

RACE for
2030



Scenarios for
Future Living

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FORESIGHTS FOR FUTURE AUSTRALIAN HOME LIFE

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Australian Government
Department of Industry,
Science and Resources

Cooperative Research
Centres Program

RACE for Change

SCENARIOS FOR FUTURE LIVING

Putting people at the centre of the energy transition

Project Code:23.CT10.R.0666

Industry Report

Foresights for Future Australian Home Life
September, 2026

Citation

Pink, S., de Silva, N., Kaviani, F., Strengers, Y., Mellick Lopes, A., Duque, M., & Dahlgren, K. (2026) Foresights for Future Australian Home Life. Emerging Technologies Research Lab, Monash University.

Prepared for RACE for 2030.

This is a project funded by the RACE for 2030 CRC in collaboration with its partners:



Energy,
Environment
and Climate Action



Project team

Research partner

- Monash University
- University of New South Wales
- University of Technology Sydney
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)

Industry partners

- Ausgrid
- CitiPower/Powercor/United Energy
- Red Energy
- NSW Department of Climate Change, Energy, the Environment and Water
- VIC Department of Energy, Environment, and Climate Action

Acknowledgements

We first thank each of the 49 people who participated in this research, without their contributions the new knowledge presented here would have been impossible to develop. We thank the representatives of the Scenarios for Future Living industry reference group, project partner organisations and research and professional staff team for their support and feedback.

Acknowledgement of Country

The authors of this report would like to respectfully acknowledge the Traditional Owners of the ancestral lands throughout Australia and their connection to land, sea and community. We recognise their continuing connection to the land, waters and culture and pay our respects to them, their cultures and to their Elders past, present, and emerging.

Funding Acknowledgment

This research presented in this report was funded by the RACE for 2030 CRC in collaboration with its partners and by the Australian Government through the Australian Research Council Laureate Fellowship 'The impact of human futures on Australia's digital and net zero transition' awarded to Sarah Pink (FL230100131).

What is RACE for 2030?

RACE for 2030 CRC is a 10-year cooperative research program with AUD350 million of resources to fund research towards a reliable, affordable, and clean energy future. www.racefor2030.com.au

Report design and layout by Mara Jorgovic

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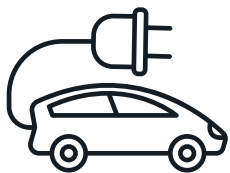
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AI was not used in the research, analysis and writing of the main text of this report. However AI was used in a responsible way by Yolande Strengers, to support the synthesis presented in the conclusion to the report.

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EXECUTIVE SUMMARY



Foresights for Future Australian Home Life delivers new qualitative foresight about how Australians are likely to live in their homes in possible futures.

It first presents six key foresighting values derived from our research, and for use in scenario development. It then presents the research design followed by our research findings organised into six themes:

- electric cars;
- working from home;
- digital connectivity, community and security;
- storage and preparedness;
- inequalities and vulnerability;
- and trust and control.

For each theme we present three layers of knowledge: foresight for future life; energy implications; and detailed findings. Each layer represents a possible entry point into the report, catering to the priorities and interests of different readers and enabling access to the detailed ethnographic information when required.

The report is an output of Work Package 1 (WP1) of Scenarios for Future Living. It reports on the futures-focused ethnographic household fieldwork undertaken in 2025, and draws on evidence from the project's nationally representative survey (Kaviani et al. 2025) and industry perspectives review (Dahlgren et al. 2026) to contextualise and support its findings. The ethnographic research provides depth, meaning and insight into emerging practices and values, while the survey provides broader population context and helps identify the prevalence of selected trends and experiences.

The report is intended to support scenario development, forecasting, modelling, policy design, consumer engagement and the development of future products and services by identifying social dynamics that may shape future energy demand, participation and technology uptake. It delivers the future-focused qualitative evidence base and conceptual frames needed to support the development of speculative design artefacts (WP5) and scenarios (WP3).

Rather than forecasting future energy demand directly, it identifies emerging household practices, values, vulnerabilities and expectations that may shape future energy demand, flexibility, participation and technology uptake. Findings should be interpreted with ongoing quantitative analysis and validation to monitor and assess the scale, timing and system-level impacts of these emerging trends on Australia's electricity grid.

Foresights for Future Australian Home Life also updates and extends the foresight capability and expands the empirical coverage of the *Foresights for Future Living* (Pink et al. 2022) report delivered through Digital Energy Futures, a 3-year project led by Emerging Technologies Research Lab (Monash) partnered with Ausgrid and AusNet Services and Energy Consumers Australia. Digital Energy Futures, undertaken largely during the Covid-19 pandemic lockdowns, delivered a series of 14 foresighting concepts which remain relevant to scenario building (and are extended where relevant in this report) and identified futures trends in Australia in the domains of: charging and mobility, cooking and eating, healthy indoor air and thermal comfort, living and playing, working and studying at home, caring for the home and its occupants and making, saving and storing energy. *Foresights for Future Australian Home Life* extends this through a post-Covid-19 pandemic focus on: electric mobilities and charging in a context of hybrid (fossil fuel and plug-in) expansions and the fuel crisis; working from home; community, safety and cybersecurity; storage and space; inequalities and vulnerability in the context of the cost-of-living crisis; and trust and control, in the context of the crisis of trust.

More broadly the report: delivers new understandings about how participants live in the present, identifies relevant shifts that can be observed since the *Digital Energy Futures: Foresights for Future Living* (2022) report, and comments on how changes are likely to continue to play out in possible futures; and suggests how people are likely to live and work in their homes in possible futures, and how their everyday values and priorities will shape future activities that create or shift energy demand, or generate new ways of producing, storing, interacting with and or using energy.

KEY IMPLICATIONS FOR FUTURE LIVING AND THE ENERGY TRANSITION

1. **Energy futures will be shaped by everyday life, not technology alone**
 - Electrification is unfolding within complex everyday lives rather than as a simple technology substitution process.
 - Household energy demand is increasingly shaped by values for trust, control, safety, inclusivity, care and uncertainty rather than energy considerations alone.
 - Future residential demand is likely to become increasingly variable and contingent on weather, work patterns, caring responsibilities and unplanned disruptions.
2. **New opportunities for participation will emerge through trust, flexibility and local relationships**
 - Trust, control and safety are becoming critical conditions for participation in increasingly digital and orchestrated energy systems.
 - Future energy participation will depend as much on social relationships, community trust and everyday values as on technology and price signals.
 - Households are likely to continue adapting energy technologies and programs to fit their own priorities and routines, often in ways not anticipated by energy system planners.
3. **Resilience and preparedness to ongoing change and disruption are shaping households' participation in CER opportunities**
 - Households are increasingly prioritising resilience, preparedness and continuity, creating demand for backup systems, storage and other forms of energy security.
 - Preparedness is encouraging interest in home batteries, solar, EVs and other CER technologies, but households are often seeking resilience, independence and peace of mind rather than energy savings alone.
 - Expectations of future disruptions, including extreme weather, energy outages, cyber threats, fuel insecurity and cost-of-living pressures, are increasing the value households place on energy reliability, security and self-sufficiency.
4. **Household energy futures are becoming increasingly uneven with new inequities emerging**
 - Energy vulnerability is becoming more differentiated and less visible as households face diverse risks and adopt varied coping strategies.
 - Household energy futures are becoming increasingly differentiated, challenging assumptions of uniform technology adoption, participation and demand trajectories.

Together, these implications suggest that future energy systems will be shaped not only by technological change, but by evolving household values, social relations, lived experiences and responses to uncertainty. Understanding these dynamics is essential for developing robust forecasts, scenarios and transition strategies.

FORESIGHTING VALUES FOR FUTURE AUSTRALIAN HOME LIFE

In this section we present six qualitative foresighting values. A foresighting value is a concept, grounded in existing social science rigour which represents a key everyday life value which endures through past, present and future. Values are important for foresighting because they introduce grounded conceptual and empirical understandings of the meaning of everyday experiences of future life, through reliable and workable frames which have been endorsed by extensive international social science scholarship.

Each foresighting value accounts for futures from two perspectives:

- Possible futures experienced at the level of the personal and household by people as they go about their everyday lives and
- Possible futures that implicate the wider place-based and virtual communities and distributed collectives as people connect their experiences to a sense of community and the kinds of relations, knowledge and information communicated outside the household

Clustered under these foresighting values, we offer six corresponding new frames, inviting readers to consider how trust, control, safety, care, inclusivity, and uncertainty manifest in everyday life in the present and in possible futures. In doing so we emphasise the often otherwise invisible opportunities, possibilities, challenges, struggles, and crises that people encounter as they live life in their households and communities. We highlight where present situations are likely to endure into the future and how they are likely to evolve.

The foresighting values are recommended for use in conjunction with the foresights provided at the beginning of each THEME presented in this report rather than as a replacement for the thematic foresights. Where more detail is required they should also be read along with the detailed findings. They offer a viable and realistic mode of sensemaking and futuring when working with the depth and complexity of ethnographic research findings and will guide the development of scenarios being developed for the Scenarios for Future Living project.

While these values are not direct predictors of energy demand, they shape the conditions under which energy technologies, services and infrastructures are taken up, adapted and resisted by households. Understanding these values therefore provides an important complement to quantitative forecasting and modelling approaches.

FORESIGHTING VALUES FOR FUTURE AUSTRALIAN HOME LIFE

LIFE IN TRUSTED FUTURES

*FROM TRUST IN TECHNOLOGIES, SYSTEMS AND ORGANISATIONS
TO TRUST AS EXPERIENTIAL AND CIRCUMSTANTIAL.*

WHY TRUST AS A FORESIGHTING VALUE?

Trust is understood by philosophers and social scientists to be a fundamental human propensity: our first inclination is often to trust, but when we do not experience trust then the relations that surround us can become characterised by frictions and tensions. In business and engineering fields, trust is usually understood as an interactional and transactional relationship, whereby a person is thought to trust another person or a thing (e.g. a technology, organisation or system). In the energy sector, this is most evident in the concept of 'social licence', which is focused on giving residents benefits that deliver their agreement or acceptance of a proposed project. However this model has not given us a viable way to account for

trust in the energy use context: that is, it has not delivered ways of increasing consumers' trust in energy technologies, systems or companies. In particular in the context of Artificial Intelligence (AI), our research suggests limited trust in AI, with opportunities to improve outcomes reflected where people maintain autonomy and control and see clear benefits. In response to this we use an experiential/ circumstantial model of trust to instead ask how and why people experience trust and how they seek to create situations in which they feel they can trust. The question is not "is there trust or not", but rather "where can trust be found".



TRUST
TRUST
TRUST

**VISIONS OF
POSSIBLE
ENERGY
FUTURES
ACCOUNT
FOR HOW
TRUST COMES
ABOUT IN
EVERYDAY LIFE
SITUATIONS**

TRUST

PERSONAL AND HOUSEHOLD FUTURES

Personal safety and cybersecurity are a growing priority for all Australians and form a vital element of trusted futures. But technologies and systems will inevitably break down, and cybersecurity is never absolute: a focus on trust in technologies and systems is therefore not a viable way to secure trusted futures.

Where I grew up is probably one of the worst parts of [the city for crime] ... So, I'm not as ... afraid. So, we've got the doorbell camera there and I want to, I do want to have cameras (Joel VIC).

I don't really like the idea of having to plug your car in. Because what happens, like I said with the AI – what happens if that breaks down? Where's the universe going to be then? (Diana QLD).

I haven't done any of the smart home stuff yet. Do I want it? I don't know. It's always got fallacies and breakdowns in it (William VIC).

Trust is likely to come about when people's values (such as care and sustainability) are prioritised by energy suppliers. But politics and values will still divide who trusts whom and when they do so.

If an energy company's like, oh, let us take your excess power, we'll choose where it goes. I would have, like, almost a moral obligation to not do that if there was, like, a massive demand from data centers (Jesse VIC).

Real estate is still trusted as an investment amongst those who can afford it, and home owners are depending on new assets as selling points, such as storage space. But landlords are not necessarily seen as trusted – people will be on different sides of trust relationships.

As soon as you get renters in, you see that money coming back in. Worst case scenario, I can sell that house and put money back in the bank. (Emily WA).

As you can see, we've got lots of cupboard space here, and that's one of the selling points (Henry and Pete NSW).

COMMUNITY FUTURES

Community is a site where people will feel they can trust.

Probably, a community sharing scheme is a way of keeping a circular economy, because then if we're paying for that management system, at least that money is staying within the community rather than, you know, an external potentially international company (Luna WA).

Conspiracy theorists, people who follow fringe views in distributed online communities and some people who simply feel they have been manipulated, deceived or let down by institutions in the past, may still experience a no-trust society.

I don't trust companies like energy companies, telecommunications companies, or insurance companies, I think they're more evil than AI (Elizabeth WA).

Right now, it's [public EV charging] free. In the shopping center and street, but ... very soon, they will start charging [for] it, just like a fuel (Ali NSW).



FORESIGHTING VALUES FOR FUTURE AUSTRALIAN HOME LIFE

LIFE IN CONTROL IN FUTURES

*FROM OPTIMISING ENERGY THROUGH AUTOMATION TO
OPTIMISATION THROUGH A SENSE OF CONTROL.*



CONTROL

WHY CONTROL AS A FORESIGHTING VALUE?

Control, like trust, represents how people experience their relationships with technologies, systems and organisations in everyday life. A sense of control is also crucial for delivering trust in situations that matter for energy outcomes, such as for Virtual Power Plants (VPPs, a coordinated system of connected devices supporting the grid) and automation of large appliances. Differently from trust, control has not been mobilised as a key social science concept (other than in debates regarding social control, which is a different matter), but has emerged from our present and earlier ethnographic studies as a key dimension of how people wish to experience their relations with emerging technologies in their homes: they want to remain in control. In engineering and

business disciplines, this sense is often construed through concepts such as 'transparency' but we mean something different. The outcomes of what we are calling 'being in control', echo earlier research which has demonstrated the importance for people of being able to employ their own everyday expertise and judgement, grounded in their experiential knowledge, in the management of their homes and households. Using their own everyday expertise and acting on it, enables people to trust in situations where they feel safe because they know and understand how things work, they experience some certainty and they are confident that their values are represented.

**VISIONS OF
ENERGY FUTURES
ACCOUNT FOR THE
RELATIONSHIP OF
POSSIBLE FUTURE
AUTOMATION
TO THE HUMAN
IMPULSE TO FEEL
IN CONTROL**

CONTROL

PERSONAL AND HOUSEHOLD FUTURES

People will tend to trust in situations where they feel they are in control in their own homes.

Like, an app where you could like ... monitor the solar input and output on the buildings. If we had something like that also, like, the car talked to the app, like, that'd be good. Just be like you can just see literally the levels you're generating this, or the battery has this much in it (Jesse VIC).

Some people will continue to feel out of control when they cannot make decisions about energy technologies.

I can't decide to put solar on the roof. I can't decide to change gas hot water to electric hot water. I don't have that right. And when you ask, a landlord is most likely going to go, nope (Jane VIC).

Some people will separate out control over personal or work digital technologies and energy technologies. While people may want to stay in control of automated technologies and systems, there could be circumstances where they will enable their energy management to be automated.

Well, it's just, I like the idea of having control. Yeah. Don't like to give control [to digital technologies] (William VIC).

Staying in control of when their EV is charged will be important to people.

We would love to charge at home. We don't want to go outside and wait for hours. It's better to... if we have that, we'll get it charged at home (Ravi VIC).

COMMUNITY FUTURES

Community is a site where people feel they are still in control.

Hopefully people ... that are sort of friendly will have charging systems out the front of their houses, like the solar panel versions. ...Let's say someone's driving past and they're like, electric vehicle battery is really low, they could just [charge their car battery] so that people can share (Luna WA).

People feel their homes, and their energy and technologies are beyond their control, particularly when they are part of apartment complexes or body corporates.

There's no hybrid plug-in points here in the building at all. ... it was going to cost us about \$45,000, the body corporate. So we said, no, we wouldn't do it. People want to do it themselves. They can, but nobody's done it (Tracey QLD).



FORESIGHTING VALUES FOR FUTURE AUSTRALIAN HOME LIFE

LIFE IN SAFE FUTURES

*FROM AN EMPHASIS ON COMFORT IN HOMES TO
SAFETY IN HOMES*

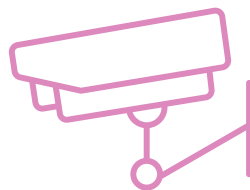
WHY SAFETY AS A FORESIGHTING VALUE?

In recent research safety has emerged as a core everyday life value representing how people seek to experience life in their homes in the present and in possible futures. While the concept of 'comfort' has traditionally been used to bridge engineering, business and social science views of the feeling people seek to experience at home, and has informed energy research considerably, our research has successively suggested that this should be replaced by safety. There are three motives for this shift.

First it is circumstantial: we are in a contemporary context where the present and possible futures are perceived as presenting threats to safety in terms of climate change, reduced air quality (e.g. airborne viruses, bushfire smoke, indoor allergens), crime and cybersecurity, and in the context of a cost-of-living and housing crisis where safe housing is inaccessible for some.

Second, it is empirical: participants in research are deeply concerned about their own and their households' safety in relation to these threats. They take measures to protect themselves and their households from threats, which also manifests as a form of care.

Third, it is academic: the conventional use of the concept of comfort in energy research has been critically reviewed to suggest that it is now too limited to accommodate what it feels like to live in our current times (Strengers et al. 2024, Cross & Nading 2026). The concept of safety does not replace the broader application of comfort, but it captures the element of comfort which was important to our participants. For the energy sector, a focus on safety provides understanding on households' orientations towards futures that they will seek to secure (through backup systems), override (when they seek safety and security), and maintain control over.



SAFETY
SAFETY
SAFETY

**VISIONS OF ENERGY
FUTURES ACCOUNT
FOR PERSONAL
SAFETY, CRIME,
AND PROTECTION
FROM VANDALISM,
CYBERSECURITY
AND CHANGING
WEATHER AND
AIR QUALITY
CONDITIONS**

SAFETY

PERSONAL AND HOUSEHOLD FUTURES

In futures people will need to feel cybersafe, from hackers.

There are so many hackers online which are waiting for you to just click, so they can, you know, hack your account (Aiesh VIC).

In futures being able to access safe air in their homes will be important to people.

I think an air purifier would be the only way [to have clean indoor air] because if you're having that quality of air outside, you're not going to want to open your doors and windows and have that air coming in (Louise QLD).

Preparedness for emergencies will be important in possible futures, and a priority is that people are themselves in control of this.

I think I've got it at my parents' place, I bought a, like, like, a fireproof box to put hard drives and stuff in. ... the idea would be to have off-site and on-site backup (Jesse VIC).

We've definitely spoken about getting a generator, maybe when, you know, they're not so expensive, when there's a blackout, because you find when there's a blackout, they skyrocket and everyone needs them (Louise QLD).

COMMUNITY FUTURES

People will need to feel safe from vandalism and crime in their communities in futures.

I'd be very sceptical where I would have that charging port ... there are some cheeky people when they see that you are not in, they park their car on your drive and start charging it up and then they have the audacity to say, "I'm just borrowing it". And you go, yeah, it's not your electricity (Sunil NSW).

People will need to have technologies prepared in ways that enable them to stay safe from future extreme weather conditions and events.

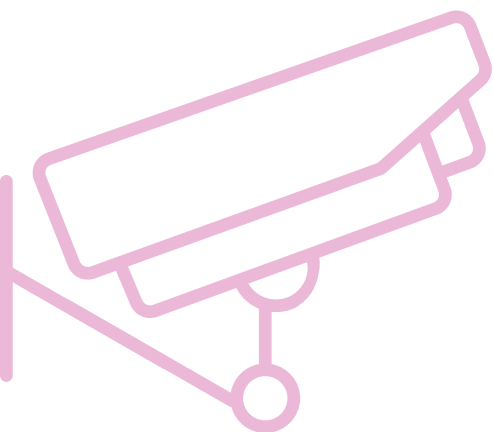
When there's a cyclone or floods here, we can lose power. So you wouldn't have a car if you couldn't charge it. But you might still have petrol in your car if it was petrol (Diana QLD).

Safety will often be found and experienced within in communities in futures.

It depends on if it's a random stranger or if it's someone I know. If it's a random stranger, no, we're going through a third party. If it's literally my next-door neighbor and I know them well. We'll just work out something else (Jane VIC).

Safe housing for all is needed in futures but unlikely to be achieved.

I am surviving. If my daughter stops giving me money, well, then I will be living in a car. I will have to get rid of everything I have and sleep in the car, because, you know, she's the one who is supporting me (Vlastimil VIC).



FORESIGHTING VALUES FOR FUTURE AUSTRALIAN HOME LIFE

LIFE IN INCLUSIVE FUTURES

A FOCUS ON PEOPLE LIVING IN SITUATIONS OF VULNERABILITY AND PEOPLE FOR WHOM UNPREDICTED EVENTS AND INABILITY TO ACCESS ENERGY, HOUSING AND OTHER TECHNOLOGIES WILL CREATE FURTHER HARDSHIP



WHY INCLUSIVITY AS A FORESIGHTING VALUE?

A focus on inclusivity enables us to account for who is excluded in the clean energy transition as currently envisaged, how new vulnerabilities will emerge in these envisaged futures, and how greater inclusivity might be achieved. In our research inclusivity focused mainly on people living in situations of vulnerability, and identified a relationship between vulnerability and people living in self-reported climate risk zones. We initially investigated inclusivity through the category of people encountering hardship, however our research also revealed how neurodiversity (one participant identified themselves with ADHD and autism), mental health conditions, and physical disabilities (12 participants identified themselves as having a disability) also shaped people's relationships to their

homes and energy technologies and systems. These elements are likely to gain increasing societal relevance in possible futures: in 2025 1 in 5 Australians "aged 16–85 (22%, or 4.3 million) experienced a mental [disorder](#)"; and "Autism and neurodivergence affect a significant portion of the population, with diagnoses rising each year. In Australia, an estimated 15% to 20% of school students are neurodivergent, and 1 in every 40 adults has autism. Neurological differences affect around 12% of the Australian [workforce](#)". A focus on inclusivity could imply greater wellbeing, a sense of safety and a feeling of trust.

VISIONS OF INCLUSIVE ENERGY FUTURES FOR EVERYONE LIVING IN AUSTRALIA

INCLUSIVITY

PERSONAL AND HOUSEHOLD FUTURES

Ensuring sensitivity to diversity through flexibility is a priority in futures, since our research already shows the impact of people being excluded.

Because government housing is for people on really low income. ...I've got sleep apnea, I'd have to pay for installation [of clear air tech] myself. And when I move out, I'd have to pay to uninstall it and fix up the wall...It's possible, but it's a lot. I just haven't got the money for installation and for a split system (Shane QLD).

In futures people will improvise to ensure that they are included to the extent that is possible.

Give me 10 grand, and I would illegally install solar panels here until they tell me to take them down and say they're illegally installed. If I had a spare 10 grand, easy, I'd do it (Glenn NSW).



COMMUNITY FUTURES

Inclusivity would be partially delivered through ensuring that people living in all housing types have access to EV charging.

I'm hoping that in 10 or 20 years they'll have the infrastructure for electronic vehicles worked out better. So I'm hoping that I could have an EV instead of a petrol vehicle" (Jane VIC).

Inclusivity needs to be futureproofed beyond the present to ensure that people don't become excluded through unexpected events such as the fuel crisis.

My new sort of thing this week has been to just go to bed if I'm still hungry. You know, can't eat if you're asleep. Yeah, I've canceled all of my subscription services, and now I just kind of rotate between free trials. There's a lot more mental energy that has to go into living so... budget stringently. That then removes, like, the ability to be creative, or to be social, or to put time into pursuing my career goals. But it's the sort of short-term needs that have to be addressed first (Luna WA).

Inclusivity can be achieved through the provision of community sites for all to access in order to stay safe during extreme weather or heat events.

So I think most of the people who flock to the shops, maybe people that are in lower socioeconomic areas that can't afford to run their aircon all day, or don't have air conditioning because a lot of the places here don't (Louise QLD).

FORESIGHTING VALUES FOR FUTURE AUSTRALIAN HOME LIFE

LIFE IN CARING FUTURES

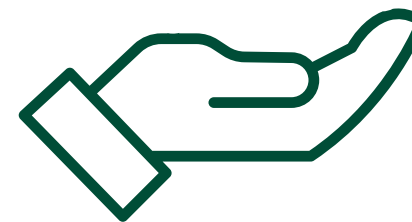
*CARE HELPS TO GENERATE CERTAINTY IN POSSIBLE FUTURES
– CARING FOR SELF, OTHERS AND THE ENVIRONMENT
OFFERS THE KINDS OF CERTAINTIES THAT ENGENDER TRUST.*

WHY CARE AS A FORESIGHTING VALUE?

Social scientists have long since centred care as inextricable from and vital to how people live in the world in general and in their homes (e.g. Tronto 1998, Puig de la Bellacasa 2017: 8). Our own recent projects have similarly identified that care is a key value and priority underpinning people's imaginaries of possible everyday future mobilities (e.g. de Silva & Pink 2025) and future home life (Strengers et al. 2021). Care is interpreted broadly as involving care for the environment, care for the home, care for other people and for community and care for the self. Care for themselves and others underpins the ways that people use energy in their homes, such as for heating, cooling, cooking and laundry, and also impacts on the timing and flexibility when those activities can be performed in

response to demand management initiatives. Yet these modes of care can come into tension with care for the environment, in the form of reducing energy use. Each of these dimensions was evident in the research reported on here. The concept of care also enables us to consider how community and household relations might be constituted in possible futures, how a sense of care might be experienced and how circumstances of care, trust, safety and inclusivity might go hand in hand.

CARE
CARE
CARE



**VISIONS
OF ENERGY
FUTURES
WHERE CARE IS
UNDERSTOOD
AS A CORE
VALUE FOR
ALL PEOPLE**

CARE

PERSONAL AND HOUSEHOLD FUTURES

Working from home will often support and directly share rooms and spaces in the home with caring activities, such as child care, using exercise equipment or laundry.

Being able to drop the kids off, pick the kids up if you need to duck out or be here for an electrician to do something in the other room you can be here. You don't have to reschedule your whole life to do that. I can still keep working (Andrew SA).

When I go back to work I'll be fully home until I'm ready to go back to the office. I plan to have her in daycare two days a week, and work from home (Louise QLD).



Caring for oneself at home will become contingent and uncertain for some people in the future.

