PowerUp: Consumer Voices in the Energy Transition

Report

July 2024

ENERGY CONSUMERS AUSTRALIA

Report Structure

Version history

VERSION	DATE	COMMENTS
1	3 July 2024	Final edit

Executive Summary

- Overview of this report
- Key insights
- Methodology
- PowerUp segments

Overview of this report

'PowerUp: Consumer Voices in the Energy Transition was a research project collaboratively designed by Energy Consumers Australia (ECA) and The Insight Centre.

The research aimed to **understand consumer needs, values and expectations of Consumer Energy Resources (CER) integration and the wider energy transition** and to **elevate consumer voices in how CER evolves.**

The key outcomes of PowerUp are to:

- **Give consumers influence,** which includes elevating the consumer voice to influence how CER evolves within the broader energy environment.
- **Drive structural change,** which includes providing persuasive evidence to government, market bodies, retailers, networks and installers on consumer values, expectations and needs to ensure the energy system, products and services transition with people front and centre.
- **Build and share knowledge,** which includes identifying knowledge gaps and pursuing new lines of questioning, building on existing research and identifying areas for future research.

This report synthesises key insights from consumer voices from

- a survey (n=650);
- three-day discussion forums (n=107);
- in-depth interviews (n=30).

For more details on our methodology, please see page 7.

This report covers how consumers engaged with us on:

- **the trade-offs they may be asked to make in the future,** including third party control, adjusting their energy use patterns, and coping with planned disruptions;
- **what CER means for them** and their homes, and their role in the system;
- **how and when they currently think and talk about the future of energy,** and what concerns they have about the information they are receiving;
- **what they value and what they expect** from decision-makers.

Key insights

1. **Consumers are ready, willing and able to engage with complexity and change to some degree** but want to see their interests at the heart of decision-maker actions. The participants were clear that they expected their experiences and values to be reflected in decision-making.
2. **Consumers need the big picture.** The participants wanted a clear roadmap of the transition that they can understand – timelines, end goals, their role and when/where they will see benefits for their households and communities.
3. **Consumers expect leadership and transparency.** The participants wanted government in control of the transition, not industry. They expected government to provide clear, consistent and timely information, and create regulations to protect them.
4. **Consumers expect fairness.** The participants were clear that they expect government to distribute benefits and burdens fairly – not equally – across the community. They don't want to pay more than their fair share, but don't want vulnerable people left behind. Most would change behaviour if compensation is fair and benefits are transparent.
5. **Consumers will need varied supports and incentives.** Different segments will require different interventions to participate in the transition. The participants expected tailored support from government to ensure everyone can benefit from CER – including financial support, non-tech/low investment solutions and better information.
6. **Consumers need action on mis/disinformation.** Some segments were clearly vulnerable to mis/disinformation, driving mistrust of the transition and of CER adoption. Decision-makers must prepare for mis/disinformation; dispel core narratives and prevent spread; reduce structural drivers; and increase transparency, especially in the next election cycle.
7. **Consumers want control of their energy use and to know their data is safe.** There was deep discomfort among the participants with third-party control, driven by recent high-profile data breaches. Policy proposals involving networked devices, third-party control or data-sharing will need serious regulatory guardrails and consumers need to maintain autonomy over their use.
8. **Consumers need confidence they can make the right decisions.** The participants were aware of a rapidly evolving CER market – however, uncertainty about the best time to invest and what may be 'around the corner' was preventing their action. Consumers need to know they are investing in safe products within sustainable, closed-loop cycles. They value affordable, 'low-risk' solutions for energy efficiency in their homes.

Methodology

Survey (About Us)

650 energy consumers completed a 15-minute survey. The sample included people aged 18 to 70 or over, and over-sampled (18% of respondents) the 35–39-year-old age group to support more insights into this key demographic for future energy policy. The sample broadly represented the geographic spread of consumers across Australia, living circumstances and household income, and was weighted to reflect the Australian population by population and gender.

The survey covered: (1) understanding and awareness of future changes to the energy system, (2) perceptions of how changes will impact energy consumers, (3) current and likely future energy use behaviours (including uptake of CER).

We used survey data to: (1) establish baseline attitudes and understandings before qualitative participation; (2) create an energy future focused segmentation model* and (3) identify 100 consumers from across segments and demographics to join the PowerUp community.

Five segments were identified to classify consumers based on their awareness of future changes to the energy system; their current and likely future energy use behaviours (including uptake of CER); and measures of opportunity, ability and motivation to determine levels of vulnerability and adaptability to future change.

