Perspectives on Moreland Power

A vulnerable consumer perspective on renewable energy program models

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Australian Energy Foundation

Contents

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The views expressed in this document do not necessarily reflect the views of Energy Consumers Australia.

1. Executive Summary

Overview

With funding from Energy Consumers Australia, the Australian Energy Foundation undertook research with 30 Moreland households to understand the perspectives of households experiencing, or at risk of experiencing, energy hardship, i.e. difficulty in paying energy bills.

AEF conducted in-depth interviews and simple home energy assessments with participating households to understand their appetite for a range of potential program models designed to unlock the benefits of renewable energy for vulnerable households.

Consideration was given to program models that involve these communities by installing solar directly on their homes, by improving access to low-cost renewable energy through an energy retailer, or by providing access to offsite solar, such as community solar or solar garden models where a shared solar installation mutually benefits a number of owners or program participants. This included consideration of a community fund established by such a scheme to use revenue from renewable energy generation to benefit vulnerable community members.

We evaluated elements of these program models according to the ability of households in energy hardship to participate in and benefit from these programs, through increased access to renewable energy and/or reduction of energy bills.

Summary of findings

Participants identified cheaper power as of the most benefit to them, when asked to rank potential mechanisms of benefit. This was followed by solar panels, window shading, and draught proofing. Over half of participants said that access to renewable energy was important to them.

While there was interest in renewable energy, participating households had little ability to manage an increase in their bills, whether from GreenPower, loan repayments or any type of upfront or program subscription cost. Renewable energy consistently ranked lower than cheaper power bills, and on par with energy efficiency improvements.

We recommended the top opportunities for each household, based on home energy assessments. While there was interest in solar, rooftop solar was recommended for only a minority of households (14%), due to a range of barriers including renting where the landlord was judged by the participant to be unlikely to approve or invest in solar (such as in the four cases where tenants had been informed the property was planned to be demolished), living in apartments, and renting in public housing.

Energy consumption among households experiencing or at risk of energy hardship was generally low, as participants were already trying to save. Nearly half of those who had energy bills available were using less than 25% of an average similar-sized household in their postcode, and a quarter of households with bills available were using little more electricity than a single refrigerator. There was limited opportunity for additional energy or financial savings through behaviour change recommendations.

On the other hand, there were significant opportunities to improve energy efficiency standards in buildings. Energy efficiency standards among participating households were found to be generally poor. Major issues identified were insufficient insulation and inefficient window protection. There were also issues with draughts and a lack of efficient appliances with which to effectively heat (or cool) homes. Thermal comfort was also an issue, with the majority of participating households (83%) reporting their homes felt cold in winter and warm in summer. More than half avoided using heating and cooling in order to reduce energy bills.

There was ample opportunity for, and desire for, increased energy literacy (understanding of energy bills, energy efficiency and consumer rights). Misconceptions about tariff rates and energy companies were prevalent. Other households had low levels of English literacy, so were not able to navigate websites or phone conversations in order to get a better deal.

Evaluation of program models

Based on participant interviews and home energy assessments, we assessed elements of potential program models against their ability to deliver value to households experiencing or at risk of energy hardship, and the likelihood that these households would be able to benefit from them.

The results are presented in the matrix below:

	Rooftop solar	**Low cost renewable energy via retailer**	**Offsite solar – participation in scheme**	**Use of a community fund**		
				Energy efficiency upgrades	**Energy literacy**	**Other financial relief**
Access to renewable energy	Yes	Yes	Yes	No	No	No
Reduction in energy bills	Yes	Yes	Yes	Yes	Yes	Yes
Reduction in energy usage	No	No	No	Yes	Possible	No
Increase in thermal comfort / ability to use fair share of energy	Indirect	Possible	Indirect	Yes	Yes	No
Likelihood of uptake*	Low	High	Low	High	High	Medium
Participant perspectives	High desire for solar and access to renewable energy. Low decision-making ability (majority were tenants).	Majority value access to renewable energy. All value cheaper power.	Low understanding of bills and energy system. High desire for access to renewable energy.	High desire for more comfortable homes; understanding of value of building improvements (e.g. insulation)	High desire for and opportunity for more information.	High desire for relief from bill stress, but more value placed on improved thermal comfort and cheaper power.
Ability to benefit (Household circumstance and building)	Limited. Not many participants had solar, but many unsuitable for solar or with significant barriers	High. Does not require changes to building or any existing building conditions. All households could benefit from reduced bills.	Medium. Does not require building changes or certain conditions. Requires household understanding of and trust in scheme.	High. Significant opportunities; however requires landlord approval for tenants.	High. Does not require building changes. Many opportunities to benefit, but some are using very little energy already.	High. Does not require any specific circumstances.
Who it is best for	Owners.	All households; some may require increased information.	People with an understanding of their energy bills and/or new energy models; other households can benefit with increased information.	Most households; particularly renters – significant opportunities to improve rental properties.	All households, particularly new migrants, CALD communities	More extreme disadvantage (e.g. new migrants); as a temporary measure or in conjunction with other measures.
Barriers that programs should seek to address	Renting; apartment living; understanding of cost/benefit; any upfront cost contribution.	Digital access; language barriers; energy literacy. Participants were open to switching retailers, but in practice found it difficult.	Digital access; language barriers; energy literacy; any upfront cost contributions or payback periods. Switching retailers is a barrier.	Upfront cost. Benefit is more through thermal comfort than payback; many households are already using little energy. Little interest in a loan model.	Does not address access to renewable energy directly	Does not directly address thermal comfort, energy literacy, reduction in energy bills, or renewable energy access.

*Likelihood of uptake is based on participant perspectives and ability to benefit. Likelihood of uptake does not take into consideration any efforts within programs to overcome barriers, and could increase with the right support.

Summary of recommendations

Based on this research, AEF recommends that the following program design elements and mechanisms would be beneficial to include in programs aiming to deliver benefits to households experiencing energy hardship. These work towards ensuring no one is left behind in the transition to an equitable zero carbon society.

1. **Inclusive approaches to appropriate renewable energy solutions,** to allow more people in different circumstances to benefit from renewable energy, through rooftop solar and offsite solar schemes, supported by appropriate information and consumer protections
2. **Improvements to rental properties – starting with energy efficiency**, to improve tenants' thermal comfort without increasing the energy they use, with a focus on overcoming the split incentive between landlords and tenants
3. **Energy information to increase energy literacy and awareness of consumer rights,** with a particular focus on CALD (culturally and linguistically diverse) communities and new migrants
4. **Energy justice through renewable energy and energy efficiency**, to improve people's ability to use a fair share of energy to live in healthy, comfortable homes.

2. Overview

With funding from Energy Consumers Australia, the Australian Energy Foundation undertook research with 30 Moreland households to understand the perspectives of households experiencing, or at risk of experiencing, energy hardship, i.e. difficulty in paying energy bills. Participants were categorised as within one of two tranches of hardship: those accessing an energy retailer hardship program were classified as *households in energy hardship*, and those who have borrowed money or forgone other expenses in order to pay their energy bills were classified as *at risk of energy hardship*. Those at risk of energy hardship are also referred to as the '*invisible hardship'* group, as they are in fact experiencing a type of hardship manifested in a different way.

AEF conducted in-depth interviews and home energy assessments with participating households to understand their experience of energy hardship. AEF also interviewed participating households to understand their appetite for a range of potential program models designed to unlock the benefits of renewable energy for vulnerable households

The research aimed to understand the ability of households experiencing or at risk of energy hardship to benefit from renewable energy program models that involve these communities by installing solar directly on their homes, by improving access to low-cost renewable energy through an energy retailer, or by providing access to offsite solar, such as community solar or solar garden models where a shared solar installation mutually benefits a number of owners or program participants.

These program models share the common aims of increasing vulnerable consumer access to renewable energy and alleviating energy hardship or bill stress. We evaluated elements of these program models according to the ability of households in energy hardship to participate in and benefit from these programs, through increased access to renewable energy and/or reduction of energy bills.

A feature of some offsite solar program models is the establishment of a community fund, wherein a percentage of the financial value of renewable energy generated is directed to benefit vulnerable members of the community. Therefore this research included consideration of how such a fund could best be utilised, from a vulnerable consumer perspective. Groups aiming to establish such funds have considered methods of benefit including energy literacy programs, food vouchers or other financial support unrelated to energy costs to relieve bill stress more generally, and energy efficiency improvements. In these models, vulnerable communities benefit from the value generated by renewable energy indirectly through redistribution of value, rather than access to renewable energy for their household energy use. In an effort to include these types of community solar projects, perspectives on and ability to benefit from these mechanisms were included in the study.

Participation in the study was incentivised by the offer of energy efficiency advice and some simple materials (such as a valve cosy or an energy efficient electric throw blanket) to reduce energy usage and bill stress. The materials were valued at $100 per household. Households were also assisted in accessing the Victorian Energy Compare website, to better understand their energy bills and how to get a better retail tariff. AEF also supported them in claiming the Victorian Government's $50 Power Saving Bonus where the household had not yet done so.

3. Household recruitment

AEF recruited 30 participants through a range of recruitment channels, which included face to face interaction with community members, interaction with service providers, electronic direct mail (through AEF's database), social media and an online questionnaire.

3.1. Recruitment channels

As a first strategy to recruit participants to interview, AEF contacted organisations providing social welfare services to the community, including:

- Aboriginal Housing Victoria (Moreland-wide)
- The Community Grocer (Fawkner)
- Fawkner Community House
- Fawkner Food Bowl
- Glenroy Neighbourhood Learning Centre
- Moreland City Council Home and Community Care (HACC) team
- Olive Way drop-in centre, Uniting Care (Brunswick)
- Salvation Army (Brunswick)
- Victorian Women's Property Initiative (community housing association, Moreland-wide)
- Direct email to recipients of AEF's Zero Carbon Moreland newsletter (Moreland) and AEF's energy advice service (Fawkner)
- Facebook ad (Moreland-wide)

We engaged with the community through all of these channels and participating households were recruited through the above channels. The 30 participants were selected after interactions with over 90 Moreland residents. Where eligibility was not met we provided basic information about the Victorian Energy Compare website[1] and simple energy efficiency advice.

We approached several other similar organisations but, due to factors such as incompatible scheduling, did not engage with their community. These organisations included libraries, other neighbourhood houses, a Council public housing office, other social service providers and community programs. Reasons for ineligibility included not paying their own bills, homelessness and significant language barriers.

AEF posted a link to an online survey with qualifying questions, on a boosted post on the AEF Facebook page emailed the survey to its database of Moreland residents who have expressed interest in receiving updates from the Zero Carbon Moreland initiative as well as subscribers of our energy advice service, that were registered as living in the Fawkner postcode. This was because we had identified Fawkner as a lower socio-economic suburb of Moreland.

These channels were selected for their:

- Trusted relationships with intended tranche of households experiencing energy hardship, and
- Diversity in recruiting participants from a range of demographic characteristics, including a range of ages and household occupants, homeowners and renters, culturally and linguistically diverse communities, and 'hard to reach' people (e.g. people with limited internet access).

[1] https://compare.energy.vic.gov.au/

This project aimed to capture a relatively small sample size (30 households) and therefore there were limits to the range of diversity across these categories. By utilising a range of recruitment channels AEF aimed to gain an understanding of varying perspectives of households in energy hardship.

3.2. Determining eligibility

Potential participants were asked to complete a brief survey of qualifying questions, intended to assess their eligibility and willingness to participate in the research.

Respondents were deemed eligible if they answered 'yes' to at least one of questions 2, 3, and 4 (See 3.3 Qualifying questions):

- Have you ever not been able to pay a power bill on time?
- Has your power company or someone else ever helped you with paying your bills?
- Have you gone without other things, so that you could pay your power bills?

Most (83%) participating households responded 'yes' to more than one of the above questions, and one third responded 'yes' to all three questions.

Questions 1, 5, and 6 were not used to determine eligibility. 97% of respondents said they were worried about their power bills and 97% said they try to be careful when using energy, to save money on bills. 87% said their homes feel warm in summer and cold in winter.