Government housing, they won't put a split system in. That's why I went and got a NILS government loan one for this, and it's just about paid off. I had another one – won some money on pokies, about \$250 cash, so I snapped it up when I got it...You definitely need one in Far North Queensland. When I'm not feeling well and haven't had much sleep, I'll lay down and run it a couple of hours during the day, but mainly at night (Shane QLD).

COMMUNITY FUTURES

Energy companies will be feel more viable for people when they manifest values and priorities which relate to care.

I will use energy companies, because sometimes they give you benefits. And, they have been dealing with so many homes ... so they figure it out. How can this benefit us, and how can it benefit other people (Aiesh VIC).

Community will be depended on to deliver modes of care, but this may not be sufficient in times of increasing hardship.

There's a neighbourhood centre in every town, I guess. I used them quite a few times for transport – they took me to Mossman to the Centrelink office and the hospital. They gave me packages of food. Then the next time I rang they said, "We can't help you anymore, you've gone over your threshold." Four hundred dollars – that's it, per person, a year. I thought, well, that's nice. I didn't know there was a threshold on needing medical attention or starving, basically (Diana QLD).

Community will be depended on as the source of safety and care in extreme weather conditions / other emergencies.

I haven't been through a cyclone yet. But I know they have cyclone parties at the pub...They stay for two or three days, locked in the pub (Diana QLD).

FORESIGHTING VALUES FOR FUTURE AUSTRALIAN HOME LIFE

LIFE IN UNCERTAIN FUTURES

A SHIFT FROM UNDERSTANDING FUTURES AS TECHNOLOGY DRIVEN TRAJECTORIES, TO VISIONS OF FUTURES WHERE PEOPLE ARE NOT SURE WHAT THEY WILL DO, ARE EXPLORING THEIR OPTIONS AND CREATING THEIR OWN SOLUTIONS.

WHY UNCERTAINTY AS A FORESIGHTING VALUE?

Uncertainty is an inevitable and inescapable element of life; it is impossible to know what will happen next or in a possible future, but living in circumstances of trust, care, safety and inclusivity help people to live with uncertainty. Working with uncertainty as a value helps us to understand how and where uncertainty becomes visible, how people cope with it on an everyday basis, how this impacts their understandings of and engagement with energy technologies, systems and companies (and with other people and their homes), and how this is likely to evolve into possible futures. For the energy sector, where uncertainty is already routinely experienced as unplanned energy outages, this concept draws attention to new forms of disruption that may emerge as a result of other unplanned events such as pandemics, geopolitical

conflicts, extreme weather events or changing policy and regulations. While uncertainty should be understood as a fundamental aspect of life, we are also currently in a particular situation of uncertainty, which is an evolution of but distinct from the modes of uncertainty which prevailed during the Covid-19 pandemic. Our research indicates that the emerging modes of uncertainty centre around the questions of safety accounted for above, as well as having implications for how people viewed or planned their technological, work, financial futures and anticipated their everyday life routines. Accounting for conditions of uncertainty and the disruption that is associated with them, is a key check point for all of the foresighting values proposed above.

UNCERTAINTY



**VISIONS
OF ENERGY
FUTURES WHERE
UNCERTAINTIES
ARE ACCOUNTED
FOR IN WAYS THAT
GENERATE TRUST,
CARE, SAFETY
AND INCLUSIVITY**

UNCERTAINTY

PERSONAL AND HOUSEHOLD FUTURES

Understandings of possible futures will need to account for the outcomes of a current “wait and see culture” in which some people are deferring decisions about, for example buying EVs until an optimal moment, and where unsafe housing is not likely to improve without external intervention.

“Technology is changing. Maybe in future, maybe in the next 10 years, the petrol or diesel cars won’t be there, so it’s better to adapt to a new technology” (Ravi VIC).

Some people prefer multiple jobs and hustles rather than solid career trajectories and this will evolve further in possible futures.

I’ve started my channel, ... I cook and I record that, and I upload that, and although it’s not that successful now, because it’s been, like, 3 months now... I also started a YouTube channel for kids (Aiesh VIC).

You work for a company, and I did one yesterday for Yves Saint Laurent down at Pacific Fair. So I had to go in and try on a pair of \$2,000 shoes. And I get paid \$45 for it. Sometimes you get to buy the products and keep them (Tracey QLD).

People will want flexibility and autonomy, particularly in futures where everyday routines may be contingent on shifting weather and seasons.

I’m trying to branch myself out and work around my schedule, not anyone else’s schedule (Emily WA).

COMMUNITY FUTURES

Unpredictable climate (extreme weather), geopolitical (war), public health (Covid-19) events all create future uncertainties for energy companies and for diverse Australians.

You’re watching the prices of everything increase rapidly. And they keep changing all the rental laws, so it’s like, “Oh, okay, what change does this mean? What’s the new effect of this thing that you did not consult with tenants about?” (Jane VIC).



SUMMARY OF FINDINGS



Electric vehicle futures

While the current energy crisis has generated a spike in electric vehicle (EV) sales, and generally Australians believe that ultimately they will use EVs to **care** for their households and the environment, many Australians are taking a “wait and see” approach to EVs (electric cars in this case), with a greater interest in hybrid EVs. They are waiting for future circumstances in which they can **trust** current **uncertainties** will be resolved with shifts including **safe** EV charging at home available to all, **trusted** community energy sharing initiatives, lower and thus more **inclusive** EV purchase costs and when they can stay in **control** of their energy and technologies.

Household preferences are likely to reshape electricity demand patterns, increase pressure on low-voltage networks, and require new incentive models and value propositions to align household practices with broader energy system priorities.



Working from home futures

Working from home (WFH), consolidated since the Covid-19 pandemic, is likely to evolve in new ways as gigwork, side hustles and multiple jobs, making some WFH more **inclusive**. It will increase inequalities with Australians who increasingly value and can afford additional space for WFH benefitting from the flexibility of WFH to develop household routines that integrate **care** for self, other people and other species and are sensitive to changing seasons and **uncertainties** surrounding future extreme weather. People will depend on digital work technologies and heating and cooling and clear air technologies to support WFH, and **trust** will be contingent on their being in **control** of these technologies and requiring them to offer **safety** in the form of cyber security.

These changes will generate more variable home electricity demand, enable new opportunities for demand management, while also deepening energy inequities and accelerating household interest in energy independence, through batteries and other energy back up systems.



Digital connectivity, community and security

Digital connectivity and **safety**, including cybersecurity is a primary concern and source of **uncertainty** for many Australians in the present and anticipated futures. People feel safer when they are in **control** of digital home and energy technologies. They generate a sense of **trust** by ensuring that their own values shape the ways technologies are used in their homes, for instance to support **care**, and in envisaging that future community based energy systems and technologies would mitigate against local crime. Some people will opt out of digital connectivity to the extent this is possible. Not all Australians have equal access to digital technologies highlighting the need for future digital **inclusivity**.

Growing concerns about cybersecurity, safety and control are likely to shape uneven participation in smart energy and demand management technologies, contributing to more unpredictable energy use while increasing interest in trusted, community-based energy systems that enhance local resilience and autonomy.

SUMMARY OF FINDINGS



Storage and preparedness

Storage and preparedness are becoming increasingly important as people both anticipate **uncertainty** and centre their working lives at home. Storage of food, water, energy and other essential items at home and as community resources enables people to **care** for themselves, others, other species and their material possessions in times of weather uncertainty. Working from home creates additional material storage space and data storage needs, and home storage space is increasingly seen as a **trusted** financial investment. Being in **control** by having personal items and a fully charged EV ready to leave in the case if a weather event is important to people's future **safety**. **Inclusive** futures would need to ensure that all Australians equally benefit from preparedness, in some cases community preparedness will support this.

Greater household preparedness and storage practices imply increased home electricity demand, are likely to lead to households seeking greater energy independence or utilising back-up strategies, and are likely to exacerbate vulnerability for households unable to afford energy resilience and storage solutions.



Inequalities and vulnerability

Australians cannot all equally participate in the energy transition and new steps will need to be taken to achieve an **inclusive** and **trusted** energy future. Future **uncertainties** relating to the fuel and cost-of-living crisis demonstrate how situations of vulnerability can escalate, with people sacrificing self **care** and food to pay energy bills. Renters and those on low incomes cannot **control** their access to technologies including EVs, air conditioning or filtration, solar or other energy technologies. Older people and those with disabilities who are financially precarious face future **unsafe** housing or homelessness in possible futures. In these circumstances community resources are likely to provide greater support.

Growing energy hardship will restrict some households from benefitting from CER and other energy transition opportunities. These households will increasingly depend on community or government initiatives for support.



Trust and control

Seeking to increase Australians' trust in automated technologies or energy companies so people will relinquish control to them is likely to be unsuccessful, while creating the circumstances which enable people to trust and acknowledging where they will need to feel in control to different degrees in different situations, is likely to increase engagement with the energy transition. **Trust** is likely to be values based, to emerge when **care** and **safety** are prioritised in situations of extreme weather and in ensuring cybersecurity, and in attention to **inclusivity**, and when people feel in **control**. Trust is likely to be invested in people and communities that people already know. However trust will not be static, it will waver according to the circumstances and the values of the people concerned.

Trust will shape how people engage with future household energy systems and opportunities to participate in the energy transition, for instance through EV uptake or CER. This will require flexible approaches that work with, rather than override, existing household practices and preferences.

RESEARCH PROJECT AND DESIGN

The Scenarios for Future Living Project

The Scenarios for Future Living (SFL) project explores how household and home businesses will use energy in the future — ensuring that new policies, products and services align with the evolving needs of diverse communities. Through new foresighting methods, scenario planning, advanced modelling and design innovation, the project is paving the way for an energy system that is resilient, equitable and future-ready.

SFL is part of the RACE for 2030 Cooperative Research Centre. SFL is a collaborative project delivered with four research partners (Monash University, UNSW, UTS and CSIRO) and key industry partners (Ausgrid; Citipower, Powercor and United Energy; Red Energy; NSW DCCEE; and VIC DEECA).

The project is structured around seven interconnected Work Packages (WPs), each addressing critical challenges in the evolving energy landscape. Through these work packages, the project ensures scalable, impactful, and long-lasting contributions to Australia's energy transition.

The research included in this report represents the ethnographic research conducted with Australian households as part of Work Package 1.

HOUSEHOLD AND HOME BUSINESS RESEARCH

Work Package 1 of the SFL project builds on the Digital Energy Futures project to develop advanced ethnographic methods to capture possible future real-life experiences across diverse households and home businesses. It is also establishing a 'Living Lab,' where participants engage with speculative designs for future energy services and products in Work Package 5. Research from Work Package 1, particularly the foresighting values, will directly inform the scenarios being developed in Work Package 3 and will contextualise Work Package 4's quantitative modelling. Work Package 1 and 7 take different theoretical, conceptual and methodological approaches to provide complementary qualitative and quantitative insights.

Research methods for Work Package 1 involve:

- Longitudinal ethnographic research with 36–44 households across six states/territories over three years, ensuring diverse socio-demographic, geographic, and housing/technology representation.
- Living lab experiments where participants interact with prototype energy products and services, testing their usability, appeal, and real-world impact.
- Ethnographic documentary video showcasing real household experiences to engage industry, policymakers, and the public.
- National household survey (5,000+ participants) conducted three times over the project, capturing emerging lifestyle and energy trends.
- Collaboration with Energy Consumers Australia (ECA) and CSIRO, integrating key survey questions to ensure whole-of-sector relevance.

The research conducted and included in this report involved:

- The first national Scenarios for Future Living (SFL) household survey, completed by more than 5,000 Australians in April–May 2025. Full findings from the Survey report are available in *Household and home business research: Emerging lifestyles preferences and practices*. In this report, findings of the survey are engaged in dialogue with the ethnographic analysis where relevant and support the energy implications.
- The first stage of household ethnography with 42 participating households across six states and follow-up online interviews with 8 selected households across three states.

RESEARCH PROJECT AND DESIGN

The ethnographic findings presented in this report are not intended to be statistically representative of the Australian population. Rather, they provide insight into how diverse households experience, interpret and anticipate emerging social, technological and energy transitions. The ethnographic sample was intentionally designed to include households likely to encounter opportunities and vulnerabilities associated with the energy transition. Survey findings from 5,000 Australians are used throughout the report to provide broader population context and support interpretation of emerging themes.

RESEARCH QUESTIONS

The research questions underpinning the ethnographic stage of the fieldwork respond to selected dimensions of the wider suite of questions asked by SFL WP1:

- How will or could diverse people and households live and work in the future (with anticipated technology, climate and socio-demographic trends), and what will the energy system and participation look like in this changed context?
- What are the key emerging social trends, lifestyles, routines and practices that are likely to impact on patterns of electricity use in Australia?

In consultation with the SFL project team and partners the research design addressed these questions through five priority themes: experience and use of the building envelope (including: air filtration and purification, heating and cooling, ventilation); Storing and prepping; Mobilities and charging; Working from home; Everyday routines. We note that the findings emerging from this design responded to the research questions, but do not directly fall under these headings, which is characteristic of ethnographic research.

The foresighting values and foresights are based on the analysis of the findings, which is developed in dialogue with key proven futures focused concepts grounded in the social sciences. The energy implications are extrapolations of the foresights and findings, and represent likely or plausible impacts and outcomes that could have material impacts relevant to energy system planning.

They are also supported by household survey findings with 5000 Australians. The project is continuing to validate these findings through ongoing surveys, qualitative research and modelling being undertaken across the project team.

The future-oriented accounts presented in this report are not scenarios or forecasts. Rather, they reveal how people currently imagine, anticipate and prepare for possible futures. These insights provide evidence about emerging expectations, concerns, values and uncertainties that will inform the project's scenario development and support quantitative modelling undertaken elsewhere in the project.

RESEARCH METHODS AND PARTICIPANTS

The household ethnography involved 42 households (49 participants) across six states. The recruitment strategy was designed to provide geographic and socio-demographic diversity across households, and deliberately prioritised a segment likely to face current or future vulnerabilities in the energy transition.

Approximately 50% of participating households were experiencing some form of vulnerability. This included low-income households, renters, apartment dwellers, older people, people with disabilities, households experiencing at least one form of energy-related hardship in the past 12 months, and those self-reporting living in areas exposed to climate-related risks. Households experiencing vulnerability were represented across income brackets, tenure types (including renters and outright owners), and household compositions. This was a deliberate recruitment strategy designed to ensure that diverse and potentially disadvantaged households' perspectives were included in the research. These perspectives are complemented by the more energy-aware and tech-savvy participants involved in WP7, and the broader representation of 5000 Australian households participating in the WP1 national survey.

Participants were living in Victoria (13), New South Wales (11), and Queensland (8), with smaller numbers from Western Australia (4), South Australia (3), the ACT (2), and Tasmania (1). Households included a mix of those working full-time (21) and others working part-time, casually, or not in the

RESEARCH PROJECT AND DESIGN

workforce, including pensioners and people receiving disability support. Gender was relatively balanced, with 25 men and 23 women, with the majority aged over 45 and particularly strong representation among those aged 55–74. Income levels were spread across brackets, though most households fell within the \$41,000–\$160,000 range.

Households reflected a diversity of living situations and compositions, including apartments (19), detached houses (15), and semi-detached dwellings (7), with a mix of renters (15), mortgage holders (12), and outright owners (14). Household sizes ranged from single occupants (14) to larger families, with couples with children (12) and couples without children (11) also well represented.

While most households spoke English as their primary language (39), the sample included some cultural diversity, as well as 12 participants with a disability and three identifying as Aboriginal or Torres Strait Islander. Experiences of vulnerability were also captured, with 14 households reporting some form of hardship and an even split between those exposed to climate risk and those not (21 each).

While no households currently had all three major consumer energy resources (CER) (rooftop solar, home battery, and EV), 13 households used rooftop solar, and many had an intention to own home batteries and EVs in the future.

A subset of households had low levels of digital or smart home technology. Most households did not have high energy demand profiles, and energy bills were generally moderate, with the majority paying under \$600 per quarter.

Geographically, the sample was concentrated in temperate (22) and sub-tropical (10) climate zones, with additional representation in tropical, cool temperate, grassland, and temperate midlands regions. Most participants lived in metropolitan areas, including inner-city (18) and outer suburban or growth areas (10), alongside households in coastal or leafy settings (6), regional centres (4), farming areas (3), and one rural or remote location. Overall, the sample provides a diverse and nuanced picture of Australian households who are not typical 'early adopters', enabling exploration of how different social, economic, and geographic factors shape experiences of the energy transition.

ETHNOGRAPHIC FIELDWORK

We aim to conduct longitudinal ethnographic fieldwork with the recruited participants over a period of three years.

The fieldwork component of the first year was completed in the later part of 2025 and early 2026. This involved both in-person and online household visits based on participant preference.

Our pre-tour and preenactment method built on the existing established visual ethnographic home video tour and reenactment methods (Pink 2021) which have been used across many existing projects over the last 25 years. The home tour was designed to enable participants to show and discuss, with the researcher holding the camera, the materiality and embodied experience and activities of everyday life in the home, usually with a curated focus depending on the research project.

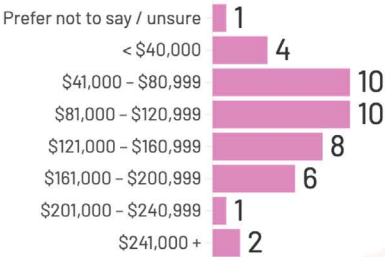
In the research discussed here we adapted the home tour to account for the possible future home, inviting participants to discuss their possible future experiences of the materialities and technologies of home, and how they might adapt these or use them differently in a hotter environment or during extreme weather events.

The reenactment method invites participants to perform familiar everyday activities, for example previous projects have asked participants to reenact morning, bedtime or laundry routines. In this research the preenactment invited participants to show researchers how they would perform everyday activities in possible futures.

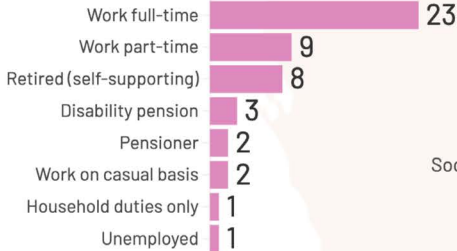
KEY DEMOGRAPHICS AT A GLANCE

42 households | 49 participants

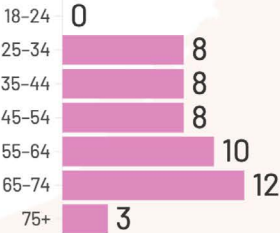
Income¹



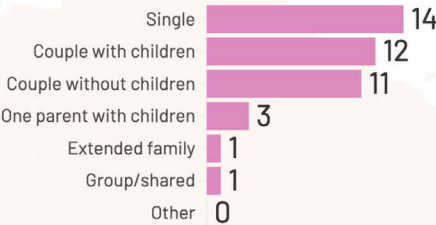
Employment



Age group



Composition



Solar



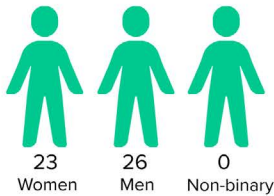
Electric vehicle



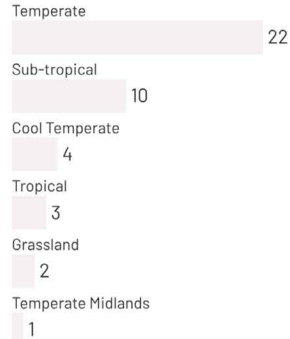
Home battery



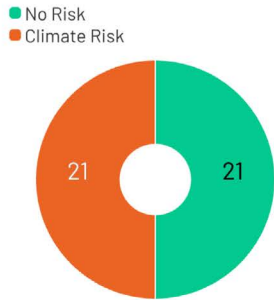
Gender



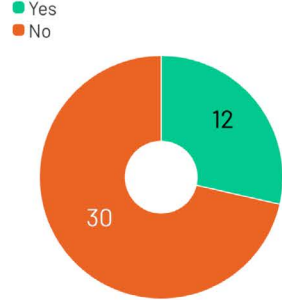
Climate zone



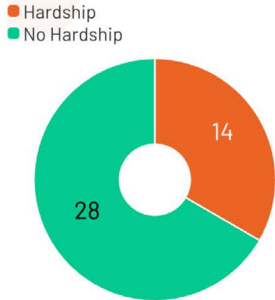
Climate risk zone³



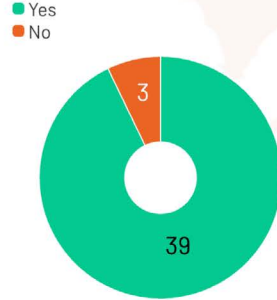
Disability⁴



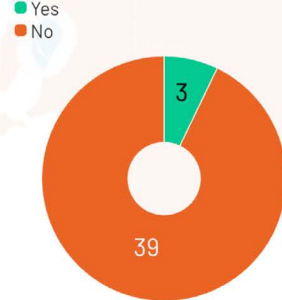
Energy hardship⁵



English first language at home



Aboriginal / Torres Strait Islander



1. **Income:** survey respondents were asked "What is your household's total annual income before tax? Please include all sources of income for everyone in your household (e.g. wages, investments, government payments, and superannuation)".

2. **Smart home status:** survey respondents were asked, "Which of the following statements apply to your home?", including whether their home was described as a 'smart home' by themselves or others.

3. **Climate risk zone:** survey respondents self-reported if they lived in an area subject to at least one climate-related risk, including bushfires, flooding, blackouts, coastal erosion, or cyclones/storms.

4. **Disability status:** determined by asking survey respondents whether anyone in their household has a disability.

5. **Energy hardship:** survey respondents were asked if they had experienced at least one energy-related hardship in the past 12 months, including being unable to afford essentials, paying electricity bills late, selling or pawning items to pay bills, going without heating, seeking help from family, friends, or welfare organisations, being on a hardship program, risk of electricity disconnection, electricity disconnection due to non-payment, or climate-related disaster damage.

RESEARCH PROJECT AND DESIGN

HOME VISIT (IN-PERSON/ ONLINE)

Following the recruitment process, one or two members of the research team made visits to the participants' homes. In each visit, participants shared details about their current household practices, routines, use of technologies. In addition, participants were also prompted to share their visions for the future, in terms of household routines, technologies, values, concerns, visions, etc. Interview questions covered everyday routines, energy practices and future energy related visions (elicited through the pre-tour and preenactment methods outlined above), priorities, concerns, technology, heating and cooling, working and studying from home, mobilities, storage and key values (trust, control, security, care, sustainability, inclusivity).

ANALYSIS

All data gathered from the in-person visits and online visits were audio and video recorded based on participants preferences and consent. The audio was then transcribed and uploaded to Nvivo qualitative analysis software. The research team developed a broad coding structure around the key themes as stated below and analysed both inductively and deductively:

- Air, temperature, humidity
- Building envelope
- CER and energy technologies
- Cleaning
- Clothes, shoes, accessories
- Cooking, eating and food practices
- Cooling
- Heating
- Energy
- Converted spaces, gardens, garages
- General storage
- Health and wellbeing
- Home businesses
- Laundry and drying
- Leisure, holidays, hobbies, sports
- Mobilities
- Personalisation
- Pets, other animals and plant life
- Routines
- Social
- Security, privacy and surveillance
- Technology
- Values
- Vulnerabilities and intersectionality
- Weather, climate change and environment
- Work, study and school

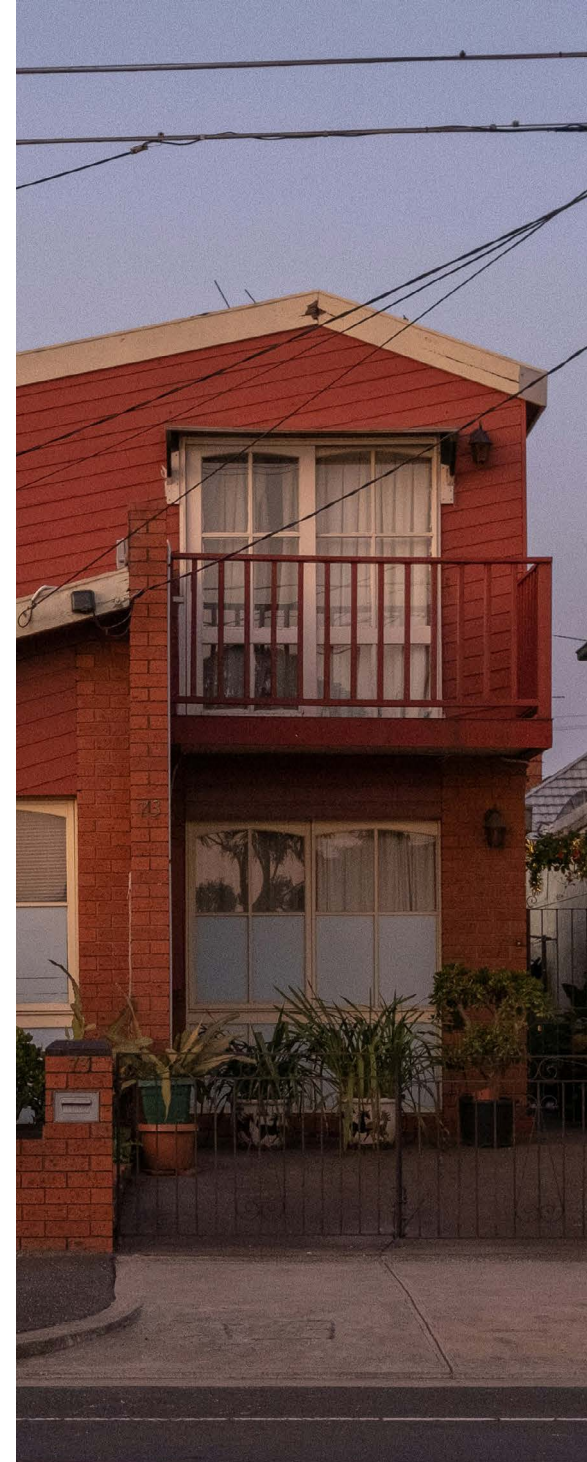


Photo by Cameron Tidy on Unsplash

THEME 1

ELECTRIC CARS

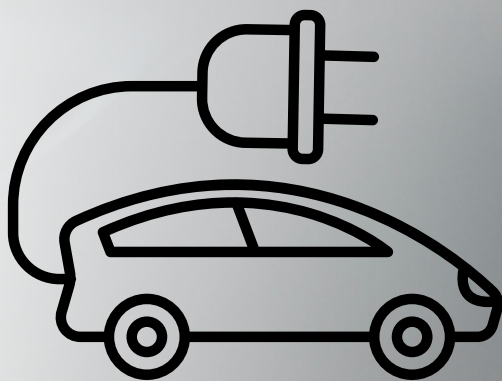


Photo by CHUTERSNAP on Unsplash

FINDINGS

THEME 1: ELECTRIC CARS

FORESIGHTS FOR FUTURE LIFE WITH ELECTRIC CARS

- Participants tended to see EVs as a “not yet” technology, and assumed that they would own EVs in possible futures when home and public charging infrastructures and wireless charging technologies, EV roadside services and more powerful and cheaper batteries were available.
- At present hybrid (plug-in and fossil fuel) cars are more attractive options than fully EVs for participants. People are mainly deterred by the cost and inconvenience associated with EVs. However in the future people anticipate all cars will be electric.
- While EV sales have surged in Australia since the 2026 fuel crisis began, many people are taking a “wait and see” approach to EVs, anticipating that the questions of purchase cost, service and maintenance, infrastructure investment for convenient home charging will improve in the future.
- People still prefer to charge EVs at home and are likely to continue to prefer to charge at home in the future. However, future charging ecosystems are likely to comprise a combination of home, workplace, destination, kerbside and public charging solutions, particularly for renters, apartment residents, commercial fleets and customers without access to dedicated parking.
- People find public charging EV stations inconvenient at present and do not anticipate them being attractive to use in the future. However, these views may shift as future public charging networks evolve through improvements in charging speed, availability, reliability, interoperability and integration with everyday destinations.
- Hybrid EVs (both fossil-fuel and plug-in) are increasingly popular, but should not be treated as a cautious step which will convince people to purchase full EVs in the future. Hybrids are a new experience which exposes people to the benefits of “no-charging” or “low charging” EV use, making future public EV charging even less attractive.
- Participants imagined possible ground-up future community and household electricity sharing schemes for mobile EV drivers, using plugin or wireless charging, as a preferred future to one of remote public charging stations.
- Where future home charging infrastructures are inadequate, people are likely to improvise to charge EVs at home in new and unanticipated ways that are suitable for their own priorities and values.
- People’s anticipated uses of EVs are heavily led by values of care and control. These values are likely to dominate decisions about EV use in the future.
- Most participants saw solar energy as part of their home energy futures. They tended to assume that this would support their future EV ownership, which would follow on from solar.
- Some people do not believe in the energy transition and ascribe to conspiracy theories relating to the Australian government’s role in it. They therefore do not see any reason to use an EV either in the present or in a possible future.
- While unpredictable events such as the 2026 fuel crisis can be seen as catalysing increased EV uptake, this and likely future events have and will also potentially push many Australians who are car-dependent into situations of increased vulnerability.

