

# Plugging the gap? Understanding households and everyday life

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# About me

- Beyond Behaviour Change Research Program
  - *how people live and work*
  - *Focused on sustainability/ consumption outcomes*
- Specialise in **household** research in relation to energy reforms, demand response, housing policy and smart technologies
- Informed by sociological theories of consumption and change
- Interdisciplinary projects with ‘technical’ experts
- Industry and publicly funded research funded through:
  - Electricity distributors and transmission businesses
  - Energy Consumers Australia and consumer advocacy groups
  - Australian Research Council
  - Public housing agencies and housing developers

# Cooling and energy demand in residential sector (Australia)

- Residential energy demand has dropped or stabilised in all electricity supply regions of the National Electricity Market (AEMO 2013).
- Electricity prices: **70% real term increase in the last five years** (PC 2013).
- Over 50% of costs associated with increased network (poles and wires) investment (PC 2013).
- **Residential air-conditioning demand on hot days** one of the main reasons for this investment.
- Penetration of residential **air-conditioning has more than doubled** in the last decade (DEWHA 2008).
- **72% of Australian homes have some form of mechanical cooling** (ABS 2011).
- Growing gap between average and peak electricity demand.

# Changing housing expectations

- Households are occupying larger, detached, energy-intensive housing in poorly serviced outer suburban locations (Clune et al. 2012; Maller & Horne 2011)
- Energy efficiency policy gains have been less than anticipated due to changing cooling expectations and increased floor space (Strengers 2010; Wilkenfeld 2007)



# The 'lifestyle' gap

***‘Choosing a seven-star house was better than a five or six star, but not if the owners lived a two or three-star lifestyle...When people actually get into their houses and install inefficient heating or cooling systems, or run them all day long, the star system becomes meaningless’*** (Dr. Robert Crawford, University of Melbourne, The Age, 31 May, 2011).

***‘We’re wasting our time doing all of this if we don’t help educate people about how to live in a more environmentally attuned way. We want the six-star lifestyle to go with the six-star house’*** (Pru Sanderson, former CEO of VicUrban, The Age, 21 February, 2010).