Discussion forum (Our Future)

We conducted three-day online discussion boards between 20 and 24 November 2023, with 107 energy consumers across five boards. Each board involved 19-22 participants from one of the five PowerUp segments, enabling inclusive discussions between consumers in similar circumstances.

Participants completed nine interactive discussion tasks on the following four themes: (1) Awareness and attitudes to the current energy system; (2) Awareness, hopes and concerns around future changes to the energy system, (3) Consumer values and responses to trade-off scenarios; (4) Reflections on energy futures and participation in the discussion board.

Consumer interviews (Ask the Community)

We interviewed 10 PowerUp community members once a month for the duration of the research project. Each community member was interviewed for 30 minutes in a one-on-one video call. These interviews provide an opportunity to receive regular and instant consumer feedback as well as insights into emerging ‘hot button’ subjects.

Limitations

The aim of this research program is **to engage a smaller group of consumers in in-depth discussions and activities to generate rich data and insights that cannot be gained through quantitative methods.** As a primarily qualitative study, findings from this research are not representative of the larger population and no generalisations can be made beyond this group. The findings may then inform future research and be used to develop more targeted and structured quantitative studies that can test hypotheses gained from this study on a larger scale.

For the quantitative research results, the base (number and type of respondents asked each question) and the survey questions are shown at the bottom of each page. Results may not always total 100% due to rounding.

For the qualitative research results, comparative findings are sometimes presented in percentages to account for different group sizes across the board. Due to the sample sizes per group (n=19-22) these need to be interpreted with care.

Findings are based on the viewpoints of the respondents who took part in the research. While they reflect a cross section of energy consumers, they are not statistically representative of a larger population.

About the segmentation

While expected overlap and continuity exists between the segments in this report and other segmentation models of energy consumers prepared for ECA by The Insight Centre, this report presents a unique segmentation model based on how consumers relate to the energy transition and future change. Findings and insights from this report can triangulate with other aligned research studies but segmentation models should be understood as distinct to the aims and outcomes of each study.

PowerUp segments

Through our conversations with consumers, five clear groups emerged based on how they related to CER, the energy transition and future change.

Community Focused (28%)

This segment is younger, with a median age of 37. They are more likely to be female and part of a young couple or young family household. They have moderate household incomes, are likely to be paying rent or living with their parents and more likely to live in metro areas.

Community Focused consumers:

- Show positive interest in CER and the wider transition.
- Are most likely to feel they are not well-informed and will face obstacles to making changes at home.
- Are open to shifting their energy use for both environmental impact and financial benefit.
- Believe that we all need to play a part in the transition, which will be good for society and the environment in the long-term.
- Care about the bigger picture and want to know more about the part they can play.

Adaptable & Self-Interested (22%)

This segment is somewhat younger, with a median age of 42. They are more likely to be male (62%), to be living in their own home, to have higher than average household income and higher levels of education.

Adaptable & Self-Interested Consumers:

- Are likely to have already invested in installing CER technologies in their homes.
- Claim to have the highest levels of understanding of the current and future energy system.
- View CER adoption as an individual choice rather than a communal responsibility.
- Are less likely to shift their energy behaviours based on either financial incentives or environmental impact.

Invest in technology if it works for them or interests them.

Change Ready (22%)

This segment has a high concentration of Gen Xers, with a median age of 52. They are equally likely to be male or female, more likely to be living in a home that they own and have moderate to high household incomes.

Change Ready consumers:

- Show strongest positive engagement with the energy transition and CER.
- Are most willing to shift their energy use, including by using CER technologies.
- Feel well-informed about Australia's current and future energy systems.
- Have the strongest level of trust in government
- Agree that we all need to play a part.
- Want reassurance that consumer interests will guide decisions.

Unsure & Insecure (18%)

This segment has a median age of 52. More likely to be paying rent, they also have lower than average household incomes and lower levels of education.

Unsecure & Insecure consumers:

- Are unconvinced or unsure about the energy transition and CER and what it might mean for them.
- Are less likely to have installed energy saving technologies, and feel they lack the capacity to do so.
- Feel they don't know or understand much about Australia's energy system.
- Lack confidence in their ability to understand information about the costs and benefits of how energy is changing.

Transition Sceptical (10%)

This segment is older, with a median age of 62. They are more likely to be male, and living in homes that they own.

