ENERGY CONSUMERS AUSTRALIA

# Consumer knowledge of electricity pricing and responsiveness to price signals

Consumer Energy Report Card

January 2025

# Contents

## Summary

Our December 2024 Consumer Energy Report Card survey asked more than 4,000 households across Australia what they knew about their electricity plan, and whether they were responding to time-of-use or demand tariffs to save money.

We found that many Australian households have low energy literacy. Fewer than a third of people were confident that they knew the unit of measurement on their home electricity bill. Most households (54%) said they just wanted a simple and reliable service at a good price.

Despite this, when many households receive a smart meter, they are automatically enrolled in a time-of-use or demand retail electricity tariff. These new price structures change price levels based on when energy is used. About 3 in 10 consumers we surveyed said they were on these new retail tariff structures, but most didn't choose to be on them.

For many, the individual benefits from responding to time-of-use or demand retail tariffs are likely modest. Of the consumers we surveyed on time-of-use or demand tariffs who said they were changing when they used their appliances, relatively few were adjusting their usage of large loads such as heating, cooling, or water heating. Many said they were changing when they used their dishwasher and washing machine, which are comparatively not very energy-intensive appliances.

Time-of-use and demand tariffs can disproportionately impact low-income households with limited ability to benefit from these plans. The lower income households we surveyed were more likely to say they were changing when they used air conditioning or heating, which may be a worrying finding, given that Australian homes are generally poorly insulated, and maintaining a comfortable internal temperature is very important for health.

That said, we also found there was a large group of more engaged consumers who were interested in having greater choice, control, or flexibility over how they use and manage their energy consumption. These households were more likely to be higher income homeowner households with existing solar systems. These engaged households said they were exploring technologies such as home automation and batteries.

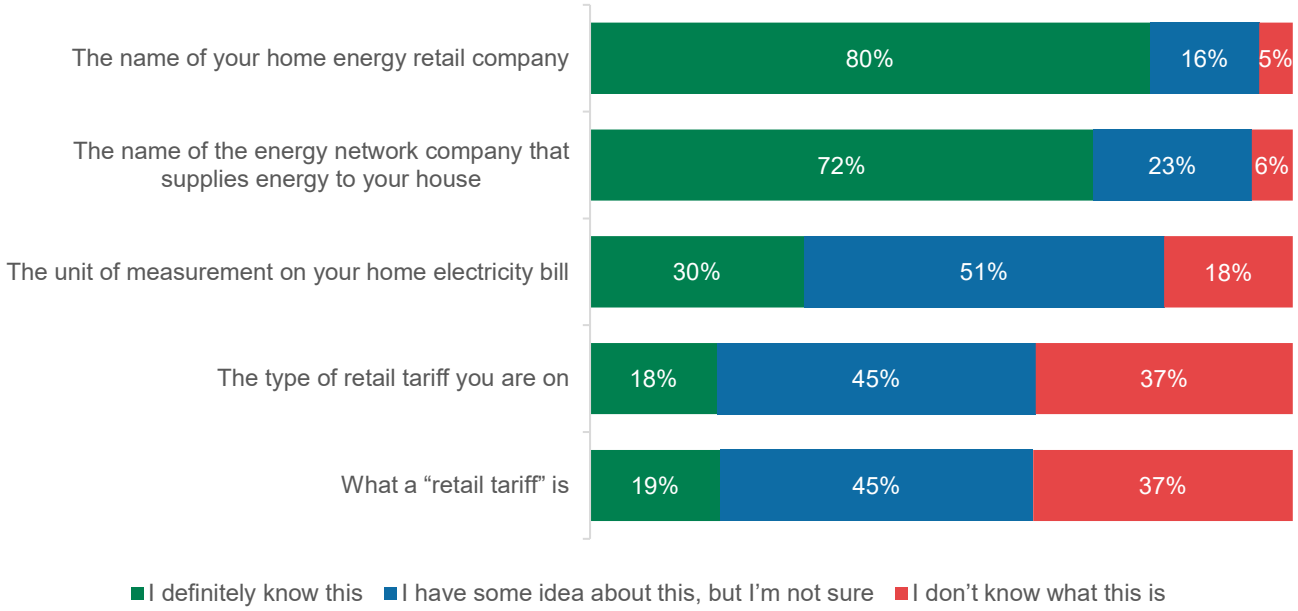
By providing products for motivated households that fairly reward them for the services they can provide to the system, we can provide benefits to all consumers. At the same time, we must ensure that those who want or need a basic electricity plan at a simple price can still have access to this service.