FINDINGS

THEME 1: ELECTRIC CARS

ENERGY IMPLICATIONS

- Household pathways to vehicle electrification are likely to be diverse and non-linear, with hybrid vehicles potentially playing a longer-term role than transition models often assume.
 - The preference for distributed and localised charging (at homes) may increase demand on local distribution networks if unmanaged. However, future impacts will depend on household participation in and uptake of managed charging, dynamic tariffs, flexible demand programs, distributed energy resources and participation in other flexibility services.
 - Managed charging strategies will need to accommodate household priorities for convenience, flexibility and care, rather than assuming charging can be optimised solely according to system needs through the 'right' incentives.
 - There is an intuitive association for most people to charge EVs when solar energy is abundant, which could be further aligned to sector-led incentives.
 - Interest in emerging local energy-sharing schemes, where households trade or allocate electricity for EV charging within communities, represents an opportunity to reduce pressure on the wider network.
 - EV battery fire concerns require further attention to vehicle safety standards, battery management systems, comparative vehicle safety performance and trusted communication with households.
- Growing interest in self-sufficiency and energy independence achieved through rooftop solar and home batteries may reduce some households' engagement with grid-based electricity markets, VPP schemes and other incentives, requiring new value propositions for households.
 - Uneven access to home charging infrastructure may create significant disparities in EV participation, particularly for renters, apartment residents and social housing tenants, requiring alternative charging solutions and targeted policy interventions.

INTRODUCTION

THEME 1: ELECTRIC CARS

This theme addresses contemporary and possible future shifts in Australians' everyday uses, understandings and future anticipations of electric vehicles. In the cases discussed here this refers exclusively to electric cars.

Our earlier research (Pink et al. 2022, Pink 2022, Pink et al. 2025) found that diverse Australians had little interest in charging EVs at public charging stations either in the present or in possible futures. They consistently wished to charge EVs at home, often for similar reasons to those reported on below, which included the risks to personal safety when charging in public places (particularly for women), requiring a vehicle already charged at home in the morning for work or other daily routines as well as for unpredictable everyday contingencies (such as care-related emergencies), and in case a vehicle was shared with another person. The research presented in this report confirms that this trend endures, and that it moreover extends over a more diverse sample of participants with relatively low interest in EVs.

Only one participant in our sample owned an EV, which corresponds with EVs accounting for "2% of all cars on Australian roads". In Australia, it is estimated that by 2032–33, between 1.9 million and 6 million EVs will be in residential use.

Our Household and home businesses research: emerging lifestyles, preferences and practices report (Kaviani et al. 2025) points out that "factors, including high upfront costs, a limited second-hand market, inadequate charging infrastructure, difficulties in home charging, policy uncertainty and fragmentation, supply constraints, support services and skills gaps and low public awareness and misconceptions complicate EV uptake".

With the recent petrol crisis, there has been an increase in sales in EVs globally which signals an increasing interest in purchasing EVs. However we note that in followup interviews none of the participants in this research had purchased EVs and they did not associate the fuel crisis with a heightened need or desire to purchase an EV. In fact they were more likely to associate the fuel crisis with increased household costs, rather than with a shift to EVs.

Participants in the research had less experience of and fewer assumptions about EVs than encountered in previous research. However, they had been exposed to news and media items which related EVs to energy efficiency, lack of public charging infrastructure, costs and policy issues.

We found some participants appeared to depend on or repeat these existing representations to explain their own situations. However, we also discovered new realistic and plausible everyday life possibilities, arising from the growing market for hybrid (both fossil fuel and plug-in) vehicles, participants' disinterest in the use of public charging infrastructure and their favouring charging at home or not at all. The research presented in this report sets these factors, which are often seen as "barriers" to adoption, within the realities of everyday life values, priorities and possibilities. We cross-reference these findings with results from the project's national survey to reduce bias regarding our ethnographic sample of households with low or no EV experience.

DETAILED FINDINGS

THEME 1: ELECTRIC CARS

FINDING 1.1: COST AND CONVENIENCE

About a quarter of the participants in the ethnographic study saw themselves as prohibited from owning EVs due to purchase, maintenance and home charging installation costs. For example, in some houses, there were no external plug points so participants felt they could not. In other instances, mostly among tenants, going through the real estate agents and landlords was viewed as an additional barrier. A few who had external plug points were under the assumption that a specific plug point was necessary because that is what they have seen in their social circles. Some participants felt that the energy transition more broadly, which they saw EVs and solar infrastructure as part of, was targeted for a more affluent group that they were excluded from.

Survey findings: Current use of EVs and future intentions to own one increased with income. From just 4% (n=37) among those earning less than \$40k to 22% (n=39) in households earning more than \$241k. Lower-income households were substantially less likely to currently use or plan to own an EV.

1.1.1. Up-front and hidden costs of EV ownership

The cost of new and even second-hand EVs was prohibitive for most participants and participants generally did not see EV purchase as good value for money, given the “hidden costs” and inconvenience related to charging infrastructure.

“I feel like saying Canberra is the Tesla town. Everywhere you look, there’s a Tesla. People here may be able to afford electric cars, but I don’t know, well, I can’t, but how are people going to afford these new technologies?”
Wendy (ACT).

Some participants viewed the cost of installing home charging infrastructure (either in houses or in apartment buildings) as an additional expense to the already high cost of purchasing an EV. They were additionally concerned about both the practical difficulties of installation in older homes and about the safety regulations and compliance processes that it would involve.

Participants considered that second hand EVs would include hidden costs of purchasing a replacement battery and that therefore it would be more feasible to purchase a new EV.

The cost of replacing a battery is probably so high it would be cheaper to buy a new car (Ashar QLD).

We note that this may change over time with future technology developments, battery warranties, secondary markets, alternative repair pathways or cost reductions.

Some participants perceived themselves as being financially excluded from the energy transition and unable to make the high cost purchases they associated with it. This often included EVs and home charging infrastructure.

I think it’s a great idea but they’re so bloody expensive. Like who can afford to buy a brand new electric car? I’d love to but financially, it’s just out of reach. I’m sure ... a lot of people out there ... simply can’t afford to buy an electric car until they come right down in price (Liza TAS).



Wendy's (ACT) car in her garage

DETAILED FINDINGS

THEME 1: ELECTRIC CARS

1.1.2. Participants considered hybrids as cost-effective, more convenient and safer alternatives to EVs

Participants tended to see hybrids (both fossil fuel & plug-in) as “better value for money” to fully EVs, seeing them as cheaper to purchase and conveniently able to switch between fossil fuel and electricity.

Most participants who preferred (fossil fuel) hybrids explained that the inconvenience of charging EVs demotivated them from purchasing EVs. The inconveniences included EVs taking too long to charge, lack of charging infrastructure particularly in rural parts of the country, and the inconvenience of using public charging stations.

Charging at home was preferred by most participants because using a public charging station was considered inconvenient. Therefore hybrids (fossil fuel) were preferred by those who could not charge at home (including tenants who had limited household charging infrastructure, participants living in apartments, government or social housing).

I think hybrid, in a way, like, EVs will be in the future, but I think at the moment, I will go with hybrid. Hybrid. Yeah, because at the moment, you know, there is not too much mileage and charging stuff and things like that (Aiesh VIC).

Hybrids (fossil fuel) were also preferred by participants who lived in high risk areas for extreme weather events (such as floods, heatwaves, bushfires) or other reasons for loss of power. They were concerned that the time involved in charging an EV, or the need to go to a public charging station to do so, would increase their risk if needing to leave home in an emergency.

I think it would put, like I said, put my wife's mind at ease you know, I guess it's probably a legitimate concern having to race out in a bushfire in the middle of the night and the car's not charged (Andrew SA).

If the electricity went out for a week, you couldn't charge it, couldn't go anywhere. With petrol, you might still have enough to get places (Diana QLD).

1.1.3. Some participants believed that fossil fuel cars are better value for money and more practical than EVs

Some participants saw fossil fuel cars as better value for money and being easier to manage within their everyday mobility routines, including refuelling the car.

The maintenance, and emergency roadside repair of fossil fuel cars are well established existing services, and participants were concerned that it would be difficult to access EV mechanics or roadside assistance services with adequate expertise. They believed there would be limited EV services outside metropolitan areas if an EV was to break down during long distance or weekend travel.

I don't really like the idea of having to plug your car in. Because what happens, like I said with the AI – what happens if that breaks down? Where's the universe going to be then? I don't think there is enough infrastructure or stations in and around Australia at this moment in time which is I think a lot of stumbling block (Sunil NSW).

DETAILED FINDINGS

THEME 1: ELECTRIC CARS

1.1.4. Impact of the fuel crisis

As noted earlier, more broadly the 2026 fuel crisis can be regarded as increasing EV uptake, but it is important to account for how for some Australians EV purchase is simply inaccessible. In these cases, which our participants represented, our research suggests that it could shift people into situations of increasing vulnerability. Participants described how increased economic hardship created by being petrol dependent in this context had impacted their own wellbeing and career aspirations and anticipated that broadly the 'average' person would find it difficult to sustain the economic burden of the crisis.

My new sort of thing this week has been to just go to bed if I'm still hungry. You know, can't eat if you're asleep. Yeah, I've canceled all of my subscription services, and now I just kind of rotate between free trials. There's a lot more mental energy that has to go into living so... budget stringently. That then removes, like, the ability to be creative, or to be social, or to put time into pursuing my career goals. But it's the sort of short-term needs that have to be addressed first (Luna WA).

I don't think, like, the average Joe will have the resources or the space to be able to do anything if it becomes too hard. ...I guess, maybe going, like, backwards a little bit, and yeah, like, buying a few more candles, or maybe, like... I don't know, something that... maybe those, like, lights where you can, like, line them up yourself or whatever, but, like, I don't think anyone will be able to, like, get the resources to, like, help themselves out of it, which I think is really sad (Alex VIC).

FINDING 1.2: HOW PEOPLE ANTICIPATE THEIR FUTURES WITH EVS

This section discusses how participants anticipated their own futures with EVs, this is important knowledge because it enables us to understand how people understand their futures and the logics upon which they make decisions in the present as regards their trajectories towards EVs.

Survey findings

- Among co-op (n=49) and aged care residents (n=31), were most likely to currently use or intend to own an EV in the next 5 years.
- One-person (64%, n=588) and "other" households (72%, n=97) had the highest rates of no plans to own an EV, with minimal current or planned use.
- Younger groups were much more open to purchasing an EV, with 53% (n=939) of 18-44-year-olds showing interest in owning one at some point in the future, while older groups (44+) overwhelmingly did not plan to.
- Only 3% (n=19) of 65-74-year-olds currently owned an EV, while nearly 69% (n=470) had no plans.

DETAILED FINDINGS

THEME 1: ELECTRIC CARS

1.2.1. The slow transition to EVs

Generally participants anticipated that there would be a transition to electric vehicles, but that this would be slow. They did not treat their own participation in the transition to electric vehicles as being urgent. Rather they saw themselves as waiting to see, and anticipated future circumstances would make EV purchase or use cheaper, more convenient and more common.

"Technology is changing. Maybe in future, maybe in the next 10 years, the petrol or diesel cars won't be there, so it's better to adapt to a new technology" (Ravi VIC).

"I'm hoping that in 10 or 20 years they'll have the infrastructure for electronic vehicles worked out better. So I'm hoping that I could have an EV instead of a petrol vehicle" (Jane VIC).

"I think we don't have enough technology, charging stations, that sort of thing to really support everyone getting electric. ...It is still quite expensive. I don't think Australia is quite there yet. Maybe in the future" (William VIC).

"Being practical. I'll drive [a petrol car] another 4 or 5 years ...[at] the absolute maximum. My daughter-in-law has just bought an electric car, and I think it cost \$65,000. ...I would be looking at a car under \$10,000 (Jean ACT).

1.2.2 Anticipating future EV costs

Participants were divided as to whether they believed EV costs would increase, stabilise or decrease.

Anticipating higher costs

A few participants were concerned about future hidden costs of EVs. These included the costs of replacing EV batteries at some point in the future, which deterred them from purchasing EVs sooner. Others believed EVs require constant maintenance and this would increase costs into the future. They also believed that specialised knowledge is required for repairs and maintenance which will pose

additional technical and labour costs for users.

A few participants also believed that EV public charging will become more expensive in the future as Australia moves closer to its net zero targets. Participants suggested that while there are some free public charging stations at present, in the future these will disappear and the future installation of faster charging stations will push up costs. This group of participants viewed energy as a commodity always linked with a financial incentive. They believed that there was always an ulterior motive/ political agenda for commodities being free, in this case, the push for Net zero.

Right now, it's free. In the shopping center and street, but ... very soon, they will start charging [for] it, just like a fuel (Ali NSW).

Anticipating lower costs

Some participants believed EVs will replace fossil-fuel vehicles. EVs will be inevitable in the future with more people using them for everyday transport, leading to greater affordability. For example, they imagined that:

Greater EV uptake would generate a future second-hand EV market and subsequently reduced costs of initial purchase price.

There'd be a second-hand market for electric cars ... I wouldn't be able to buy a petrol car anyway. I'm all for electric cars (Jean ACT).

As competition in the EV market increases with newer technologies, lower battery costs and manufacturing efficiencies, EVs will become more affordable.

The government would play a key role in the energy transition by encouraging people to participate through policy development, market regulation, incentives and tax refunds to EV owners.

If they get more infrastructure, and they get tax incentives back on the electrics. Maybe governments gotta do a lot of work on their own first (William VIC).

DETAILED FINDINGS

THEME 1: ELECTRIC CARS

FINDING 1.3: CHARGING AND CHARGING INFRASTRUCTURES

Many participants saw home charging as a reliable, convenient mode of charging that could be integrated into their everyday routines. However, for some participants who lived in apartments, or were tenants, home charging would not be an option. Participants stressed the challenges associated with relying on public charging infrastructure, including longer waiting times, security concerns and limited charging ports. They also highlighted the current inadequacy of batteries to power long distance travel and raised safety concerns. Consequently, some participants preferred plugin-hybrids or fossil fuel hybrids, which were believed to be more reliable since they do not depend on charging. We note that participants did not tend to distinguish between the two kinds of hybrid EVs.

While the reports reviewed proposed that emerging technologies like fast charging, battery swapping, and electric roads will reduce reliance on home charging (Dahlgren et al. 2026). Our survey and ethnographic findings suggest otherwise: most Australians will continue to self-manage their charging rather than delegating control to third parties, typically choosing to charge overnight or during solar-rich daylight hours to avoid peak demand (Kaviani et al. 2025). And most Australians will charge their EVs at home.

1.3.1. Most participants still preferred home charging

Earlier research in Australia and other countries has consistently found that people prefer to charge their existing or possible future electric vehicles at home. Our survey similarly found that home-based charging was preferred: Among households that currently owned or planned to purchase an EV or plug-in hybrid in the next five years (n=1,309), home-based charging dominated as the primary preferred method, with nearly a quarter (24%) using or intending to use a dedicated home charger (Level 2) with automation to optimise charging based on electricity prices or solar availability. A further 18% used or planned to use a dedicated home charger without automation.

The participants in the ethnographic research continued this trend. For some participants being able to charge at home was a requirement when considering purchasing or using EVs.

Participants considered public EV charging to involve unacceptable waiting times, frequent queues, and to be difficult to schedule, making it inaccessible, inconvenient and disruptive to their daily routines. In contrast they anticipated that home charging would be more easily integrated into everyday routines and would be more convenient, and physically and temporally accessible when required if charging points were located in the garage or connected to the house.

We would love to charge at home. We don't want to go outside and wait for hours. It's better to... if we have that, we'll get it charged at home (Ravi VIC).

Participants were interested in technologies that would assist them in monitoring their energy use when charging from home.

1.3.2. Charging at home is sometimes impossible

While participants living in houses and other units with garages, drives or other private spaces had more opportunities to install home charging facilities, participants living in apartments were limited, by cost, the Body Corporate or through their status as tenants making them feel “powerless” to charge at home. Participants living in public housing sometimes perceived themselves as even more disadvantaged. They explained that since government housing targets low-income populations, there is an assumption that people in social housing do not own EVs, or cannot afford them.

Survey finding: Of traditional housing tenures, EV use was highest among mortgaged owners (12%, n=163) and lowest among renters (5%, n=96).

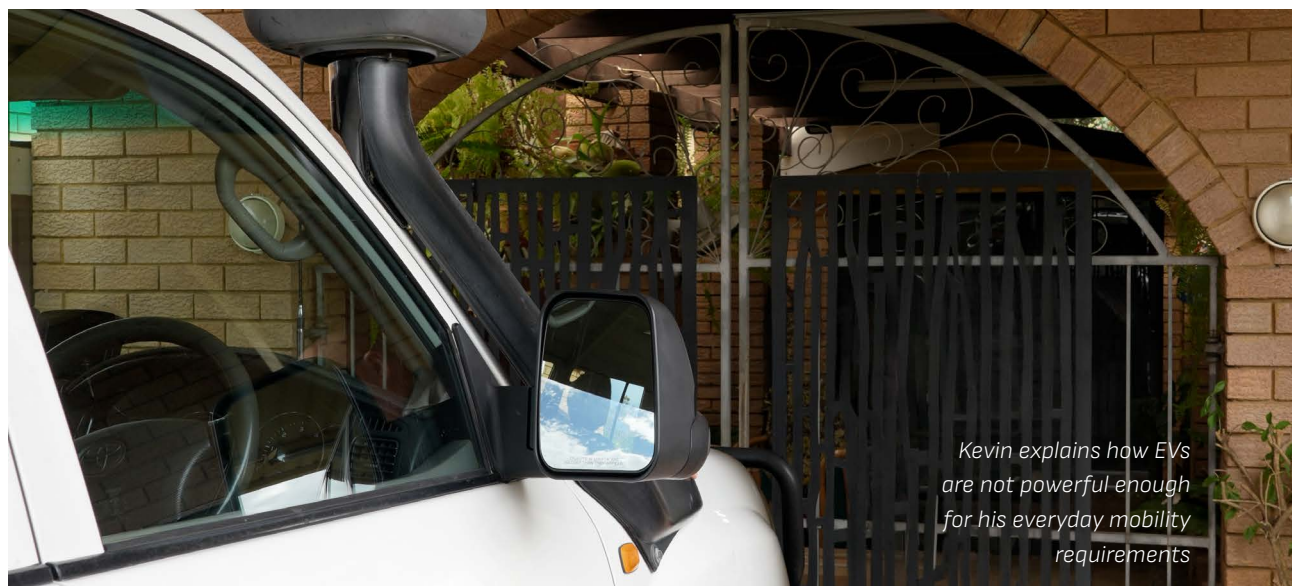
DETAILED FINDINGS

THEME 1: ELECTRIC CARS

As a tenant, the wiring here would not support that by any stretch of the imagination. And you'd have to install a port or something. Because there's no outside power points here (Jane VIC).

There's no hybrid plug-in points here in the building at all. .. [someone] was asking and wanted to put one in and it was going to cost us about \$45,000, the body corporate. So we said, no, we wouldn't do it. People want to do it themselves. They can, but nobody's done it. Yeah. They're supposed to be ... all electric by 2032 or something ... So obviously we'll have to change by then (Tracey QLD).

However, even when home charging is difficult people improvise in idiosyncratic ways to make it possible. For example Glenn, who was in many ways the most structurally unlikely participant to have an EV, was in fact the only participant who owned one. Glenn was in his mid 60s and lived alone in a social housing unit in a city (in NSW). He explained how he improvised by creating a home charging port for his EV (which had been an impulsive rather than calculated purchase) by running a cable from his apartment window to his car, making a hole in the flyscreen to pass the cable through.



Kevin explains how EVs are not powerful enough for his everyday mobility requirements

1.3.3. Many participants thought that public charging infrastructures are inadequate

While public charging stations are becoming increasingly common in public places such as shopping malls, work places, public parking lots, libraries and service stations, participant(s) cited lack of sufficient, accessible and reliable public charging stations suitable to support their everyday mobilities.

Participants' perceptions were that street-based public charging bays in affluent and environmentally aware areas are in demand. These areas are often located close to CBDs where there are multiple apartment complexes. Participants understood that EV users who have limited charging stations in their buildings and workers commuting to the city create high demand for street based public charging bays. They suggested that as a result, the demand makes charging inaccessible, inconvenient and often a stressful experience for EV users who plan to charge their cars.

Participants believed that while more and more charging stations are installed in supermarkets and other commercial places, these are insufficient to meet the demand of EV users and remain full throughout the day.

While public charging infrastructure is becoming increasingly common in urban areas, public charging infrastructure is sparse particularly in remote areas. Participants explained that in their views, this poses a challenge for people living in more remote areas and those who commute long distances.

While more charging bays are increasingly installed, vandalism of public charging infrastructure is also rising. Participants explained that in some neighbourhoods, it is common to have public infrastructure damaged.

Here I doubt you'd be able to charge an EV – after hours power cords and all that, damage risk (Shane QLD).

When EV users have limited options to charge their cars, they develop alternative arrangements and routines. For instance, one participant gave an example of how people she knew in Canberra solved this through joining clubs which give them access to free charging at a low cost.

DETAILED FINDINGS

THEME 1: ELECTRIC CARS

It's quite funny, because a guy I know, his business is installing EV stations, he would say there's a club. They have an EV station. People will go there and pay a membership to charge their vehicles at the club, because they're using their energy, not their home energy. They'll have a coffee, then wait while their cars [are] being charged. So, yeah, people are thinking smarter about how to use energy. You know, and somebody else is paying for it (Wendy ACT).

1.3.4. Some participants believed that current batteries are inadequate

People use their existing vehicles for multiple purposes such as daily commute, long distance travel, travel for recreation. They consequently had expectations that their future vehicles, including possible future EVs, would need to adapt to diverse settings and uses.

Participants believed that while EVs would be feasible for daily commutes, existing EV batteries would not be adequate for long distance travel without taking inconvenient breaks to charge.

Whatever the next iteration of the battery for the car will be, I'd like to have the next one, so that the range is a bit longer. ... four-wheeler driving to Sydney, I just don't want to have to stop 3 times to charge the car, and then spend, because I'm used to the notion that you drive to Sydney in a day (Gregg VIC).

Participants who owned caravans explained that while it is possible to tow a caravan with an EV, and that excellent existing roadside assistance is available for petrol vehicles. They would expect an EV to be more powerful to be adequate for this.

You can't tow a caravan with an EV, EVs are not powerful enough and there are no EV stations right in the middle of nowhere. And then you're going to sit there, if there was, you'd have to sit there and look, I don't know how long. But for an immense amount of time, waiting for them to charge up. Maybe in 10 or 15 years' time, it might be different (Kevin NSW).

Participants also raised concerns that batteries were unsafe and leading to fire risks if overcharged, faulty or damaged.

I don't know that I'd want one ... On the news the other week, there was a car with a battery and it caught on fire. The mother with her children in it. It was going up to Brisbane, I think it was, and that caught fire (Tracey QLD).

It was additionally suggested that future EVs would be increasingly automated, and that this would make them even less reliable.

1.3.5. Anticipating no charging

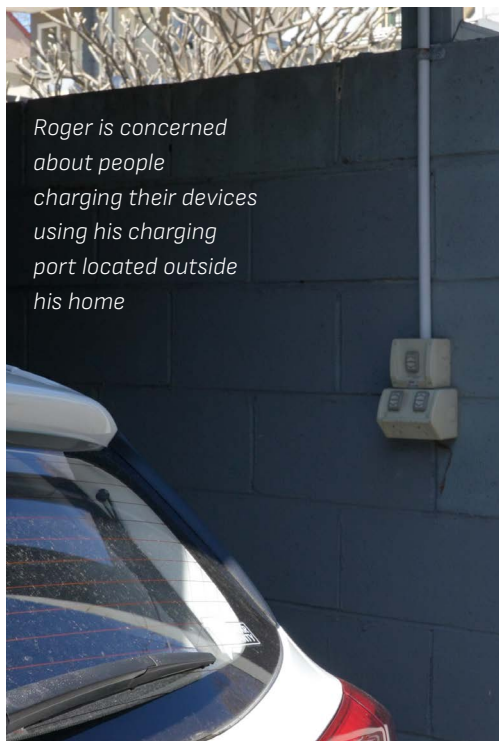
Hybrids were preferred by many participants as they were reliable and in the case of fossil fuel hybrids did not involve charging at all, while plug-in hybrids would have a fall-back option which made them less dependent on charging.

