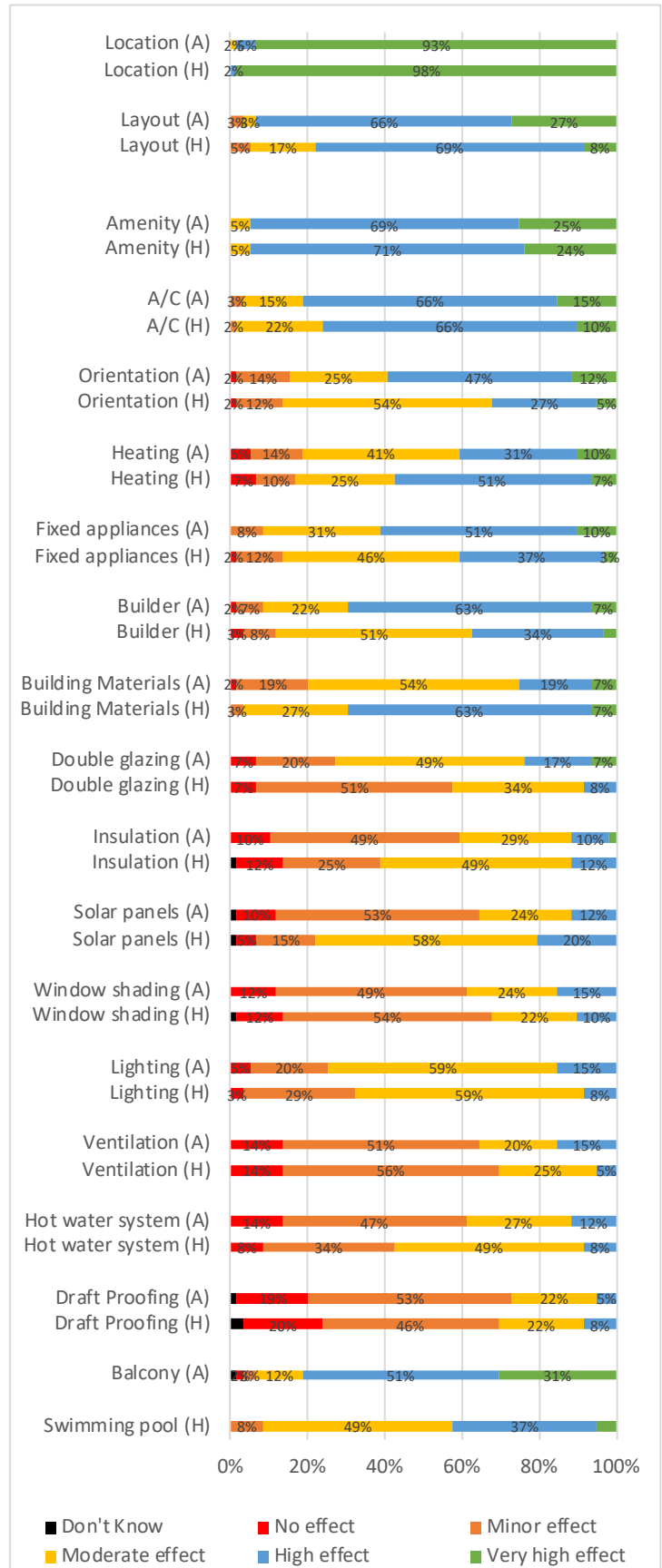

Figure 2. Variables that have an effect on value

Table 4. Housing characteristics and their effect on value (5-point scale, removed 'don't know')

	Mean	Median	Min	Max	SD
Location (A)	4.92	5	3	5	0.34
Location (H)	4.98	5	4	5	0.13
Layout (A)	4.17	4	2	5	0.65
Layout (H)	3.81	4	2	5	0.66
Amenity (A)	4.20	4	3	5	0.52
Amenity (H)	4.19	4	3	5	0.51
A/C (A)	3.93	4	2	5	0.67
A/C (H)	3.85	4	2	5	0.61
Orientation (A)	3.54	4	1	5	0.93
Orientation (H)	3.22	3	1	5	0.79
Heating (A)	3.27	3	1	5	1.00
Heating (H)	3.41	4	1	5	1.00
Fixed Appliances (A)	3.63	4	2	5	0.79
Fixed Appliances (H)	3.29	3	1	5	0.79
Builder (A)	3.66	4	1	5	0.78
Builder (H)	3.25	3	1	5	0.80
Building Materials (H)	3.73	4	2	5	0.64
Building Materials (A)	3.10	3	1	5	0.84
Double Glazing (A)	2.97	3	1	5	0.96
Double Glazing (H)	2.44	2	1	4	0.75
Insulation (A)	2.44	2	1	5	0.88
Insulation (H)	2.68	3	1	6	0.95
Solar Panels (A)	2.44	2	1	6	0.95
Solar Panels (H)	3.00	3	1	6	0.85
Window shading (A)	2.42	2	1	4	0.89
Window shading (H)	2.37	2	1	6	0.95
Lighting (A)	2.85	3	1	4	0.74
Lighting (H)	2.73	3	1	4	0.67
Ventilation (A)	2.37	2	1	4	0.91
Ventilation (H)	2.22	2	1	4	0.74
Hot water system (A)	2.37	2	1	4	0.87
Hot water system (H)	2.58	3	1	4	0.77
Draft proofing (A)	2.20	2	1	6	0.92
Draft proofing (H)	2.32	2	1	6	1.11