The Consumer Energy Report Card survey was conducted for Energy Consumers Australia by SEC Newgate. Information about sample size and demographic characteristics of the sample can be found in the Appendix. For further information, please contact Ashley Bradshaw at ashley.bradshaw@energyconsumersaustralia.com.au.

## Many Australian households have low energy literacy

Most households we surveyed said they knew the name of the retailer and network that provides energy to their house. However, fewer than 1 in 3 households were confident they knew the unit of measurement on their electricity bill. Alarmingly, around 40% of Australian households were unaware of what type of retail electricity tariff they are on.

### Australian household knowledge about key components of their electricity plan




Question: How much do you know about the following things?

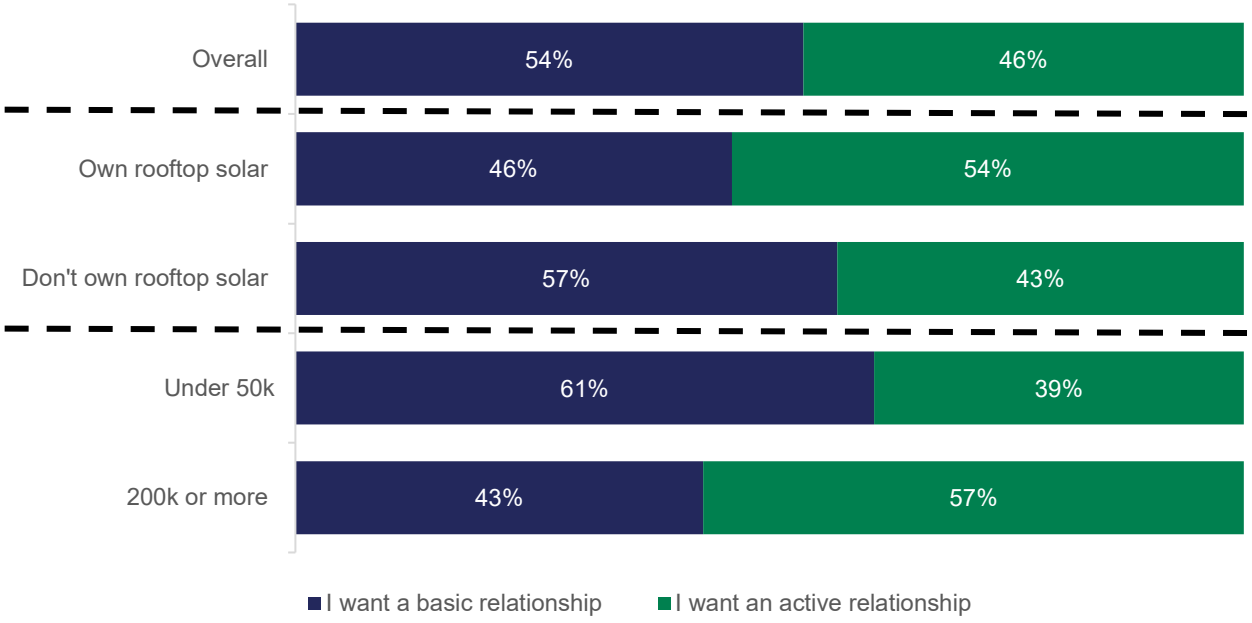
## Around half of households just want a simple energy service at a good price

We presented to consumers two types of relationships they could have with the energy system and asked them to indicate their preference. The two options are shown below.

| Type of relationship | Description |
|---|---|
| **Basic relationship** | For you, electricity is a basic service and all you really want is:<br>• Getting a good price for electricity you use (or export if you have solar)<br>• Having a reliable electricity supply<br>• Having good customer service from your supplier |
| **Active relationship** | You want more than just a basic service, and this includes things like:<br>• Having a choice to choose from different tariffs (e.g. paying different prices at different times of day depending on when you use energy).<br>• Being able to monitor your energy use in real time and adjust your usage throughout the day to save money<br>• If you have solar and batteries, being able to choose when you store or export your energy to the grid<br>• Having various clean energy options to choose from (e.g. green power or carbon neutral plans) |

Just over half of households said they wanted a “basic” relationship with the energy system. However, a large proportion of households (46%) said they were interested in having a more engaged relationship with the system. They are more likely to be households with solar panels and higher income households.