Not having to charge the car was particularly important for some participants such as people who required continuous availability of transport, including people who had caring responsibilities.

1.3.6. Anticipating future home charging

Participants felt that existing home charging technologies were inefficient and often time consuming, and that in the future they would be more efficient and faster and that batteries would be improved. People living in apartments anticipated improvements in the future residential charging infrastructures where they have more opportunities to charge their EVs within their complex.

However, participants had concerns about the extra effort that they have to undergo to install charging infrastructure at home. In response, they imagined there should be services that would take responsibility for all the construction work and the administrative work (dealing with Council approvals, permits to make changes to homes that are heritage properties, etc.) in the future.



Roger is concerned about people charging their devices using his charging port located outside his home

DETAILED FINDINGS

THEME 1: ELECTRIC CARS

A company that was gonna do it, did all that for you, so all you did was an upfront cost, and that was it... if they did it all, and did all the council work. I'll probably think about it, but if I had to go through that council stuff again, headache, and all that stuff (Roger NSW).

Participants were also interested in future portable charging methods, including wireless charging, which they anticipated would make everyday life much more convenient.

In the future, maybe ...they will have more charging points, and ...some kind of remote charging areas as well, like charging cables or things like a power bank (Waqas VIC).

Participants were interested in future household technologies that coordinated EV charging, household chores and home battery storage. They envisioned relying on smart phone applications to keep tabs on household energy distribution for varied activities.

Like, an app where you could like ... monitor the solar input and output on the buildings. If we had something like that also, like, the car talked to the app, like, that'd be good. Just be like you can just see literally the levels you're generating this, or the battery has this much in it (Jesse VIC).

1.3.7. Anticipating future shared charging

Some anticipated that as solar power becomes an integral part of everyday household energy systems, shared future charging would become another way to change without depending on public charging stations. For example they imagined households sharing electricity with passing drivers in remote locations, thus ensuring energy would be available at these sites. However they also raised security concerns, anticipating having to install surveillance systems such as cameras and sensors, etc. to protect against energy theft.



Seon uses his bike for short commutes

DETAILED FINDINGS

THEME 1: ELECTRIC CARS

Hopefully people ... that are sort of friendly will have charging systems out the front of their houses, like the solar panel versions. ...Let's say someone's driving past and they're like, electric vehicle battery is really low, they could just [charge their car battery] so that people can share (Luna WA).

I'd be very sceptical where I would have that charging port ... there are some cheeky people when they see that you are not in, they park their car on your drive and start charging it up and then they have the audacity to say, "I'm just borrowing it". And you go, yeah, it's not your electricity (Sunil NSW).

"I don't know why they put them there. I would never have them here ...people go by and charge their phones on it, or the homeless people charge their phones on it" (Roger NSW).

1.3.8. Future active mobility

Active mobility was viewed as a less costly, more convenient and sustainable dimension of participants' possible future lives, and in some cases preferred over the "burden" and "stress" of car ownership, use and maintenance (such as registration, permits, parking and driving during peak hours).

Some participants imagined that an active lifestyle, which integrated walking, cycling and other forms of local mobility into everyday routines would continue in extreme weather conditions. This would depend on access to supportive local infrastructures and living close to work, schools, restaurants, shopping centres, libraries and grocery stores.

I think a lot of people won't, because a lot of people – even now – especially because it's really cold now, and I love the heat but I know people hate it. So walking with bags in 40 degrees – people aren't going to love. But I don't know. I'm obsessed with getting my 10,000 steps, so I probably still will (Alex VIC).

Like, since selling my car to move here... you don't have to worry about parking, fuel, nothing, it makes it so much more fun, and I get to see different sides to her [daughter] as well (Cleo VIC).

One participant also suggested that in the future, active transport would be supported by technologies such as exoskeletons, which he believed could increase their independence and quality of life as people age or live with a disability.

So, being 95...Maybe by then I'll have exoskeletal systems. No, they do have those, it's already in defence. So they can support you, even if your limbs no longer support you naturally. I think I'd have it, basically, because down from the legs up to the back, because they're being carry heavier equipment (William VIC).

DETAILED FINDINGS

THEME 1: ELECTRIC CARS

FINDING 1.4: EVS AND PERCEPTIONS OF ENERGY TRANSITIONS

Most participants acknowledged the importance of transitioning to electricity and highlighted the importance of moving away from fossil fuels to renewable sources of energy such as solar, wind, hydro and geothermal resources. However, we note that two participants believed the energy transition was a government-led conspiracy, reflecting the views of a segment of Australian society.

Many participants were interested in installing rooftop solar panels to create a home energy system that was cost-effective, sustainable and beneficial. However, many participants were concerned about the high financial costs to their households in purchasing and installing solar panels. Our Survey findings highlight that rooftop solar adoption increased consistently with income, rising from 29% (n=260) among households earning under \$40k to 51% (n=93) among those earning over \$241k. Households with incomes below \$80k were more likely to report no intention of adopting the technology (35%–45%). In contrast, future adoption intent was strongest among mid- to high-income groups (\$121k–\$240k), where more than one-third indicated plans to install rooftop solar. As a result, solar panels were often viewed as a later step in their journey of home ownership, which would be followed by purchasing an EV. In the meantime, participants viewed hybrids (fossil fuel and plug-in) as an interim solution and often a 'best of both worlds'. Participants also imagined community energy systems where EVs act as backup energy storage for power outages and where surplus community energy systems could power EVs.

Participants imagined that EVs will be inevitable to the energy transition and some thought EVs would participate in driving it.

We should stop making the diesel cars and the petrol cars and start just keep making electric cars because then people have no option but to start saving the environment and that side of things and using what technology has been brought out because it's better for us (Emily WA).

Survey Findings:

- Rooftop solar adoption increased consistently with income, rising from 29% (n=260) among households earning under \$40k to 51% (n=93) among those earning over \$241k.
- Households with incomes below \$80k were more likely to report no intention of adopting the technology (35%–45%).
- In contrast, future adoption intent was strongest among mid- to high-income groups (\$121k–\$240k), where more than one-third indicated plans to install rooftop solar.

1.4.1. Positioning the cost of EV investment within household financial and environmental priorities

Even when people are committed to participating in a broader energy transition, EV investment decisions tend to be driven by wider household financial priorities which vary across households. For some households participating in the energy transition was prohibited by cost.

Some people anticipated participating in the energy transition by purchasing an EV in the future, but at present prioritised other household investments including home renovations and garden makeovers. Some anticipated finding a balance between environmental priorities and high cost of EVs, reflecting how purchasing an EV would eventually 'pay off'. Others who already had solar panels believed that purchasing an EV imminently would help lower household expenses in the present. Others saw EV ownership as a sustainable, long-term investment which prioritised environmental futures, enabling them to 'do their bit' as part of a commitment to solar charging.

We're currently looking into getting an electric car. That's something on our list to do in the next month or two. That's what we want to do. I am looking at ways of saving money these days. It's all about saving money and helping the environment (Emily WA).

DETAILED FINDINGS

THEME 1: ELECTRIC CARS

Participants also weighed up purchasing an EV or hybrid (fossil fuel and plug-in) car. The practical demands of purchasing and maintaining an EV include installing household charging infrastructure, relying on public charging infrastructure, and the limited range of EVs were cited as negatives. They saw hybrids (fossil fuel and plug-in) as a much more convenient transition. However some participants felt conflicted in terms of prioritising cost, convenience or environment.

It's a hybrid, so I just put petrol. I try to put E10 when I can. It's half electric, so it saves energy when you're cruising. I'm not sure how to explain it, but it's more efficient (Myriam QLD).

Participants drew on their personal values around sustainability and their local knowledge of their environments to establish their household priorities. For example, using their awareness of existing and possible future extreme weather conditions (floods, heatwaves, bushfires were some examples that were introduced as creating risks). These priorities led some participants to prefer fossil fuel vehicles.

When there's a cyclone or floods here, we can lose power. So you wouldn't have a car if you couldn't charge it. But you might still have petrol in your car if it was petrol (Diana QLD).

Look, there's a lot of Teslas in Manly. This area's very environmentally conscious ... Um, I think a lot of people, they walk everywhere. Lots of Teslas (Ben NSW).

1.4.2. Solar energy to support EVs

Of our 42 participants, 2 who, as noted above, believed that the energy transition was a government conspiracy were against solar. However the other 40 participants either had solar (13) or wanted to install solar panels (27) in their homes in the future. Participants saw solar energy as a sustainable alternative to fossil fuels. While participants acknowledged that there was a significant financial cost associated with installing solar panels, they believed that in the long run (specifically with increasing temperatures) relying on solar energy will not only be cost-effective but also support sustainable living.

Participants also imagined installing solar would benefit home-based EV charging and act as an energy reserve in case of emergencies such as power outages if the household does not have a home battery.

Survey finding: Almost one-third (31%) of households that currently owned or planned to purchase an EV or plug-in hybrid in the next five years indicated their preference for charging in the least expensive way, such as using solar power or off-peak electricity. A quarter (25%) aimed to keep their EV fully charged whenever possible, while 22% preferred charging at the most convenient time.

Participants often imagined installing solar and purchasing an EV as part of their life planning trajectory towards home ownership and home improvement, and as an investment in this process.

We're hoping that we could have a house in two years. So then the process of making that as environmentally friendly as possible ...it's easy to put solar panels. ... obviously it's a cost, but you put them up and then they pay for themselves, and that's just a little thing you can do. ...maybe what [car] we would buy next would be ...a hybrid at least or something would be really cool (Alex VIC).

Some participants who saw the energy transition as a distant future possibility anticipated purchasing a hybrid (fossil fuel) in the near future, and buying a fully EV once better charging infrastructure and batteries were in place. However we warn against seeing hybrids (fossil fuel and plug-in) as simply transitional, since for many, full EVs were not seen as viable, reliable or convenient options, making a hybrid (fossil fuel and plug-in) the best option in the near and far future for some.

EVs will be in the future, but I think at the moment, I will go with hybrid. ... at the moment, you know, there is not too much mileage and charging stuff (Waqas VIC).

GLENN'S EXAMPLE



Glenn demonstrating how he charges his EV at home to Abby and Melisa

Glenn is 65 years old and lives alone in a social housing unit in Mosman. He has obtained his degree in psychology and social work. He explained that he has worked in various health services centers but currently works as a medical receptionist and plans to retire in two years. Glenn enjoys his company mostly and has a close knit community of people including a few neighbours. He enjoys playing music with his friends and socialising over drinks.

Talking about commuting to work, he explained that currently he prefers to take the public transport to work. He has purchased an EV, which he considers more as an impulse purchase, but he does not like to drive it to work.

By the time Glenn bought his EV, he explained that did not have a license, although he specified that he had driven some 40 years back but since he had very little use of his car, he gave it to his sister. Since he has got his license, he drives the car during weekends when he has to go to the supermarket or shopping mall.

Since he does not have the infrastructure to charge at home, he demonstrated how he charges the car by running a cord through his window. He was conscious of keeping the car charged all the time and described the process similar to a mobile phone, where he does not charge 100% but also never lets the battery go below 10%. He is not worried about public charging infrastructure since he can run a cord and charge. He has also installed a smart meter and monitors electricity usage through an app on his phone. He believes that 'charging on the weekend is unbelievably cheap rather than going to a service station to fill up a petrol tank every other day'.

THEME 2

WORKING AND STUDYING FROM HOME



FINDINGS

THEME 2: WORKING AND STUDYING FROM HOME

FORESIGHTS FOR FUTURE WORKING FROM HOME

- When planning their next home purchase participants accounted for future working from home arrangements, usually seeking to improve on their present situations with dedicated spaces.
- Participants were increasingly participating in the gig economy, side-gigs and multiple job-holding, indicating a possible new future working from home trend with diversified work roles.
- Participants running or planning to start new businesses (including side-gigs and self-employment) from home indicated future needs for storage of work equipment and stock at home.
- Working from home routines and spatial arrangements are often shaped by care relationships, and this is unlikely to change in the future.
- The spatial arrangements of working from home are currently diverse and flexible, encompassing shared spaces, home offices and living room working. This is unlikely to change in possible futures.
- Participants anticipated working from home increasingly in possible futures, particularly in extreme weather events, and are likely to continue to create energy demand through work technologies and in creating the ambiance of the home.
- Social inequalities will continue to shape and disadvantage people with existing financial constraints, indicating that their working from home conditions might worsen in extreme weather futures. Some people organise their working from home routines in response to seasonal weather conditions and this is likely to become more pronounced with increasingly extreme weather in possible futures.
- The 2026 fuel crisis increased working from home, and it is likely that this will impact on both continued working from home lifestyles. There should be readiness for possible future unpredicted shifts to working from home.

ENERGY IMPLICATIONS

- Working from home, flexible working arrangements, home-based businesses and gig work may generate more unpredictable and possible increases in daytime demand, with corresponding offsets in workplace demand and fuel savings from commuting. Changing work arrangements also provide opportunities for increased interest and ability to participate in demand management programs that incentivise daytime (solar) electricity use.
- As work, care, domestic activities and leisure become increasingly intertwined within the home, household electricity demand may become more diverse, requiring new techniques and assumptions to forecast residential demand.
- Working hours and locations are anticipated to shift in response to seasonal or extreme weather, potentially redistributing energy demand spatially, and across different times of day, generating new peaks and troughs (e.g. increasing residential cooling demand during a heatwave).
- Increasing dependence on energy-intensive cooling, air quality management and backup systems may make the ability to work from home more contingent on access to reliable and affordable energy services during extreme weather events.
- Increased dependence on reliable digital (internet, devices, servers) and energy infrastructure for work, study and income generation is likely to increase household interest in energy independence and self-sufficiency through home batteries, backup systems (e.g. vehicle to load/grid) and other forms of energy security.

INTRODUCTION

THEME 2: WORKING AND STUDYING FROM HOME

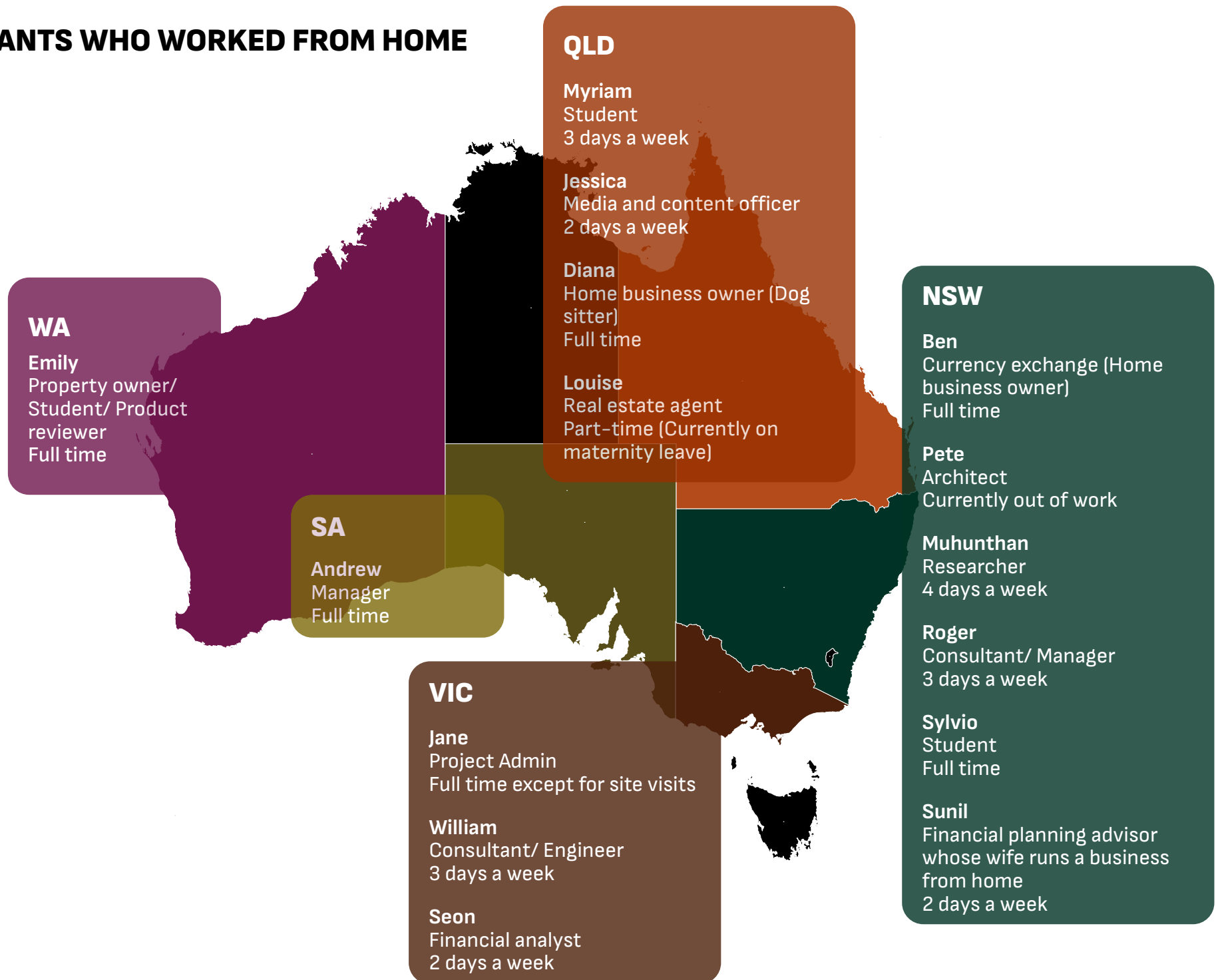
Since the Covid-19 pandemic working and studying from home (WSFH) in Australia has grown. Statistics published in 2025 suggest 6.7 million (46% of the labour force) work from home (WFH) in Australia (Roy Morgan 2025). 54% of households in our survey had one member working from home at least one day per week, while 18% reported working from home five or more days per week. We also found that higher quarterly electricity bills were more common among frequent WFH households.

Qualitative Australian WFH scholarship, including from the Digital Energy Futures project, suggests that WFH has key implications for how we understand the digital and spatial infrastructures it requires, the everyday routines it becomes entangled with, and the values of care that it is shaped by (Watson et al. 2021; Bissell et al. 2024; Lewis et al. 2024; Ryan et al. 2025; Strengers et al. 2021). During the Covid-19 pandemic, households delivered key resources and assets which were conventionally provided by employers including energy, internet connectivity, furniture, and space, and people improvised to source and organise these assets.

Existing research has also shown the complications of WFH, where caregiving and work make competing demands on technologies, space and time, exacerbates gender inequalities, (Watson et al. 2021; Bissell et al. 2024, Ryan et al. 2025) and in our own work shows WFH leads to more people working atypical hours due to care commitments and the casualisation of work (Strengers et al. 2021). Our home ethnographies filled some of the gaps in existing knowledge, and delivered new knowledge concerning: how people created working from home setups and the digital and material infrastructures they supported these with; and working from home routines and how these could become complicated by combining care with working from home, extreme weather and energy disruptions.

Our survey found that ‘Around one-third worked from home part of the week, with 16% ... doing so 1–2 days and 21% ... doing so 3–4 days per week. A further 18% ...indicated working from home 5 or more days per week, while 4% ... were unsure’. We also found that higher quarterly electricity bills were more common among frequent WFH households. Of our ethnographic participants 15 worked from home and 3 participants ran their own businesses from home.

PARTICIPANTS WHO WORKED FROM HOME



DETAILED FINDINGS

THEME 2: WORKING AND STUDYING FROM HOME

FINDING 2.1: WORKING FROM HOME SET-UPS

2.1.1. Participants' uses of space when working from home were values-driven

While participants were constrained spatially in terms of how and where they could work from home, in all cases the ways they creatively set up their work from home spaces were driven by values and commitments to particular lifestyles. The dominant value was care.

Participants who worked from home were often bound up in care relationships for other people and for animals, and these structured how they already or planned to work from home.

Some participants planned caring duties for each day. Andrew for instance explained how he and his wife would divide the caring responsibilities for their three children, such as dropping the children for school, picking them up, etc.

Although she had a dedicated home office, Louise who had recently had a baby planned to only use her home office two days a week once her baby was in day care, while working in the living area with the baby on her other working days. Myriam, another participant, used her kitchen table to study from, since she needed to do this while looking after her children.

When I go back to work I'll be fully home until I'm ready to go back to the office. I plan to have her in daycare two days a week, and work from home four. ... So I'll probably work from downstairs. But then when I'm working at home by myself I'll work from up here, because it just gets me focused a little bit more than being downstairs (Louise QLD).

Similarly when working from home, if the weather is too hot, Jessica leaves the air conditioner on for her dog and herself throughout the day.

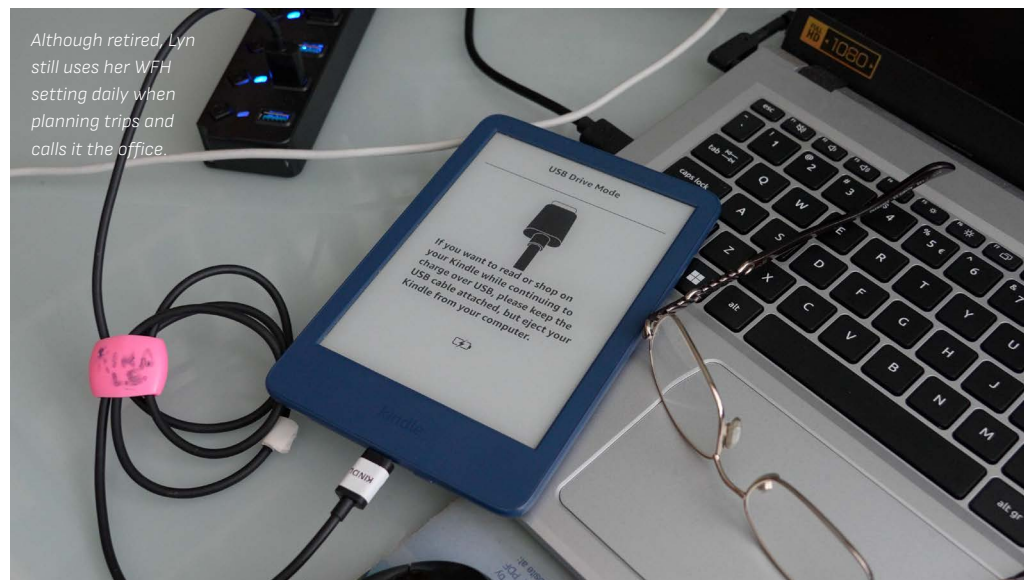
If I work from home, which I do two days a week, it's just in my office and my dog's in there with me. I don't leave it [air conditioner] on unnecessarily, but when it gets unbearable, 38, 39 degrees, I'll put that on all day (Jessica QLD).

2.1.2. The spatial arrangements of working from home

Participants' uses of space for WFH were diverse and intersected with factors including space available, life stage, and workplace requirements. They created WFH spaces including private or shared home offices, home office spaces in multi-use utility rooms, the main dining room table, and the sofa. They also worked remotely from cafes, parks and the beach.

Working from home in communal spaces: Participants worked from home from the dining room table or sofa for a range of reasons: some had no dedicated home office or space, some preferred to work in the living space, and others did so because they were juggling care roles while working. Working from the dining room table requires adapting the space to accommodate digital technologies which can include not only laptops, but monitors, cameras, speakers.

Although retired, Lyn still uses her WFH setting daily when planning trips and calls it the office.



DETAILED FINDINGS

THEME 2: WORKING AND STUDYING FROM HOME

Some participants adapted the space when not working, others did not.

So I work from home [from the dining room table], almost full time, doing project admin for a construction company. So lots of, lots of chasing vendors, lots of explaining tradie talk to not tradies (Jane VIC).