Transition Sceptical consumers:

- Have the highest levels of scepticism and hostility towards the energy transition.
- Have low trust in the government and value independence.
- Reject communal responsibility for change.
- Don't believe that climate change is driven by human behaviour.
- Are most likely to have beliefs about energy derived from mis/disinformation.

Consumer sentiments on trade-offs they may need to make

Trade-off scenarios
Discussion forum activity

Consumer surveys have limited capacity to engage consumers in deep discussions about the trade-offs of the future energy system. As part of the discussion forums, we presented participants with three fictional scenarios around energy that asked them to make choices for their household involving trade-offs between reliability, cost, control, clean energy and inclusion or 'fairness'. This activity was designed to distil complex potential future consumer trade-offs in the energy system (like planned interruptions, voluntary reductions, participating in aggregators) into digestible 'what ifs' to test how consumers think through and interpret their values and priorities around energy when faced with a decision for their household.

Participants were instructed that these were fictional scenarios to get them thinking about what they most value when it comes to energy, and not real policy or commercial proposals. For each scenario, consumers were asked to discuss whether their household would take part, why/why not, and what further information or benefits/incentives they would need to consider taking part.

Trade-off scenario 1: Aggregator

Discussion forum responses

Trade-offs of control, clean energy, cost

Scenario 1: Aggregator

You receive an offer from an energy company for a new way for energy to be supplied to you. The energy company will provide you with smart devices connected to the energy system in your home. These smart devices will closely measure your habits and energy use and adjust the supply of energy based on this information. The smart devices will turn off appliances when they are not in use, or adjust heating and cooling based on the outside temperature or who is at home. For example, if you're at work outside your home on Wednesdays and Fridays, your smart home will 'power down' automatically on those days.

Your home will be part of an aggregator – a business that controls several smart homes or properties and collects data from all of them. The aggregator uses this data to make decisions about supply and demand. You would need to sign a contract with an aggregator allowing them to measure the devices in your home and to control them as agreed. The contract specifies the data to be collected, and the agreed limits and conditions for adjusting things in your home (for example, the number of degrees they can adjust your heating or cooling). Having your energy supplied by an aggregator will benefit the transition to clean energy and keep energy costs lower for everyone.

About **45% of participants said they would consider the offer,** but nearly **all would require more information** before deciding.

55% were a firm no or felt very unsure, with the 'Unsure & Insecure' segment most likely to express confusion and uncertainty.

This offer scenario was **most popular with 'Community Focused' and 'Adaptable & Self-Interested' segments,** who saw it as an innovative and logical way to save energy and money and mention benefits to both users and the environment.

'Adaptable & Self-Interested' consumers were more likely to **want to measure and track the benefits** to both costs and the transition.

'Change Ready' segment members were mostly in favour but **less enthusiastic and had more concerns,** reflecting their valuing of autonomy in energy decisions, and their willingness to do their own tracking to monitor their use. This segment was **interested in smart homes but preferred to maintain control** of devices.

All segments were **somewhat to very concerned** about **data security and the level of control,** with recent data hacks in other sectors – most often Optus and Medibank - often noted.

Most participants who were not in favour cited the lack of control and **concerns about 'Big Brother' style surveillance** as the reason.

Trade-off scenario 1: Aggregator

Discussion forum responses

"Definitely, it sounds very smart and very modern- using technology to its best. It makes sense as there's a lot of power being used with items/appliances etc on 'standby' that we're all probably doing without realising it takes energy just to illuminate a standby light.

I'd want a pretty detailed contract and would probably want to discuss it with others who were considering on taking part for their opinions."

Jane O. (Adaptable & Self-Interested)

"Hmm, I like the idea of a "smart home" but having someone else in control of it doesn't sit well with me. I think if the tech exists to power down a home when no-one is there etc, then yes. But I don't think it needs to have a 3rd party in control of it."

Stacey M. (Change Ready)

"I would, but the company doing so must be transparent about where the data will go to as a lot of people will see this as a negative due to the increase in data breaches recently."

Jason Y. (Adaptable & Self-Interested)

"So Big Brother now has control of virtually everything in my home? It does not sound at all appealing. There would have to be a whole lot more information of the benefits and pitfalls that would allow sceptics like me to make a proper decision about handing over that amount of control to an anonymous aggregator."

David L. (Transition Sceptical)

"At first it sounds ok, having smart devices supplied, win, having energy use monitored to reduce usage and therefore cost, win.

But then you start thinking about all the variables, what if one day when I'm normally at work but I'm sick and stay home, am I still able to control these things myself or do I have to freeze all day because the aggregator has determined I don't need heating at that time?"