### The type of relationship households want with the energy system




Question: Which of the following best characterises the type of relationship that you would like to have with Australia’s electricity system?

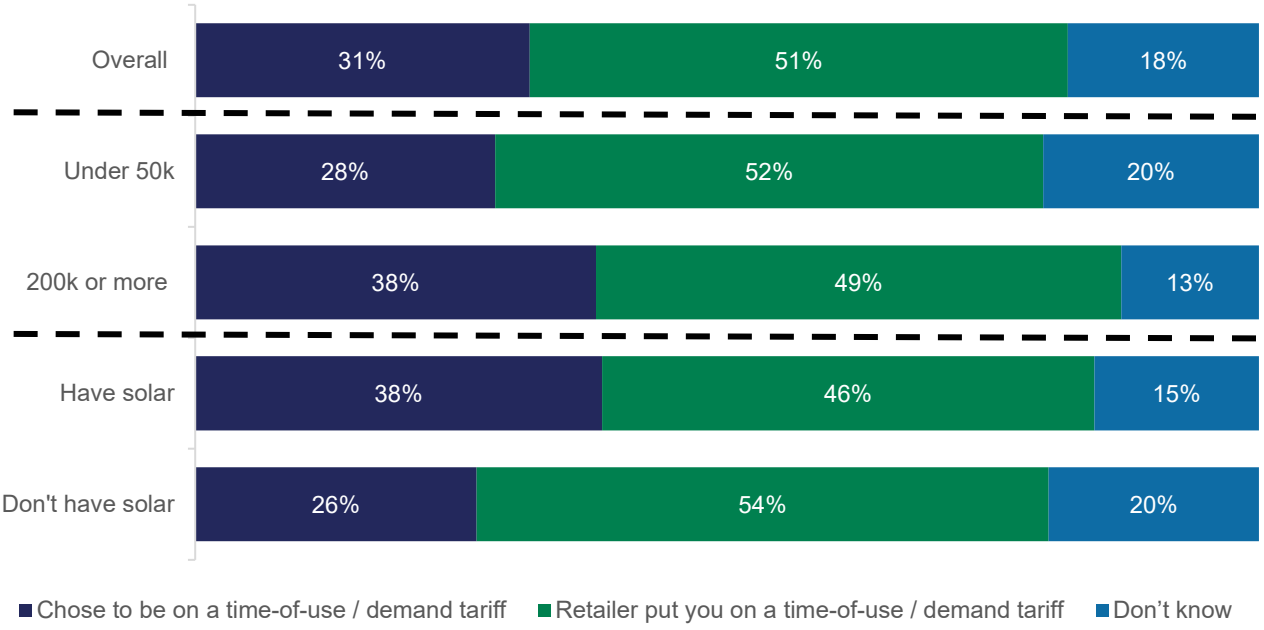
## Higher income households are more likely to have chosen to be on a time-of-use or demand tariff

More than 30% of households said they were on a time-of-use or demand tariff. Around half said their retailer put them on this plan.

Of those who said they were currently on a time-of-use or demand tariff, only around 1 in 3 chose to be on the plan. Consumers on higher incomes, who are already more engaged in the energy system (for example, they often have solar) are more likely to have chosen to be on a time-of-use or demand tariff.

In recent years, retailers like Amber and Ovo Energy have introduced innovative energy plans to attract consumers looking for a more active relationship with the energy system. Amber provides access to wholesale electricity prices, with variable rates that fluctuate in line with the wholesale market.[1] Meanwhile, Ovo Energy offers unique plans such as the Free 3 Plan, which gives customers three hours of free electricity during midday hours.[2] These retailers have seen a large increase in customer numbers in recent years.[3]