According to their responses to questions 2, 3 and 4, respondents were classified as either 'accessing a hardship program' (answered 'Yes, I have used my power company's payment plan, debt relief or hardship program' to question 2) or 'at risk of hardship' (all other eligible respondents).

Question 7 aimed to capture a level of demographic diversity in the study, that we were less able to target through recruitment channels (home ownership). Diversity of age ranges and cultural and linguistic diversity was sought through the selected recruitment channels, for example English language classes at neighbourhood houses. Participants were not excluded based on their answer to this question.

Respondents indicated their willingness to participate in the study by responding 'yes' to question 8 and leaving contact details in question 9

We received 60 completed questionnaires, of which 57 were eligible. 52 eligible respondents were willing to participate in the study. (See 3.4)

3.3.Qualifying questions

The following questions were used to assess eligibility.

1. Do you get worried about your power (electricity and gas) bill?

   ☐ Yes ☐ No

2. Have you ever not been able to pay a power bill on time?

   ☐ Yes ☐ No

3. Has your power company or someone else ever helped you with paying your bills?

   ☐ Yes, I have borrowed money from family or friends
   ☐ Yes, I have used my power company's payment plan, debt relief, or hardship program
   ☐ No

4. Have you gone without other things, so that you could pay your power bills?

   ☐ Yes ☐ No

5. Do you try to be careful when using electricity or gas in your home, in order to keep your bills down?

   ☐ Yes ☐ No

6. Does your home feel cold in winter and warm in summer?

   ☐ Yes ☐ No

7. Do you rent or own your home?

   ☐ Rent ☐ Own

8. Are you interested in taking part in a study and receiving some assistance in keeping your bills down, without compromising on the comfort levels in your home?

   ☐ Yes ☐ No

9. If you answered yes to question 8, please provide your contact details, and someone from the Moreland Energy Foundation will be in touch:

Email to recipients of Zero Carbon Moreland e-newsletter

3.4. Recruitment challenges and successes

This research aimed to recruit households in 'hard to reach' demographics, including those in 'invisible hardship'; that is, people who are forgoing other expenses in order to pay their energy bills on time. Due to the fact that this group pays bills on time and does not have a debt or payment plan with their energy retailer, it is more difficult for retailers or DNSPs to identify households experiencing this kind of energy hardship.

For this reason, we utilised the Australian Energy Foundation's established relationships with community-facing organisations providing services to vulnerable households. This strategy was successful for a number of reasons:

- **A trusted introduction**: Approaching potential participants via a trusted connection – for example, a teacher or financial counsellor – increased our ability to reach participants who were both eligible and willing to participate. When approaching vulnerable or disadvantaged people, ensuring they feel safe and trusting is key to valuable engagement. A personal introduction from someone known to participants increased people's understanding of the project and level of trust. In some cases a trusted connection introduced AEF staff to community members, and in other cases the trusted connection acted as intermediary.

- **Face to face interaction**: Many participants face barriers to digital engagement, including language and literacy barriers, and lack of computer or internet access. Meeting these people for a face-to-face conversation, in places where they were already engaging in other activities (such as accessing services, taking language classes, or eating a meal) enabled us to reach people who are digitally disengaged.

- **Digital channels** (through social media and a direct email to Zero Carbon Moreland newsletter and AEF subscribers) were also successful in recruiting eligible and willing participants. Through a combination of digital and face-to-face interaction, we were able to reach a more diverse group.

The target number of participants was successfully recruited; however there were some challenges and barriers encountered.

- **Language barriers**: There was a significant language barrier with CALD communities accessing services through the recruitment channels we used. In some instances we were able to utilise the recruitment channels to overcome these barriers. In neighbourhood houses, language teachers and more advanced ESL students interpreted our information, so that more recently enrolled students could understand and complete the questionnaires. Participants who were less proficient in English were asked to bring a friend or family member to the household visit, who could interpret for them. This community assistance enabled us to recruit a diverse range of CALD communities.

- **More extreme disadvantage**: There are varying levels of disadvantage amongst people accessing services at the organisations where we recruited participants, and more extreme disadvantage excluded people from participating in this research. For example, we spoke to a number of people experiencing homelessness and others who don't pay an energy bill due to temporary and other challenging living arrangements.

- **Lack of visibility or management of energy bills**: We spoke to people whose energy bills go straight to a family member, who doesn't live at the same property, and people whose utilities are included in rent. This research aimed to measure hardship experienced because of energy bill payments, and therefore excluded people who don't view or pay their own energy bills.

- **Availability**: People who work full time were unable to be home during weekdays for a home visit. We visited some households on evenings and weekends in order to include people who were working throughout the week.

- **Reticence to have someone come into their home**: Some people expressed reluctance to have someone visit their home.

- **A question of dignity**: Our team questioned whether self-identifying as a person in energy hardship (admitting difficulty in paying bills) to a stranger was a barrier for some people. For example, we spoke to a person who, although accessing a free food box service, and although worried about energy bills, didn't see herself as needing help and "would rather the participation incentive go to someone who really needs it".

There were also a number of people who were unwilling to participate or to complete a questionnaire with no reason given.

We also found that some people expressed an interest but did not return out calls or emails, so we were unable to schedule the home visit.

4. Interviews and home energy assessments

4.1. Interviews

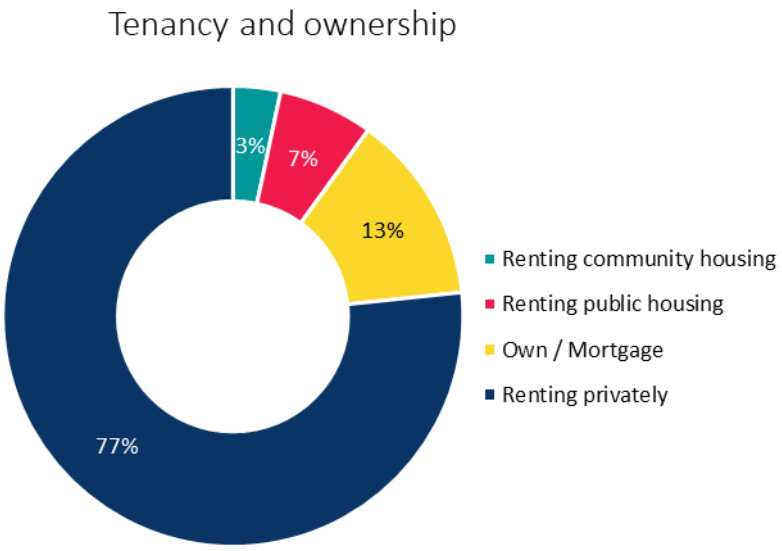
The aim of the interviews and home energy assessments was to develop, as far as possible, a complete picture of each household's perspectives and experience of energy hardship and an understanding of the types of program models and mechanisms that could be of most benefit to households in or at risk of energy hardship.

For this reason, we collected several categories of information: demographic information, hardship information, information on energy usage, information about the building, and potential to benefit from prospective program models or mechanisms designed to assist vulnerable households. Across these categories, we combined subjective information gathered from consumer perspectives with objective observations through the home energy assessment and energy bill review to form conclusions on the types of program elements most likely to be of benefit to households similar to those in the study.

4.1.1. Demographic information

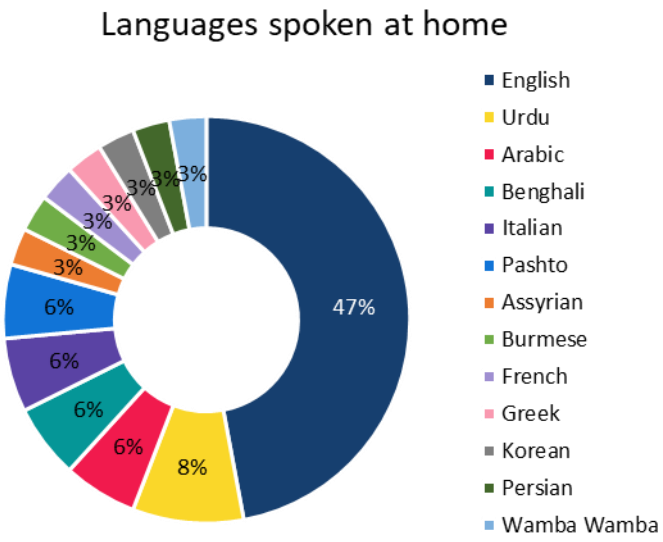
Home ownership

87% of participating households were renters, and 13% owners. Of renters, 88% were renting privately, 7% public housing tenants, and 4% community housing tenants.



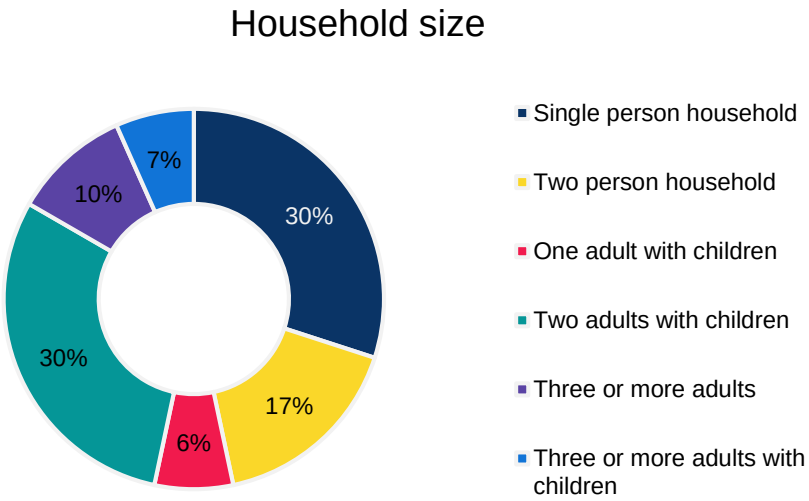
Languages spoken

Participants from culturally and linguistically diverse (CALD) communities made up more than half (53%) of households interviewed. The 15 households speaking a language other than English at home represented 12 languages. This included 3 bilingual households where one language was English.



Household size and residents

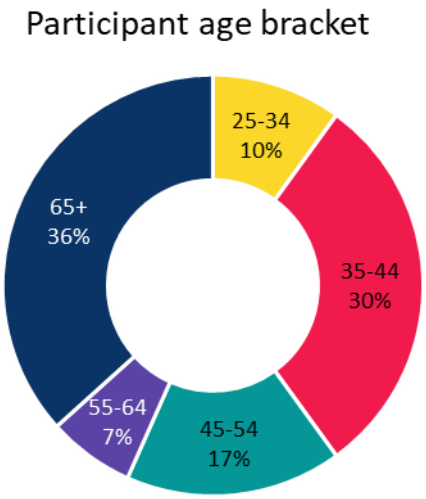
Households ranged from single person households to households of six residents. The highest representation was of households of two adults with children and single person households (each 30%).



Age

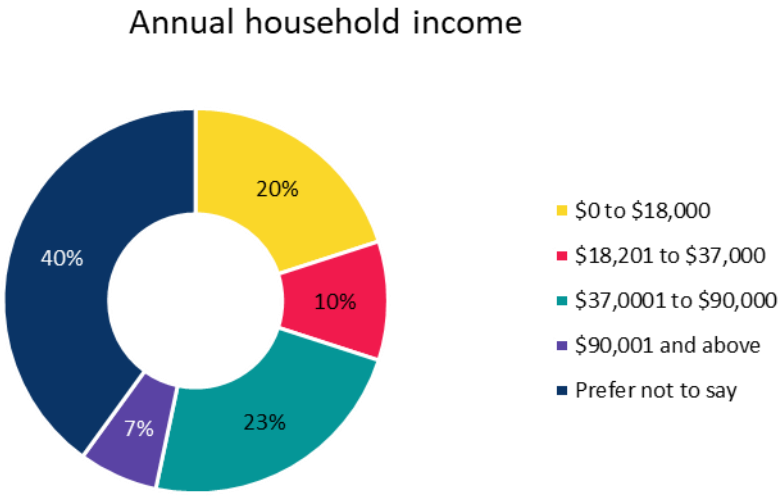
A range of age groups were represented, including university students living in a sharehouse, families with young children, and pensioners. The highest represented group was participants aged 65 or over (36%), followed by those aged 35-44 (30%). Age brackets refer to the person living in the household who participated in the survey. This was generally a person responsible for paying energy bills or, in one case where the bills were paid by someone not living at the same property, the person who

receives energy bills. For households with multiple residents, recorded age brackets do not include all household residents.