Using the home office: As noted earlier, 15 participants worked from home from a home office for some or all of the time. However the home office is neither a straightforward nor consistently used space. Some households had a home office in a dedicated room, which one or more family members worked in all or most of the time. However the use of the home office was complicated by a number of factors, which mean that it is unlikely to be the exclusive home work space. For example Louise (QLD) was expecting to use her home office again when she returned to work after parental leave, but for the moment her husband used it to play video games. Some of our participants who were retired still maintained their home offices. Lyn used her home office for life planning, preparing and organising. She described how she spends time in her home office, organising trips that they plan to take in the future. Similarly, Bill also has a fully equipped home office that he uses to check his bills,

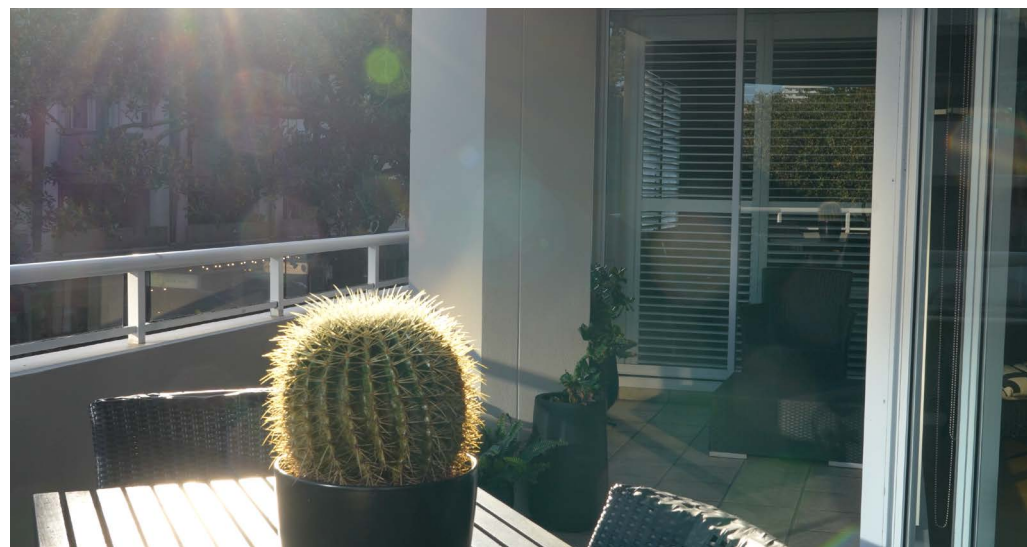
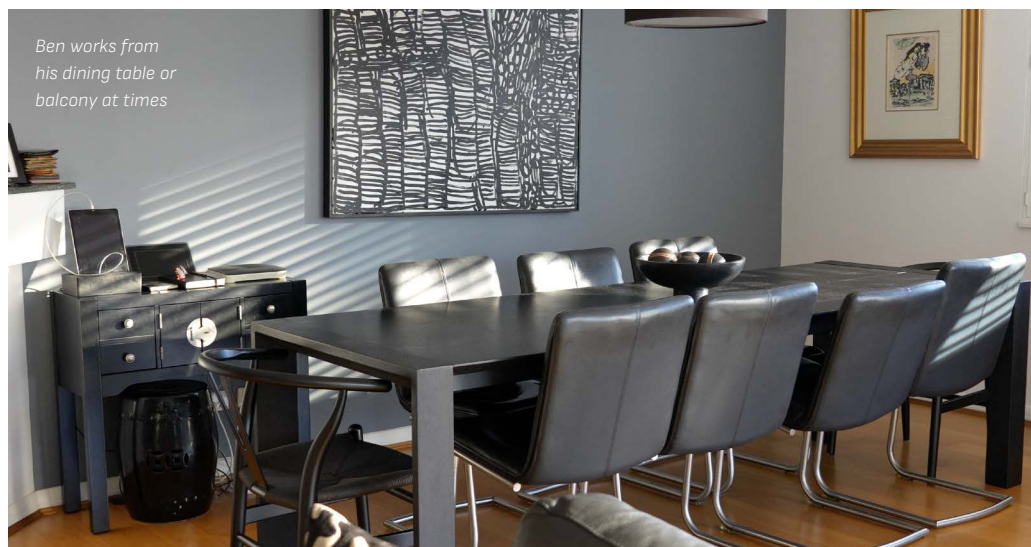
organise the voluntary work he does for the communal library, monitor his solar performance and plan trips.

Creating a home office space in mixed use areas: While in some cases participants used rooms intended as home offices for other activities, others improvised by creating work setups in mixed use rooms, in ways designed to create boundaries between home and work life. This included combining the home office, home gym, home security system, laundry drying area and entrance area in mixed use spaces. Generally this meant that work was hidden in “backstage” areas of the home, which would not be used for socialising.

2.1.3 Flexible spaces of working from home

People work across different home-based and other spaces. As well as having a separate work setup or home office, some participants preferred to work from multiple spaces within their homes, including the bedroom, sofa, living room, kitchen top or the balcony. Others varied WFH with spaces outside the home such as at the beach and park.

Participants’ choice of workspace was motivated by a number of factors such as the types of work, thermal comfort, availability of electronic devices and concentration required.



DETAILED FINDINGS

THEME 2: WORKING AND STUDYING FROM HOME

Lifestyle flexibility: For instance, Ben (NSW), who worked in currency exchange, explained how his work required a lot of patience where time was insignificant to him. At times, he worked during the day, others at night. For him, the place of work mattered less, resulting in him working from the beach and from home based on convenience.

Client demand: For example, Diana (QLD), who worked as a pet-sitter, sometimes cared for pets in her own home or went to the client's home depending on their preferences.

Workplace demands: For example, Sunil (NSW), and his wife shared a home office where she was based full time. However her work involved her having confidential discussions with clients, and his work involved him dealing with confidential materials and sometimes calls. Sunil therefore either worked from home when his wife didn't need the home office, or otherwise from work.

The office is shared between myself and my wife. She's an actual wellness coach, so she deals with, works with a lot of ladies who have suffered from domestic violence ...So, she does that and those days I'm not in the office because I'm not at home because ...I don't want to be involved (Sunil NSW).

Weather considerations: For example Sunil worked from the office when it was too hot at home as there was no AC in the home office.

Power outages: For instance, Myriam (QLD) who studied from home, had to improvise during power outages or similar events, which involved relying on informal social networks often including family, friends and neighbours to continue to work – as she put it “I could call my neighbor – my friend's mom who lives across the street”.

2.1.4. Heating, cooling and ambiance when WFH

In our review of industry reports, it was highlighted that WFH makes household energy use more visible, increasing awareness of consumption and encouraging greater energy consciousness (Dahlgren et al. 2026). During the ethnographic work it was clear that heating and cooling were key concerns for participants who WFH. Participants who

worked from home consistently used the AC, although usually inflected with preferences or idiosyncrasies. For example one participant would only use the AC for limited periods of time as it caused headaches. Other participants explained how it was impossible to work from home without having the heating or cooling on and how this contributed to the quality of the working from home experience.

I get a headache with aircon, so I don't use it. It's not that I don't use it, just for an extended period of time ...we will turn it on if it's really hot. But I just don't like it for an extended period of time (Fathima VIC).

Some participants imagined relying on both air conditioning and fans during hot weather in the future. While it is assumed that air conditioning would be used inevitably in the future, participants argued that having proper structural designs in homes (such as high ceilings) would make it possible for participants to rely on fans in the future without having to solely rely on air conditioning.

When it gets really hot, I have the aircon on. It doesn't get really hot till about 11:00, and I'll just have the fan on the rest of the day (Jessica QLD).

Other participants imagined upgrading their energy technologies including heating and cooling to be more affordable and installing home batteries to power heating and cooling technologies.

My power bills are a lot more expensive ... especially during the summer, being home 24-7, So, [she was interested in] finding better ways to have the home cooler without using so much energy ... [a] home battery is something we want to be able to invest in 100% (Louise QLD).

Participants were also committed to ensuring that other ambient elements of working from home were in place, such as having the TV on in the background

Because while I'm working, I gotta have the TV on, at least I've got to have some background noise on. So yeah, it's on throughout the day while I'm working. And then, of course, I work on a laptop, so I've got that, plus internet throughout the day (Fathima VIC).

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THEME 2: WORKING AND STUDYING FROM HOME

2.1.5. Cybersecurity for WFH

Participants raised the need for energy to maintain cybersecurity standards for those who worked from home with confidential information. This was also reflected in our review of industry perspectives which highlighted that 'Digital energy systems, especially smart homes and connected devices, are becoming new domains for cybercrime. As energy platforms integrate real-time data, voice controls, biometric security and automated transactions, they are increasingly exposed to impersonation, deepfake manipulation, and synthetic identity fraud' (Dahlgren et al. 2026:55).

I think it will also come down to the nature of work that you are doing. Even though you may be working from home, when you are dealing with confidential information ... I'm going to go back to the AI and the wi-fi business, if somebody hacks into that, into a non-secure area, then we've got an issue. Then you've got more complaints and more problems arising (Sunil NSW).

Participants believed work related security technologies such as biometrics and two factor authentication will be more common for increased data security in work settings particularly when working from home.

I mean, having two-factor authentication used to be the gold standard, but now passphrases and solving puzzles are having to become the next gold standard, ... back in the day, you could literally just have admin123, and that was ...good enough. But now it's like, yeah, you gotta have a password, biometrics, passphrase, solve a puzzle (Luna WA).

2.1.6. Some participants considered WFH as more inclusive

Some of the participants living with disabilities or care commitments felt that WFH was inclusive and created opportunities for diverse populations to remain in the workforce. For instance, Louise explained that in her current place of work she cannot pump breastmilk so she has requested WFH.

It's so much easier when you work from home. You don't have to worry about traffic being terrible to get you to work. You don't have to worry about the train deciding to cancel...I also have a disability, so public transport's not viable for me a lot of the time (Jane VIC).

I would have loved to have worked from home today...I think just, like, the reduced stimulation. Like, because I have autism, ... when I'm at home, it's a little bit more calm (Luna WA).

2.1.7. WFH and future weather

A few participants expressed concerns about how work would change in the future, with extreme weather events leading to power outages. They imagined that they would require backup energy systems for the household such as home batteries or generators.

We do want to get a generator. That is the plan...so we've definitely spoken about getting a generator, maybe when, you know, they're not so expensive, when there's a blackout, because you find when there's a blackout, they skyrocket and everyone needs them. So, definitely something we've spoken about (Louise QLD).

Other participants expressed concerns about impacts on electronic devices due to extreme weather conditions such as heatwaves. For instance, Sunil was worried that his work equipment would need to be heatproofed to avoid melting laptops and storage devices.

let's hope it's not too hot so that it turns everything out of action, because overheating, we might not even get the response. ...we need to have systems or the technology or the cabling and all that to be heatproof. ...as well as fireproof ... if we get extreme conditions, we need to make sure everything is working fine (Sunil NSW).

I'd be so stressed. It's already hard enough to stay on top of things. If I lost power, I'd fall behind quickly (Myriam QLD).



Participants rely on various modes of heating and cooling tech based on their daily needs.

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I think I've got it at my parents' place, I bought a, like, like, a fireproof box to put hard drives and stuff in. ... the idea would be to have off-site and on-site backup (Jesse VIC).

2.1.8. WFH related technologies

Some participants imagined relying on varied technologies to facilitate a smoother working environment. This often included automated technologies that improved connectivity and charging of devices without having to do them manually.

I think... even ... general technology just being upgraded, like, at the moment, ...my laptop can only go for, like, a few hours without charge, and I would hope ...that kind of stuff would increase to be able to work, like, a full day without having to plug in your laptop. You know, having, ... better connectivity (Seon VIC).

Participants also imagined relying more on virtual reality (VR) technologies to support collaborative work tasks such as meetings beyond existing applications such as Zoom, Teams, etc.

The VR side of it, like you could be in a room with your teammates rather than on an end of a webcam or a phone like we are right now and it'll be a lot more interactive and a lot more, yeah, a lot more like being in a conference room, I guess with eight other people than being on the end of a phone with eight other people (Andrew SA).

A few participants also imagined incorporating their health and fitness into the WFH routine by purchasing exercise mats, treadmills, etc.

I already want to get one of the, like, under-desk...like, treadmill walking type things, but they're so expensive to get a decent looking one, and I'm like, I don't want to spend \$200 on a shit one that's gonna break so quickly (Luna WA).

I was totally, like, googling the other day, like, a treadmill that would go under my desk (Seon VIC).

FINDING 2.2: TIME AND THE ROUTINES OF WORKING FROM HOME

In this section we explore how people developed routines when working from home, managed competing responsibilities of work and home in their everyday life and anticipated changes to their routines and working schedules in the future. We found that participants utilise their time and develop multi-tasking to work around care responsibilities, changing weather. We also highlight how participants imagined work flows, routines and times shifting or staying stable in possible futures.

2.2.1. Working around caring commitments

Some participants worked outside conventional office hours such as early mornings or late at night and anticipated working similarly in the future as they navigate increasing caring responsibilities. In addition, participants anticipated changing professions, engaging in more remote work or arranging more flexible or reduced work contracts to suit their caring commitments. For example, Emily explained that managing her own business (property management), teaching and studying part-time and engaging in gigwork helps her to schedule her work around her caring commitments for her 11 year old daughter and that she anticipates working around her caring commitments in the future.

I want to be more with my daughter, because I worked in that high executive role where you're on all the time. You're on, on, on, on. This whole year that I've been with her, I'm taking on roles at home. I'm trying to branch myself out and work around my schedule, not anyone else's schedule, and get that way. We've invested a bit (Emily WA).

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2.2.2. Seasonal routines

Some participants work flexibly based on seasonal routines such as starting work early in the morning in the summer when the weather is not too hot, or going to the office to work on hot days or working from home on colder days. For example, one participant explained he would start work at 4am in summer and finish work early because the house gets hot during summer months. However, during winter months, he would start work later and adjust the routine based on the weather working with breaks in between his day.

During winter times, I work bit-late, 6 o'clock. In summertime, 4 o'clock, because it's cool ...early and in the evening, but the daytime is a bit hot. During daytime, the hot time, I usually go to the... park nearby. It's very cool... So I change my routine (Muhunthan NSW).

2.2.3. Being in control of working routines

While the nature of work often plays a key role in how much control people have over their work and their daily routines, some participants explained that having control of their routines was important because they believed that work has to be integrated to their lifestyle and priorities. In instances where participants felt they had limited control, they often found alternative work arrangements.

We've got an investment property in Bali. We've just changed our super to investment property. We've got money going in and going out and working for us, but now it's more about working around myself (Emily WA).

2.2.4. Multi-tasking with domestic tasks

For participants, working from home often involved multi-tasking, including attending to care responsibilities, household chores such as doing the laundry, cleaning the garden, etc. Sometimes participants used these tasks as transitions between work and home.

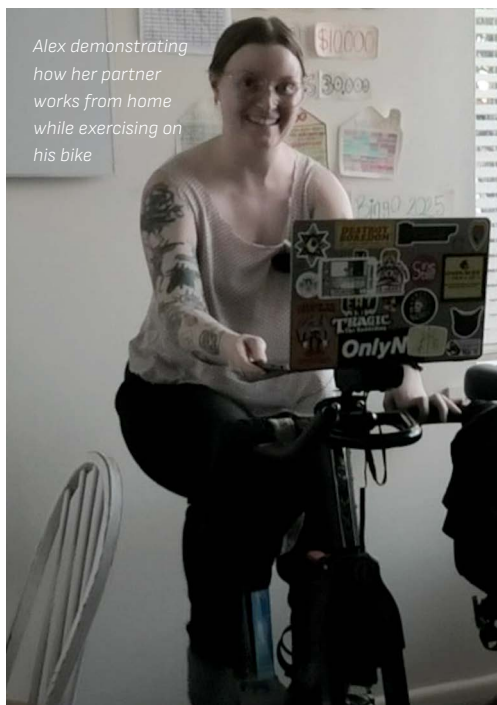
Jessica explained how she will complete some household chores such as getting the laundry done on Fridays during the lunch hour. Alex described that her partner had adapted an exercise bike in order to be able to exercise while undertaking work tasks, such as answering emails, at home.

That's usually what I would do in the middle of the day. Do a little bit of something outside, because I'll try and get out there a little bit, then eat the chicken or whatever, sit down here and wait for a bit, and then by that point I have to go back to work (Seon VIC).

Because I am at home, I like to do the mundane things like on my lunch break, yeah, so I'll chuck the dishwasher on. Like, I do remember to do the dishwasher on when I'm working from home, and like a load of laundry on during lunch (Jessica QLD)

2.2.5. The impact of the fuel crisis on changing routines

Participants described WFH as a more cost-effective option during the fuel crisis. In some workplaces, employees have reduced their time in the office to as little as one day per week. These participants suggested that the crisis may encourage increased remote work in the future.



Alex demonstrating how her partner works from home while exercising on his bike

DETAILED FINDINGS

THEME 2: WORKING AND STUDYING FROM HOME

FINDING 2.3: VALUES AND WORKING FROM HOME

At times, people's values clash with their existing or previous work, work hierarchies, colleagues and work cultures. This leads to re-evaluating priorities when working such as the location of work, time of work, flexibility, etc. prompting people to request for more opportunities to work from home so that they can focus more on the work without being worried about work related additional components such as work cultures and hierarchies. Our survey suggested that key household values were affordability (26%) and comfort, health and safety (26%) and that these outweighed convenience (8%) and sustainability (7%). In other cases people's existing values around autonomy, flexibility, independent work styles have led them to choose work and lifestyles that suit these values.

2.3.1. Pursuing more autonomy, flexibility and independence when WFH

Unlike in the context of the office, working from home was viewed as presenting more opportunities to have autonomy while working, flexibility in how one works and more independence. Andrew (SA) explained how working from home gives him the opportunity to balance both office work and household chores without having to 'reschedule' his entire life. Muhunthan (NSW) explained how his work provides him the autonomy and flexibility to choose his own hours, location and how he works with limited supervision.

People who run home businesses explained that they valued being able to work on their own schedule based on their preferences. For example, Ben (NSW) explained his work as 'an easy way to make money' and work that he can complete from anywhere at any time. As he is his own boss, he believes that he enjoys his work. Similarly, Emily (WA) explained how she has previously been 'on and on and on' at work which was disruptive to her caring routines. Since she has started working from home for her own businesses, she enjoys the autonomy and the opportunity to slow down and be more present in her daughter's life.

I just picked an easy way to make money, really, and work from home and be my own boss. That's what I really wanted (Ben NSW).

I want to be more with my daughter, because I worked in that high executive role where you're on all the time. You're on, on, on, on. This whole year that I've been with her, I'm taking on roles at home. I'm trying to branch myself out and work around my schedule, not anyone else's schedule, and get that way (Emily WA).

The flexibility ... [of] being able to drop the kids off, pick the kids up if you need to duck out or be here for an electrician to do something in the other room you can be here. You don't have to reschedule your whole life to do that. I can still keep working. So, there's definitely advantages to it (Andrew SA).

2.3.2 Anticipating future working from home as more sustainable

While perks of working from home were mostly linked to flexibility, autonomy and independence, some participants anticipated working from home to be a more sustainable mode of working in possible futures. For instance, Sunil (NSW) explained how working from home would be a more sustainable mode of work than commuting daily allowing for a lower carbon footprint and opportunities to save more resources.

Plus side of by working from home, ... you are not catching public transport, whether it's trains, planes or car or bus. So, there is less emissions (Sunil NSW).

2.3.3. Anticipating working from home as more inclusive

Working on-site can at times exclude some people with specific needs and requirements from working from home opportunities. For instance, participants who were parents with care responsibilities find it easier to manage work when working from home as they are able to work flexibly and multi-task: Louise had a newborn baby.

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She imagined working from home in the future as providing her the opportunity to manage work while caring for the baby. Similarly, Myriam cared for both her babies while working from home. Without the option to work remotely, Myriam found it difficult to imagine how she could work in the future.

FINDING 2.4: MULTIPLE WFH ROLES AND THE SIDE-GIG

As work continuously evolves with socio-political, economic and environmental shifts, the nature of work is changing for many people. With the rising cost of living, many participants could no longer afford to make ends meet with a single income from one job. As a result, people are expanding their work by engaging in multiple jobs including side gigs in order to increase their financial security.

2.4.1. Multiple jobs

Holding multiple jobs is a way of life for many people who engage in low-paid, casual and precarious work, some of which is undertaken from home. For example, Roger (NSW) mainly WFH in wholesale trade, but since his hours had been reduced, he undertook additional work including working as a tennis club manager, professional research participant, posting letters for Australia Post and gardening with his stepson. Similarly, Emily (WA) is a property owner and manages a number of properties in Perth and Victoria. She also reviews Amazon products and sells product samples on digital platforms such as Facebook Marketplace. In addition, she is studying part-time in Human Resource management and teaches short courses to students on CPR.

It's a wholesale trade. But I also work in a tennis club where I also play tennis, sort of manage the bar and the members' needs, like, the competitions and all that, and keep an eye on the staff, do the ordering, and all that, like, part-time one, that's about 20 hours a week. I'll probably do more of the same. I used to volunteer there anyway. And I also do a couple of other minor jobs. Well, they send me these Australian post letters, it's a company, the Australian Posted Letters. And I post them, ...for Australia Post. I also did a bit of gardening with a stepson every month or so (Roger NSW).

2.4.2 The rise of side hustles/gigs

With the increasing cost of living, several participants worked various side hustles or side gigs to increase their income. Some highlighted that with the petrol crisis, in the near future they will have to engage in additional economic activities to make do. This was reflected in the review of industry reports that emphasised that 'More people are taking on 'side gigs', increasing demand for multifunctional home spaces and sustained use of digital tools and devices' (Dahlgren et al. 2026: 77).

Product reviewing as work from home: involved participants undertaking reviews of products which they then sold online or receiving financial incentives for when undertaking high end product reviewing.

I got invited to Amazon Vine. I'm like, yay, because I've had some time on my hands. Next minute, I get three things a day for free from Amazon. I've got to review them and then I've just started selling it. I've just started going, I don't need this. I've got a whole pile of stuff down here. That's a little business in itself because I'm getting all this free trial stuff but I don't need all this stuff, so I'm just getting rid of it (Emily WA).

You work for a company [doing mystery shops], and I did one yesterday for Yves Saint Laurent down at Pacific Fair. So I had to go in and try on a pair of \$2,000 shoes. And I get paid \$45 for it. Sometimes you get to buy the products and keep them. Sometimes you just go in there, try them on, and see how they react when you say you don't want them. ... They're really detailed because they're high-end things. I've done hotel stays, restaurants, things that, it's great (Tracey QLD).

DETAILED FINDINGS

THEME 2: WORKING AND STUDYING FROM HOME

Market research as professional research participants at home: These participants receive financial incentives such as coupons that they use for their everyday expenses such as groceries. In our sample, Liza (TAS) completed surveys so she can accumulate points that can later be cashed out. She found surveys as a way of 'making a little bit of extra income'. Ali (NSW) explained that in addition to his day job, he completed surveys as an additional income to support his everyday expenses (mainly groceries) amidst the cost of living crisis. He explained how he would wake up in the morning at 3am and complete surveys until his job starts at 7am. Roger (NSW) explained that he spends about 2 hours a day completing surveys and that the gift cards he receives are used for his shopping. He mentioned that the revenue helps because most of the shopping is paid for through the money he gets from completing surveys.

Remote investment as work from home: This involves managing and growing super funds and engaging in multiple income generating activities so that individuals can work flexibly and engage in multiple avenues of work. For instance, Emily (WA) explained how she has been on a 'big financial journey' since she first purchased an investment property in Bali. Since then, she has begun to create self managed super funds by using her super as a fund to invest in homes across Australia. So far, she has purchased two properties, one in Perth and another in Victoria.

We found some really good people in Sydney and they took me under their wing and they've got connections, and a lot of research. It's a big thing to invest your super into a house. You kind of freak out. The first one I'm like, oh my God, have I made the right choice? What have I done? As soon as you get renters in, you see that money coming back in. Worst case scenario, I can sell that house and put money back in the bank. It's like there's an opt-out if I need to but I had to learn about it (Emily WA).

Becoming an influencer: This involves creating content with the intention of attracting an audience and leveraging that influence to collaborate with brands. For example, Aiesh imagined how she plans to grow her YouTube channel that she started during the petrol crisis and the investment she plans to put to develop it as a side hustle by committing at least five hours a day to develop the channel further.

I've started my channel, ... I cook and I record that, and I upload that, and although it's not that successful now, because it's been, like, 3 months now... I also started a YouTube channel for kids ... Once I get some revenue from there, definitely I'll get some gadgets [currently] I have a smartphone. ... there are so many different fancy ... gadgets available in the market (Aiesh VIC).

Signing up for casual work on online platforms: Some participants explained that to deal with the effects of the petrol crisis, they have signed up to online casual work platforms to offer their services. For instance, Luna explained that she has signed up to transcribing legal documents and other work activities such as lawn mowing.

I'm already working paycheck to paycheck. I was looking at options for side hustling, so I applied for, like doing a transcription service. To try transcribe legal doc like, legal things, looking at doing, like, lawn mowing things (Luna WA).

SEON'S EXAMPLE



Seon is 41 years old. Currently, he lives in a small, rented, one bed room unit. with his dog, a rescued 14 year old Staffordshire bull terrier that has been living with him for the past 6 years. Seon loves animals and has pursued his dream of being a veterinarian when he was younger but gave up when he realised his job was to 'put animals down'. Over the years, he has worked a number of jobs ranging from working in nightclubs to hospitality. At the moment, he works from home in financial services but he plans to change his job because he finds the work to be 'processed for the sake of process'. One of the things he likes about WFH is spending time with his dog during breaks.



Seon explained that since his unit is very small, there is no designated room to convert into a home office. He had to be creative in using the entry hallway space as his home office. He explained that his office setup acts as a multi-use space/combo space that holds part of his wardrobe, cleaning equipment, office equipment and a dog seat. To create a better working from home experience, he has purchased electronic devices such as speakers and cameras separately to attach to his computer. He described that since he spends majority of the time video-conferencing, the additions provide a better working condition. The hallway had limited lighting and ventilation as the windows had to be closed for privacy, making the room a bit dark. Seon explained that while he did not think that it was too dark, he had a lamp switched on the side of the room and that the door to the living room provided him with sufficient ventilation.

THEME 3

DIGITAL CONNECTIVITY, COMMUNITY AND SECURITY



FINDINGS

THEME 3: DIGITAL CONNECTIVITY, COMMUNITY AND SECURITY

FORESIGHTS FOR FUTURE DIGITAL CONNECTIVITY, COMMUNITY AND SECURITY

- Many people have deep seated concerns about cybersecurity and hacking, they are not confident that digital and smart home technologies are safe in the present and believe they will be insecure in possible futures.
- Most people would like to stay in control of automated, AI and other emerging technologies in possible futures, suggesting that they will have little interest in future automated home energy systems and devices.
- People devise their own digital everyday routines, related to digital security and other digital activities at home to suit their priorities and values, and are likely to continue to improvise in such ways in possible futures.
- People hoped that in possible future shared energy systems and technologies would help to generate a new sense of local community and mitigate against local crime.

ENERGY IMPLICATIONS

- Growing safety concerns related to digital connectivity and cybersecurity are likely to increase 24/7 energy demand for personal and home security systems (e.g. routers, monitoring devices, backup systems).
- While security-related demand is unlikely to generate significant material impacts on the network, safety and cybersecurity concerns are likely to become a key consideration for participation in tech-facilitated energy demand management programs, such as VPPs, some of which require handing over control of appliances or battery charging to utilities or third parties.
- Uneven adoption of digital energy and smart home technologies is anticipated, with some households embracing innovation while others opt out, leading to fragmented opportunities for tech-facilitated demand management.
- Households are likely to continue overriding or modifying automated systems in ways that reflect their own routines, priorities and perceptions of risk and safety, limiting the effectiveness of fully automated energy management approaches.
- Community-based energy arrangements may provide trusted pathways to participation in energy sharing, flexibility and local resilience initiatives where confidence in centralised systems is limited.
- Trust, perceptions of cybersecurity and desires to remain in control may become as important as technical capability in determining participation in digital energy services, automation and demand flexibility programs.

INTRODUCTION

THEME 3: DIGITAL CONNECTIVITY, COMMUNITY AND SECURITY

Our findings relating to participants' understandings of and interest in smart home and smart energy technologies are distant from the future visions suggested in our review of industry perspectives (Dahlgren et al. 2026).