Evaluating energy efficiency

It was important to understand whether valuers considered energy efficiency in their valuation of homes. Accordingly, valuers were asked: 'Do you use any tools or calculators or assessment techniques to examine added value of energy efficiency in residential property valuation and, if so, what are they?' Nearly all valuers (98%) indicated no, with only one valuer indicating their use of an assessment technique. When asked to elaborate on the specific method used, the participant responded: 'my own system'. Overall, 98% of respondents did not use any tool or approach to consider energy efficiency in residential valuation.

The next question focused on valuers' perceptions of the industry tools available for assessing energy efficiency in houses. Results indicated an apathetic sentiment, with 66% of valuers indicating they were neither satisfied nor dissatisfied with the current tools to assess energy efficiency in housing valuation. Only one respondent indicated that they were satisfied, while the remainder (32%) indicated that they were dissatisfied, as shown in Figure 3. The majority do not utilise any form of assessment for energy efficiency and their satisfaction with tools and methods to assess energy efficiency became relatively mute, as indicated by the results.
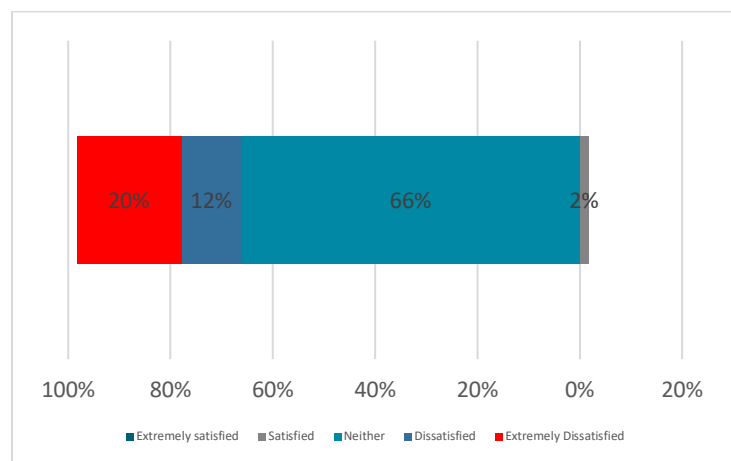
Figure 3. Valuer satisfaction with current tools, if any, and approaches to assessing energy efficiency

'There is no knowledge in industry or the marketplace. It's a great opportunity that has been addressed in many Government reports and not addressed (by industry)'.

Comment on satisfaction with current tools, if any, in valuation to assess Energy Efficiency in homes

NatHERS

Reponses to previous questions established that residential valuers were not using any established method, tool or approach to assess the energy efficiency of a home. Nevertheless, this part of the survey sought to understand the perception and knowledge of the NatHERS certification system and its utilisation in new homes.

First, valuers were asked if they were aware of the NatHERS certification scheme, with 59% indicating they were aware and 41% indicating they were unaware. Second, valuers were asked to rate their knowledge of NatHERS. The results are shown in Figure 4.
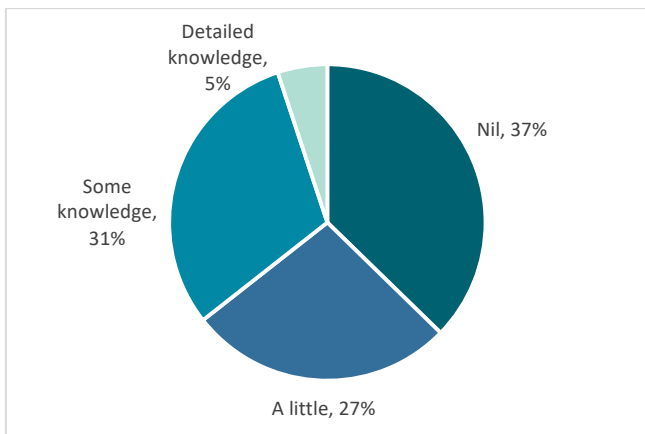