Income

35% of those who chose to disclose a household income bracket were earning $0 - $18,000 annually, and 41% were earning between $37,000 and $90,000 annually. 40% opted not to disclose their household income.

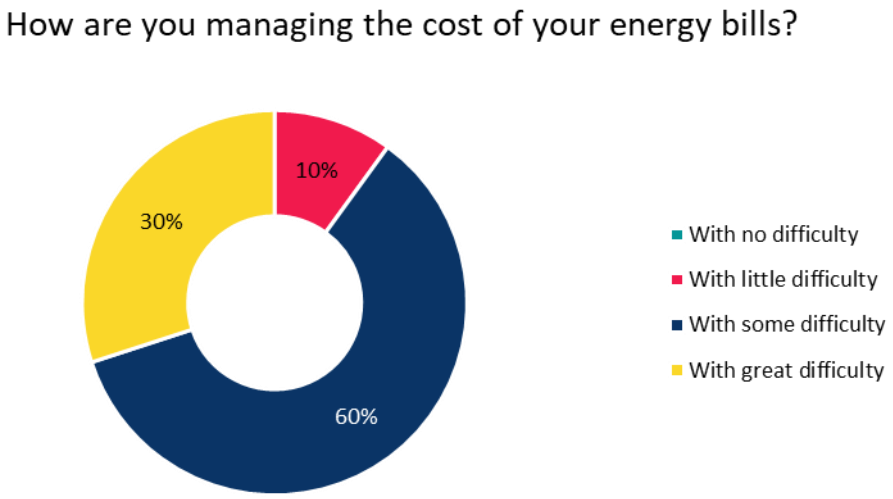


Housing types

A range of housing types were represented, including a mix of freestanding houses and multi-residential apartments or units, ranging from near-new to 100 years old.

4.1.2. Hardship

90% of participants have great difficulty or some difficulty managing their energy bills.

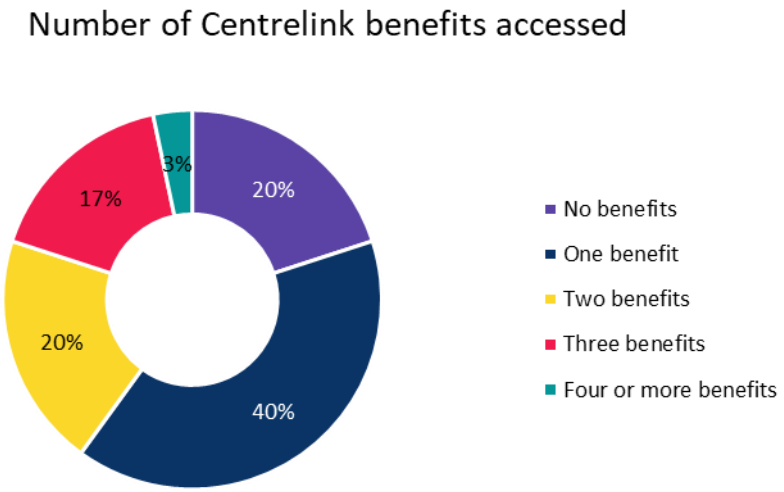


The following themes emerged around participants' experience of energy hardship:

Energy hardship does not exist in isolation. People in energy hardship are often also experiencing other types of hardship, and the majority in this study were accessing concessions and/or services provided by social welfare organisations.

80% of participants had at least one kind of concession card: 53% had a pensioner concession card, 40% had a health care card, and 4% had a student card. 17% had more than one type of concession card.

Similarly, 80% of participants accessed some type of assistance from Centrelink (at least one of the following: Newstart / job seeker payment, carer's allowance, childcare rebates or assistance, disability support, student support (e.g. Austudy or ABSTUDY), aged pension, energy supplement, family tax benefit, parenting payment, or rent assistance). Over one third (37%) were accessing more than one type of Centrelink assistance.



17% were not accessing any of the above assistance. One of these was an asylum seeker who was ineligible for any government assistance.

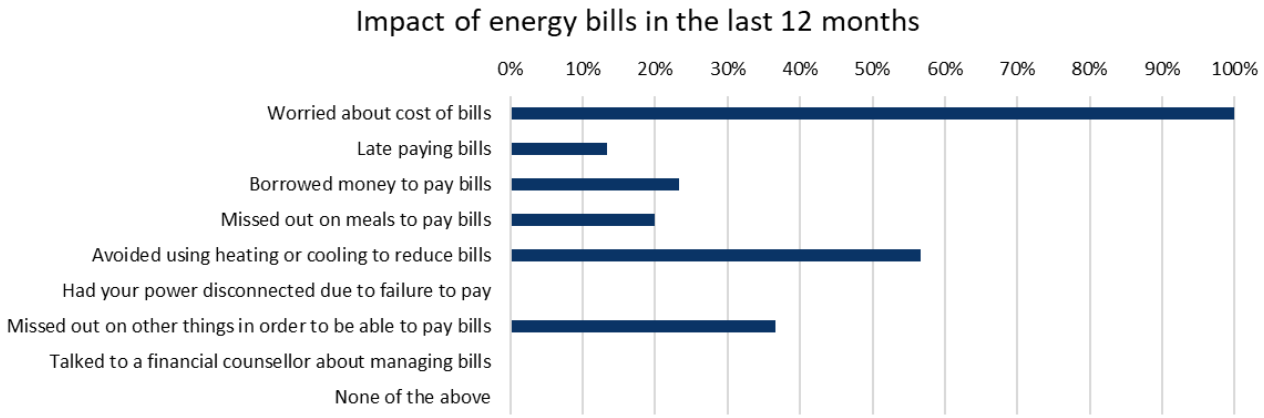
93% were accessing some kind of discount from their energy retailer: 72% received a pay-on-time discount; 63% received an energy concession; and 23% have used a payment plan or hardship program in the past 12 months. 7% (2 households) were not accessing any kind of discount, though one of these was entitled to an energy concession and was not receiving it as the bills were in her son's name (who did not live at the house).

The concessions and services we asked them about above were in addition to any services they were accessing through recruitment channels. Participants recruited through service providers were also accessing other services including free food boxes and free meals. One third of participants were recruited through service providers offering such free services. One third were recruited through neighbourhood houses, social housing providers and similar organisations providing low-cost services such as language classes and computer classes, and the final third were recruited through digital channels.

Many people are forgoing other things, but prioritising paying their bills on time. 43% of participants responded in the qualifying questionnaire that they had accessed their power company's hardship program or debt relief program – in other words, that they had owed a debt to their energy retailer and had set up a plan to repay that debt.

However, in the in-depth interviews, only 23% reported that they had been enrolled in a hardship program during the past 12 months, and only 13% had been late paying a bill due to financial difficulty during that time. A majority (67%) reported that they were going without other things in order to pay their power bills. This included avoiding turning on heating and cooling (57%), skipping meals (10%), and forgoing other expenses (37%)**.** 20% had borrowed money from family or friends to pay energy bills.

These differences indicate that people in the study are prioritising paying their energy bills, including paying off energy debt and paying bills on time, though for the majority of participants, this means forgoing other things or incurring other debts (e.g. to family or friends).

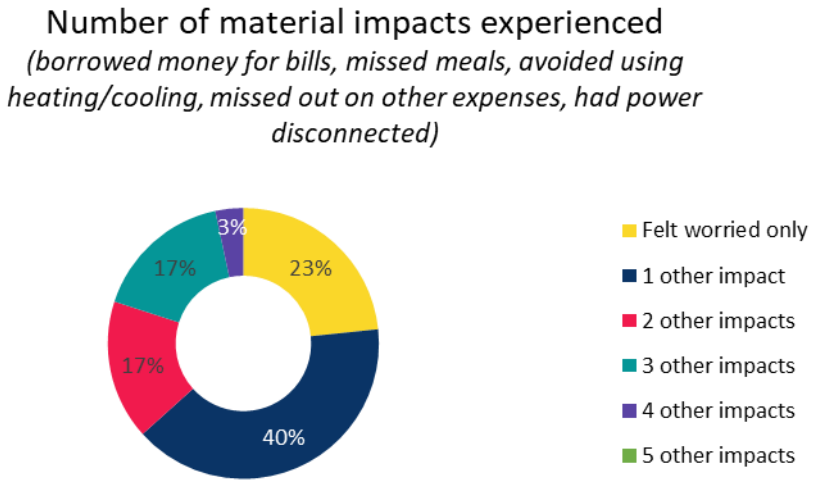


A subset of these impacts were examined separately as 'material impacts' – impacts that materially affected people. The five material impacts were borrowing money from family and friends to pay bills, missing out on meals to pay bills, avoiding using heating or cooling to reduce bills, having the power disconnected due to failure to pay bills, and missing out on other things in order to pay bills. 'Material impacts' did not include worrying about bills, late payments of bills, or talking to a financial counsellor about managing bills.

100% felt worried about the cost of their bills and 77% had experienced material impacts in addition to worry. Of the five material impacts participants were asked about, 37% experienced one impact, 20% two impacts, 17% three impacts, and 3% four impacts. No one had had their power disconnected due to non-payment; therefore no one had experienced all five material impacts.

Some participants reported other impacts and strategies to reduce bills including showering and eating most meals at the Salvation Army, showering at a family member's house, avoiding eating out,

and bulk buying food when it is cheaper (e.g. cheaper to buy in bulk or due to discounts) to stock up the freezer and pantry for times when they skip buying groceries to pay bills.

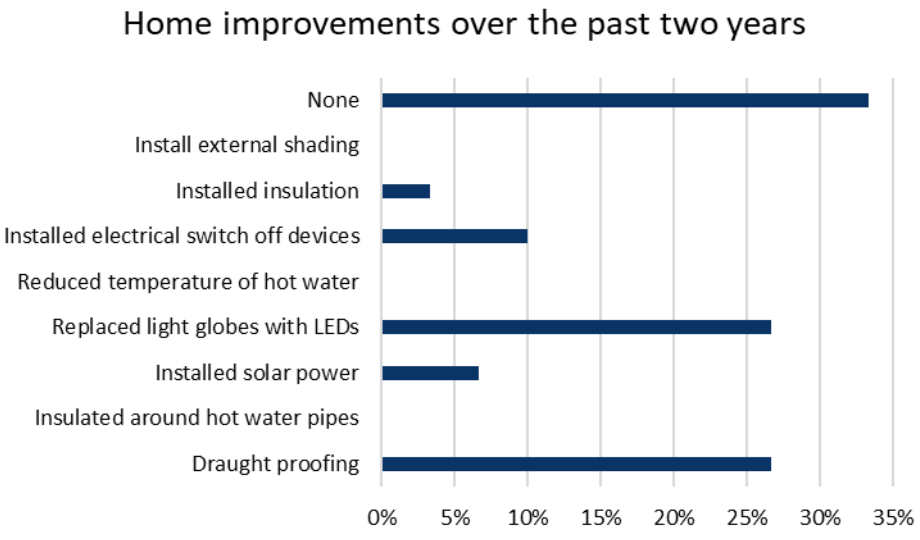


4.1.3. Improvements people have already made to the home

Participants had made limited energy efficiency improvements to their homes and few have installed solar. In addition to observing whether participants had a solar PV system installed, we asked participants which energy efficiency improvements they had made to their homes over the past two years. Where applicable, home energy assessments also observed whether these energy efficiency improvements were present.