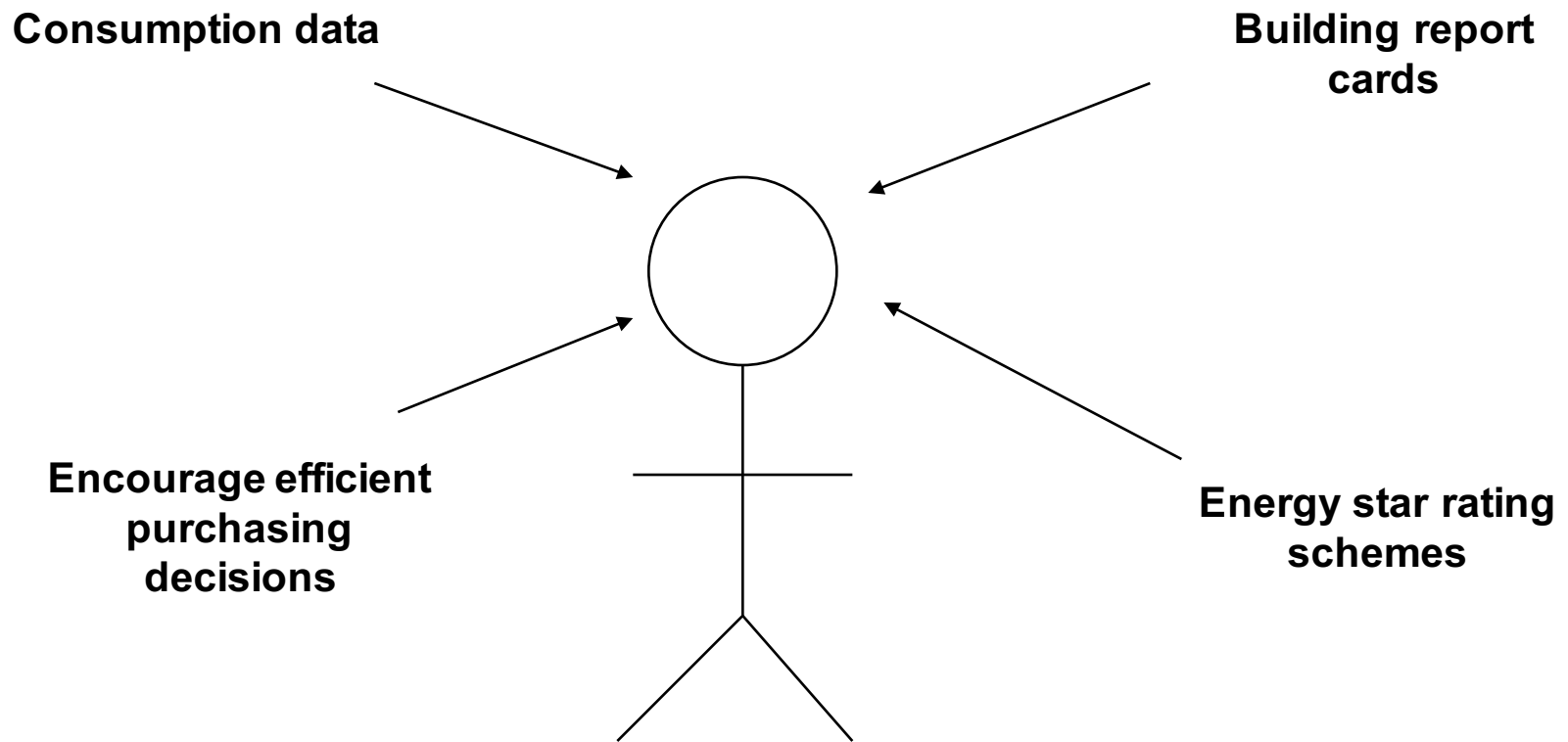


# Plugging the gap?



# Role of the social scientist

- Educate and inform individuals to engage in more efficient behaviour
- Assumes a limited range of users (e.g. adults)
- Doesn't engage with how and why lifestyles are changing



# Role of building professionals

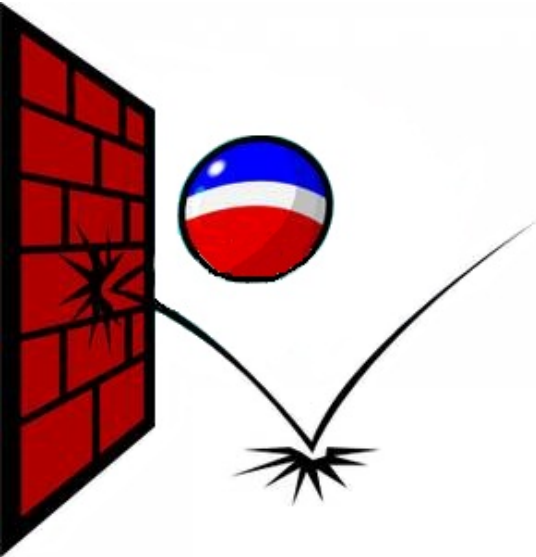
- Technical retrofits, solar rebates, automated technologies, building efficiencies (star ratings) are not assumed to change behaviour
  - Relationship between people and buildings limited to user acceptance or use
  - Language of use, adoption and acceptance implies a linear (one-way) and separate relationship between people and technology





# Gaps, barriers and rebounds

- Language of gaps, barriers and rebound effect brought it to explain the 'paradox' of lifestyles and behaviour.
- Encourages (or reflects) separate technical and behavioural solutions (Guy & Shove 2000; Shove 1998).
- Attempts to 'correct' lifestyle changes by trying to encourage efficient choices and decision-making (rather than focusing on why lifestyles are changing)