Morgan M. (Unsure & Insecure)

Third party control
Survey responses

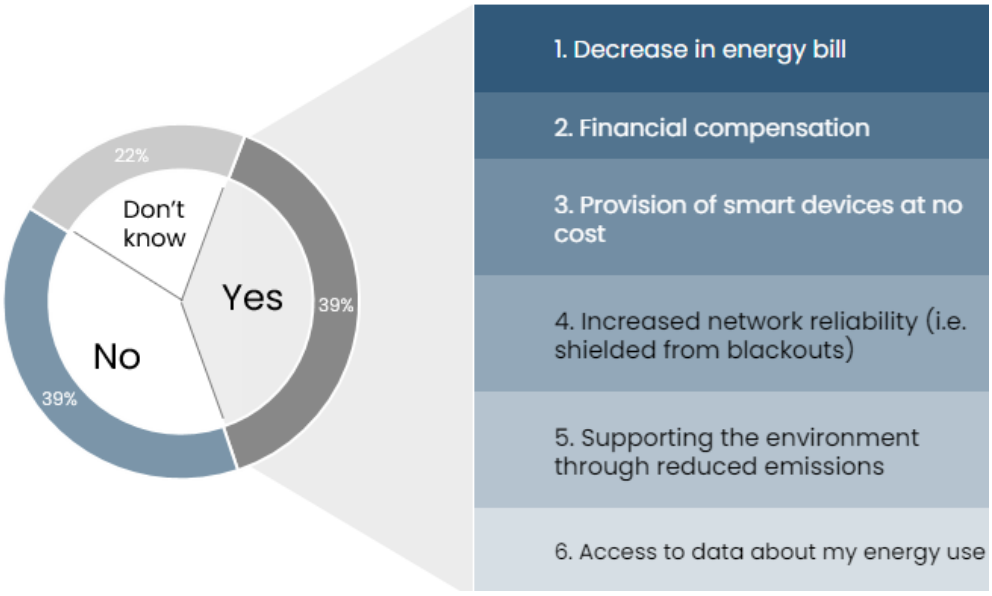
We also tested consumer responses to third party control in the survey, asking participants whether they would allow a third party (such as their energy provider) to control devices in their home if they received some form of benefit.

We also asked them to rank six possible consumer incentives or benefits of third-party control in order of the benefit or incentive they would most want to receive.

The qualitative discussions aligned with the initial survey responses, and indicate that **many consumers may be hesitant to give up control over their energy use at home.**

While 39% of survey respondents said they would consider third-party control if it had benefits to them, the same proportion (39%) were reluctant to allow any external management. A significant group (22%) was unsure, indicating that people were either undecided and/or felt they lacked the knowledge and experience with these kinds of decisions.

Of those who were willing to accept third-party control, the most desired benefits were financial. Survey respondents were asked to rank the six benefits below in their preferred order. Cost incentives dominated the order of preferred benefits.



SURVEY Q: *Would you be willing to allow a third party (for example, your energy provider) to control devices in your home if there were some benefits to you? Weight: Age + State + Gender; sample size = 651; effective sample size = 493 (76%); 95% confidence level*

SURVEY Q: *What benefits would you want to have in return for third party control?*
SUMMARY Weight: Weight: Age + State + Gender; sample size = 238; total sample size = 651; 413 missing; effective sample size = 173 (73%)

Trade-off scenario 2: Heatwave

Discussion forum responses

Trade-offs of inclusion, reliability and cost.

Scenario 2: Heatwave

It's the hottest summer week on record where you live. It's been hard to stay cool and stay healthy in the unrelenting heat. On the fourth day of the heatwave, your energy provider asks your household, as well as some others in your area, to switch off all their power for one day. You can spend the day at a friend or family members' place. This will help balance the system to reduce the risk of blackouts across the region that could affect the sick and elderly.

Around half of all discussion board respondents were **firm in their willingness to take part in switching off for a day.**

Nearly **all expected some financial compensation,** but most also mentioned that they felt fortunate to be able to make the choice – because they had access to other places to go or stay, or because they could manage the heat in other ways (like having a pool or tinted windows).

'Adaptable & Self-Interested' and 'Change Ready' consumers were **most likely to note adaptations they've already made which would help** them – either CER or heat-reducing options like tinted windows and blackout blinds.

'Transition Sceptical' consumers were least likely to want to take part, most likely to want high levels of financial compensation if they did, and tended to express the **belief that it is the government and energy companies' responsibility** to keep supply going in the crisis, rather than theirs.