One third of participants reported that they had done none of the listed improvements over the past two years. The most common improvements were draught proofing (27%) and switching light globes to LEDs (27%), followed by installing devices to switch off electrical appliances at the wall (10%), installing solar panels (7%) and installing insulation (3%).

No participants had undertaken the following actions: insulating around hot water pipes, or reducing the temperature of hot water on the hot water system.



Energy efficiency standards in the home were considered important to the research for two reasons. Firstly, improved energy efficiency reduces the energy required to heat and cool a home, meaning a household can either reduce the rooftop solar system size required, or reduce the amount of renewable energy they need to purchase from a retailer. Additionally, improved energy efficiency of homes increases comfort, which has beneficial health outcomes and reduces stress. Whether in conjunction with renewable energy or in cases where solar is not feasible, energy efficiency improvements can offer benefits through improved thermal comfort, reduced bills and reduced emissions.

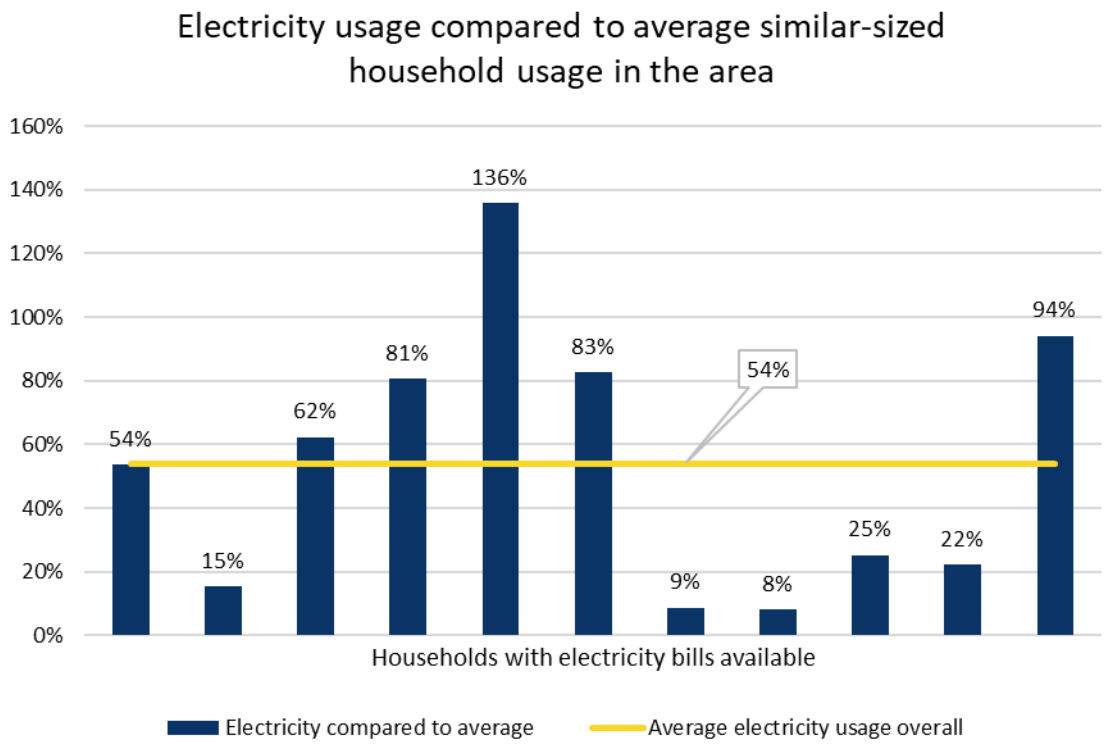
Secondly, our aim was to understand how households in hardship could benefit from renewable energy. This includes offsite renewable energy program models such as community solar or solar gardens. A potential feature of these program models is to set up a community fund that can be used to benefit vulnerable members of the community. This research aims to increase understanding of how such a fund could best be utilised, from a vulnerable consumer perspective, and energy efficiency improvements are one mechanism of delivering this benefit.

These findings indicate that there are significant opportunities to improve the energy efficiency of households in energy hardship, as well as installing rooftop solar. However, participating households faced barriers to installing these improvements, including the upfront cost, knowledge of how they could benefit from such improvements, and for renters, obtaining landlord approval and/or investment. Programs aiming to benefit households in energy hardship need to address these barriers to enable these households to participate.

4.1.4. Behaviours people are already doing

People are already trying to save energy. 97% of people said they tried to save energy to keep bills down, for example by avoiding turning on heating in winter. One participant was not sure; no one answered no to this question. More than half of households visited had no heating turned on during the home visit, although visits took place on winter days with maximum temperatures ranging from 11 to 17 degrees.

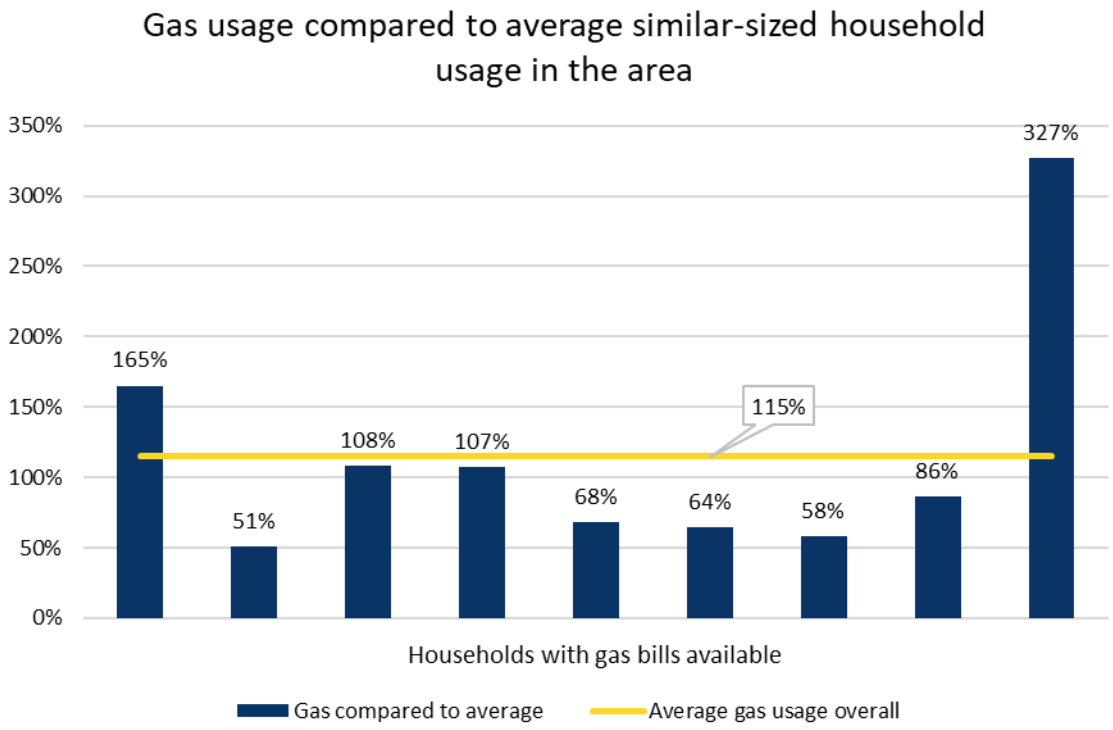
Many households therefore had a very low energy consumption. Thirteen households had energy bills (electricity, gas or both) available at the interview. Of these, on average, participating households had an electricity consumption of 7kWh per day, and average daily gas usage was 157MJ per day. We compared their usage with the average for similar sized households in the same area, and found that electricity usage ranged from 8% to 136% of the average for similar sized homes. Only one household with electricity bills available for review used more than the average similar sized household in their postcode, and the average (mean) usage was 54% of similar sized homes.



Gas usage ranged from 51% to 327% of the average.[2] The household with a gas bill more than three times the average for a similar sized household in the surrounding area was using Centrepay, a free Centrelink service where bill payments are paid directly from Centrelink payments, and was paying a fixed amount each fortnight to manage the cost of energy bills. He said that switching to Centrepay had reduced his level of worry about energy bills. However, he reported that when energy bills arrive bimonthly, he usually doesn't look at them because the bills are paid automatically and so "there's no need" to review the bill. He was surprised to learn during the bill review that his gas bill was close to $2000 annually, due mainly to operating the gas central heating system.

Five households had an average electricity usage of less than 4kWh per day and six had an average consumption per person of less than 2kWh per day. Three households were using less than 1.5kWh of electricity per day. Usage of less than 2kWh per day is little more than the usage of a single refrigerator, indicating the extent to which these households are forgoing turning on heating and other appliances. Of these three, one had no heating at all and a gas hot water system, and one had electric heating and an electric hot water system, with gas used only for cooking. For these two households, less than 1.5kWh per day represented the majority of their total energy usage.

[2] Energy usage was compared with similar sized households in the same postcode using the Australian Government's benchmarking tool at https://www.energymadeeasy.gov.au/benchmark



Low electricity usage means these households already have low energy bills. This means there is limited opportunity for additional energy or financial savings through behaviour change energy efficiency recommendations such as turning off appliances at the switch and setting appropriate heating and cooling temperatures. Most of these households were sacrificing comfort in order to keep their usage down. Improving building envelope would allow those households to improve comfort, without significantly increasing their bills.

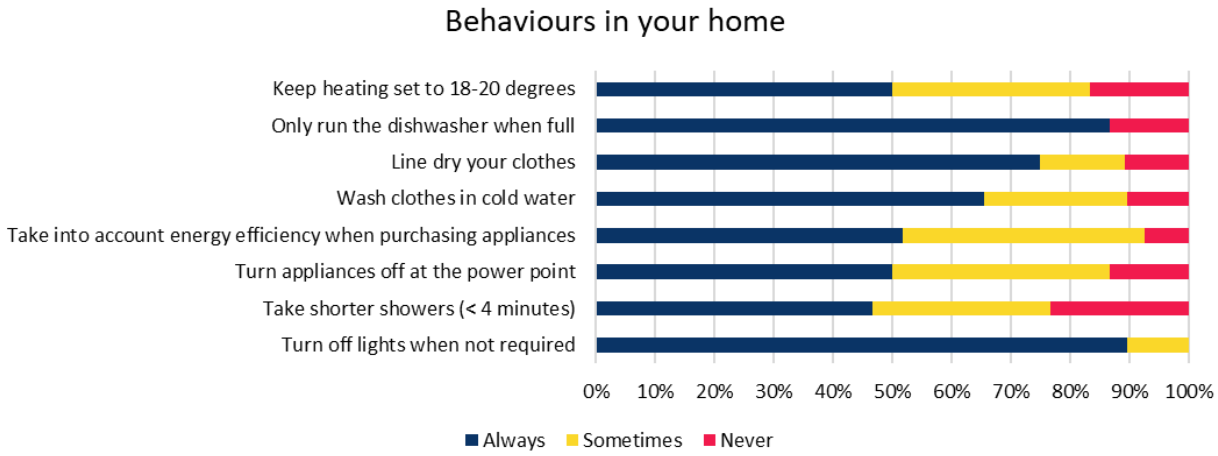
We assisted participants to compare energy retail offers using the Victorian Energy Compare website. Though in many cases participant found they could save, for some households with low energy use only modest savings were achievable. It is worth noting that to some households even these modest savings were seen as significant and worth switching retailer for. For example, one participant found that by switching electricity retailer and gas retailers they could save $6 per month compared to their existing bill. $6 per month to this household was a welcome extra, and they were happy to switch in order to save.

The majority of participants ‘always’ turn off lights when not in use, wash clothes in cold water, line dry clothes, keep the heating set to 18-20 degrees (when heating is used), and only run the dishwasher when full.

The majority ‘always’ or ‘sometimes’ take shorter showers (under 4 minutes), turn off appliances at the power point when not in use, and take into account energy efficiency when purchasing appliances.