Rather than anticipating future cute home robotic assistants, or automated CER systems, participants imagined possible futures where they would like to stay in control of automated technologies, expressed considerable concerns related to cybersecurity and tended to see future energy technologies as being endorsed and shared at community level.

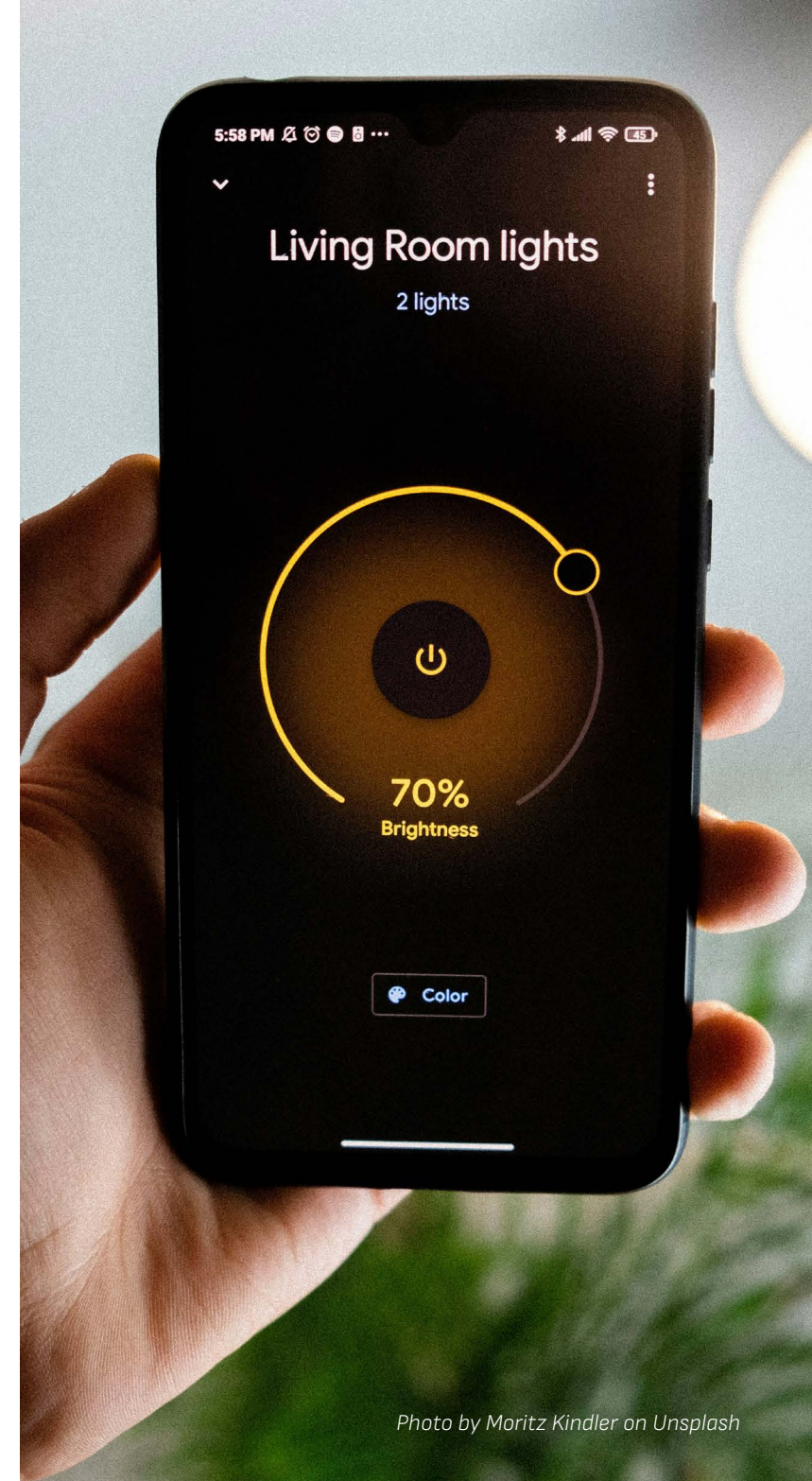


Photo by Moritz Kindler on Unsplash

DETAILED FINDINGS

THEME 3: DIGITAL CONNECTIVITY, COMMUNITY AND SECURITY

FINDING 3.1: SECURITY, TRUST AND COMMUNITY COHESION

3.1.1. Fear of Crime

Participants described living within an expanded threat landscape shaped by burglary, neighbourhood violence, phishing scams, hacking, data extraction, and surveillance technologies such as drones. In response, households adopt layered security strategies that combine physical barriers, surveillance devices, cybersecurity practices, and selective disengagement from connectivity. Security practices are not uniform. They are shaped by prior victimisation, housing tenure, gendered experiences of violence, occupational exposure to sensitive information, and digital literacy. While some participants accepted technological exposure as an inevitable trade-off, others pursued cautious or hybrid strategies that attempted to balance convenience with privacy.

The technologies participants installed in their homes included,

- Security cameras
- Specialised mesh doors to obscure visibility
- Installing internal cameras/ refusal to install internal cameras
- Safety bars
- Locks
- Remote monitoring
- Changing passwords continuously
- Using multi-factor authentication modes
- Using VPNs



3.1.2. Participants believed energy sharing technologies could generate community trust

Our review of industry trends found that cybercrime against energy technologies is increasing (Dahlgren et al. 2025). Participants were concerned about digital threats to their homes and everyday lives, including being surveilled in their homes by smart appliances, and potential hacking of digital devices.

Hackers are everywhere. We all get emails every day. And the more you put everything into that [digital technologies], the more your whole house could be completely run by someone else (Elizabeth WA).

Whatever you and I are talking, I am sure someone is listening, so this is directly linked to your privacy. It can be used against you (Mitzy VIC).

Digital security concerns also influenced participants' decisions around the use of emerging technologies such as apps connected to household devices. Participants were reluctant to install certain household devices related apps on their smartphones because they were afraid of being hacked and were particularly concerned about the use of smart technologies for child monitoring and care.

Say these cleaning robots, so you can manage it through your phones, but I've heard that they can be hacked and through them, they can hack the whole system (Ravi VIC).

Like, my dishwasher's got this thing that you can do from your phone. I downloaded that, then I thought about it, and I'm like, no, I don't want it. Just use the physical button, and then I just uninstalled the app (Fathima VIC).

I guess there's a lot of concerns about people hacking into those things and talking to the kids. So, I would be skeptical about that (Andrew SA).

DETAILED FINDINGS

THEME 3: DIGITAL CONNECTIVITY, COMMUNITY AND SECURITY

Digital security concerns were based on people's lived experiences, social media, information they have received from friends and family, etc. For instance, Ravi's (VIC) phone has been hacked in the past, this has influenced his wife's decision to not have any household related apps installed in her phone. Similarly, Elizabeth (WA) explained that her understandings around security are influenced by science fiction narratives. Luna (WA) who works in a law firm explained she has heard many stories of people being hacked from her colleagues that she always uses VPN and multi-factor authentication. Tracey (QLD) described how she has had encounters with invasive surveillance when a drone was being sent to her balcony.

3.1.3. Participants security practices are shaped by localised experiences and vulnerabilities

Digital devices (such as fob controlled access to apartments) provide a sense of security against break-ins, theft, crime and domestic violence.

And here, he'd (ex-partner) have to like be Spiderman up the wall, and you've got the fob, you've got a fob to get into the lift so you can't just... go to level 1, for example, even to go to the basement, I need a fob to get into the basement from the building. (Cleo VIC)

3.1.4 Participants valued control over complete automation

Our analysis of industry trends suggests that "Reports viewed rising energy bills and climate concerns as prompting consumers to adopt these devices. However, questions remain about who will have ultimate control (i.e. users via apps or third parties via coordinated use)" (Dahlgren et al. 2026: 59). Amongst our participants control over energy technologies was viewed as a key value for households in possible futures. This reiterates the *Digital Energy Futures: foresights for future living* report (Pink et al. 2022) findings and was reflected in our survey findings.

I'd still want to give consent...because then I can't blame anyone but myself if there's a mistake. I suppose not quite trusting technology completely to get it right (Liza TAS).

I haven't done any of the smart home stuff yet. Do I want it? I don't know. It's always got fallacies and breakdowns in it. Hadn't been proven totally to me yet, so I'm sorry, I just... Let's not get into it. Well, it's just, I like the idea of having control. Yeah. Don't like to give control (William VIC).

Survey Findings:

- The vast majority of respondents (84%, n=4198) indicated they want to retain some form of control or override future smart appliances. This includes the 17% (n=873) of respondents who would not use smart systems at all.
- The most common preference was full control and scheduling of smart systems and appliances (29%, n=1458), followed closely by being happy for appliances to manage themselves with manual override (28%, n=1390).
- Smaller numbers preferred automation without override (12%, n=580) or third party management with (10%, n=477) or without (5%, n=234) override.

3.1.5 Perceived future digital security risks

In the future, participants imagined heightened exposure to hacking, phishing and surveillance as well as increasingly complex threats to home automation. As a result, some participants imagined continued system upgrades to remain ahead of evolving risks and adopting institutionalised precautionary routines such as reading more on new threats shared by banks, government agencies and universities.

In imagining possible futures, participants described security as an ongoing process of negotiating risk, shaped by their social positions and lived experiences. Some participants emphasised prioritising anonymity and strict access control as central to feeling secure. Others pointed to neighbourhood-related threats such as local crime and community safety.



William has a security camera installed in the living room

DETAILED FINDINGS

THEME 3: DIGITAL CONNECTIVITY, COMMUNITY AND SECURITY

Participants with prior experiences of victimisation, such as theft, other crimes, and phishing anticipated the recurrence of similar harms in the future. Participants who run home-based businesses, foresaw risks associated with customer interactions.

Ballarat is a pretty questionable town in terms of crime and stuff, where I grew up in probably one of the worst parts of it. So, I guess I've sort of been normalised by a lot of things. So, I'm not as, I guess afraid. So, we've got the doorbell camera there andI do want to have cameras (Joel VIC).

I'll give you an example. Telstra – I don't know if I should say this on camera – but when I left Australia to go to Fiji, Telstra said I owed them like \$1,800, which I don't believe I did. The minute I got a phone number back here in Australia, I was getting Credit Corp ringing me, wanting the money for Telstra. Now where do they get my phone number from? Centrelink? Optus? I don't know. It's got to be one of those two, because that's the only two that know it (Diana QLD).

Some participants had either already undertaken or planned for upgrades. They viewed gradual upgrades to technologies such as security systems, home batteries, and participation in VPPs as preparation for anticipated future economic, environmental, security and social challenges.

If there's an energy shortage, you'd have to [be prepared], but you would want to be set up prior to that, rather than be trying to scramble for safety... (Elizabeth WA).

FINDING 3.2: COMMUNITY AND TECHNOLOGY

3.2.1. Participants shared knowledge about energy technologies

Informal networks of trust played a key role in participant engagement with new technologies. Participants often relied on their friends, neighbours, relatives when making decisions about new household technologies and sought their advice. For example: Gregg and Anne (VIC) were interested in home batteries but they were waiting to hear from their friend who had recently bought a home battery to decide whether it was worthwhile them purchasing one; and Lyn and Kevin (NSW) were interested in purchasing a home battery and had asked one of their neighbours to help them in making the decision to choose the most suitable option for you them.

3.1.2. Energy sharing technologies could generate community trust

Some participants considered that community trust could be improved through local energy sharing schemes and technologies, from this perspective it was expected that community trust can also result in a decrease in crimes in the community.

If I'm sharing with my neighbours or my group of people here, that's one of the things that keeps the community close, and on top of that, I can save some money (Ravi VIC).

SYLVIO'S EXAMPLE



Sylvio is 42 years old and migrated from Brazil two decades ago. Currently, he lives alone in an apartment in Sydney. He has a dog that he takes care of with his ex-partner. He has worked in finance all his life but is transitioning to psychiatry since he was made redundant two years ago. At the moment, he is completing a psychology course online with a Brazilian instructor. He explained that the course has 153 participants from all over the world. Upon completing the course, he plans to start his own practice in Australia in the future. He believes that certain professions such as counselling will be affected by emerging technologies that can replicate some emotional intelligence, however, he also highlights that humans are still essential and cannot be replaced.

AI, ... can't replace people ... we're gonna still need humans to validate or to help, or to assess, what are you because we are the only ones who hold it, the exact core of the feeling. We would understand if we describe how you feel. I would understand. But a machine or a technology, I don't think it would be that accurate, somehow. Maybe in the future (Sylvio NSW).



Sylvio described that he is often cautious in his use of technology because his bank account was hacked leading him to feel unsafe and extra cautious when using technology. Now he constantly changes his passwords and tries to keep updated about new security threats. He was particularly worried for vulnerable populations such as older people who can easily fall victims to scams and other digital threats.

A few years ago, I got my bank account hacked, and somebody from Asia bought an airline ticket. I wouldn't like to share that experience again. But the funny thing is, the banks, they don't tell what happened (Sylvio NSW).

BILL'S EXAMPLE



Bill is 78 years old. He, his wife, Sue and son live in an outer suburb of a city in NSW. While their son works in a university as a lecturer, Bill and Sue are retired. Bill spends much of his time volunteering at the local library and attending to household chores with Sue. Bill has installed three solar panels and a solar hot water system in his home. In the future, he would like to maintain an on-grid solar system where he plans to get rid of the gas heater and gas stove and get a home battery. When Bill was asked whether he was willing to share energy with the community, he explained that he prefers to focus on the cost benefit of the exchange.

If I get a battery system then I become independent. ... We're in a mountain area. We do get blackouts from time to time. I have got a generator up there to be able to keep the fridges running. ...I'll still be connected to the grid, but to be able to maintain the house for 2 days without any power (Bill NSW).

Bill enjoys relying on emerging technologies and making them a part of his home to create comfort and efficiency. For instance, he explained that he has installed a Ventis system in the house to regulate heating and cooling and to make the house more energy efficient.

We've got what they call a Ventis system. I don't know if you know anything about them. Basically, it takes hot air from the ceiling and pumps it into the house (Bill NSW).

He also has a work from home room which he refers to as the 'study office', where he keeps track of his solar use, responds to emails, and plans his travels. He has recently started using ChatGPT to plan their trips. He also uses ChatGPT to search for household items, however, he mentioned that he is cautious in his use and does not fully trust AI.

I don't know, just again, just don't trust it [AI]. Always validate and check. Just because you read it on a paper, just because you read it in the news, doesn't mean it's always right (Bill NSW).

Bill and his wife caravan across the country whenever they get the chance. To maintain safety, Bill has installed a GPS tracker in the caravan and usually sets it on 'Watchdog mode' at night. He explained that he usually gets an alert on his phone if there is something wrong such as someone trying to enter the caravan.

I have got a GPS tracker in here that tracks everywhere the van goes. I can set it on Watchdog mode. Um, so if someone came in and hooked the caravan out, took it off, I get an alert on my phone saying (Bill NSW).

THEME 4

STORAGE AND PREPAREDNESS



FINDINGS

THEME 4: STORAGE AND PREPAREDNESS

FORESIGHTS FOR FUTURE STORAGE AND PREPAREDNESS

- Home storage is a common human impulse and need, and is likely to continue to be in possible futures, making it essential that we account for it in planning for home energy futures.
- Home storage is a valued asset in the present and is perceived to be a prime asset for possible futures.
- People are preparing for possible futures by creating new storage space in existing homes and see investing in properties which have storage space as a sound financial strategy.
- People with small home businesses, including the growth in gig-work, side gigs and multiple job holding is likely increase home storage requirements in possible futures.
- CALD (Culturally And Linguistically Diverse) people and migrants have particular cultural traditions and expectations in relation to storage, Australia's future migrant population will generate new storage needs.
- Storage of dry, canned and frozen foods and of water is understood by people as a mode of future preparedness, and it is anticipated that it will be part of future home life in extreme weather.
- Community sharing and gathering initiatives already feature in preparedness and action in extreme weather situations. These offer key insights for the design of future shared community energy systems, spaces, food and water resources in anticipated extreme weather.

ENERGY IMPLICATIONS

- The growing interest in and desire for home storage may increase underlying demand for electricity due to increased use of refrigeration freezers and cooled spaces as part of household preparedness strategies.
- Interest in preparedness in an increasingly uncertain world is likely to drive increased demand for energy independence and/or backup energy systems, such as home batteries, generators or vehicle-to-grid, to support continuity of everyday life during outages, extreme weather and other disruptions.
- Major disruptions and anticipated extreme weather events may generate short-term increases or peaks in residential electricity demand as households prepare, stockpile and maintain stored goods.
- Interest in storage and preparedness may be stronger in some CALD communities with cultural practices and expectations, potentially resulting in place-based or community variations in how people prepare and respond to emerging uncertainties and crisis events.
- Community initiatives for storing and sharing energy may gain traction as more households seek energy systems that are locally resilient to disruptions and provide opportunities to support communities during periods of uncertainty or disaster.
- While community-based energy sharing concepts are attractive to some households, large-scale implementation would require supporting regulatory frameworks, settlement arrangements, consumer protections, interoperability standards and commercial models.
- Households that are unable to afford to prepare for uncertainties or invest in storage solutions are likely to be more vulnerable to energy and other unplanned disruptions, requiring other forms of support and access to energy.
- Future resilience may be supported through a combination of household preparedness measures and community-scale options, including community batteries, local energy hubs, coordinated backup services and flexible demand programs.

INTRODUCTION

THEME 4: STORAGE AND PREPAREDNESS

Storage is a valued practical, economic, emotional and connective activity. For participants it was part of the material and digital environment of their homes, often worth dedicating a whole room to where possible, and a mode of connection with and care for others – for instance by caring for the possessions of family members who were away or by saving clothes for future babies.

Participants saw storage space as a key asset, not only for keeping things that are important to them in the present but also for possible futures, which would guarantee the economic value of their home on the housing market.



DETAILED FINDINGS

THEME 4: STORAGE AND PREPAREDNESS

FINDING 4.1: STORAGE SPACE

4.1.1. The value of present and future storage space

Storage space in homes was highly valued by most participants. Participants tended to optimise their use of existing storage space and create or convert new storage spaces where needed.

Anticipated future storage space was important to participants in a number of ways. This included seeing future storage as desirable in a home and as a real estate advantage, imagining new ways of creating future underground storage, imagining storage being combined with future de-cluttering activities. For renters, storage was an ongoing issue, as they moved homes seeking to accommodate their stored items.

Digital storage was also acknowledged as a growing trend and future documents were anticipated to be digitally stored.

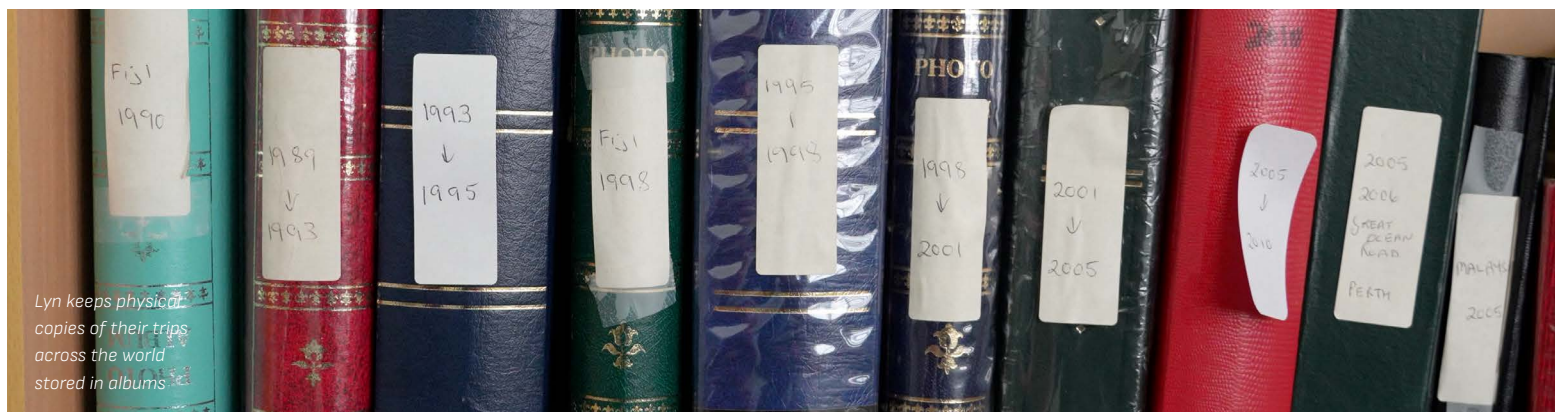
4.1.2. Storage in diverse places

People use diverse spaces in their homes to store things. In addition to designated storage cupboards and storage rooms, people stored items under the staircase, in garages, and in attics. They also created storage areas in open spaces, for example with items piled up in living rooms, bedrooms or kitchens.

4.1.3. Storing excess items, equipment and goods

People stored excess items for various reasons, such as when participants intended to use them in the future, until they had a better sense of how to dispose of them, or in case they might be of use in the future. Some participants: stored items that belonged to their children or grandchildren, who might need them in the future; suggested that they would in the future “declutter” storage spaces filled with items or equipment that was rarely used; or kept excess food stored in freezers in case of situations such as medical emergencies or extreme weather.

We’ve still got boxes which we haven’t opened for the last ten years. ...we’ve got a storage downstairs, part of the unit ...we are still going through that ...doing a massive decluttering, selling, throwing stuff away or giving it to charity only if it’s suitable, so yeah, it’s recycled (Sunil NSW).



DETAILED FINDINGS

THEME 4: STORAGE AND PREPAREDNESS

4.1.4. Creating storage spaces

We found that people often actively create storage spaces. This includes converting spare rooms in the house to storage rooms, installing new cupboards or assigning designated spaces in rooms for storage.

For example, participants converted their spare bedrooms into storage rooms for: clothes, travel and caravan equipment; or all their children's and grandchildren's items. Others installed cupboards for storage and created storage space in a "baby room" for things stored for their current and possible future babies

[I'm] not buying too much because they're babies. I've started packing things away. If we end up having another girl, I've packed away her last sizing to use again. If not, then we'll pass it on rather than just chuck it out. That sort of thing (Louise QLD).

This is my storage bedroom, which I don't use at all. This is, you can call it storage dumping, whatever you want to call it, yeah, this is the dump room (Mitzy VIC).

This wasn't in our house when we first bought it. I built this into the house because I think houses need storage (Emily WA).

4.1.5. Cultural diversity and storage

Migrant participants in our sample explained how their past lived experiences of storage differed from those they had found in Australia. For example, Ravi (VIC) and Fathima had both moved to Australia and India and were surprised by the lack of storage space, since a storage room is usually available in Indian homes. When they built their home in Australia, they had created specific spaces for storage. Sunil (NSW) had been used to having more storage space when living in the UK, and since moving to Australia had been seeking to "declutter" his storage.

In an Indian household, you have a storeroom. Every house has a store room where you can store things. So that was a big adaptation for us when we started living here because all we have are little linen cupboards (Fathima VIC).

4.1.6. Storage and life stages

At certain life stages participants needed more storage. Particularly in relation to family life, and for growing families.

We needed an extra fridge and freezer. The freezer was actually something we got while I was pregnant because we needed storage for breastmilk, and just extra storage for groceries and that sort of thing (Louise QLD).

4.1.7. Seasonal storage

Storage was sometimes seasonal, whereby participants stored clothing between seasons.

In the wardrobe, I've got little boxes with, we have to pack away summer and winter clothes. I alternate seasons as there's not enough room in the wardrobe. I just fold it up, and this is all my summer stuff at the moment, the winter stuff's all packed up in there. Trousers, jumpers that I don't use all the time, and then swap them around when it's the opposite season (Tracey QLD).

DETAILED FINDINGS

THEME 4: STORAGE AND PREPAREDNESS

FINDING 4.2: ANTICIPATING FUTURE STORAGE SPACE

This section discusses how participants anticipated their own storage futures. These insights enable us to understand how people understand their futures and the logics upon which they make decisions in the present as regards their trajectories towards storage.

4.2.1. Anticipating storage space as an investment

Some participants anticipated that in the future, with a trend of new-build homes becoming smaller, homes would consequently have less storage space. Given the high value put on storage space they believed that creating storage space in current homes, or purchasing homes with ample storage space was a good investment for the future.

As you can see, we've got lots of cupboard space here, and that's one of the selling points (Henry and Pete NSW).

We made sure we had lots of storage, because you don't get a lot when you're in an apartment (Tracey QLD).

I would like to have more storage. I mean there's not really any storage, I guess, in this place, other than this shed (Seon VIC).

4.2.2. Anticipating reducing storage in possible futures

Some participants anticipated that as more and more people adopt a sustainable lifestyle, in possible futures storage will be minimal and some participants envisaged themselves "decluttering" excess from their storage.

Maybe in the future ... smaller housing and more sustainable housing will get more popular and you'll be happier... you won't want all this junk, all these things around. I think of tiny houses or some of the cool apartments you see in Japan. So maybe we won't be as collecty (Alex VIC).

I think our biggest thing here is decluttering. We've got too much crap in here, so a lot of this stuff, you know, just slowly going through it, I've got a lot of stuff sitting out there (William VIC).

4.2.3. Anticipating storage when moving

Some participants anticipated storage needs when moving house. Participants who were renters could frequently move houses due to landlord issues. All participants were subject to potentially moving due to life events (such as expanding families, divorce), housing needs (such as downsizing, needing better amenities), financial factors, environmental factors and location changes (such as relocating closer to work, schools). As such people are often ongoingly organising the things that are stored in order to support future moves and to minimise storing excess.

4.2.4. Anticipating future digital storage

Some participants anticipated that in the future there would be a growing shift to digital storage for many things, including documents, photographs, video and audio files, and books. Some saw digital storage as a more sustainable and longer lasting mode of storage.

Now everything is being scanned and saved on a USB stick ...so, those boxes and units will be gone. That's what I'm in the process of doing at this moment in time, getting everything scanned, getting onto USB sticks and with all my clients from England one side, all my clients here another side and then just making sure I've got everything there (Sunil NSW).

The actual physical book I like better, but I'd rather the library spend money on an electronic resource that does not get damaged, does not need repair, does not wear out with time, and can be used over and over again without wear and tear (Jane VIC).

DETAILED FINDINGS

THEME 4: STORAGE AND PREPAREDNESS

FINDING 4.3: STORAGE AS PREPAREDNESS FOR EXTREME WEATHER

Storage played a key role in the way participants anticipated life in future extreme weather.