Figure 4. Valuers' self-rating of NatHERS knowledge

As shown, 63% indicated they had some level of knowledge of the NatHERS certification program (Figure 4). However, as shown in Figure 5, participants' knowledge is very limited, with 73% not being able to identify what the minimum NatHERS rating is for new dwellings under the National Construction Code (NCC). Further, 65% did not know how many stars were available under the NatHERS scheme.
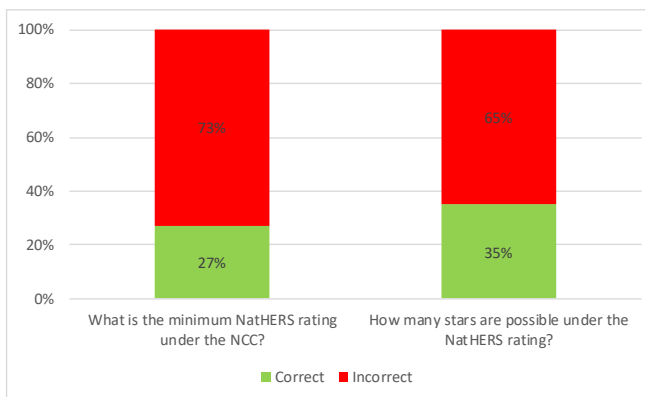

Figure 5. Valuers' awareness of NatHERS

Valuers were asked whether they were provided with information relating to a building's NatHERS rating and whether they sought this information. The results represented in Figure 6 indicate that NatHERS information is rarely provided and it is almost never sought by the valuer.
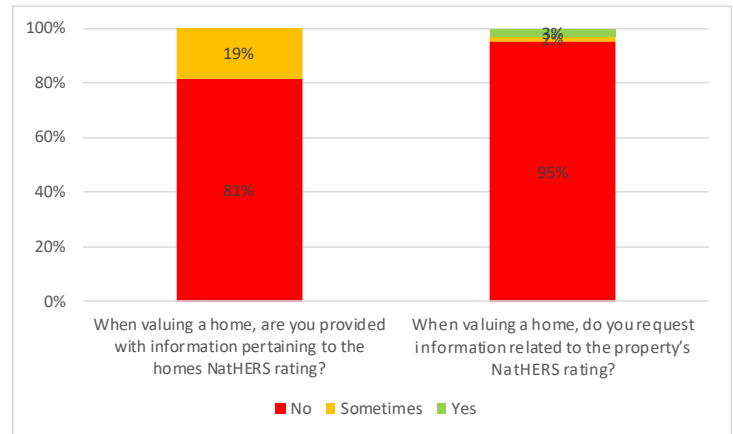

Figure 6. Provision of information pertaining to NatHERS

The limited knowledge and understanding of NatHERS suggested low levels of consideration. Consequently, when asked what the effect might be on value, opinions were mostly 'don't know' and 'no effect on value' for a property that had the minimum standard and those above the minimum standard, as shown in Figure 7.
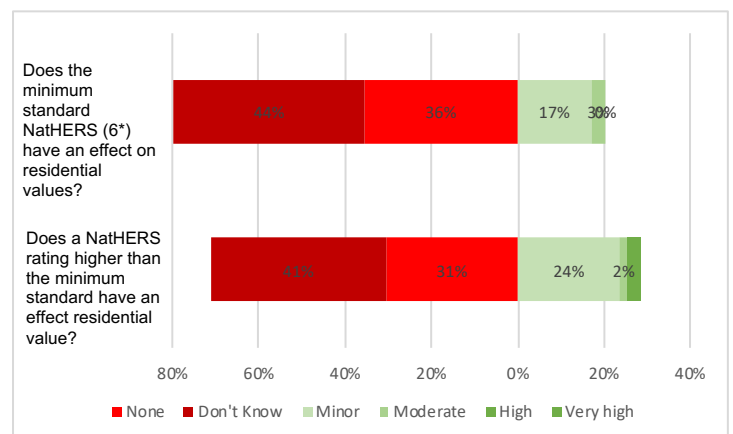

Figure 7. The effect of NatHERS ratings on value

Subsequent to being questioned about the impact of minimum NatHERS rating on value, valuers were asked to comment on the reasons for their response. Pertinent and contrasting comments are shown below, accompanied by the respondent's rating of NatHERS impact on valuation:

- 'More expensive to operate (heating/cooling), as such less desirable' (Impact answer: '1 = No effect on value')

- 'No indication market places any value on NatHERS' (Impact answer: '2 = Minor effect on value')

- 'It is not a tool/criteria we consider' (Impact answer: '6 = Don't know')

- 'NatHERS ratings are not considered in the valuation process. (Impact answer: '1 = No effect on value')

- 'I don't believe it is at the forefront of most purchasers decision to buy at present' (Impact answer: '1 = No effect on value').