The most common behavioural energy saving measures were turning off lights when not in use (93%), and only running the dishwasher when full (90% of those who have a dishwasher). The least common behavioural measures were taking shorter showers (27% reporting that they ‘never’ do this). One participant who had no means of heating the house at all reported that she does not attempt to shorten shower time because this the only way she can warm up.

These findings indicate that where the effect on bill savings is evident, participating households have a good understanding of and uptake of behaviour changes to reduce energy use, even to the point of sacrificing comfort. This suggests that, if provided with information on how to maximise the value of rooftop solar, such as changing the time of use of appliances to coincide with solar generation, these households would be likely to change their behaviour to maximise savings.



The ability to use a fair share of energy is a social justice and health issue – and some people are not able to use the energy they require for healthy, comfortable homes. Although energy efficiency and energy saving are desirable, there is a critical threshold where energy efficiency becomes energy hardship. On cold winter days in poorly weatherised houses, avoiding turning on the heater in order to save money can become a health risk. In some households the indoor temperature was the same as, or only a few degrees above, the outdoor temperature on the cold winter days on which home visits were conducted. Indoor temperatures of 13 and 14 degrees were observed in more than one home. Furthermore, 24% of participants reported that someone in the household has a health condition affected by heat or cold.

In two cases people were not using heating due to mistakenly believing reverse cycle air conditioners were broken. In one case a recent migrant was not using any heating due to a misunderstanding of how to use the reverse cycle air conditioner installed in their rental property. The misunderstanding resulted in the tenants believing the heating in the split system was broken. We showed them how to turn the appliance on in 'heat' mode. Because of these interventions, these two households are likely to now use their heaters, increasing their energy usage and their bills. This could be seen as a negative outcome if viewed through a lens of reducing emissions or cost, rather than energy justice.

A similar outcome is likely for participating households on the more extreme end of financial and energy hardship. As a household moves out of the more extreme levels of hardship and is able to afford to turn on the heater, their energy consumption will increase. The ability to heat one's home to a healthy and comfortable temperature is something most of us take for granted.

This highlights the need for programs to address access to renewable energy and energy efficiency when seeking to alleviate energy hardship. This is a particular consideration in the use of a community fund to redistribute a percentage of the value generated by a shared offsite solar installation. For example, a fund distributing this value through food vouchers or other financial support increases a household's ability to pay for energy bills, and for some households this may result in increased energy use. However, this mechanism does not seek to offset an increase in usage through energy efficiency or direct access to renewable energy.

Misconceptions about energy efficiency are common. Misunderstandings about which types of heating appliances use the most energy were common, with portable electric space heaters viewed as energy efficient (because they are small) and used in some households instead of a more efficient reverse cycle air conditioner, although one was installed. Increased understanding of which appliances are most energy efficient could enable these households to reduce their bills, and in cases like these, improve thermal comfort by using a more efficient and effective appliance. This kind of information would also enable households to maximise benefit derived from an increased access to renewable energy. As indicated above, where participants were aware of the impact of behaviour on energy consumption, they readily made behavioural changes to save money.

4.1.5. Energy bill review

We talked to people about their energy bills and, where bills were available, reviewed bills with participants to assess people's level of understanding of energy bills and to increase their understanding.

We assisted participants to use the Victorian Energy Compare website to compare their current bill (or their circumstances, where bills were not available) with available offers to see if they could get a better deal on electricity and/or gas. We assisted people to claim the $50 Power Saving Bonus where they had not already done so. Many participants were able to get a better deal this way, either by switching or by calling their current retailer and asking for a better deal. In some cases we assisted them to make the call to their retailer, where people felt unable to do this on their own due to language barriers or lack of confidence. We advised people to revisit the website regularly (annually) to check for a better deal and re-engage with their retailer to ensure they stay on the best deal.

Lack of understanding about bills and consumer rights is common. Overall, we observed a low level of understanding of bills. This included a lack of understanding of charges, such as consumer knowledge of what was represented by the daily supply charge or what was a favourable energy tariff, and also a lack of understanding of usage, either because people were not examining their energy bills to understand their usage, or because they did not understand how to interpret the information on the bill. One participant, for example, said that she does not often open her energy bills at all. Further conversation revealed that the reason for this is an outstanding debt to her energy retailer, which she found overwhelming.

During the energy bill review we discussed with participants what charges and usage on their bills represented and where to find relevant information, aiming to equip them with a practical understanding of how to interpret this information in a meaningful way for their household.

Many people believed that they would automatically be placed on their retailer's best energy tariff for their household or that having been with the same energy retailer for many years would lead to receiving a better energy tariff.

Among recent migrants in particular there were misunderstandings about consumer rights and the energy retail system in Australia. For example, some people were unaware that a single retailer can offer different electricity tariffs to different customers or that a consumer has the right to change retailers or ask their retailer for a better offer.

4.1.6. Perspectives on renewable energy and alleviating energy hardship

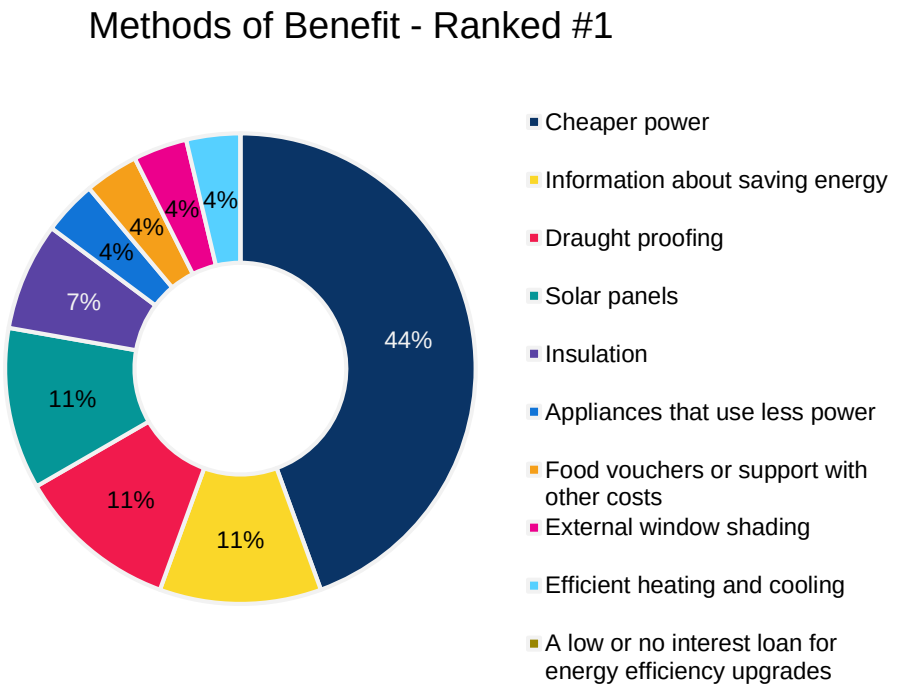
We asked participants their views on renewable energy, and to rank their top four choices from a list of measures hypothetically designed to benefit them. This list was derived from the categories of renewable energy program models considered and the associated mechanisms to benefit households in energy hardship.

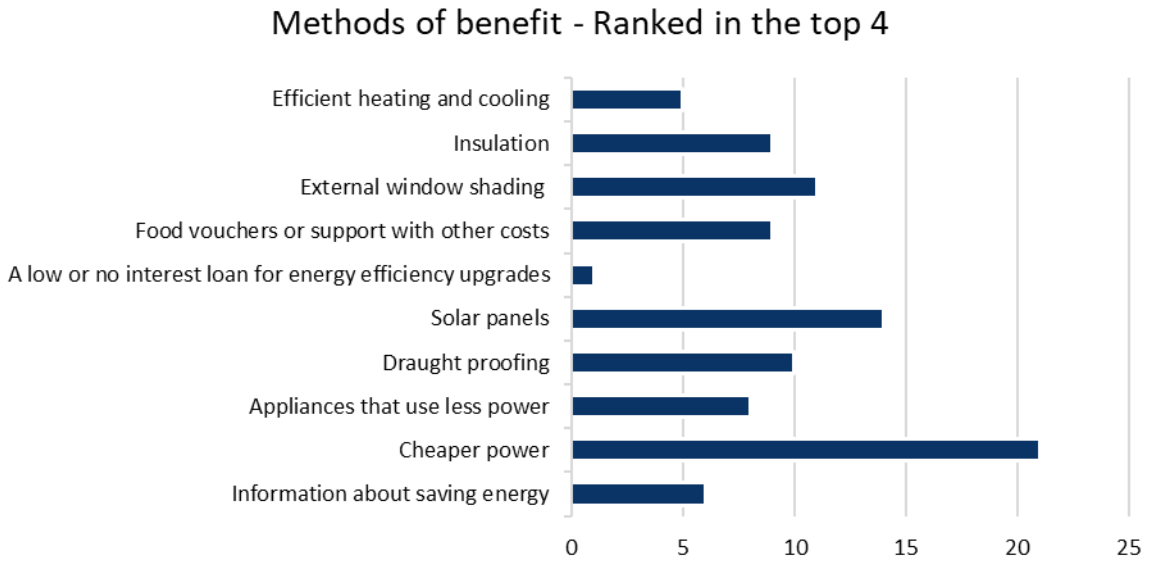
Participants were asked to choose from:

- Information about saving energy
- Cheaper power
- Appliances that use less power
- Solar panels
- Sealing up the gaps around your home to keep the heat in during winter and out during summer
- A low or no interest loan to improve the energy efficiency of your home
- Food vouchers or support with other costs, to relieve the pressure of paying energy bills
- External shading to keep the house cooler in summer

- Insulation to keep the house warmer in winter and cooler in summer
- Efficient air conditioning for heating and cooling

Participants named 'cheaper power' as the number one thing that would benefit them, with 44% ranking it as their top choice, and 63% ranking it in their top 4. Solar panels were ranked number 2 (12% as the top choice, 43% in their top 4). Energy efficiency improvements to the building (draught proofing, insulation, and external shading) were also highly ranked, as was energy saving information.





Over half (57%) of participants said that access to renewably sourced energy was important to them. 31% said it was not important to them, and 13% said they weren't sure. Only 7% were currently purchasing GreenPower or buying electricity from a retailer that offsets emissions. One participating household was with Powershop and told us that she purchases GreenPower when she can afford it but not at times when under financial constraints.

These findings indicate that there is an appetite from households in energy hardship to participate in programs that would improve access to renewable energy and reduce energy bills, but that reduced energy bills are prioritised above other benefits. Additionally, there was a common desire for increased energy efficiency and an understanding that measures such as insulation, window protection and draught proofing could improve thermal comfort in their homes. In both the formal interview and conversations with participants, renewable energy consistently ranked lower than cheaper power bills, and on par with energy efficiency improvements.

While there was interest in these types of benefits, participating households had little ability to manage an increase in their bills, whether from GreenPower, loan repayments or any type of upfront or program subscription cost. Programs aiming to benefit households in hardship that include a repayment from the household, such as a portion of energy savings repaid as a no-interest loan or solar garden subscription, must ensure that households are better off financially from day one, to ensure that the program does not unintentionally further disadvantage vulnerable households.

Projected financial and energy savings should be clearly communicated to potential program participants, particularly where there is a repayment or subscription, and these projections should clearly demonstrate the total savings, repayment or subscription cost, and the difference between the two, which forms the real savings to the household. Energy monitoring to ensure projected savings are being realised would also assist in overcoming the barrier of a repayment or subscription cost, as long as this information can be easily accessed by and clearly presented to the household. We combined participant perspectives with findings from the home energy assessments and evaluated mechanisms designed to benefit vulnerable communities against these findings (see Section 6 below).

4.2.Home energy assessments

Home energy assessments were undertaken to assess the building (external cladding type, estimated building age, presence of insulation, draughts, solar panels, internal and external window protection) and household appliances (hot water system type, heating and cooling).

These observations were combined with participants' subjective reports of the level of thermal comfort in their homes, energy efficiency home improvements and behaviours already undertaken, to identify the top energy saving opportunities for each home.