In other segments, those who said they were **likely to opt out** explained they couldn't take part due to having **small kids or pets, living with a disability or health issues,** or needing to **work from home.**

Some were **only willing if it would not be too inconvenient,** saying it would depend on how disruptive it would be to their routine on that particular day or week.

The **biggest concern** about this scenario across all segments were worries about **food spoilage in fridges and freezers** and disruptions to **working from home.**

Those who agreed they would take part often **wanted to know who was receiving the benefits** or exactly how the community or system was being helped. Others questioned how they could be **assured that the community was truly 'taking turns'** to equitably share the burden.

'Change Ready' and 'Community Focused' segments were mostly likely to act to support others, and **not expect anything in return.**

Trade-off scenario 2: Heatwave

Discussion forum responses

"It depends - if it worked with my schedule and if I was incentivised I could. If it was a day where I couldn't go to another location or would lose out on my wage because of it, then I wouldn't be able to. Reducing energy use is a lot easier than eliminating completely (think about the waste of fridge/freezer contents if power was off for 24+ hours). I would expect financial compensation."

Rhiannon P. (Unsure & Insecure)

"Yes, we'd take part. Willingly but not happily! As much as I feel the system should never get to this point- it will! I would have options to go to family or friends' places. […] I feel we will get to a stage of power outages if we don't work towards a more renewable system seriously - soon. That is affordable for everyone.

I would want something in return. If I'm giving up my home I'd expect something. It's not an easy ask for everyone. For the inconvenience I'd expect a discount on my current bill."

Jane O. (Adaptable & Self-Interested)

"This scenario unfairly affects consumers who don't have solar battery storage. If you don't then apart from personal comfort, safety is big issue especially at night. Your refrigerated food might go bad, burglar alarms might fail, internet access would be cut off for many people. Medical equipment may not be able to function. The list of potential problems, some critical, is very long."

Paul Z. (Community Focused)

"No we would not take part, as we do not rely on the power company for electricity during the day and the majority of the night as we are lucky enough to have enough solar and batteries to keep us going. So by us switching off our power is not going to make any difference except putting more electricity back into the grid."

Tanya C. (Change Ready)

Reply 1

"This is the way we should all be allowed to live. Solar and batteries to be self-sufficient. Well done." **Stacey M.**

Reply 2

"Yes, this is best goal – self-sufficiency." **Helen B.**

Trade-off scenario 3: Planned Interruptions

Discussion forum responses

Trade-offs of reliability, cost, equity.

Scenario 3: Planned Interruptions

As the energy system transitions to more renewable energy like solar and wind, there could be some issues with energy always being available when we need it. To deal with this transition, the government introduces a new pricing structure for energy. Households can choose to receive a significant discount on their energy bills but will be subject to rolling blackouts – controlled and pre-planned interruptions to their energy service, which will last for a few hours at a time. Households who continue to pay full costs will not have any interruptions to their use.

About **40% of participants said they would consider this** but many needed certain conditions to be met.

Overall, there was **more strongly negative sentiment** towards this scenario than the other scenarios. **Individual cost benefits were clear,** but it raised many concerns about fairness and **consumers bearing the brunt of reliability issues.**

'Unsure & Insecure' and **'Change Ready' consumers were likely to point out unfairness** in this scenario which they felt entrenches disadvantage and puts **the burden on lower-income consumers** who will be compelled by the savings.

But **'Unsure & Insecure'** consumers said they **would opt in** if cost savings were significant (at least 50%) and if they had enough warning about when and for how long there would be outages.

'Community Focused' consumers were **also more likely to say they would opt in,** depending on the length and frequency of outages. As this cohort was mostly younger and without dependents, they felt it would be fairly easy to manage for their own households, but they also had concerns about fairness.

'Transition Sceptical' consumers were a firm 'no' and felt the scenario **indicates the failure of renewables and the government** and is a 'dystopian' and 'third world' vision.

'Adaptable & Self-Interested' and **'Change Ready'** consumers were most likely to **suggest that households opting in should also receive free battery storage** options and significant discounts.

Trade-off scenario 3: Planned Interruptions

Discussion forum responses

"I would, as the cost of living continues to increase, I may be left with no choice. It would depend on the frequency and length of blackouts. I imagine that it would be based on a percentage of time.

But it's absolutely not [fair], it would only increase the divide between those who can afford to keep their power on and those who can't."

