



Low-carbon homes, thermal comfort and household practices Uplifting the energy-efficiency discourse

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Enhancing the Market for Low Carbon Homes

- Funded by the Cooperative Research Centre for Low Carbon Living
 - Industry project partners
 - NSW Office of Environment and Heritage, CSR, AGL Energy, Australian Windows Association, Clean Energy Council, Energy Efficiency Council, Stockland, Fletcher Insulation, Knauf Insulation, the Centre for Liveability Real Estate, and the Energy Efficiency Certificate Creators Association.
- Conducted between September 2014 and October 2015
- Households' and specialists perceptions of low-carbon homes and products

Study activities

Activity	Recruitment and sample size	Sample characteristics
Phase 1: Focus groups (Sep 2014)	12 focus groups (7 to 10 people) Total 107 participants	35% renters; 31% owner-occupiers; 35% investors 63% females 77% aged 25-49
Phase 2: National telephone survey (Feb 2015)	866 participants Individuals received a phone call (mobile or landline). 18% completion rate (a total of 4,775 eligible calls were made).	22% renters, 34% owned their homes with a mortgage and 44% owned their homes outright Gender: 57% females Age:17% aged 18-34; 56% aged 35-64; 27% aged 65 and over
Phase 3: Construction specialists online survey (Feb 2015)	492 professionals recruited by CSIRO using information publicly available on the internet	25% architects, 24% non-builder tradespeople, 21% builders, and 13% designers. 38% with over 10 years' experience in their profession 82% males. 29% worked in VIC, 25% in NSW, and 22% in QLD.
Phase 4: Experimental online message testing survey (Sep-Oct 2015)	2,008 potential or recent home buyers	24% renters, 42% owners with a mortgage, 24% owned their home outright.

Phase 1: Focus groups

- Overwhelming priority: location
- Explore links between energy efficiency and home comfort
 - what comes to their mind when you think of a comfortable home
 - Thermal comfort (e.g., ‘a home that is cool in summer and warm in winter’ or a ‘home that has an air-conditioner’, 61%)
 - Spatial comfort (e.g., ‘a spacious home’, 50%)
 - Visual comfort (e.g., ‘natural light’ or ‘sunny position’, 32%)
 - what comes to their mind when you think of an energy efficiency home
 - Technological aspects: solar energy (55%); energy efficient lighting (29%); insulation (24%) and energy efficient appliances (21%)
 - Financial aspects such as low energy bills (17%)
 - Other aspects: natural light (14%) and passive design (12%)

Phase 1: Focus groups

Focus group consumer type	Drivers	Barriers
Owner occupier	Environmental benefits	Time and effort to research options
	Reduced electricity costs	Uncertain timeframe for return on investment
Investor	Rebates and tax incentives	Tenants receive the financial benefits
	Property value	Slow return on investment
	Attraction/retention of tenants	
	Environmental benefits	
Tenant	Reduced electricity costs	Landlord may increase rent

Phase 1: Focus groups

Home feature	Outcome	Practice
Natural lighting	Warm the home in winter	Heating and cooling
Home aspect		
Floor covering		
Wall and ceiling insulation	Warm the home in winter; cool the home in summer	
Double glazed or insulated window		
Door and window seal		
Patio	Cool the home in summer	
External awning		
Natural ventilation		
Ceiling fans		
Home aspect	Reduces lighting costs	Lighting
Natural lighting		
Natural ventilation	Ability to dry clothes naturally	Clothes drying

Phase 2: National telephone survey

- Positive attitudes and intentions towards energy efficiency
 - An energy efficient home when buying or renting the home would be more attractive to them
 - 89% of survey respondents
 - No differences in respondents' across the demographic variables of gender, educational level, income, household composition, property type, property ownership and location.
 - Exception was age: survey respondents under the age of 35 and above 75 years of age showed less interest in energy efficient homes compared to those aged between 35 and 74 years old.
 - Most respondents (55%) indicated that they would be willing to pay for energy efficiency information at the time of renting or buying a home

Phase 3: Online survey of construction specialists

- Very high levels of support for energy efficiency
 - 98% agreed that consumer uptake of energy efficient products should be encouraged
 - 95% stated that they recommend or install energy efficient products
- Demand driven by specialist (M=3.72; SD=0.93) more often than by client (M=3.08; SD=1.00)
- Barriers
 - More expensive to install (70%)
 - Lack of: interest from clients (47%), choice (31%), availability (17%)
 - Harder to install (12%)
- Welcome more information and knowledge of energy efficiency

Phase 4: Experimental message testing survey

Messages frames

Control	Hurry, don't miss out on this impressive quality home. This is a rare opportunity to deliver the life you've always wanted. Located in the suburb everyone wants to live in, this home is close to shops, transport and great schools. This home offers great value for money with everything you need for a comfortable lifestyle; contemporary living at its best.
Standard energy efficiency (Conditions 1 to 4)	Hurry, don't miss out on this impressive quality home. This is a rare opportunity to deliver the life you've always wanted. Located in the suburb everyone wants to live in, this home is close to shops, transport and great schools. <i>The home has additional energy efficiency features, including north-facing aspect, with easy care gardens, LED lighting, and solar heating system.</i> This home offers great value for money with everything you need for a comfortable lifestyle; contemporary living at its best.
'Liveability' example (Conditions 5 to 9)	Give your family the healthy home they deserve. This stylish and functional home maximises natural heating and cooling opportunities all year round. Live locally and experience the benefits of a close and vibrant community experience: fresh local produce, community gardens, gyms, walkways and bikeways, all in a family friendly walkable neighbourhood. This home's orientation delivers the potential for a healthy and comfortable home; living rooms capturing natural sunlight and natural ventilation pathways work together to creating a wonderfully inviting family space. Design and fixtures work in harmony to reduce your reliance on mechanical heating and cooling. Come and experience how good home design can bring a great family lifestyle, comfort and still deliver reduced environmental impact.

Images

Conditions 2 and 6	Conditions 3 and 7	Conditions 4 and 8	Conditions 5 to 8
			

Phase 4: Experimental message testing survey

- Very substantial financial benefit perceived
 - On average, respondents rated the low-carbon home to be 42% more expensive than the control home
 - Homes advertised with standard energy efficiency message conditions (whereby the energy efficient features of a home were listed) were less appealing than homes advertised with a 'liveability' message (tailored to suit the respondents' market profile)
 - Familiar images conveying energy rating information, when presented in conjunction with a 'liveability' message, appeared to have the greater all-round effectiveness in promoting the benefits of low-carbon houses.
 - Among the poorest performing message frame was a standard energy efficiency message that simply listed energy features.

Conclusion

- Householders have positive attitudes and intentions towards energy efficiency
- Meaning of energy efficiency for consumers is still heavily focused on the technological aspects
- Need to broaden the energy efficiency discourse to place greater focus on the meaning of homes and renovations that include home comfort and household behaviour
- Marketing the benefits of low-carbon housing at point-of-sale simply by listing its technological features may have the unintended consequence of increasing the perceived financial value of the home, but not the desirability of the home

Thank you

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