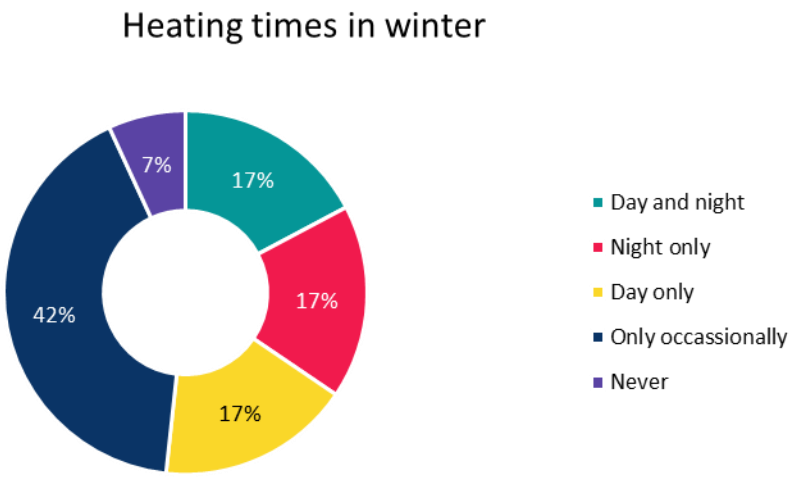
The assessors aimed to understand opportunities that could actually be undertaken in households, noting that there may be a disconnect between what participants view as a benefit (would like to do in their homes) and what could be implemented or have the most impact in the homes they live in.

Overall the home energy assessments found that the quality of energy efficiency in most participating households was extremely poor. Many homes lacked adequate insulation, were draughty, and had inefficient windows with inadequate window protection. In two households where the heating was turned off during the home visit, indoor temperatures were observed that were equal to outdoor temperatures (13 - 14 degrees Celsius).

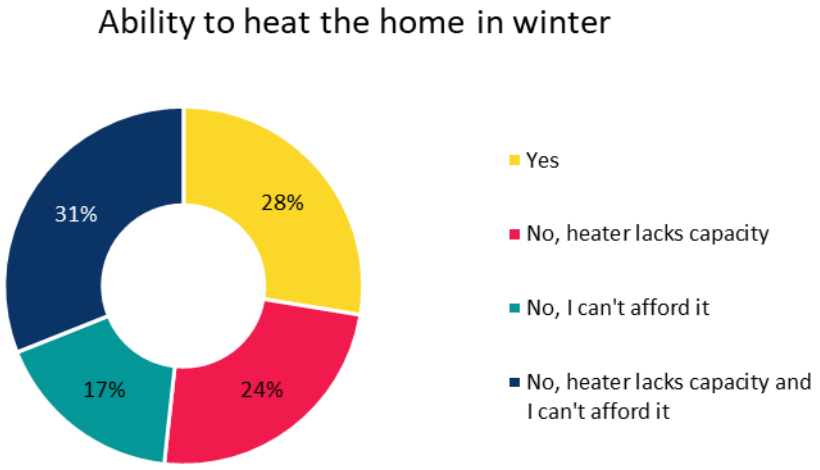
Thermal comfort is an issue. The majority of participating households (83%) said their homes felt cold in winter and warm in summer. This indicates an opportunity to improve comfort, and an important consideration for programs aiming to maximise the value of renewable energy for households. Access to renewable energy alone will not address thermal comfort or reduce health risks from inadequate heating or cooling. Combining renewable energy access with energy efficiency measures or energy information has the potential to enable households to improve thermal comfort, as well as reducing the amount of renewable energy required by households.

13% of participants primarily use no form of heating to keep warm in winter. Instead they wear warm clothes, keep warm with an electric blanket/throw, carry a hot water bottle or use hand warmers during the day, stay in bed with blankets most of the day, or try to go somewhere else that is warm during the day (e.g. the Salvation Army). 56% are heating one room only.

17% use the heating only during the day, 14% day and night, 43% only occasionally use the heating (a few hours per day or less), and 7% never use heating (one house had no heating available).



Financial hardship and housing quality both limit thermal comfort. 70% of participants felt unable to heat their homes adequately in winter. 16% are unable to afford to, 23% do not have adequate heating in the home, and 30% are both unable to afford to heat their homes and have inadequate heating capacity.



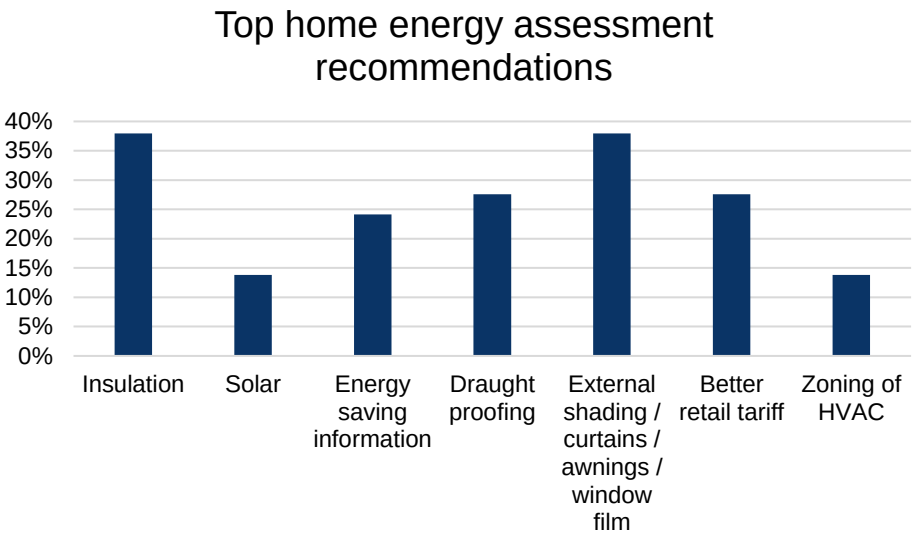
10% of participants did not use any kind of cooling on hot summer days. 70% use a fan, 67% use a combination of energy efficiency measures (shutting blinds/curtains to reduce heat getting into the home, closing off areas that don't need to be cooled, ventilating by opening windows/doors after a hot day, and avoiding cooking inside on a hot day), and 23% leave the house on hot days. Some reported using alternative methods of keeping cool, including putting feet in a bucket of cold water, taking multiple cool showers, hanging wet sheets over doorways and windows, and sleeping with wet towels.

More participants felt able to adequately cool their homes in summer than able to heat them in winter (43% vs 33%). 30% either have no air conditioning or inadequate air conditioning to cool the home; 7% are unable to afford to use cooling, and 20% are both unable to afford to use cooling and have inadequate cooling capacity. The home visits were conducted in winter, so it is possible that some participants could not sufficiently recall the thermal comfort levels in the hotter months, which may have resulted in the discrepancy between perceived ability to heat and cool the home. One participant reported that their indoor thermometer in the lounge room often registers temperatures of 51 degrees Celcius on hot summer days.

4.2.1. Opportunities for renewable energy and energy efficiency

Assessors identified the top opportunities for improvement in each household based on the home energy assessment. These included rooftop solar, energy efficiency opportunities, energy literacy opportunities, and opportunity for a reduction in energy tariff.

Energy literacy levels were also generally low and energy saving information was another key opportunity. Many households could benefit from a reduced retail energy tariff, and we assisted many with seeking a better deal during the home visit.



Energy efficiency is the first opportunity

Overall, the standard of energy efficiency in the majority of households in the study was very poor and many of the top opportunities were for energy efficiency measures. The top opportunities for improving building performance identified were insulation, external shading or window coverings, draught proofing, improved efficiency of windows and seeking a better retail tariff (for both gas and electricity). Inefficient windows (windows that let in substantial heat or cold from outside) were identified as an issue in most households, despite the interview and home energy assessment not specifically asking questions about this.

These types of improvements would be an effective use of a community fund established by a renewable energy program such as community solar.

While there was interest in solar and it ranked second in participant perspectives, rooftop solar was recommended for only a minority of households (14%). This was due to a range of barriers including renting where the landlord was judged by the participant to be unlikely to approve or invest in solar (such as in the four cases where tenants had been informed the property was planned to be demolished), living in apartments, and renting in public housing. Some of these barriers, for example apartment living, can be overcome, but where the challenges were significant, we did not include the opportunity in recommendations to the household. Renting, on its own, was not considered a limiting factor, although tenants and landlords face the barrier of the split incentive.

Two participants lived in properties with solar installed, and one of these was a community housing tenant who had had solar installed by the housing association. 50% of households without solar ranked solar panels in their top four desired benefits. The majority (86%) of those desiring solar were living in properties where solar was not among the recommended actions, due to the barriers described above.

Where households are able to benefit from rooftop solar, programs seeking to install solar should ensure adequate information is provided to vulnerable participants, to ensure households benefit from solar. This includes providing information in languages other than English, where needed.

The disconnect between the level of interest in solar and the likely difficulty or inability to instal rooftop solar for these properties indicates a potential opportunity for households in energy hardship to participate in offsite solar schemes, such as community solar or solar gardens. These types of programs will need to carefully consider ways of including vulnerable households, to ensure that they are better off financially from day one, that there is clear communication around financial savings and benefits to households, and that adequate information is provided regarding consumer rights and maximising benefit.

Emerging models of community energy, such as community solar or solar gardens,may require additional levels of information to ensure households are aware of how programs work, consumer rights for participants, and the value to households. A minority of participants in the study were digitally engaged and experienced with technology, and engaged with their energy consumption. One used smart home technology to control energy usage remotely. These households are likely to be able to engage with new and emerging models with little additional information. However, the majority of participants would require additional support through information and building confidence in unfamiliar energy solutions.

Similarly, there is opportunity for programs that increase access to renewable energy via an energy retailer, for households where rooftop solar is not feasible. An added benefit of offsite solar schemes and programs that increase access to renewable energy via a retailer is that tenants can remain in the program if they move. These types of programs should also consider how information is presented, and ensure that digital access is not a requirement, to enable households without internet or computer access to participate.

The priority given to 'cheaper power' by participants indicates that program elements that deliver cheaper power are likely to have higher levels of uptake. Cheaper power can be delivered through rooftop solar, offsite solar, or access to renewable energy via a retailer – providing these can be delivered at no upfront cost and with participants better off financially from day one. These findings indicate the value of communicating the benefits to participants in terms of what is important to them – lower energy bills.

Energy information

In most households there was an opportunity for better energy information. These opportunities included:

- **Energy efficiency information,** including debunking myths about energy efficient appliances. For example, misunderstandings about which types of heaters consume high amounts of were common, with many people believing that a small portable electric heater consumed less energy than a split system.

- **Increasing understanding about consumer rights**, such as debunking misconceptions about the 'loyalty tax'. Two thirds of participants had been with their energy retailer for over two years, and some significantly longer. One participant was 68 years old and had been with the same energy retailer since the age of 16. Her impression was that as a longstanding customer she would be on the best deal available, but a search using the Victorian Energy Compare website, showed that this was not the case. Many participants were unaware of their rights: either unaware that they are able to change retailers, that retailers have multiple offers, that being a long-term customer does not guarantee a better rate (and in fact often the opposite is true), that they can ask their retailer for a better rate, or how to go about finding information and switching. 80% said they would change retailers if they could get a better deal.

- **Information presented in languages other than English** to support CALD communities

- **Information about how energy retailers work** in Australia, for new migrants.

- **Information about renewable energy and shared renewable energy models** (where programs require). Conversations with participants indicated that there is a need to provide information about shared or alternative renewable energy models, such as community solar or solar gardens, where programs seek to include households in energy hardship in these types of schemes. Overall participants had an understanding of rooftop solar, although there is still ample opportunity for increased consumer information about the cost/benefit to consumers and maximising the benefits through changing the way energy is used in the home (for example using power during the day or staggering the use of high energy consuming appliances).