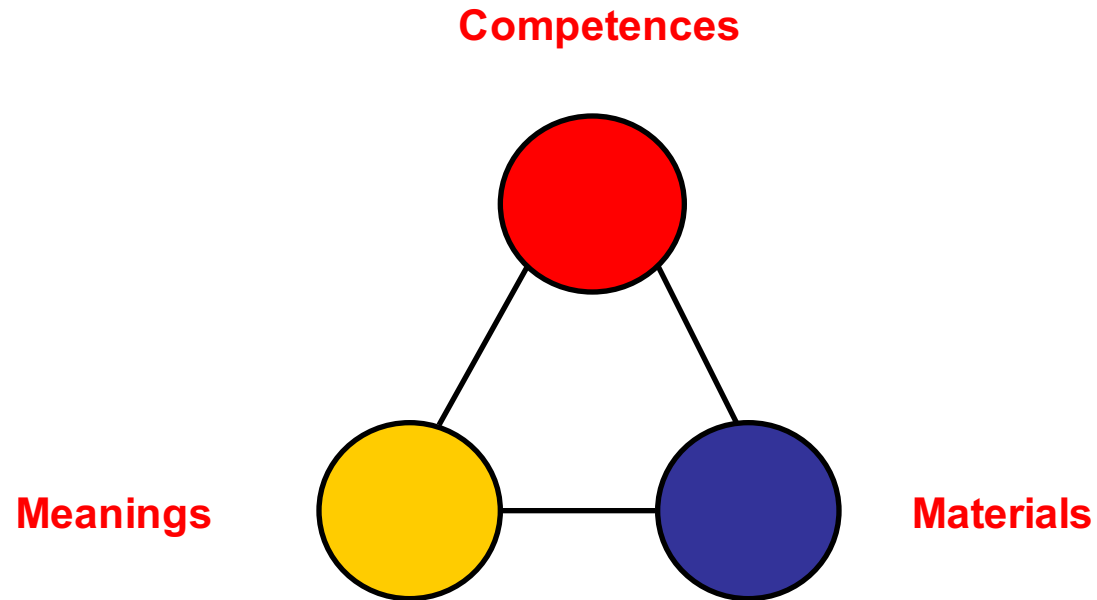


# Reconceptualising the performance gap and policy responses

# How do people live?



# Everyday practices



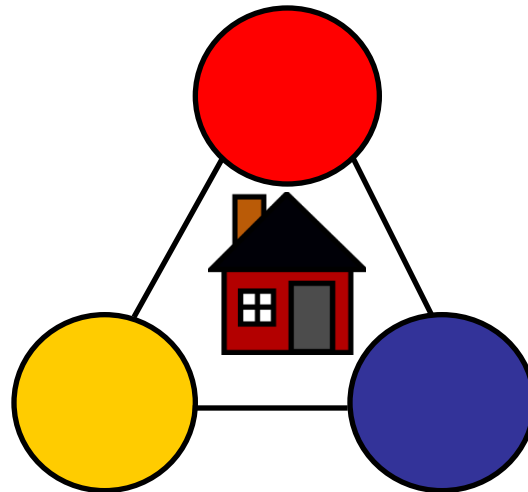
Adapted from Shove et al., 2012: 23

# Three ways to reframe the performance gap

# 1. Housing as an element of practice

# Housing as an element of practice

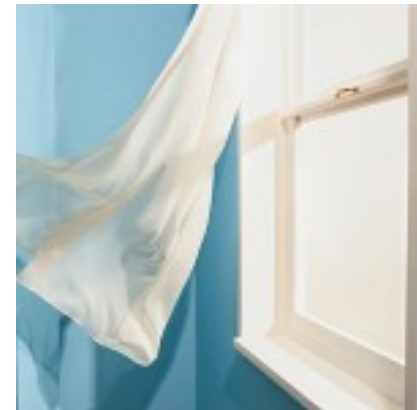
- The building envelope is part of the material of practices.
- Requires or demands particularly *competencies* (e.g. how to open/ close windows)
- Carries *meanings* about how people ought to live (e.g. prioritises natural ventilation or air-conditioned comfort).



***What sort of practices do housing policies and regulations encourage?***

# Adaptive thermal comfort house design = adaptive practice?

- People who live in thermally adaptive housing (e.g. passive houses) are *recruited into* thermally adaptive comfort practices.
- *‘People living year-round in air-conditioned spaces are quite likely to develop high expectations for homogeneity and cool temperatures, and may become quite critical if thermal conditions in their buildings deviate from the centre of the comfort zone they have come to expect. In contrast, **people who live or work in naturally ventilated buildings where they are able to open windows, become used to thermal diversity that reflects local patterns of daily and seasonal climate variability**’ (De Dear and Brager 2002, p. 550).*
- Horsham low-income, environmentally sustainable public housing development (Moore et al. 2016).
  - Limited/ no air-conditioning