'It may not be (of value) at the moment but as it is more widely known it will become a selling feature'.

Comment on the value of higher than minimum NatHERS rating

After being questioned on the 'impact of higher than minimum NatHERS', valuers were similarly asked to comment on the reasons for their response. A sample of comments appears below:

- 'It doesn't because there is no disclosure of this' (Impact answer: 1 = No effect on value)

- 'No indication market places any additional value on NatHERS' (Impact answer: 2 = Minor effect on value)

- 'No awareness yet' (Impact answer: 6 = Don't know)

- 'A more substantial count may be seen as possible enhancement' (Impact answer: 2 = Little effect on value)

- 'Energy consumption/efficiency is still a small percentage of the overall value of dwellings' (Impact answer: 2 = Minor effect on value)

- 'It may not at the moment but as it is more widely known it will become a selling feature - particularly if the rating and costs to run a house are linked.' (Impact answer: 6 = Don't know).

Photo 5 Source: University of Melbourne

Discussion

The research used four key questions to provide insight into valuers' perceptions and actions in the process of valuing residential property; specifically, the effect of energy efficiency characteristics and features on value and methods used to examine energy efficiency in dwellings. The discussion section is structured to answer the research questions:

- What are the drivers of value in the residential market?
- Is energy efficiency a considered attribute in the assessment of market value?
- What tools or benchmarks are utilised to assess, compare and value the energy efficiency of a home?
- What is the depth of knowledge valuers have of NatHERS, the energy efficiency rating tool for residential property?

What are the drivers of value in the residential market?

Our research has confirmed that traditional characteristics are the most significant variables effecting value; for example, location, amenity and layout. This finding aligns with the commonly established residential factors in hedonic analysis as well as with valuation literature (Fuerst & Warren-Myers 2018; Lorenz & Lützkendorf 2008, 2011; Lützkendorf & Lorenz 2005, 2011; Warren-Myers 2012, 2013, 2016).

Is energy efficiency a considered attribute in the assessment of market value?

Our research has found that features or characteristics relating to energy efficiency were considered to only have a minor effect on the market value of residential property. This is in contradiction with empirical studies in Australia (ABS 2008, Fuerst & Warren-Myers, 2018). However, this finding is not unsurprising given the knowledge levels of values. This finding is supported by those of other studies; for example, Fuerst and Warren-Myers (2018).

As with all valuations, cost does not equal value. Similarly, initiatives in a household incorporating sustainability features in the dwelling do not necessarily translate to value (Reed & Australian Property Institute 2014).

What tools or benchmarks are utilised to assess, compare and value the energy efficiency of a home?

Our research identified that the overwhelming majority of respondents (98%) did not utilise or consider any tool or benchmark for considering energy efficiency in the home. This led to a significant proportion of valuers' being neither satisfied nor dissatisfied with the current tools,

benchmarks or measures available to energy-efficiency evaluation in homes. Nevertheless, 32% of participants indicated they were dissatisfied with the current availability of options to consider energy efficiency in residential property.

What is the depth of knowledge valuers have of NatHERS, the energy efficiency rating tool for residential property?

Sixty-three per cent of respondents indicated they had some knowledge of the NatHERS rating certification program. However, only 27% were aware of the minimum standard for new homes, with 35% knowing the number of stars possible within the NatHERS rating system. These findings are comparable to the findings of Warren-Myers (2013; 2016), which identified that valuers perceived themselves to have some knowledge of the rating system despite inconsistency or limitations in knowledge. For example, results were highly variable when respondents were asked about the minimum, mandatory and highest levels of NatHERS ratings.

Given the widespread unfamiliarity with the NatHERS rating tool among survey respondents, it is understandable that 81% of surveyed valuers were not provided with information relating to NatHERS and that 95% did not seek such information. In light of the limited knowledge of NatHERS within the group surveyed, the valuers' perceptions of the effect of NatHERS on overall property value were based on a premise of unfamiliarity. This is indicated by the level of valuers who responded 'don't know' to the question on the minimum (44%) and above minimum (41%) NatHERS standards. A further 36% (minimum) and 31% (above minimum) of respondents suggested that NatHERS has 'no effect on value'.