  Programs that seek to engage household in energy hardship through offsite solar schemes are likely to need to provide additional levels of information and consultation with these households, to increase understanding and, critically, levels of trust in a system that is likely to be unknown to the household. For example, clear and straightforward information about how offsite solar models work, assurances that participating households will be better off financially from day one, and trusted sources of information, are likely to increase participation among these households.

- **Timely information:** 63% of participants only saw their energy bill bimonthly or quarterly and this was the only visibility they had into their energy usage. This delay in information leaves little opportunity for them to understand the impact of day-to-day actions such as turning on particular appliances, and to adjust their usage in a timely way.

  Where possible and appropriate, we introduced people to their electricity distributor's customer portal and showed them how to access up-to-date energy consumption data for their home. However, due to language or literacy and lack of access to computers or the internet at home, accessing distributor portals was not a viable solution for many households. One participant introduced to her distributor's portal immediately noticed a spike in electricity usage over a two day period (overnight), and identified this as the time when a friend stayed and was provided with a portable heater, left on overnight. The impact of this was not apparent in a quarterly bill, but was immediately apparent in the portal. The householder determined that the friend would not be getting a heater in future.

  Another household was renting in a property with electrically powered central heating and limited ability to zone the usage of heat. The previous winter, their first with that heating system, their energy bill was $3000. The household is still paying off this debt to their retailer, and now avoids turning on the heater. For this household, timely information viewed daily or weekly instead of at the end of the billing period could have assisted them to avoid incurring the debt. This was one household that could clearly benefit from the installation of solar power.

Barriers to action

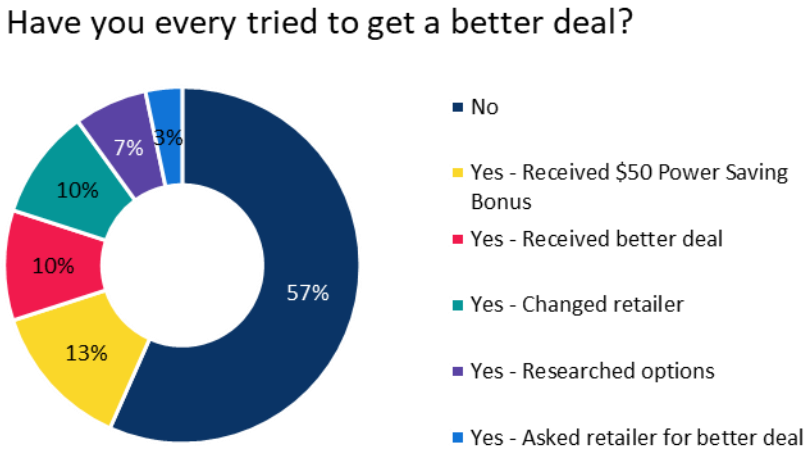
Participants faced a number of barriers to implementing these opportunities. While these are mentioned in the relevant sections of this report, some common barriers that present challenges across a range of actions are discussed below.

Renting

87% of participants were living in rental properties, including two public housing tenants and one community housing tenant. Of renters in private rental properties, four had been informed that the landlord intends to demolish the property, making it extremely difficult for these tenants to advocate to landlords for any improvements to the property.

Barriers to changing retailers

Three quarters of participants said they would change retailer if they could get a better deal, but over half (57%) had never tried to get a better deal on their energy bills. Only 7% of participants said they would not change retailer if they could get a better deal, and the remainder didn't know. Despite willingness to change, only 20% had actually received a better deal, either by asking their current retailer or by switching retailers. Reasons for not seeking a better deal included being unaware that they had a right to switch or that an energy retailer has multiple offers, low computer literacy, language barriers, a debt to their current retailer which must be paid off before they are able to switch, distrust (of door-knocking retailers asking them to switch), and the complexity ("It's mindboggling").



Participants' willingness to change retailer if they could get a better deal suggests a willingness to participate in programs that provide them with cheaper power, even if it means changing retailer. However, the perceived complexity of changing retailers and lack of understanding of energy bills means that households require support in interpreting their bills, understanding and comparing offers, and selecting the best deal.

Programs that aim to provide lower cost renewable energy via an energy retailer are likely to attract interest from households in energy hardship, but households are likely to require additional support in switching. Given the low incidences of changing retailer among participants in this study, these types of programs should aim to ensure that program participants continue to be offered a competitive energy tariff to avoid unintentionally disadvantaging participants in the future. Alternatively these types of programs should provide information to participants about their consumer rights and recommend they regularly check for a better deal using a government comparison website such as Victorian Energy Compare (www.energycompare.vic.gov.au) or Energy Made Easy (www.energymadeeasy.gov.au/).

Language and lack of digital access

With half of participants speaking languages other than English at home, language barriers were common and prevented many people from either having the level of English language skills required to seek a better deal, or having the confidence and consumer knowledge to do so in English. Several households also did not have internet or a computer at home, making it difficult to engage with timely energy information or available resources such as the Victorian Energy Compare tool.

5. Participation incentives

5.1. Energy efficiency measures

AEF left each household with a pack of energy saving materials valued at $100 as a token of appreciation for their time in participating in the study. Materials were selected for their:

- Effectiveness in reducing energy usage and/or reducing the impact of energy bills on the household, and
- Portability (ability to install in a rental property and ability of the householder to take the item to their next property on moving)

Households received a mix of the following materials:

- Electric throw blanket, to help them keep warm with low energy consumption comparative to using heating
- Valve Cosy, to keep hot water from cooling at the valve on their tank
- Draught Stoppa, to reduce the amount of air exchange through extractor fans
- Thermometer, to help them understand if their home and fridge/ freezer are functioning adequately and/or to help them to keep room temperatures at 18-20 degrees in winter and 25-27 degrees in summer
- Compact fluorescent light globes, to replace incandescent globes where these were still installed
- Coles/Myer $30 voucher, to assist with other household costs, such as grocery bills, in order to reduce bill stress

Home assessors selected a combination of materials that were tailored to be appropriate for each household. Only households with suitable gas storage hot water systems could utilise the Valve Cosies, for example, and some households with young children who expressed a wish for an additional electric throw were given two electric throws in lieu of a voucher. One person requested an additional voucher instead of a throw and used these to purchase curtains.

AEF was committed to passing on the full $100 incentive value to each participating household as a matter of equity and in recognition that all participating households are facing difficulty in paying energy bills. At the same time, we aimed to avoid giving unwanted materials that would not be useful to the household due to unsuitability, duplication, barriers to usage, or low quality. We were fortunate enough to source some of the electric throw blankets on sale for under 50% of the original recommended retail price, which meant they could be included with other items. AEF also recognised that energy hardship does not exist in isolation: households experiencing energy hardship were also experiencing various other types of hardship. For this reason, Coles/Myer vouchers were selected as an option that would help to alleviate the pressures of energy hardship, by providing assistance with other (grocery) bills.

5.2. Consumer information provided

Assessors recommended to each household the top energy efficiency opportunities they could take to reduce their energy usage and bills. Assessors provided energy saving information through conversations with participants, and also through energy saving information booklets in English and, where appropriate, Arabic, Greek, and Italian.

Assessors helped participants to use the Victorian Energy Compare website to compare energy bill options, and, where applicable, assisted them to claim the $50 Power Saving Bonus. We informed participants of available energy concessions and assisted those who were eligible to ensure they were receiving these concessions. In some cases assessors phoned retailers and supported households in changing tariff.

Where possible, we showed participants how to log in to their electricity distributor's customer portal to understand their energy consumption at a more detailed level and in a timely way.

Where applicable, we discussed available rebates such as the Solar Victoria Solar Homes rebates with participants.

Examples of energy efficiency information presented in English and community languages

Simple, effective ways to save energy whilst caring for your health and comfort.

3 easy actions to reduce your electricity bills

1. Check if you can save money on your energy bills by comparing retailers at compare.switchon.vic.gov.au.
2. LED lights are extremely energy efficient and cost-effective. Replacing halogen downlights with LEDs can save you up to 89 per cent on your lighting bills.
3. Always remember to switch off your appliances when not in use. Try turning them off at the plugs as appliances on standby mode still consume power.

Moreland Energy Foundation

Moreland City Council

LISTA DI CONTROLLO PER L'ESTATE

- **Indossa abiti leggeri e ariosi**.
- **L'ombra esterna** impedisce alla luce solare e al calore di entrare nella tua casa. Le tende da sole retrattili, le tende per le finestre e gli alberi possono essere d'aiuto.
- Lava i vestiti con **acqua fredda e asciugali all'aria aperta**.
- Apri le finestre di sera per **fare corrente** e far rinfrescare la casa e far entrare aria fresca in casa.
- Quando utilizzi il condizionatore, prova a mantenere la temperatura tra i 23 e i 26 °C; Ogni grado al di sotto di questa fascia può aumentare i costi energetici.

LISTA CONTROLLO D'INVERNO

- **Indossa strati extra** in casa finché non ti senti comodo.
- Lascia che la casa prenda tutto il calore diurno, **aprendo le tende**, specialmente alla mattina se danno a est e al pomeriggio se danno a nord. Chiudile la notte per mantenere il caldo dentro. **Le tende pesanti** con **le mantovane** vanno bene per tenere fuori il freddo.
- **Chiudi le porte** delle stanze che non riscaldi per impedire che l'aria fredda entri in ogni stanza della casa.
- Quanto utilizzi il riscaldamento, imposta il termostato **tra 18° C e 20° C**; ogni grado superiore a questa fascia può aumentare la bolletta fino ad un 10%.

7 ways to save money by saving energy

Saving energy also reduces climate pollution and keeps our community and planet healthy.

Moreland Energy Foundation

www.mefl.com.au

In **winter**, put on a **jumper** and keep your heater thermostat to a maximum of **20°**. Every extra degree costs you more money.

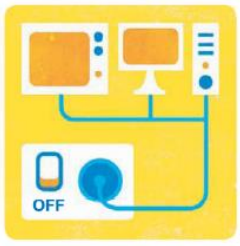
In **summer**, use a **fan**. If you have to use a air conditioner, set your thermostat at **26°**. Every degree lower costs you more money.

Set your **fridge** at **4°** and **freezer** at **-18°**. Switch off your second fridge or freezer when not in use and save $110 each year.

Wash your clothes in **cold water** and dry them on the **clothes line** to save $150 each year.

Replace your showerhead with a **low flow showerhead** and save $75 on water heating costs each year. Shorten your showers to **4 minutes** and save $100 per year on water heating costs, in addition to water saving.

Close gaps around your windows and doors with weather-strips and **door-seals** to reduce heating and cooling costs. Use **lined curtains** and **pelmets** to reduce air leaks. Save $100 a year with these actions.



Turn off your TVs, DVD players, Video Game Consoles and Computers at the power point when not in use. Use **remote-control power switches** to turn off hard-to-reach switches.

7 طرُق لتوفير $ بترشي استهلاك الطاقة

إنّ ترشيد استهلاك الطاقة يقلّل أيضاً من التلوث المناخي ويحافظ على صحة مجتمعك وكوكبك.

Moreland Energy Foundation

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في الشتاء، قد يرتداء كنزة صوفية واضبط ترموستات مدفأتك على20 درجة مئوية كأقصى حد. فكلّ درجة مئوية إضافية تكلفك المزيد من $.

في الصيف استخدم مروحة. وإذا أردت استخدام مكيف هواء، اضبط ترموستات المكيف على 26 درجة مئوية. فكل درجة أقل تكلفك المزيد من $.

أضبط درجة حرارة براداك على 4 درجات مئوية والمجمّد على 18 - درجة مئوية (تحت الصفر). أوقف براداك أو مجمّدك الثاني في حالة عدم الاستخدام. ووفّر 110 دولار كل عام.

أغسل ملابسك في الماء البارد وجففها على حبل الغسيل لتوفر 150 دولار كل عام.

إستبدل مرشة دُشك بمرشة ذَقي مرشّدة الماء ووفّر دولار من تكلفة لماء الساخن كل عاد. فلل75 دولار100 مدة استحمامك إلى 4 دقائق ووفّر في السنة من تكلفة لماء الساخن، بالإضافة إلى ترشيد استهلاك الماء.