### The extent to which households chose to be on time-of-use or demand tariffs



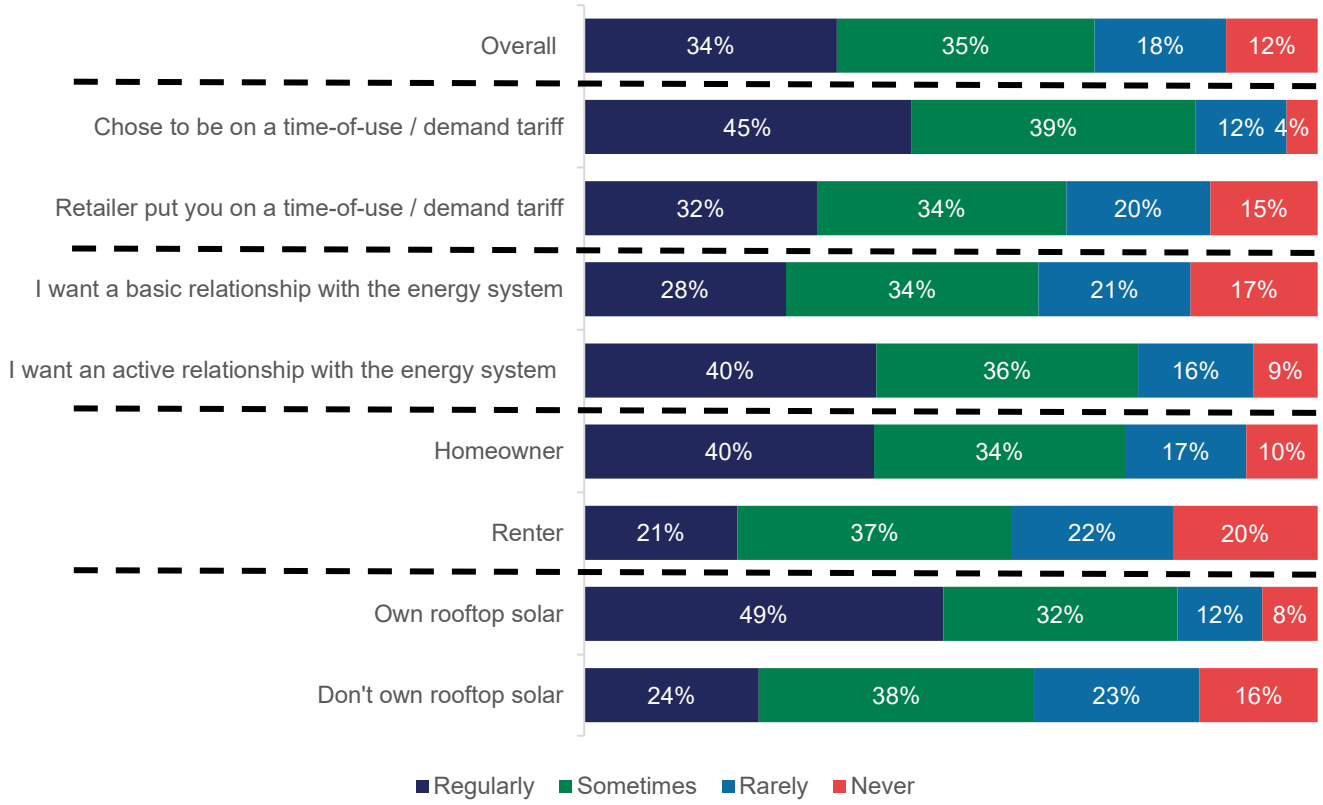

Question: Did you choose to be on a "time-of-use" or "demand tariff" or did your retailer put you on it without your choice?
Note: This question was only asked to those who said they were on a time-of-use or demand tariff.

## Many engaged households say they are regularly responding to time-of-use or demand tariffs

Overall, 34% of households who said they were on a time-of-use or demand tariff regularly change when they use appliances to save money. A similar proportion said they either never do, or it is rare for them to do so.

Consumers who expressed higher levels of ability and motivation to engage with the energy system were more likely to say they change when they use appliances to save money. Also, households with solar panels were likely to say they were regularly changing when they used appliances to save money. This is unsurprising, as even without a time-of-use or demand retail tariff, solar households already save money by shifting appliance use to the middle of the day.

### The extent to which households on time-of-use or demand tariffs are changing when they use appliances to save money




Question: To what extent are you deliberately changing the time of day that you use electrical appliances to save money?
Note: This question was only asked to those who said they were on a time-of-use or demand tariff.