Neither the energy efficiency features nor the current use of the NatHERS ratings system has much weight in the valuation process. Accordingly, there were very low levels of connection or consideration of their effect on the value of residential property. These findings are at odds with the recent analysis of the ACT market by Fuerst and Warren-Myers (2018), who identified premiums for both EER and energy efficient features in the home. However, the ACT has a mandatory disclosure program that requires all homes for sale or lease to display the EER. Market participants are likely more aware of EER because they are prominently displayed. Consequently, valuers are more likely to be aware of these factors in the market. Unfortunately, there was only one respondent from the ACT in this study.

Conclusion

The research sought to examine the role of energy efficiency initiatives on overall residential property value. It also explored the use of current tools available to residential valuation professionals for enabling energy efficiency to be incorporated into the valuation process.

The drivers of value in real estate have long been established as location, amenity and layout, which is supported by the results of the survey. In the context of curbing greenhouse gas emissions through energy efficiency and other sustainability measures, passive and active energy-efficient design needs to be reflected in residential property value to enable investment and the availability of finance for added energy efficiency options in new and existing housing to drive uptake.

The research indicated that 98% of valuers surveyed do not use any form of energy efficiency analysis or tool in the valuation process to assist with the assessment of the contributory value of energy efficiency measures in new and existing residential property. While the NatHERS rating tool is available as an indication of energy efficiency in new homes, respondents' knowledge of NatHERS was very limited, with 73% not knowing the minimum standard. Overarching valuer sentiment was that features of passive and active energy-efficient design have minimal effect on overall property value, despite the potential energy cost savings.

The study concludes that the valuers surveyed do not have a means to consider applying a premium or discount in regard to energy efficiency initiatives in a dwelling or the lack thereof. This is due to the lack of suitable comparative tools or measures that are readily available and useable in the residential valuation process. Further, valuers are not explicitly directed to consider energy efficiency or sustainability by the client (mostly banks). Such direction might drive greater knowledge development and consideration of value in the valuation process.

Our research confirms the key finding of other studies made in Australian and international contexts; namely, that for energy efficiency to be considered in residential valuation, mandatory disclosure and certification are essential. The mandatory disclosure of energy efficiency points directly to its importance in the home and will create an additional factor for consumer consideration. More evidence will elicit a stronger relationship between energy efficiency in the home and market value.
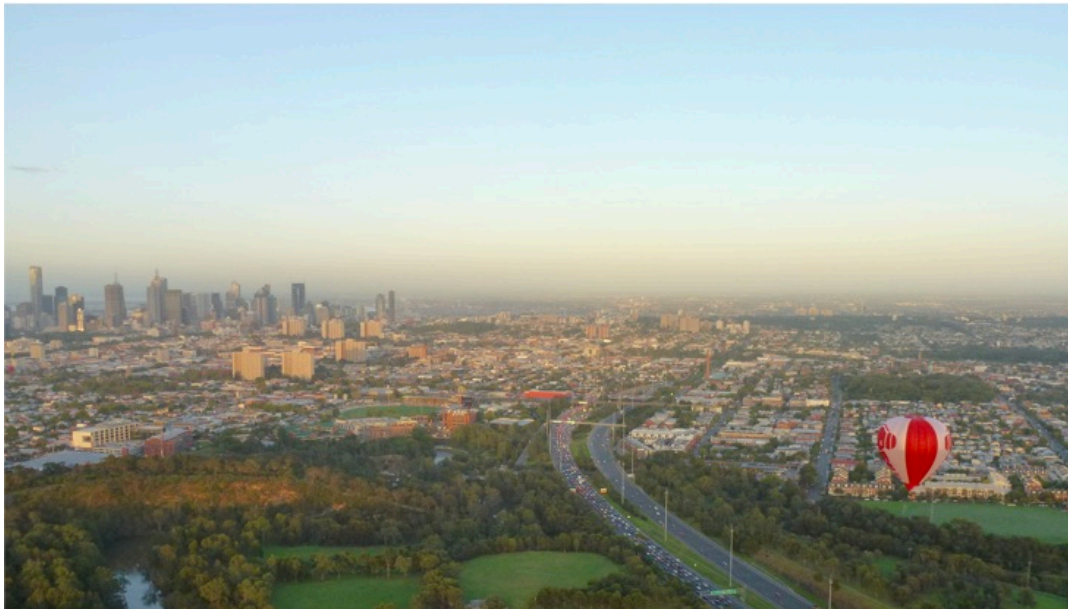

Photo 6 Source: Authors

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