

# Household energy practices that make a difference

In an effort to support the transformation and emergence of household practices that will drive significant reductions in carbon emissions in the short-run, the CSIRO has undertaken a set of in-depth qualitative studies, asking Australian householders to describe their everyday practices that consume electricity.

## Research aim

The overall aim of this research was to extend our understanding of a small number of high-impact everyday household practices – which are defined as routine patterns of behaviour that are energy-intensive if performed in a certain manner – e.g. using hot (rather than cold) water to wash clothes, and leaving heating and cooling devices on for long (as opposed to intermittent) periods of time.

Prior research has already identified a ‘priority set’ of everyday practices that could realise substantial reductions in carbon emissions, if householders simply modify how they undertake such practices. In this research, we sought to gain further insights into these practices from the point of view of the householder – to reveal which practices actually offer the greatest prospect of behavioural modification, and to understand how future interventions might be best designed to attain the desired change.

## Participants and procedure

Three studies were undertaken as follows:

1. Focus group study: Four focus groups were conducted in each of seven climatic zones across Australia (28 focus groups, totalling 216 householders).
2. Diary study: A follow-up three-day diary study was also conducted with 67 volunteers from the previous focus group study.
3. Telephone survey: A brief telephone survey was conducted with 1, 123 customers from an Australian energy retailer.

In each of the studies, participants were presented with a statement about a typical household practice (e.g. washing the laundry, showering, space-heating/cooling). They were then asked to think about whether that was a

practice they engaged in themselves (i.e. *Is this how it is in your household?*), and to then describe what they did and why (i.e. *Why is this, do you think?*).

Open-ended responses were coded using a standardised coding system developed by the researchers. In the telephone survey only, household electricity consumption data was also obtained from the energy retailer. This data enabled us to analyse the relationship between self-reported practices and actual electricity usage.

## Results

A number of high-impact household practices were identified that could help drive significant reductions in emissions. However, our review of the qualitative data (i.e. respondents’ self-reported explanations of their practices) indicated that there is considerable variation across practices in terms of their potential for behavioural intervention. Some of the more pertinent findings are summarised below.

### In the laundry...

Results showed that practices in the laundry were most strongly correlated with household electricity usage. Participants who mentioned that they washed in cold (versus hot) water, and full (versus partial) loads consumed significantly *less* electricity, in the order of 40% less than the average householder (which was 2,400 kWh for the previous quarter of billing). Participants who engaged in undesirable, energy-wasting laundry practices often reasoned that hot or warm water is necessary to clean clothes properly, with comments such as *‘Nothing comes clean in cold water’*. Interestingly, participants who engaged in desirable, energy-saving laundry practices provided the counter-argument that cold water actually cleans clothes more effectively than hot or warm water. For example, *‘cold water will bring out the stains instead of hot water – it shrinks and keeps the stains in’*.

### In the kitchen...

Practices in the kitchen emerged as the second most significant correlate of electricity usage, with excess consumption (around 30% more than the average householder) mostly associated with the presence of a second refrigerator or separate free-standing freezer/s. Participants generally referred to the storage benefits, convenience and entertaining aspects associated with running a second fridge and/or standalone freezer. For example, *'we buy a lot of meat and food in bulk so we need the extra freezing capacity'* and *'one for drinks and other for food'*.

### Space heating/cooling...

Heating and cooling practices were also significantly related to electricity consumption, with householders who claimed that they do not leave heating running all winter, and modify their behaviour (e.g. wearing lighter clothing, get out of the house) to keep cool, using around 30% less electricity than participants who did not mention doing those things. Participant responses indicated that they made a concerted effort to minimise electrical heating and cooling, only using it under extreme circumstances and deploying alternative actions to stay warm/cool where possible. For example, *'I only put my air-conditioning on when it's stinking hot'*.

### In the bathroom...

Here, participants who said they frequently showered using hot water because of a special concern about hygiene, ended up consuming 18% more electricity than average. A similar result emerged for participants who justified their energy-inefficient showering practices because they only took short showers anyway (in this case, they ended up consuming 23% more electricity than the average householder). Comments such as *'Hygiene and cleanliness...I don't like smelly people or being near smelly people'* and *'we don't like them [low-flow showerheads], we prefer to cut the length of shower down'* reflect these particular sentiments.

### Summary

This research has identified a small set of everyday practices that have the potential to achieve substantial

reductions in carbon emissions (via household electricity savings), yet some of these practices appear to hold greater prospect of behavioural modification than others.

### Applications

**In the laundry...** it might be possible to reset householder's views toward the need for hot/warm water, particularly in light of the fact that clothes actually last longer when washed in cold water, and that modern-day detergents have been designed to work most effectively with lower temperature water.

**In the kitchen...** given the types of rationales discussed, it might be difficult to dramatically change refrigerator/freezer usage practices. They appear to be fairly entrenched practices, bound up in food provisioning and social contexts. It might be possible, however, to capitalise on the pre-existing tendency to 'stock up' but in ways that refer to the cupboard or pantry, *not* the fridge or freezer.

**Concerning space heating/cooling...** it appears that householders are already open to negotiating their space heating and cooling practices, and as such, it might be worthwhile introducing initiatives that help spread the message on how to perform alternative heating/cooling practices, and designing new services/infrastructure that support the emergence of such practices – e.g. the provision of local buses that transport householders to cool community locations on very hot days.

**In the bathroom...** there appears to be multiple, complex forces supporting the need for frequent, hot, high-powered showering, and that householders might already feel that they have 'done their bit' to conserve resources by reducing the shower *length*. Thus, we would caution against introducing additional measures that request additional behavioural changes in frequency, temperature and/or pressure of showering.

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