## Households tend to vary energy use on less energy-intensive appliances, making only modest financial benefits from changing behaviour

Households who can move large loads outside of peak times stand to benefit the most from responding to time-of-use or demand pricing. The largest energy loads for most households are space heating and cooling, and water heating (which make up around 35% to 75% of household energy use, depending on appliances used and climate zone).[4]

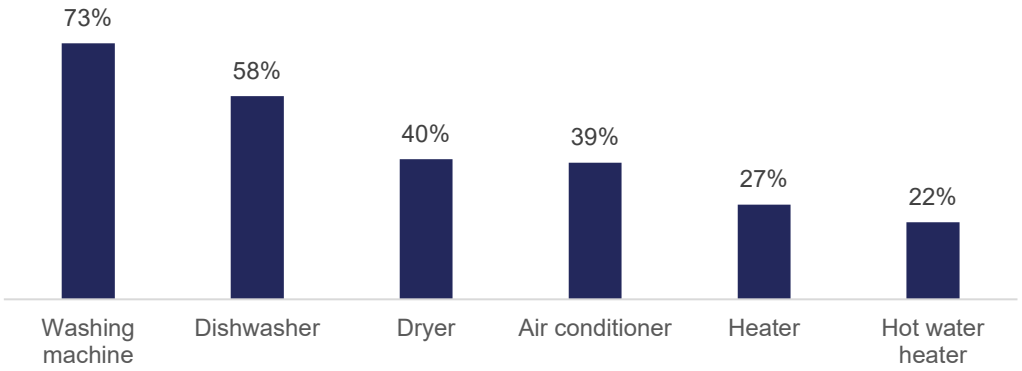
Only low proportions of households on time-of-use or demand tariffs say they were being flexible with heating and cooling and hot water heating to save money. Australian homes are generally poorly insulated (the average Australian home has an energy rating of less than two stars out of ten)[5], and so cannot be effectively pre-heated or pre-cooled to avoid using energy during the most expensive times.

Instead, households were more likely to say they were shifting when they use washing machines and dishwashers. This is likely because some households can more easily change when these appliances are run. On average, these two appliances would likely account for no more than 10% of home energy use[6], indicating that the financial benefits of time-of-use tariffs are likely modest for many households.

Recent analysis from the Independent Pricing and Regulatory Tribunal (IPART) found limited financial benefits from shifting energy use outside of peak times based on current retail plans in NSW. For example, IPART estimated that if a customer on the median time-of-use offers in the Ausgrid network area reduced their peak usage by 50%, they would only save around $36 to $123 a year.[7]

A 50% peak demand reduction is likely unachievable for many households through behavioural response. Pilots have found that typical peak demand reductions have generally been around 10 to 20% (depending on peak to off-peak price levels).[8] The modest savings to households may not be enough to motivate consumers to maintain behaviours in the long-run.

### Rate at which households change appliance use to save money[a]




Question: Are you shifting the time of day you use any of these appliances in order to save money?
Note: This question was only asked to households who said they were on a time-of-use or demand tariff and who said they regularly or sometimes were deliberately changing when they used electrical appliances to save money.

[a] Due to the current low rate of EV ownership, EV charging was not included in this analysis but will be monitored in the future. As EV charging represents a significant household load, the ability to schedule charging during off-peak times makes time-of-use tariffs likely to be financially attractive for EV owners.