4.3.1. Anticipating food storage

Some participants anticipated a range of practical measures they would take involving storing food in case they were unable to access supplies during extreme weather.

As extreme weather conditions become more frequent participants proposed diverse ways of coping.

People living in urban areas felt they would still be able to access food supplies, including food deliveries.

Older people and people living in remote areas, imagined food hoarding and keeping canned food for emergencies would become a future way of life where people store excess food in their homes in anticipation of frequent extreme weather events.

It was suggested that fresh food could be stored in multiple fridges. Some participants already had second fridges in their garages where they stored extra food, including food bought on special offers to save money, which they additionally anticipated using in extreme weather situations.

People with low-incomes believed that it will not be possible to store food given their financial constraints and that they will have to rely on formal and informal networks for support.

Some participants imagined bartering as a future practice among friends, neighbours and within the community to maintain a steady supply of essentials during extreme weather events.

Regardless of whether you've got solar power or not, I think people have the fridges in place or if they don't want to go down that route, they will just go and buy fast food and do that, but that's not cheap (Sunil NSW).

I do spend a lot of time in here [the garage with the second fridge in it] only because I like to make sure we've got plenty of food, and in my life, I can be called in a minute to help my daughter and the children or my aunt, ...also, after having a serious illness, I know I've got to be ready. I actually sometimes, ... feel like I might be a food hoarder, because I like to make sure we've got plenty of foods at home, in the fridge, freezer, and pantry if anything goes wrong (Wendy ACT).

If we end up with a climate which is constantly changing, which it is, ...people will have multiple fridges and store, whether it's fresh produce, ... not just your fruit and veg, your staple, your bread, etc., will be in the fridge (Sunil NSW).

4.3.2. Anticipating water storage

Some participants anticipated that water would be stored for use during extreme weather events such as bushfires, some already stored water and other participants were interested in storing rain water in the future.

Participants had different approaches to and capacity for storing water. This ranged from a participant who had his own water tank and pool to one who had collected rain water as a sustainable practice, and to use in her garden.



Lyn and Kevin keep excess meats stored in their second fridge and plan to do so in the future

DETAILED FINDINGS

THEME 4: STORAGE AND PREPAREDNESS

This [water] comes off the roof every day, but when it rains, it comes pouring down. So, to conserve water, we had some buckets, because we've got some now, and we were conserving the water to use on the garden. But the birds kept coming, so they'd sit there, but then they'd poo everywhere, so we stopped doing it (Wendy ACT).

I have water supply tanks that I've got [of] 6,000 litres. Then, in what I call the tunnel, I think there's about 80,000-90,000 litres of water Now, the firefighting pump I've got down in the shed is petrol but if power goes out, then the other pumps... will cut out, and I will only have the, uh, water supply coming in (Bill NSW).

4.3.3. Anticipating energy storage

As extreme weather becomes more frequent, some participants anticipated storing excess energy in the form of home batteries and back-up generators to continue their everyday routines. These resources were viewed as part of mandatory preparatory practices that provided a sense of control during possible disruptions in the future.

We're in a mountain area. We do get blackouts from time to time. I have got a generator up there to be able to keep the fridges running. But if I go to the battery system. Then I should be able to run for two days... my ambition is to be totally independent, not off-grid. I'll still be connected to the grid, but to be able to maintain the house for 2 days without any power (Bill NSW).

We have looked into it [a battery], it's a bit pricey for ...our funds at the moment, but it is something we want to be able to invest in 100%, because we've got the solar, but we don't have the batteries, so ... we're not storing that power... (Louise QLD).



Bill plans to buy a home battery in the future to support his solar energy storage

DETAILED FINDINGS

THEME 4: STORAGE AND PREPAREDNESS

4.3.4. Some people are already experienced in cyclone preparation

In Southern and Eastern Australia, people are more exposed to extreme weather events such as cyclones, floods, droughts, and bushfires, creating an increased preparedness for such events in their everyday lives. For instance, Tracey (QLD) described that close to extreme weather events it is common for items to be sold out in local supermarkets. So in preparation, she often buys what is available and engages in bartering practices with friends. Similarly, Myriam (QLD) explained how she prepares a 'go bag' for emergencies and stores essentials for her children such as food, nappies and other baby items. Diana (QLD) described that during cyclones, people attend cyclone parties because there is stored food in such places.

So we just had our go bags here at home. And we had water, we had food, spare diapers and all that stuff that we might need in case we had to evacuate for a couple of days. So we had enough food for probably a good 48 hours that we could have gone by. We just got like army surplus stuff, which sounds a bit extreme, but it's made well (Myriam QLD).

I haven't been through a cyclone yet. But I know they have cyclone parties at the pub...They stay for two or three days, locked in the pub (Diana QLD).



Photo by Grace Koo on Unsplash

LUNA'S EXAMPLE



Luna is 32 years old and works in the legal profession. She has two cats and a fish tank. Luna enjoys fostering kittens. She has recently moved to a new home and was very excited that she had a spare room that she can convert to fostering kittens. Luna enjoys living a sustainable lifestyle where she attempts to reduce waste and reuse as much as possible. She explained that she usually bulk buys meats and stores them in the freezer in different ways. If it is for her cats, she uses plastic containers and if it is for her, she uses glass containers.

As a tenant who has to move constantly from one home to another, Luna likes to keep all her belongings organised. Pointing to some of the cords that she has stored under her bed, she explained that having a clear organisation system and storing items accordingly, helps her to reuse and not waste money.



This was my like ADHD life-saving hack. ... Move house to house. I couldn't find cords and I would just buy new ones even though I probably had two or three of them already. I went through them all and then organised them (Luna WA).

She also stores clothes that she can no longer wear because of stains, lost buttons, or tears and reuses them by dyeing clothes, replacing buttons with new ones from sites such as Marketplace.

Luna's example highlights how mindful people are around their personal items and everyday storage practices they use to keep them and practice care and sustainability.

RAVI'S EXAMPLE



Ravi is 50 years old and lives with his wife and two daughters in one of the outer suburbs of Melbourne. He migrated to Australia two decades ago. He works as a manager in a delivery company. He sees himself as a problem solver that enjoys engaging with new technologies. He values community and highlights that he makes an effort to help people as much as he can.

During the home tour, Ravi described how he has built his house following some of the architectural principles from his Indian heritage such as high ceilings, bathrooms to be located in one side of the house, etc. He also pointed out some of the key differences he and his wife noticed between Australian and Indian households. For instance, they spoke of the importance of storage as an everyday aspect of life that is embedded in how they use the space, how they care for material objects and how they store things. When they first migrated to Australia, both Ravi and his wife were surprised by the limited storage space in Australian homes. Fathima described how it is a common practice to have a separate store room in most Indian households.

In Indian households, ... every house has a store room So that was a big adaptation for us when we started living here because all we have are little linen cupboards, and now, at least in the houses that we have, you've got big wardrobes, and the bigger linen cupboards everywhere, but I remember when I came here in 2007. The storage wasn't very big at that time (Fathima VIC).

She further explained that as vegetarians, storage was very much linked to their food practices. Usually, except for perishables such as milk, vegetables and fruits, other grocery items are bought in bulk from Indian shops. Fathima detailed that this often meant that even in case of an emergency such as when the Covid crisis took place, food-wise, they were able to manage with the stock of food they had.

The normal veggies, we do every Saturday we go to market together. And the normal, you know, the perishables, again, every week. But Indian Grocery, we do once a month, I think, all the lentils, the rice, and all those sort of things, spices, we bulk buy. So if you were in lockdown for one month, as long as we don't have to go out for milk and bread, we're fine (Fathima VIC).

Guiding us to the garage, Ravi explained that he rarely throws things away and likes to keep things stored in case they become useful in the future. He pointed out a second fridge in the garage where he stores tools. He explained that in case the main fridge breaks down, he prefers to use the second one in the garage in case of an emergency so that he does not feel rushed about buying a new one.

One fridge is in my garage which we don't use. It is in working condition, but I'm using it to store my tools. ...the reason I have kept it, is in case something goes wrong with this ...there was a day when this was not working, and that old fridge, old is gold. It was working. So I pulled out my tools, stored all my milk and everything in that, till I got it fixed (Ravi VIC).

Similar to Ravi, many migrants adopted storage practices that they were familiar with from their lived experiences and often found creative ways of maintaining their storage in their homes, (including creating new spaces, repurposing existing spaces for storage) or changed their storage practices to fit into Australian households.

THEME 5

INEQUALITIES AND VULNERABILITY



Photo by Pat Whelen on Unsplash

FINDINGS

THEME 5: INEQUALITIES AND VULNERABILITY

FORESIGHTS FOR FUTURE INEQUALITIES AND VULNERABILITY

- Participants were often excluded from decisions about their home energy infrastructures, and as such from participation in the energy transition because they were apartment dwellers or renters. This is unlikely to change in possible futures and is likely to continue to curtail active participation in the future.
- Participants facing vulnerabilities, particularly renters and those living in public housing were financially excluded from actively participating in the energy transition, since they had no access to renewable energy technologies. This is unlikely to change in possible futures without external support.
- Participants living in situations of vulnerability had to sacrifice other essential needs, including food to pay their energy bills, and tended to rely on personal and community networks for support. In possible futures this is likely to continue without improved external support.
- Older participants and participants with disabilities who are financially precarious are anticipating possible future homelessness and are likely to live in increasingly unsafe and uncomfortable housing situations in possible futures. They are consequently also unlikely to be able to participate in the energy transition.
- Indoor air quality was particularly valued by participants, and diminishing air quality in future bush fire scenarios is an anticipated hazard for vulnerable people, who tend not to have access to home air quality technologies.
- The 2026 fuel crisis made it more likely that people on the edge of experiencing vulnerability would increasingly be in situations of vulnerability. Such events cannot be predicted, but history shows that they are likely to occur.

ENERGY IMPLICATIONS

- Households who are already experiencing energy hardship, or are unable to access or afford CER and other energy efficient technologies, may become more vulnerable in the future, due to increasing climate risks, inability to benefit from low or no-cost electricity, and inability to participate in other energy demand management opportunities.
- Extreme weather events pose particular risks to low-income households, those without CER, and people living in inefficient housing, highlighting the nature of compounding vulnerabilities. These people may be unable to access or afford safe air technologies, including air conditioned cooling, posing health risks and reducing their ability to engage in activities such as paid work.
- Participation in CER and demand management opportunities is likely to remain patchy and limited due to the uneven distribution of energy transition benefits amongst Australian households and communities.
- There are likely to be growing disparities between high income households, who are able to invest in efficient home offices, heating and wcooling appliances and CER; and low income households, who are more likely to be renting and have less access to efficient housing and CER. This may exacerbate energy hardship for low income households.
- Demand for emergency and support services are likely to increase, including demand for public or community cooled and heated spaces, as vulnerable households rely on community networks and informal systems to meet energy needs, especially during extreme weather events.

FINDINGS

THEME 5: INEQUALITIES AND VULNERABILITY

- Governments, utilities and others will be increasingly called upon to provide subsidised energy, infrastructure and housing retrofits that seek to deliver energy transition benefits to a wider cross-section of the community. This requires coordinated action across housing, energy, health and infrastructure sectors, particularly for renters, apartment renters, social housing tenants and households experiencing vulnerability.
- While a traditional electricity 'death spiral' involving more households with solar and batteries leaving the grid is still unlikely, increasingly households without solar and large batteries are likely to bear more of the network and system costs unless energy reforms address this increasing imbalance.
- There may be persistent or worsening energy hardship, with some households reducing essential energy use (e.g. heating, cooling) despite need, while others face high and inflexible demand.



INTRODUCTION

THEME 5: INEQUALITIES AND VULNERABILITY

As people navigate their everyday lives, the intersectionality of a number of variables – including their socio-economic class, disabilities, home ownership, age, gender, geographical location, access to services, and climate vulnerability – plays a key role in shaping their everyday life values, priorities, activities and wellbeing. Our Scenarios for future living: Emerging technology innovation and development report found that: “many households are left out of the opportunities [the energy transition] presents” which will slow the transition; “exclusion of renters and low-income households also risks undermining trust in energy systems and institutions; “disparities are likely to map unevenly across housing types, rental markets and regions, producing patchy and fragmented responses” (Dahlgren et al. 2026: 39). Over one in three of the households participating in our survey (38%, n=1898) “reported experiencing at least one form of energy-related hardship in the past 12 months”.

Vulnerable groups represented by participants in this research who experienced energy inequalities included tenants, apartment dwellers, older people, low income households, people living in places already prone to extreme weather events such as bushfires, flooding, heatwaves, and people with medical conditions.

Our survey found “people with lower incomes were more likely to experience energy-related hardship than those with higher incomes” and “one-parent households reported the highest rate of hardship” of all household types. Hardship was “most prevalent among those in aged care” and renters experienced more hardship than home owners (Kaviani et al. 2025: 56–58). These findings are also represented in reports reviewed (Dahlgren et al. 2026), for instance where it is suggested that “Lower-income consumers are currently at a disadvantage in investing in some of the solutions, as there can be costs associated with reducing carbon emissions at home” (Samsung, 2023:10).

As the earlier sections demonstrate inequalities and vulnerability also intersect with how people work, travel, their relationships with digital, automated and AI technologies, and their uses, understandings and anticipations of energy and energy technologies. In this section, we explore some of the key inequalities and vulnerabilities that participants faced in their everyday lives and consider their implications for possible futures.

DETAILED FINDINGS

THEME 5: INEQUALITIES AND VULNERABILITY

FINDING 5.1: ENERGY INEQUALITIES AND THE ENERGY TRANSITION

5.1.1. Tenants and apartment dwellers often felt excluded from energy infrastructure planning

Participants living in apartments often felt excluded from decision making processes related to energy infrastructure planning and installation, even in instances where they owned their apartments. In many cases Body Corporates charged with managing apartment complexes have control over the decisions about essential services supplied to the complexes as well over infrastructure acquisition, such as installing EV chargers and solar panels, and the distribution of solar energy.

Some home owner participants were keen on installing solar panels and transitioning to renewable energy, but had either no or limited agency to drive such processes. Similarly tenants interested in solar energy and EV purchase, noted the reluctance of landlords to accommodate requests to install the infrastructure required to support these technologies.

You really need to be one of those people who jumps in there and asks a lot of questions, they are not the type of people that take me seriously I would say, you know, they've been in this building for a long time (Ben NSW).

Yeah, I can't decide to put solar on the roof. I can't decide to change gas hot water to electric hot water. I don't have that right. And when you ask, a landlord is most likely going to go, nope (Jane VIC).

It's tough because we don't own the place, we're renting. When you're renting, it's very limited what you can change, and the paperwork and strata – we're just not for that. So in this space, it's hard to say. If we had our own house it'd be different (Myriam QLD).

Tenants reported needing to undergo excessive approval processes even to make small changes in their rented homes, and those most vulnerable lived in a constant state of precarity due to limited heating and cooling technologies, including air conditioning and insulation. Lifelong tenants, unable to afford their own home were constantly worried about their positions as they age. These participants were concerned how they will be able to rent and home as they age and their finances dwindle.

But we've got the cost of living crisis, so you're watching the prices of everything increase rapidly. And they keep changing all the rental laws, so it's like, "Oh, okay, what change does this mean? What's the new effect of this thing that you did not consult with tenants about?" (Jane VIC).

5.1.2. Some participants felt excluded from the energy transition

Many participants were interested in shifting to renewable energy, but some felt excluded from the energy transition, because they could not afford to purchase and install solar panels, home batteries or EVs.

You're made to feel guilty really because you're still driving a petrol car or diesel car or whatever it is. You should be having an electric or a hybrid at least. But as I said, it's out of reach for so many people (Liza TAS).

The introduction of home technologies including energy monitors made some older participants felt excluded from the energy transition because they could not keep up with the pace of these technological changes, which gave rise to concerns for their futures.

...looking at my sister and how she has struggled. ... Not that I want technology to stop, I mean, it needs to continue to improve. But maybe just to be mindful of the changing needs of people in terms of our literacy in relation to technology (Anne VIC).

DETAILED FINDINGS

THEME 5: INEQUALITIES AND VULNERABILITY

FINDING 5.2: VULNERABLE ENERGY USERS' PRESENT AND POSSIBLE FUTURE COPING STRATEGIES

5.2.1. Some people make everyday sacrifices for energy bills

Participants in low socio-economic groups often had to engage in trade-offs in their household decisions around energy use and everyday needs. Our survey found that "the most commonly reported experience included being unable to afford other essentials such as food or housing (15% of participants)". Our ethnographic research found that this might involve choosing between using heating or cooling, cooking meals, buying groceries or paying bills for digital services and wifi connections. Some participants had skipped meals, taken on additional economic activities, or postponed medical appointments in order to divert their funds to pay energy bills. In some cases such issues accumulate to create situations that participants found it impossible to find a way out of:

If I didn't have to pay my power bill, that would be a lot of extra money that I would be able to then achieve for other things in my life. I would be able to file the paperwork to become a lawyer. I've got to go to a neurologist, but they're not covered by health insurance or Medicare, ...if I didn't have to have those little stressors, then I could do things like babysitting or things that would get a little bit of side income (Luna WA).

5.2.2. Anticipating relying on formal and informal networks for financial support in the future

As energy use increases in the future with people relying more on heating and cooling devices and on additional work related technologies to continue working from home, some participants anticipated that they will need support from formal networks.

These included services such as food banks, community organisations to support daily needs such as food, medicine and informal networks such as extended family to afford groceries and pay bills.

I'd probably ring my sister and tell her to put some money in my bank. They've helped me a lot (Diana QLD).

There's a neighbourhood centre in every town, I guess. I used them quite a few times for transport – they took me to Mossman to the Centrelink office and the hospital. They gave me packages of food. Then the next time I rang they said, "We can't help you anymore, you've gone over your threshold." Four hundred dollars – that's it, per person, a year. I thought, well, that's nice. I didn't know there was a threshold on needing medical attention or starving, basically (Diana QLD).

5.2.3. Some participants imagined absorbing additional costs themselves

Many people in low socio-economic groups live in housing with no insulation, no heating or cooling device and damaged or faulty infrastructure. Some participants who rented or lived in public housing imagined having to make up for these conditions, either legally or illegally, by absorbing additional costs themselves to make homes liveable, but often found this unaffordable.

Because government housing is for people on really low income. If I ask, explain my situation, ... I've got sleep apnea, I'd have to pay for installation myself. And when I move out, I'd have to pay to uninstall it and fix up the wall... It's possible, but it's a lot. I just haven't got the money for installation and for a split system (Shane QLD).

Give me 10 grand, and I would illegally install solar panels here until they tell me to take them down and say they're illegally installed. If I had a spare 10 grand, easy, I'd do it (Glenn NSW).

DETAILED FINDINGS

THEME 5: INEQUALITIES AND VULNERABILITY

FINDING 5.3: INTERSECTIONS BETWEEN EXTREME WEATHER AND INEQUALITIES

Our survey found that “climate risks deepen energy hardship” with risks associated with energy-related hardship being “compounded by self-reported climate risk vulnerabilities”, whereby “among those respondents who reported their homes faced climate-related risk or were unsure (46%, n=2327), more than half (54%, n=1265) reported experiencing hardship. In contrast, of those not at risk (54%, n=2686), 24% (n=633) reported hardship”.

Our ethnographic findings demonstrate how situations of energy hardship, inequalities and extreme weather are experienced in everyday life.

5.3.1. Some participants live in high risk dwellings due to affordability constraints and tenure conditions

People who live in housing with minimal facilities that have little to no infrastructure to support a comfortable everyday life, specifically amidst extreme weather, are more vulnerable. For instance, some participants lived in apartments and units with no heating and cooling exposing them to more health risks during heatwaves and extreme cold weather. Similarly, other participants lived in remote locations where they were more exposed to bushfires, power outages, etc. In such situations for specific populations additional layers of risks are present in navigating the event. For instance, mothers with small babies who had frozen breastmilk stored in freezers had very limited options to preserve the babies milk during power outages and older people with medical needs require a constant supply of power.

Yes, there will have to be thought put into how we rearrange infrastructure and power and how we're going to power buildings, because if the air-con fails, people might die, because I think the biggest killer is heat stroke of the old and vulnerable (Jessica QLD).

So I think most of the people who flock to the shops, maybe people that are in lower socioeconomic areas that can't afford to run their aircon all day, or don't have air conditioning because a lot of the places here don't (Louise QLD).

Despite awareness about potential extreme weather events, people in low socio-economic groups sometimes have no options when choosing their home. Some participants in government and social housing explained that given their economic situation they had limited choice.

5.3.2. Some participants anticipate living in unsafe housing conditions in the future

Some participants, without financial resources to buy their own homes, anticipated living as tenants for their entire lives. They faced great uncertainties relating to their futures, and anticipated that their vulnerability would be exacerbated, leading them to live in unsafe and uncomfortable precarious situations.

I don't think about myself because I am close to retirement. So I don't think about the future, I know what will be happening, I will be struggling if I retire because I will be on a pension and pension is not enough (Ali NSW).

I am surviving. If my daughter stops giving me money, well, then I will be living in a car. I will have to get rid of everything I have and sleep in the car, because, you know, she's the one who is supporting me (Vlastimil VIC).

DETAILED FINDINGS

THEME 5: INEQUALITIES AND VULNERABILITY

FINDING 5.4: INDOOR AIR QUALITY

With more extreme weather events such as bushfires and increased pollution, people were concerned about how the air around them will influence their life. Specifically, people with medical conditions and carers with children were concerned about the quality of air and how it will change in the future.

Our survey found that the “majority of renters (52%) and those in government-assisted, social, or affordable housing (64%)” and “residents in cooperative housing (68%) and aged care settings (61%)” “did not have access to air conditioning”. The survey also found that “over half of all households (57%, n=2857) reported having concerns about the air inside their homes” and that “households facing climate risks, hardship, or both were more concerned about air quality than those without these challenges”.

Our ethnographic findings show how these elements related to air quality were experienced in everyday life and how they informed people’s perceptions of possible futures.

5.4.1. Participants valued indoor air quality in everyday life

Participants emphasised the importance of good indoor air quality and highlighted the difficulties related to living indoors during controlled fires without necessary air technologies. They were particularly concerned about the threats of bush fire smoke to air quality, citing health conditions such as asthma as exacerbating these threats. Thus continuing a theme identified in the Digital Energy Futures project, of a shift in focus on safety in relation to such threats.

You get a lot of dust and stuff coming in on the window sills and it’s really black when you wipe it. I’m not too sure how to manage that. I just try and clean it off when I can. I was thinking about getting an air purifier maybe but they’re too expensive (Leanne QLD).

In the future, many participants were interested in purchasing home air quality technologies such as air purifiers and dehumidifiers (as reported in our DEF project), as well as in improvised solutions.

People are considering air purifiers and dehumidifiers. And I searched it, because when we were in Queensland, I found in our hotel that there was a dehumidifier and an air purifier. We’re still searching it, and we would love to have it if we can, that kind of technology (Ravi VIC).

I think an air purifier would be the only way because if you’re having that quality of air outside, you’re not going to want to open your doors and windows and have that air coming in ...But definitely something like that because I just wouldn’t want that quality of air coming in here (Louise QLD).

Maybe put something up on the screen door that is breathable still but it will keep out some of the stuff. Like my next door neighbour she has got this curtain on hers, it’s like a light weight shower curtain but it still lets the air through (Leanne QLD).

ALI'S EXAMPLE



Ali in his kitchen



Ali uses his iPad to respond to market research



Ali only switches on the water heater when he needs to have a shower

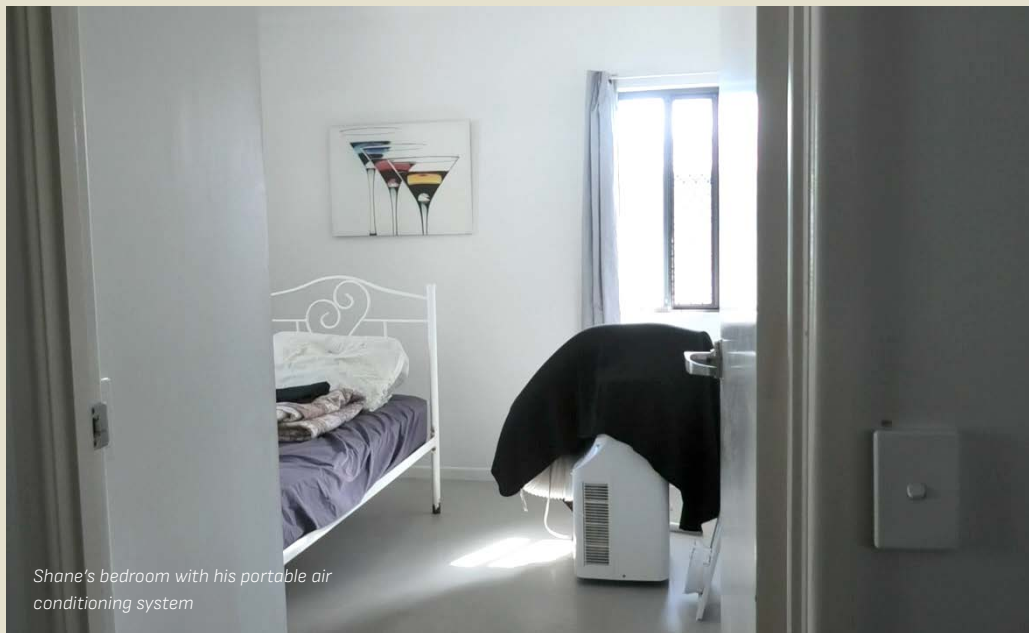
Ali is 69 years old and works for a blind manufacturing company in NSW. He was born in Pakistan and moved to Australia in the 1990s. His family (including his mother and sister) visited him in 1995 and showed us furniture he bought in preparation for his family's visit, still in the living room but not used. Ali has worked for the same company for over 30 years since moving to Australia and has moved from one unit to another in NSW. Reluctantly, he moved to a new unit with a housemate because it is unaffordable for him to rent an apartment alone. He has a friend he sometimes travels with, but no family in Australia. He enjoys travelling in Australia and East Asia and has visited Europe once. After a recent trip to Malaysia he was considering spending time there to make his retirement more affordable.

I wanted to see how life is there, because in Malaysia, ... as a tourist, you can stay till 90 days. Accomodation is cheap, food is cheap, ...I can't afford to live over here. ... it's getting expensive, and you're getting hand-to-mouth.