## 2: Intervening in practice dynamics

# Consumer Advocacy Panel: Family Energy Study

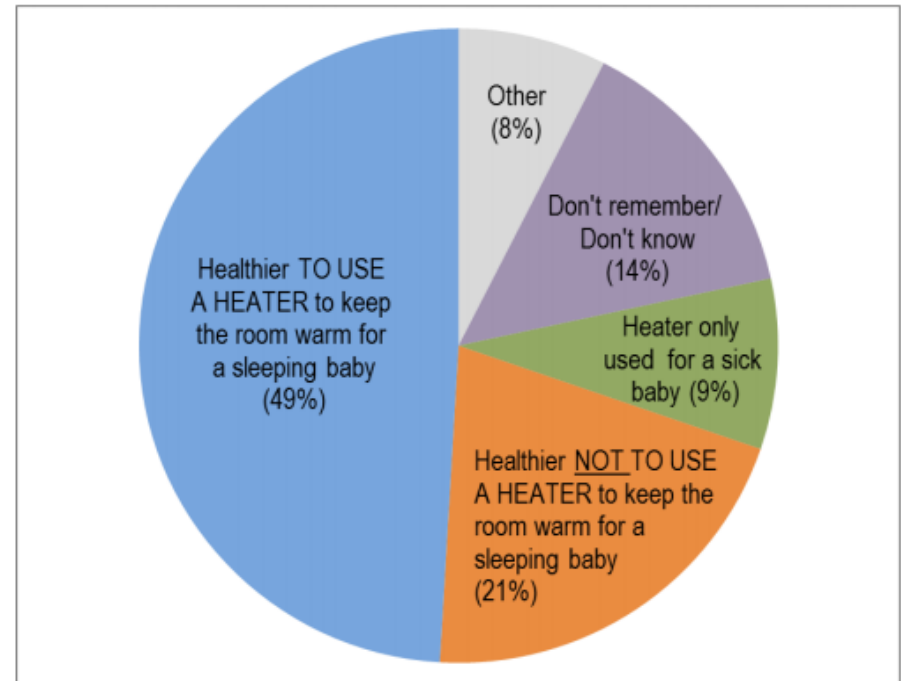
- Focus on family routines across four activity domains: heating and cooling; cleanliness and care; food provisioning; entertaining, work and study (Nicholls & Strengers 2015)
- Interested in *timing* of routines and demand-shifting opportunities (through variable electricity tariffs)
- In-home interviews and tours with 44 households (parents/guardians)
- Interview findings tested in national survey with over 500 respondents



# Heating for babies/ young children

- Parents were divided on whether heating/ cooling needed for babies/ young children.
- Perceived **health needs** for babies/ young children are more important than cost of electricity.
- Parents **debate** whether air conditioning is necessary or healthy for their children on online forums
- No consistent advice across government and health information services

Figure 21 Understandings of baby health and heater use when sleeping



N=426 (excludes households in tropical/ sub-tropical areas and households that don't use heating)

# Thermal comfort intervention

- Provide consistent heating/ cooling advice and/or materials to reduce energy demand (work with gov/ health agencies)
- Focus on **health** of children (not cost of energy)
- Target women/ mothers/ parents (e.g. Mothers/ Parents Groups)



# 3. Understanding practice trends

# Emerging trends

## AIR CONDITIONING: SHOULD YOU LEAVE IT ON FOR YOUR PET?

More on PawNation: [Air Conditioning](#), [Cats](#), [Dogs](#), [Lifestyle](#), [Safety](#), [Summer](#)

By [Kelli Bender](#) Jul 2nd 2012

Thermostats don't lie: it's hot! Thankfully the modern marvel of air conditioning helps us beat the summer heat and keep our pets cool as well. But what about when we leave the house? Should the AC be left on for your pet while you're out and about?