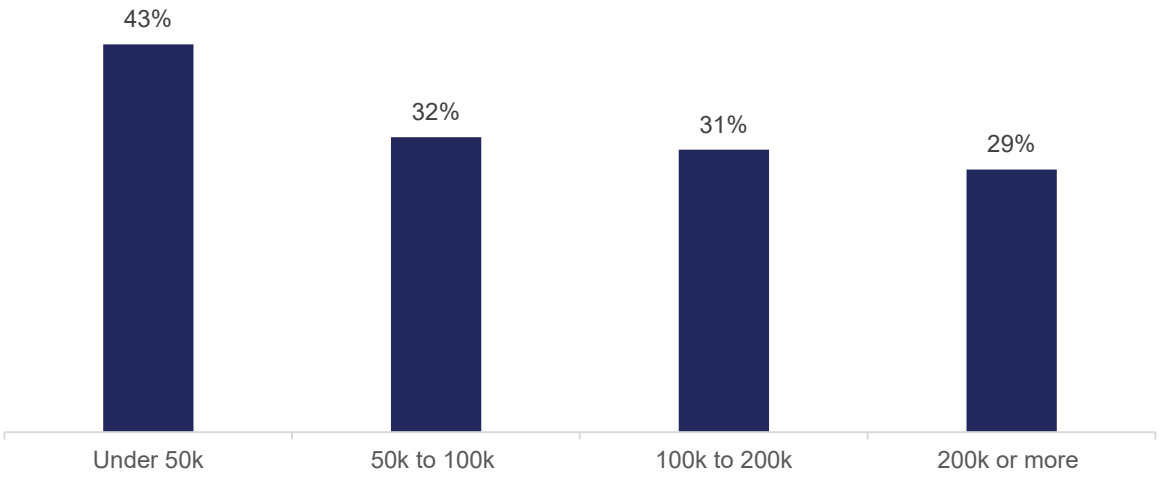
## Lower income households have less ability to benefit from responding to time-of-use or demand tariffs

We found that lower income households were less likely to say they chose to be on a time-of-use or demand tariff. Despite this, they were more likely to say they regularly adjust their appliance use when enrolled. This is likely for two reasons:

- Energy costs, as a proportion of income, are much higher for low-income households.[9] As such, lower-income households experience greater energy stress from increases in electricity prices. Additionally, they are more likely to live in poorly insulated homes with inefficient appliances, further exacerbating their energy challenges.[10]
- Lower income households face barriers to investing in automation technologies for their homes (either because of lack of disposable income, or because they rent).

Renters and lower-income households are also less likely to have access to electric appliances like dryers and dishwashers, resulting in lower discretionary loads.[11] Reflecting these barriers, we found that lower income households were more likely to say they were changing when they used heating and cooling to save money. This is a potentially worrying finding given the importance of keeping homes at a comfortable temperature for health benefits.[12,13]

### The extent to which households on time-of-use or demand tariffs are regularly changing when they use appliances to save money in different income levels




Question: To what extent are you deliberately changing the time of day that you use electrical appliances to save money?
Note: This question was only asked to those who said they were on a time-of-use or demand tariff.

## Higher income households are interested in home automation and battery technologies

As discussed above, we found that 46% of households were interested in having a more "active" relationship with the energy system – and they were typically higher-income homeowners with existing solar systems.

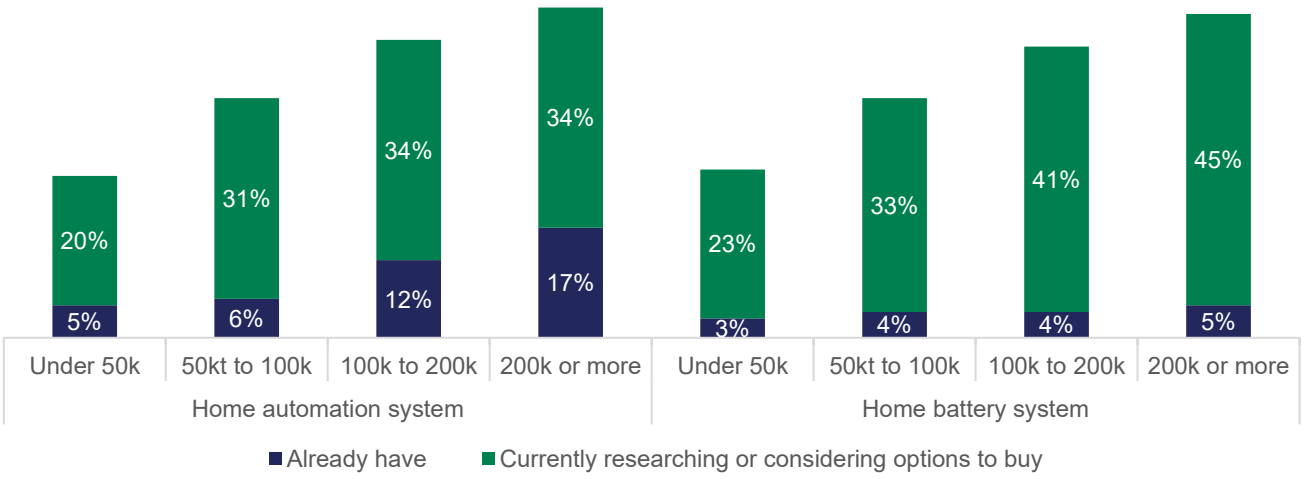
Higher income households showed a strong interest in purchasing home automation and battery systems. These systems which make it easier and more efficient to respond to price signals by automatically optimising energy usage to save the owner money. Research also finds that peak demand reductions are much higher for households that can access enabling technologies.[8] These systems also allow households to not have to think about when they use energy.