أغلق أية جيوب حول نوافذك وأبوابك بشرائح مطاطية مقاومة لأحوال الطقس وسادات أبواب لتخفيض تكاليف التدفئة والتبريد. إستخدم ستائراً مبطنة وبراقع لتقليل تسريب الهواء وبهذه الطرق ستوفّر 100 دولار في السنة.

أطفئ أجهزة التلفاز، ومشغل الـ DVD ، ولوحة تشغيل ألعاب الفيديو، وأجهزة الكمبيوتر من القوابس الكهربائية في حالة عدم استخدامها. إستخدم أجهزة التحكم الكهربائية من على البُعد لإطفاء المفتاح التي يصعب الوصول إليها.

6. Evaluation of program models

We assessed elements of potential program models against their ability to deliver value to households experiencing or at risk of energy hardship, based on participant interviews and home energy assessments. Ability to deliver value was defined as addressing the following criteria:

- Improved access to renewable energy
- Reduction in energy bills
- Reduction in energy usage
- Improved thermal comfort

The elements of program models were also assessed against the likelihood that households experiencing or at risk of energy hardship would be able to benefit from them. This was derived from both participant interviews and home energy assessments and included the following measures:

- Participant perspectives
- Household circumstance and building (includes both the condition of the building and such factors as renting)

Finally, we assessed whether a particular subset would be most able to benefit from the program design element (who it is best for), and specific barriers for potential programs to seek to address.

Program design elements included:

- Rooftop solar
- Access to low-cost renewable energy through an energy retailer
- Access to offsite solar such as community solar. In this case, the following mechanisms to distribute the benefit to households in energy hardship were considered:
    - Direct participation in an offsite solar scheme
    - Establishment of a community fund, used for:
        - Energy efficiency upgrades
        - Energy literacy programs
        - Other financial relief

A community fund could also be used to install rooftop solar or subsidise access to low-cost renewable energy. These are included in consideration of these mechanisms above.

The results are presented in the matrix below:

	Rooftop solar	Low cost renewable energy via retailer	Offsite solar – participation in scheme	Use of a community fund		
				Energy efficiency upgrades	Energy literacy	Other financial relief
Access to renewable energy	Yes	Yes	Yes	No	No	No
Reduction in energy bills	Yes	Yes	Yes	Yes	Yes	Yes
Reduction in energy usage	No	No	No	Yes	Possible	No
Increase in thermal comfort / ability to use fair share of energy	Indirect	Possible	Indirect	Yes	Yes	No
Likelihood of uptake*	Low	High	Low	High	High	Medium
Participant perspectives	High desire for solar and access to renewable energy. Low decision-making ability (majority were tenants).	Majority value access to renewable energy. All value cheaper power.	Low understanding of bills and energy system. High desire for access to renewable energy.	High desire for more comfortable homes; understanding of value of building improvements (e.g. insulation)	High desire for and opportunity for more information.	High desire for relief from bill stress, but more value placed on improved thermal comfort and cheaper power.
Ability to benefit (Household circumstance and building)	Limited. Not many participants had solar, but many unsuitable for solar or with significant barriers	High. Does not require changes to building or any existing building conditions. All households could benefit from reduced bills.	Medium. Does not require building changes or certain conditions. Requires household understanding of and trust in scheme.	High. Significant opportunities; however requires landlord approval for tenants.	High. Does not require building changes. Many opportunities to benefit, but some are using very little energy already.	High. Does not require any specific circumstances.
Who it is best for	Owners.	All households; some may require increased information.	People with an understanding of their energy bills and/or new energy models; other households can benefit with increased information.	Most households; particularly renters – significant opportunities to improve rental properties.	All households, particularly new migrants, CALD communities	More extreme disadvantage (e.g. new migrants); as a temporary measure or in conjunction with other measures.
Barriers that programs should seek to address	Renting; apartment living; understanding of cost/benefit; any upfront cost contribution.	Digital access; language barriers; energy literacy. Participants were open to switching retailers, but in practice found it difficult.	Digital access; language barriers; energy literacy; any upfront cost contributions or payback periods. Switching retailers is a barrier.	Upfront cost. Benefit is more through thermal comfort than payback; many households are already using little energy. Little interest in a loan model.	Does not address access to renewable energy directly	Does not directly address thermal comfort, energy literacy, reduction in energy bills, or renewable energy access.

*Likelihood of uptake is based on participant perspectives and ability to benefit. Likelihood of uptake does not take into consideration any efforts within programs to overcome barriers, and could increase with the right support.

7. Recommendations

This research aimed to increase understanding of the perspectives of households experiencing or at risk of energy hardship, in order to inform the design of programs aiming to unlock the benefits of renewable energy for vulnerable households.

Based on this research, AEF recommends that programs aiming to unlock the benefits of renewable energy for households experiencing energy hardship consider incorporating the following, to ensure no one is left behind in the transition to an equitable zero carbon society.

The following recommendations summarise and synthesise the overall findings of this study. For a detailed assessment of individual program models, see the evaluation of program models in section 6.

Inclusive approaches to appropriate renewable energy solutions

Households in energy hardship face a range of barriers to benefitting from renewable energy. Financial barriers include the upfront cost of solar and managing any additional repayments that may arise, such as loan repayments. Access barriers include renting with an unsupportive landlord, living in apartments, or living in public or community housing. Information barriers include cultural and linguistic diversity, and lack of digital access or engagement. Programs should seek inclusive approaches to reduce barriers faced by particular cohorts. This may mean that some solutions are more appropriate for some than others.

Where practical, rooftop solar provides the opportunity for households to maximise benefits, as the electricity generated and used onsite provides the most value of existing program models. With supporting energy efficiency information and information on how to maximise the value of solar by changing the times appliances are used, households can further increase this value. Rooftop solar is also a familiar solution which is understood by most households. Improvements to the energy efficiency of homes will further improve financial outcomes and the benefits of onsite solar, and this is discussed further below.

However, for many households in energy hardship, rooftop solar is not feasible due to insurmountable barriers such as those relating to ownership and access. Offsite solar such as community solar or solar garden models offer an alternative way of providing cost effective access to renewable energy for these households. These types of programs should ensure that adequate information is clearly provided to households in hardship to ensure households are aware of how programs work, consumer rights for participants, and the value to households. Households may also require additional support through energy information and building confidence in unfamiliar energy solutions.

In any program aiming to increase access to renewable energy for households experiencing energy hardship, careful consideration should be given to ensure that households are better off financially from day one, and any ongoing costs or obligations such as loan repayments or subscription fees are clearly communicated in appropriate languages and formats, to avoid unintentionally placing households in greater bill stress.

Improvements to rental properties – starting with energy efficiency

Improvements in energy efficiency allow households to increase thermal comfort, without increasing electricity costs. Households experiencing or at risk of energy hardship face financial challenges in affordability of the upfront cost of energy efficiency measures and, even where bill savings could ‘pay off’ the upgrade over time, the upfront cost remains prohibitive. A no-interest or low-interest loan for

energy efficiency upgrades is one possible mechanism to overcome this barrier, however our research found that there was little appetite from households to take on such a loan, due to other financial priorities. This is also likely influenced by the fact that 80% of participants were renters.

Renters face additional challenges because they are not the decision makers in any upgrades to the property, such as insulation, window improvements (such as external window shading), or more energy efficient windows. Energy efficiency upgrades such as those are outside of the direct control of renters, despite being the areas that our assessors found to be of a very low standard amongst participating households.

Renters face the 'split incentive' barrier: tenants are the energy users who benefit from lower bills and increased thermal comfort, but investing in the upfront cost of energy efficiency upgrades is risky because the 'payback period' is often longer than most residential tenancy agreements. Tenants therefore risk not being able to continue to benefit from the investment if their lease is not renewed before the savings have been fully realised. This leaves decisions about building changes and the required investment should come from landlords but they do not get the direct benefit of bill savings or improved comfort.

Innovative methods of incentivising or financing energy efficiency upgrades in rental properties could deliver significant benefit to a group of households who face compounded barriers – financial challenges and a lack of decision-making authority.

Uptake of energy efficiency upgrades to rental properties could also be increased through legislation on minimum energy efficiency standards for residential housing, for example, a mandatory assessment and rating upon change of tenancy.

Rooftop solar for rental properties would likewise provide measurable benefits for tenants, and comes with many of the same challenges. Improving energy efficiency is an important first or complementary step, to ensure that households can maximise the value of rooftop solar or renewable energy purchased offsite. This is especially important in households such as those in this study, where bill stress is high and thermal comfort and energy usage are low.

Energy information to increase energy literacy and awareness of consumer rights

There are significant opportunities for consumers to benefit from increased understanding of energy bills, energy efficiency, and consumer rights.

This includes information about how to save energy around the home. However, for many households in energy hardship, opportunities to save energy by turning off appliances or setting the temperature of heating and cooling are limited as their usage is already very low. Nonetheless there are significant opportunities to assist these households to increase thermal comfort through accessing VEET upgrades, such as energy efficient light globes, installing simple draught proofing and window dressings (that do not require landlord permission).

Considering that vulnerable communities are a 'hard to reach' demographic, approaching communities and/or presenting information through trusted, established links, such as neighbourhood houses, trusted service providers, or through 'train the trainer' models where a trusted community champion is trained to share knowledge with the community, can assist with overcoming any mistrust that may be encountered.

Particular attention should be given to CALD communities and recent migrants to ensure that information is presented in appropriate languages and/or interpretation is available. We also recommend that new migrants have access to information about how the energy retail system works in Australia and their rights within this system.

Access to timely information can be highly valuable to households, allowing them to make informed decisions about their energy use well before receiving unexpectedly high bills. In Victoria the prevalence of smart meters means that this data is readily available for the majority of households and can be accessed through their local distribution network's customer portal. Households could benefit from information, to increase consumer awareness on the availability of this data, and consumer education on how to access and use this data to reduce their household energy use and bills. For other states, consideration should be given to favourable methods of increasing consumer access to their own household data as well as education on how to access and use this data to maximise benefit.

Mechanisms that allow households with limited computer and internet access to utilise this data could assist these households to overcome barriers and share in the benefits of timely information.

Energy justice through renewable energy and energy efficiency

As households in more extreme energy hardship move out of hardship, either by benefiting from a program designed to assist them, or through other circumstances, it is likely that their energy consumption will increase. For households currently unable to heat their homes to a healthy and comfortable temperature, the ability to use a fair share of energy is a social justice issue.

Increased energy consumption in households using little more energy than it takes to power a fridge should not be viewed as a negative program outcome. However, programs that aim to reduce energy hardship should seek to mitigate this likely increase in energy consumption by incorporating increased access to renewable energy and energy efficiency in their program design, and by making clear the link between alleviating financial hardship and the benefits of renewable energy or energy efficiency.

For this reason, use of an offsite solar community fund to provide food vouchers or other purely financial assistance to help manage bills are less recommended. While the value of this assistance is derived from renewable energy generation, focusing only on financial hardship misses an opportunity to improve thermal comfort and energy efficiency, and/or empower people through improved energy literacy.

This research also indicates an opportunity to communicate programs in ways that are meaningful to potential participants. Benefits to vulnerable households should be communicated in terms of comfort and health, as well as financial and energy savings. The majority of people in this study rated cheaper power as of the most benefit to them. Cheaper power represents a tangible and immediate financial saving that does not require any decision-making authority over the property, upfront cost or payback. Importantly, over half of participants said it's important to them that their power comes from a renewable source.

Other benefits can be translated into the same terms as 'cheaper power' and it is important to address this as something viewed by participants as beneficial to them. However, there is also an important opportunity to incorporate the emissions reduction value of energy savings, or generation of renewable energy, as part of the narrative. A holistic approach to communications incorporating comfort and health benefits along with financial and energy savings can serve to address the financial need for reduced cost energy, the emissions reductions resulting from renewable energy, and the opportunity for increased energy literacy and understanding of energy efficiency.