Ali's day begins at 3am when he wakes up, gets ready for work and leaves home for his 40 minute commute to work on public transport. Once he arrives at work, until work starts at 7am, he completes online surveys as a market research respondent, to earn extra money to cover his weekly groceries. Finishing his work at 3pm, he goes home, watches television in his bedroom and completes more surveys until dinner.

With the rising cost of living Ali does not use air conditioning or heating. If he is too cold, he wears extra layers and if it is too hot, he switches on the fan. When cooking, he relies on the stove and air fryer but does not use the oven. He preps his meals for the week on Sundays and eats the food throughout the week. If he needs to have a shower, he would turn the water heater on an hour before his shower and turn it off as soon as he is out. Similar to Ali, many low-income participants explained how they were extremely careful in using energy in their everyday lives in similar ways, and doing extra work to afford energy and other everyday needs. Examples such as Ali's highlight the layered precarity and vulnerability that some Australians face as they navigate the energy transition.

SHANE'S EXAMPLE



Shane's bedroom with his portable air conditioning system

Shane is 40 years old, lives alone in a government housing complex in Queensland and is looking for opportunities to work. He has been homeless in the past and has come a long way in the past decade. Most of his days are spent at home where he tries to keep himself occupied, cooking meals, cleaning, watching TV and playing computer games and occasionally goes fishing.

During the home tour, Shane told us he often becomes sick due to extreme heat in Queensland and suffers from sleep apnea. Since there are no air conditioning units in his complex, he bought a portable air conditioning system for \$650, and runs a vent through the window to remove the hot air from his home. He runs the air conditioning for about 5 to 6 hours at night in the summer and if the weather is extremely hot for longer. He prioritises saving money for the energy needed to run this system, which he has found very stressful.

I just found myself putting in credit every fortnight, and I'll always cover it. And if I need to pay \$40, I'll pay that on my Centrelink date. I've got \$103 at the moment, and \$75 should go in Monday, so I should be right. ... I didn't know if I could make payments monthly.

He often worried whether he would be able to make the payments and what would happen if his electricity got cut off, since there was a single energy provider in his region, with limited options for consumers.



Shane's portable air conditioning system

No choice. You get cut off, you're off. My mate, it happened to her. So we had to get it in the pipe and put it in her name. Once you can't pay your bill, you keep mucking them around, they'll kick you off and you're out of power.

He would like to install a split system as the weather becomes hotter, but in government housing, this was not an option for him since he would have to bear the cost for installing and removing the unit when he moves out, and complete a complicated application process with the housing department. Shane felt this was too difficult for him to manage.

Government housing, they won't put a split system in. That's why I went and got a NILS government loan one for this, and it's just about paid off. I had another one – won some money on pokies, about \$250 cash, so I snapped it up when I got it...You definitely need one in Far North Queensland. When I'm not feeling well and haven't had much sleep, I'll lay down and run it a couple of hours during the day, but mainly at night.

Shane's example illustrates the precarity created by compounding intersectionalities including medical conditions, low-economic situations and limitations to housing infrastructure that makes some people more likely to experience vulnerability in the energy transition.

THEME 6

TRUST AND CONTROL



Photo by Scott Webb on Unsplash

FINDINGS

THEME 6: TRUST AND CONTROL

FORESIGHTS FOR TRUSTED FUTURES

- In possible futures trust will be circumstantial — related to the wider social, community, technological and environmental situations people are in — rather than something that is directly given to energy companies, technologies or systems. With this in mind, attempts to “win” trust in order to encourage people to accept emerging technologies or to relinquish control to automated or AI systems are likely to be futile while creating the circumstances which enable people to trust and acknowledging where they will need to feel in control are likely to be successful.
 - In possible futures trust will likely be dynamic and changing. Trust is not static and should not be considered to be an asset that organisations can capture from people. People are likely to experience trust in some situations and not in others. For instance, they might be confident that an energy company will represent their values sufficiently to manage their excess energy in certain situations and not in others. In this respect sensitivity to when people are likely to want to be in control is likely to be key.
 - In possible futures trust is likely to be values based. Trust will most likely be experienced when people are confident that energy is being managed alongside attention to values that they personally ascribe to — including their safety (cybersecurity, personal safety in weather events etc), care (for the environment, for other people), or for sustainability outcomes.
 - If people do not experience trust in their encounters with future energy companies, systems and technologies in possible futures, then this does not mean that they will not engage with them. But they may improvise their own measures to ensure that they feel comfortable and in control in these situations.
- Some people experience trust in situations where they remain in control of energy technologies and systems. This does not mean that these technologies and systems are not sufficiently trustworthy, but rather that to experience trust, these groups of people require the ability to feel in control. This might be simply because their values do not align with those of technology companies because they believe in conspiracy theories, however this is unlikely to change in the future.
 - Questions of the reliability of energy companies and their ability to ensure data security and privacy were primary concerns for participants. Some had experienced data breaches and energy supply failures. Cybersecurity issues and system failure are however characteristics of technological systems. In possible futures these events are likely to continue to occur and people are likely to continue to be concerned about them. They are inevitable elements of the circumstances of possible future life, and should be accounted for as such when considering the dynamics of trust and control.
 - With these foresights in mind, the possible future we envisage is one where, as in the present, the balance between trust and control in automated energy technologies and systems will continue to be circumstantial. Clearly the diverse circumstances of all Australians cannot be changed, and therefore in possible futures it will be necessary to acknowledge that trust in energy companies, systems and technologies is likely to be as diverse as the life circumstances of households across Australia.

FINDINGS

THEME 6: TRUST AND CONTROL

ENERGY IMPLICATIONS

- Understanding the conditions under which households experience trust in energy providers, technologies and systems is essential to supporting participation in managed EV charging, VPPs and other flexibility services.
- Trust, control and safety are closely intertwined. Attention to their interaction will be essential for enabling automation and participation in future household energy systems.
- Household trust in energy technologies and services is situational rather than fixed. Effective engagement strategies will therefore need to respond to diverse household values, priorities and changing circumstances.
- Households establish their own trust in energy technologies and networks through manual controls, backup systems, off-grid energy storage systems, and everyday routines. Energy services are likely to be more effective when they work with these existing practices rather than seeking to replace them through full automation.
- Providing households with meaningful options over levels of automation, data sharing and manual override is likely to increase participation in digital energy services.
- Future energy services are likely to benefit from offering households different levels of participation and automation, enabling people to retain a sense of control while accessing the benefits of flexibility and orchestration.



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INTRODUCTION

THEME 6: TRUST AND CONTROL

Trust is continually sought after, but difficult to achieve, across industry, government and other sectors. This is because it is a commonly misunderstood category and often treated as transactional. However, research shows that treating trust as such – as an asset that can be won, earned or lost – and attempts to measure it through surveys as “high” or “low” are misleading. Rather, trust is predominantly a feeling. It can refer to if a person feels sufficiently confident in their interactions with (for instance) another person or community, a technology or technological system, or an institution or company.

However it is more likely to refer to any one of those particular interactions in the wider context in which it occurs. These wider contexts, like any aspect of life of society, are not completely stable, and when they change this means that the circumstances in which trust occurs also change, impacting on the extent to which people trust the people, technologies and organisations that are part of these circumstances.

Our research demonstrates how trust in energy systems and technologies is not a single, stable attitude but something that shifts depending on context, past experiences, and the routines that structure everyday life. Participants described trust as something they experience as they go about doing the tasks of everyday life, not something they simply have: it is negotiated through daily interactions with devices, institutions, and infrastructures, and is continually shaped by personal values, histories, and expectations.

Therefore to realistically account for people’s trust in relation to energy we need to understand trust as 1) circumstantial and 2) unstable. This means that to ensure that people can trust energy systems, the first step is to create situations in which they can trust.

The relationship between trust and control will vary for different groups of people. It is likely to be related to their relationships to both energy systems and emerging technologies and to how they imagine their future home life. One way to view this is on a continuum, which accounts for the circumstances in which different people are likely to experience circumstances of trust and control.

- **Trusted automated energy futures:** people with long histories of reliable service from energy providers, positive encounters with automation, or who believe that automation could support their environmental values (by enabling clean energy) are likely to be comfortable with future automated energy technologies and systems. Such people are likely to imagine future homes where automated optimisation, smart devices and integrated energy management systems would help deliver the personal and sustainability outcomes they hoped for.
- **Contingent trust in energy futures:** Trust is contingent and situational and for some people it will be grounded in their confidence in the ability of the energy sector to create energy futures which support the interests of everyday people, are committed to emerging technologies and are designed to benefit them and ensure their cybersecurity. These people are likely to be confident in automated systems under some circumstances but not in others.
- **Trust in contingent control of energy futures:** Control is a core value for many people, in relation to energy technologies and systems. In possible futures it is likely that some people will continue to be cautious about the ability of the energy sector to support their interests and guarantee cybersecurity. This group is likely to be comfortable with automated energy technologies and systems only where they are able to remain in control to override any automated decisions or processes.
- **Trust in human control of energy futures:** For some people the ability to remain in control, with options for manual or hybrid control of energy technologies and systems, is vital to the creation of trusted energy futures. Such people have little confidence in either emerging technologies or the energy sector, and may have experienced system and data privacy failures, which are likely to recur. This group is likely to continue to have such concerns in possible futures.

INTRODUCTION

THEME 6: TRUST AND CONTROL

- **Feeling out of control of energy futures:** For some people — particular renters, people living in residential age care, and apartment dwellers — there is an enduring sense of a lack of control of how they access and use energy and energy technologies (such as EVs or AC). This is unlikely to change in possible futures, and will continue to exclude such groups from participating in the generation of trust relationships.

To help participants articulate how they would balance trust and control we explored their relationships with a range of everyday technologies, their current comfort with automation, and their expectations for future systems. We also examined where they encountered gaps, frictions, or uncertainties as they navigated life with contemporary consumer energy resources (CERs). The findings presented here reflect these layered and evolving understandings of trust.



William prefers to have control of his home technologies and does not want to go for a smart home

DETAILED FINDINGS

THEME 6: TRUST AND CONTROL

FINDING 6.1: TRUST IN ENERGY & HOUSEHOLD TECHNOLOGIES

6.1.1. Trust in household technologies tended to be contingent on participants' past experiences, control and everyday priorities

Participants' evaluations and expectations of automated systems were based on their past experiences, their sense of control and their everyday priorities. For example, participants anticipated that their household systems and data could be vulnerable to cybersecurity risks, but evaluated them on a case by case basis in relation to their own priorities and the level of risk they perceived.

I feel comfortable enough with that [smart technologies]. I mean, I'd love all that. I'd love to, you know, be able to control the air conditioning through my phone and the lights and all that sort of thing. I'd love to be able to do that. I think that'd be great. I don't know what they could achieve by hacking into that. Probably just turn my fridge off (Tracey QLD).

I think I have a healthy level of distrust. But more based on knowing that humans are creatures of habit, we repeat ourselves even though we know we've done it wrong before, and it's the exact same thing that's happening right now. A couple of months ago, like, the robot vacuums that were corrupted back-end. Like, we're making... we're racing to make things prettier and cheaper without doing any sort of proper security behind them (Luna WA).

6.1.2. Many participants wish to stay in control of automated technologies and systems

Staying in control of everyday life routines and tasks (such as charging an EV or ordering food) was vital for participants, whether or not this meant that they preferred to undertake these activities manually or in some degree of collaboration with automated technologies and systems. For those who anticipated using automated technologies in a possible

future, their ability to use override functions was important. For some people control is not necessarily related to a lack of trust in automation. Rather, it can be concerned with how they organise their everyday life and routines and their reluctance to depend on technologies to do so. For example, some people prefer to charge devices such as electric vehicles manually rather than through an app. They avoid having too many apps on their phone and worry that relying on notifications may cause them to miss important information or feel exposed to security threats.

If you have an app ... and then notifications all the time, you can miss so many different notifications which are important, so I think we can do it by ourselves. I...they are in-purchase apps, mostly. So you have to pay them as well. ... like, you're giving access to them about your accounts... there are so many hackers online which are waiting for you to just click, so they can, you know, hack your account (Aiesh VIC).

Honestly, if you could just do that [charge it manually], if you press it [the switch], and then it would read how much is charged (Luna WA).

In other cases people wish to maintain control over household decisions, using their own expert knowledge to ensure that the correct decisions are being made. In such cases, these are simply practical measures requiring human expertise and control, and should not be confused with a lack of trust in home automation.

I'm not against automation. I'm cautious. Uh, I've been in too many control rooms that automation has failed, and repairs have to be done. I'm not overconfident that automation can match the human being in some of those decision making processes (Bill NSW).

I can definitely see there would be more automation, AI being able to do more things for you, if it could save me time I could be up for it. If it works and it's safe, and not going to breach data, I'm all for it (Myriam QLD).

DETAILED FINDINGS

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Look, automation would probably be fine because somebody a lot smarter than me can figure that out, you know what I mean. They can decide where it's best needed and where it needs to go because I, I wouldn't know, I don't know what reason there would be for saying, "No, I need to keep it here I don't want to send it back there" (Joel VIC).

I think I'd still want to give consent because then I can't blame anyone but myself if there's a mistake. I suppose not quite trusting technology completely to get it right which is a bit stupid really (Liza TAS).

6.1.3. Decisions around home technologies stem from a triangulation of data for most participants

When making decisions around home technologies, people often triangulate where they get data from, and this contributes to the ways people build the confidence needed to create a situation of trust.

This can include: their own research; input from social networks, social circles and friends' recommendations; online trusted product reviews in established media outlets; online groups like Reddit; chatbots; YouTube reviews, and in-store sales professionals.

I do my research. Yeah, I do my research online. I watch one or two videos from YouTube, the reviews, and then I also compare, you know, old one with the new one. What's the difference between them? And then I prefer buying them (Aiesh VIC).

Honestly, I would... Google it first and try and find, like, if there was, like, a Guardian review or a New York Times review or something like that, and then I'd probably message friends. Like, I've got a friend who lives up the road who under-renovated his place recently, so I'm like, what are you doing there? And he also has similar views with us, like, he probably wouldn't have a YouTube fridge (Jesse VIC).

6.1.4. Most participants make alternative plans and often keep backups to protect data

Participants generally had limited confidence in storage technologies. As a result, people often store data in multiple places (both physically and digitally) and create mechanisms to protect them such as relying on two-factor authentication, biometric protection, passwords, puzzles, etc. Some people keep two copies of their digital data, storing one in the cloud and another on a physical hard drive. They do not expect this practice to change in the future, aside from needing more cloud storage. They also use security apps to run automated malware scans several times a week.

So my finished work gets uploaded online, and then the backup is physical, so the idea is having some sort of redundancy, so if one is destroyed, hopefully both aren't at the same time (Jesse VIC).



William prefers to have control of his home technologies and does not want to go for a smart home

DETAILED FINDINGS

THEME 6: TRUST AND CONTROL

FINDING 6.2: ANTICIPATING TRUST IN ENERGY & HOUSEHOLD TECHNOLOGIES

6.2.1. People are likely to continue to triangulate data when making decisions around home technologies

Participants anticipate having to triangulate data from varied sources as they make decisions around home technologies in the future. Trusting AI generated advice is not seen as an option for future technological purchases by any of our participants. In this respect, while people might use chatbots and AI assistants when making purchases, they always undertook other modes of research, and are likely to continue to rely on in-person customer services for larger purchases.

If you go into Good Guys, we went in for a microwave, this was probably about 5 years ago, and we walked out with a completely different one after speaking to them. I hadn't done the online stuff that I do now, though, but yeah, yeah, there is... I think a lot of people wouldn't really like to lose that [talking to a salesperson] for certain products (Elizabeth WA).

Yeah, a lot of people online shopping is very easy these days. You can do it all from home and I've done most of my Christmas shopping online, but there'll still be, I guess in my generation, the element of physical shopping and stuff is still high (Andrew SA).

6.2.2. Participants' perceptions of energy companies' decision-making

Some participants would rely on energy companies to make decisions around their excess energy as they believed that having dealt with many households, energy companies would know what is best for them.

Others said they would not mind relying on an energy company as a third party to manage excess energy, but only if they believed that party is acting in their best interest. Otherwise they would prefer to maintain control themselves.

I will use energy companies, because sometimes they give you benefits. And, they have been dealing with so many homes. That's why I think I'll give it [control of excess energy] to some energy companies, so they figure it out. How can this benefit us, and how can it benefit other people (Aiesh VIC).

6.2.3 Participants' perceptions of AI as third parties to manage future excess energy

Participants' views on the effectiveness of AI in energy management varied. Some participants had greater confidence in established companies rather than AI systems in relation to CER technologies because they currently view AI as not intelligent enough to be reliable, yet also imagine a future where AI becomes too intelligent and therefore untrustworthy.

Other participants preferred an AI assistant over energy companies when selling excess energy. These participants believe companies use one-size-fits-all models and may act in self-interested ways, whereas AI is perceived as neutral, personalised, and without ulterior motives.

But I don't trust companies like energy companies, telecommunications companies, or insurance companies, I think they're more evil than AI (Elizabeth WA).

6.2.4. Trust in community centric energy schemes as third parties to manage excess energy in future

Some participants would be willing to hand over control of their excess energy to a third party only if it is a community-based energy-sharing scheme. These participants want the benefits, decision-making, and financial flows to remain local rather than going to AI systems or large external companies, including international ones.

I'm not sure. Probably, a community sharing scheme is a way of keeping a circular economy, because then if we're paying for that management system, at least that money is staying within the community rather than, you know, an external potentially international company (Luna WA).

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6.2.5. Preferences for selling excess energy

Participants' preferences regarding selling excess energy varied according to their beliefs, values and priorities, and their ability to stay in control of the conditions of the sale. Most participants said they would feel comfortable selling their excess energy to neighbours. When selling to strangers participants suggested that they would feel most comfortable conducting the transaction through a third party. Ethical and environmental issues were also concerns for some people, for instance one participant had reservations about where the energy goes to, strictly rejecting excess energy being used in specific industries such as datacenters, and wanting choice and transparency around these decisions.

It depends on if it's a random stranger or if it's someone I know. If it's a random stranger, no, we're going through a third party. If it's literally my next-door neighbor and I know them well. We'll just work out something else (Jane VIC).

When you see overseas the massive amount of energy that data centers are using, I worry that if that happens here. Then, yeah, there might not be enough to go around. I think that's... that would also put me against...letting an... like, if an energy company's like, oh, let us take your excess power, we'll choose where it goes, I would have, like, almost a moral obligation to not do that if there was, like, a massive demand from data centers (Jesse VIC).

6.2.6. Concerns around data security could prompt people to retain control of their excess energy

While some participants would use a third party for some excess energy transactions (see 6.2.5) generally participants' views on using third parties were shaped by their concerns about data security (reflecting wider concerns about future digital safety discussed in section 6.2). Many participants felt that in the future they would not be willing to hand over control of household energy systems to a third party, and would not want their data to be accessed. Instead, they would prefer to take control of energy systems and make decisions accordingly. If the involvement of a third party was mandatory for selling excess energy some participants would prefer to maintain two side by side systems so that data is kept separately.

Well, they don't know me, they don't know my needs. And... I don't want some third party having access to my information. If it was me making the settings and me controlling it (Jane VIC).

I would want a separate system within the house, like, two side-by-side systems, so that there's not even, like, a, you know, information barrier type issue, there's just a completely separate system (Luna WA).

JANE'S EXAMPLE



Jane's work setup in the living room

Jane is in her 40s and lives alone in a 2 bedroom rented unit in Melbourne. She mostly works from home and enjoys a minimal lifestyle as she words it. She has a 'total lack of trust' of technology based on past experiences. Explaining this further, she says,

Do you remember the Optus breach a couple of years ago?, I was One of the people that had their passport, driver's license, and Medicare card leaked by Optus. ... [I made a] statement for all the class actions, because someone tried to take out multiple loans in my name, using those leaked documents.



Jane described that she has encountered a number of similar incidents with technology that has reduced her trust in it, making her rely on minimal automation and smart technologies. She applies this same philosophy as she navigated energy related technologies as well such as CER. Thinking of the future, she is not interested in automating household technologies or giving a third party AI assistant control of her excess energy. She believes that keeping control and providing limited trust to essential technologies is more appealing to her in her future home.

ELIZABETH'S EXAMPLE



Elizabeth lives with her daughter and husband in Western Australia. All her life, she has worked as an administrator in various roles. Elizabeth is excited by the new possibilities that technology will bring to her life such as meal prepping, cooking and reducing the mental load associated with the home. As her husband is a Fly in Fly Out worker, she explained that most of the household chores falls on her from home upgrades to maintenance. She feels she can trust home technologies to support her maintain the household efficiently, such as ordering food, managing excess energy and charging her EV in the future.

When asked whether she had a preference for AI or energy companies to make decisions on her behalf about what happens to her excess energy in the future, she explained she prefers to have an AI assistant.

I would probably rather AI. ...because you could...dictate what suits you, whereas an energy company would be this one-size-fits-all kind of model, ... "oh, sorry, you had a shower that was longer than 2 minutes, I don't care, your hot water's gone", ...AI would be better suited to study to learn what we use. Instruct us to cut down, within reason.

At the same time, she describes that because she comes from a generation of the Matrix, she has a healthy level of distrust of what technology can potentially do in the future.

AI scares me. A lot. Matrix and Terminator, you know? I'm of that generation. And The Matrix is...pretty freaky, because it actually says, in the earlier part of the 21st... it tells us everything that's happened to this point, which means the next stuff could.

CONCLUSION: IMPLICATIONS FOR FUTURE HOME LIFE AND THE ENERGY TRANSITION

Foresights for Future Australian Home Life provides a qualitative foresight evidence base for understanding how Australians may live in their homes in possible futures, and how these changes are likely to shape Australia's energy transition. Drawing on futures-focused ethnographic research, a nationally representative household survey and broad industry perspectives of future home life, the report identifies emerging practices, values and uncertainties that are difficult to detect through historical energy data or quantitative modelling alone, but which are likely to shape future electricity demand, flexibility, participation and consumer energy resource (CER) uptake.

The report makes two key contributions. First, it identifies six foresighting values—trust, control, safety, inclusivity, care and uncertainty—that provide a conceptual framework for understanding future Australian home life. Second, it demonstrates how these values are expressed through changing household practices and priorities that have significant implications for Australia's energy future.

What is changing and what matters to Australians now?

This report builds on and extends Monash University's Digital Energy Futures research by identifying several important shifts in Australian home life and their implications for the energy transition.

- **Trust, control, safety, inclusivity, care and uncertainty have emerged as enduring foresighting values for future Australian home life.** Together, these values provide a grounded framework for understanding how households are likely to experience, negotiate and respond to future energy technologies, services and systems.
- **Trust and control are becoming increasingly important conditions for participation.** Rather than asking whether households trust particular technologies or organisations, the research demonstrates that people seek situations in which they feel confident, informed, safe and able to remain in control of important everyday decisions.

- **Safety and security have become central household priorities.** Concerns relating to cyber security, crime, indoor air quality, extreme weather and energy reliability increasingly shape how households anticipate future home life and engage with new energy technologies and services, creating new conditions for participation in increasingly digital and orchestrated energy systems.
- **Preparedness has become an everyday household strategy.** Households are increasingly responding to economic uncertainty, climate risks and technological disruption by investing in storage, backup systems and other forms of resilience that support continuity of everyday life.
- **Working from home has become embedded within broader transformations in work and household life.** Flexible work, home businesses, side hustles and caring responsibilities are increasingly reshaping household routines and patterns of residential electricity demand.
- **Electrification is increasingly understood through the realities of everyday life.** Decisions about electric vehicles, batteries and other consumer energy resources are shaped by broader household priorities relating to affordability, convenience, care, safety and control rather than by technology characteristics alone.
- **Energy vulnerability is becoming more diverse and often less visible.** Households are adopting varied coping strategies in response to rising living costs, housing pressures and climate risks, creating increasingly differentiated pathways through the energy transition.

Taken together, these shifts suggest that future household energy demand will be shaped as much by changing social conditions, household values and everyday practices as by technological innovation itself. Accounting for these dynamics will be essential to developing robust forecasts, plausible scenarios and effective energy transition strategies.

CONCLUSION: IMPLICATIONS FOR FUTURE HOME LIFE AND THE ENERGY TRANSITION

What remains uncertain?

The research also highlights several uncertainties that are likely to shape future Australian home life and the energy transition.

These include:

- The pace and diversity of household electrification pathways, including the evolving role of hybrid vehicles and the transition towards fully electric mobility;
- how households will balance growing interest in resilience, self-sufficiency and energy independence with participation in increasingly orchestrated and flexible energy systems;
- the extent to which artificial intelligence, automation and digital energy services will strengthen or weaken household trust and willingness to participate;
- how changing work practices, caring responsibilities and responses to extreme weather will reshape residential electricity demand over time;
- how future economic, geopolitical, climatic and technological disruptions will influence household preparedness, energy practices and expectations of energy systems.

These uncertainties should not be viewed as barriers to planning. Rather, they identify critical areas where scenario development, forecasting and ongoing research are required to explore multiple plausible futures.

From foresight to scenarios and modelling

The foresights presented in this report are not scenarios or predictions. Rather, they reveal how Australians currently imagine, anticipate and prepare for possible futures, identifying emerging values, practices and uncertainties that may shape future household energy demand and participation.

Within the Scenarios for Future Living project, the six foresighting values provide the primary conceptual framework for subsequent scenario development. They offer enduring social dimensions through which broader technological, environmental, economic and governance changes can be explored, ensuring that future scenarios remain grounded in the lived realities and priorities of Australian households.

The thematic findings and associated energy implications presented throughout this report provide a qualitative evidence base for understanding emerging household practices, values, priorities and uncertainties relevant to future electricity demand, flexibility, consumer energy resource uptake and participation. These findings will continue to be refined and extended through subsequent rounds of ethnographic research and nationally representative household surveys undertaken in WP1, complemented by the ongoing research conducted in WP7. The WP1 Living Lab will bring speculative design prototypes developed in WP5 into dialogue with households, providing further opportunities to explore how people respond to possible future technologies, services and everyday life.

These insights will inform the project's scenario development (WP3) and quantitative modelling (WP4), enabling energy planning to meaningfully integrate household values, everyday practices and responses to uncertainty.

Through this research and across the interdisciplinary work packages, the Scenarios for Future Living project is supporting more robust forecasting, more informed decision-making and a broader understanding of the social and material conditions that will shape Australia's future energy system.

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Scenarios for
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