According to [Mother Jones](#), this is an issue that has the animal lovers of the world all riled up. One side says it is unfair to leave our fluffy friends at home sans AC during heat waves, especially when they are stuck in fur coats. The other side argues that cats and dogs were roaming the Earth for thousands of years in the heat before we came along

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Source: <http://www.pawnation.com/2012/07/02/should-you-leave-the-ac-on-for-your-pet/>

# Building 'retrofits'



# Automated visions of comfort (enhancing the 'lifestyle gap')

- **Nest thermostat:** *'So when you wake up in the morning, **you'll be cozy**. When you leave for work, it'll turn itself down.'*
- **Tado smart AC control device:** 'Pre-cools before you get home'.
- Assumes people want (and already have) 24/7 regulated climate control
- **Saves energy** while promoting homogenous (energy intensive) expectations for thermal comfort



**How can housing policies/ regulations prioritise less energy-intensive expectations for thermal comfort?**



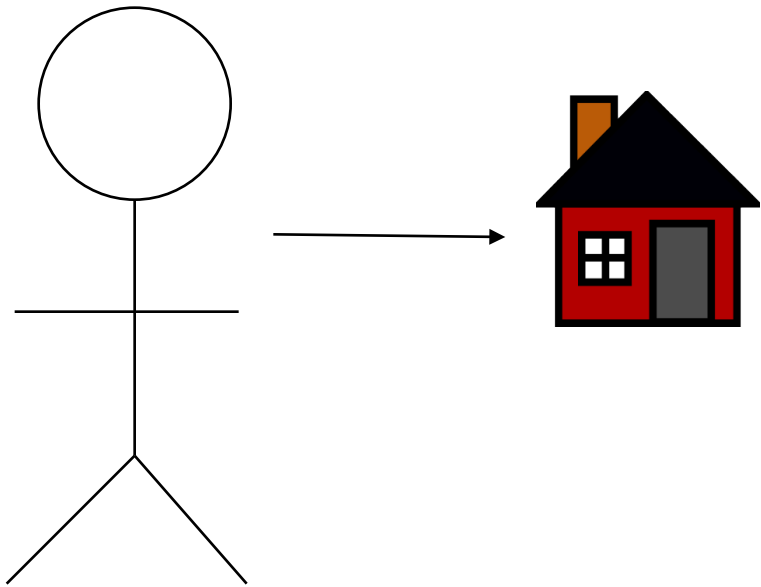
# Expanding the parameters of policy and regulation

- Who has the right to intervene in practices?
- What role can and should housing authorities and regulators play?
- From regulators to *facilitators*, *agitators* or *negotiators*
- Housing authorities *already* intervene in practice, whether they realise it or not.
- By choosing to regulate certain building standards over others (e.g. those that regulate airflow or prioritise air-conditioning), housing authorities *already* intervene in everyday practices.
- Other players are also intervening in practice (e.g. pet advisors and product manufacturers; smart home product manufacturers)

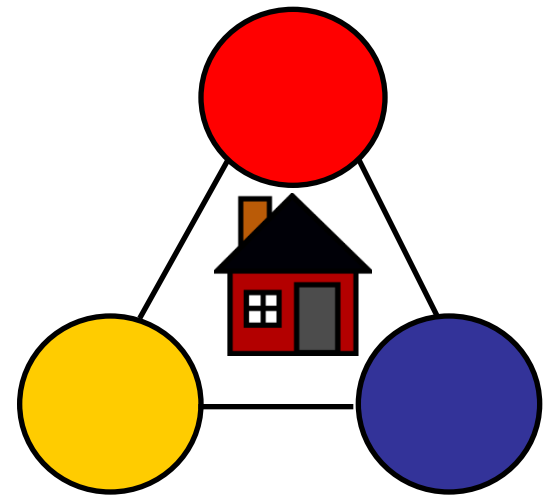
# Key insights

# 1. View housing as part of practice

From this...



To this...



## 2. Theories that recognise relationship between social and technical

- Social practice theory (Shove et al.)
- Scripting (Akrich)
- Moralising (Jelsma)
- Domestication theory (Silverstone et al.)
- Assemblage theory (Bennett)
- Actor-network theory (Latour, Law)



### 3. Intervene in household practices

- Housing policies and regulations which:
  - Recruit households into adaptive ways of keeping warm/ cool (Strengers & Maller 2011)
  - Intervene in unsustainable housing ‘fashions’ (e.g. large open-plan floor space) (Maller et al. 2013)
  - Intervene in new practice trends (e.g. heating/ cooling houses for pets) (Strengers et al. 2014).



## 4. Expand parameters of who 'uses' housing

- Households as a dynamic collection of people and things including:
  - Teenagers
  - Children
  - Babies
  - Guests
  - Plants
  - Electronic equipment
  - Wine/ food
  - Sick people
  - Elderly people
  - Pets and pests
  - Built environment



# Plugging the gap?





Thank you

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