Research from CSIRO[14] and ARENA[15] suggests that improved coordination of energy use could save consumers billions of dollars. Unlocking greater value for consumers through coordinated and flexible energy use requires more advanced and effective price signals from retailers and network operators.[15]

Examples of such innovative retailer offers include solar soak tariffs, which provide low or free electricity to incentivise consumers to shift their energy use to midday (e.g., 10 am - 3 pm). Additionally, wholesale pricing tariffs, which pass on wholesale electricity prices, have been introduced for both residential and small business consumers.[15]

To our knowledge, there is currently only one trial exploring dynamic network pricing to better integrate consumer energy resources (CER), such as solar panels, batteries, and electric vehicles, into the energy market. This project aims to reduce grid constraints and offer fairer pricing to consumers.[16] Expanding similar innovative products across all networks would maximise the benefits of consumer energy resources.

### Proportion of households that have or are considering home automation and home battery systems by income




Question: Does your home have, or are you considering, any of the following technologies?

# Appendix 1 – Overview of sample

This analysis is based on data from **Consumer Energy Report Card** December 2024 Survey. The Consumer Energy Report Card survey was conducted by SEC Newgate. The raw data, and information on the methodology can be found here.

## Overview of sample for December 2024 Consumer Energy Report Card

| | December 2024 Consumer Energy Report Card |
|---|---|
| **Sample size (n)** | **4,152** |
| **Jurisdiction** | |
| New South Wales | 834 |
| Australian Capital Territory | 207 |
| Victoria | 824 |
| Queensland | 730 |
| South Australia | 620 |
| Western Australia | 625 |
| Tasmania | 207 |
| Northern Territory | 105 |
| **Age of respondent** | |
| 18-24 | 456 |
| 25-34 | 854 |
| 35-49 | 1,159 |
| 50-64 | 957 |
| 65+ | 726 |
| **Homeownership status** | |
| Own home / Mortgage | 2,697 |
| Rent | 1,388 |
| Other | 67 |

# References


[1] Amber. (n.d.). *Electricity pricing*. Access here.

[2] Ovo Energy. (n.d.). *The Free 3 Plan*. Ovo Energy. Access here.

[3] Australian Energy Regulator. (ongoing). *Retail Performance Reporting*. Access here & Essential Services Commission. (n.d.) Victorian Energy Market Dashboard. Access here.

[4] Department of Climate Change, Energy, the Environment and Water. (n.d.). *Heating and cooling*. Access here.

[5] Australian governments. (2024). *Home Energy Ratings Disclosure Framework: A collaborative project of the Australian, state, and territory governments*. Access here.

[6] Department of Climate Change, Energy, the Environment and Water (n.d.) *Appliances*. Access here.

[7] IPART. (2024). Monitoring the NSW retail electricity market 2023-24. Access here.

[8] A Faruqui. (2024). How to electrify when electricity is expensive: change the rate design. Access here.

[9] Energy Consumers Australia. (2023). *Understanding the energy divide*. Access here

[10] Monash University. *Energy Glossary*. Access here

[11] Energy Consumers Australia, *Energy Consumer Behaviour Survey October 2023*. Access here.

[12] Victorian Council of Social Service (VCOSS). (2024). *Energy hardship and network provocations: Full report*. Access here.

[13] Sustainability Victoria. (2022). *Victorian Healthy Homes Program research report.* Access here

[14] Energy Consumers Australia. (2023). *Stepping up: Unlocking energy demand flexibility to empower consumers*. Access here

[15] University of Technology Sydney (UTS). (2024). *Flexible demand: State of play in Australia*. Prepared for ARENA. Access here

[16] Ausgrid. (n.d.). *Project Edith*. Access here.