Morgan M. (Unsure & Insecure)

"Absolutely not! What chaos and mayhem and will be totally at the mercy of power companies 24/7. Horrendous idea.

Families, the elderly or ill people could never commit to such a scheme surely."

Kevin A. (Adaptable & Self-Interested)

"No way. We pay to have an energy supply and it is up to the government to ensure that the supply is reliable."

Bernie C. (Transition Sceptical)

"If I were a homeowner, I may consider this option. […] As a renter however I'd be more inclined to look for houses that are on the full cost agreement.

This may disadvantage those who work jobs at odd hours e.g. night shift workers, and who may in fact be working these jobs because they're of a lower income background."

Eisabess C. (Community Focused)

"I would consider this, but only as I live in the CBD and do not have any dependants. [But my concern is] why it would need to be implemented as a scheme in the first place in Australia, where renewable energy (if managed and distributed properly) should be abundant?"

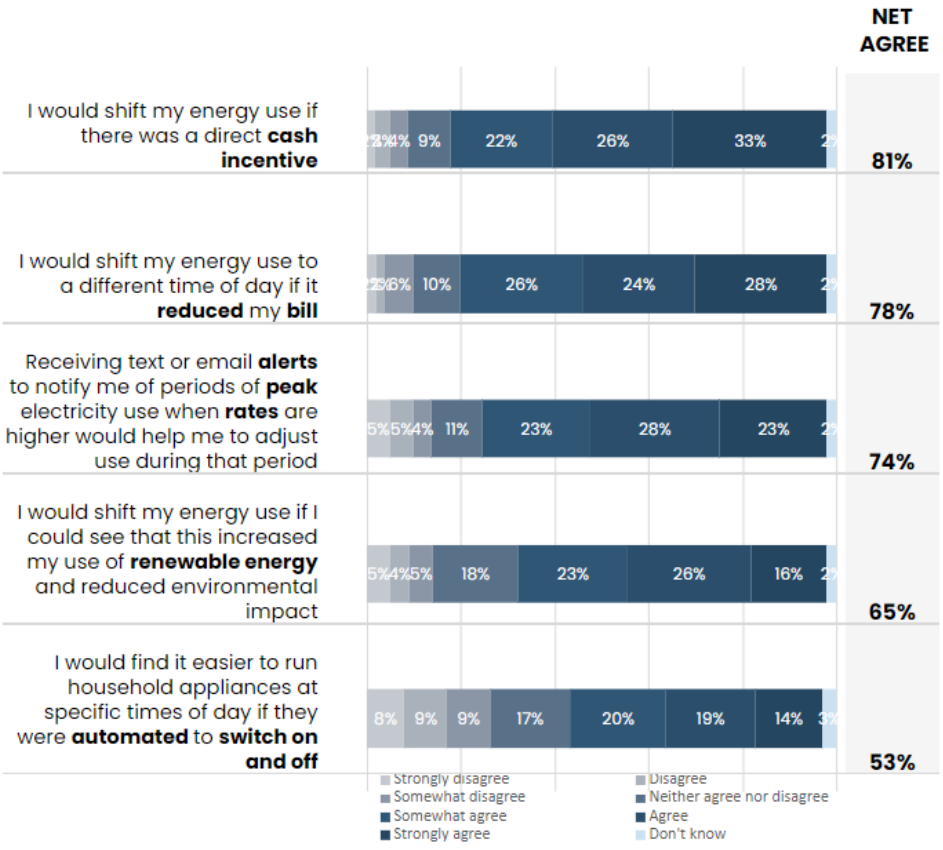
Brooke M. (Adaptable & Self-Interested)

Shifting energy use
Survey responses

We also tested motivations to shift usage times in the survey. When prompted with statements about what would help or motivate them to shift their use, **most survey respondents agreed that they would shift their energy use to a different time of the day** if they received **direct cash incentives (81%)** or **reductions to their energy bill (78%)**.

Three quarters (74%) of survey respondents said they would also be **motivated to change energy use patterns if they received information about peaks in demand and prices.**

Fewer consumers (65%) were motivated by environmental reasons or automated appliances that switch on and off according to peak times (53%).



SURVEY Q: *Thinking about shifting your energy use to a different time of day (for example, using most of your energy during the day rather than in the evening), to what extent do you agree or disagree with the following statements?*
Weight: Age + State + Gender; sample size = 651; effective sample size = 489 (75%); 95% confidence level

What consumers are hearing about the future of energy

Misinformation/Disinformation

Consumer interviews & discussion forum responses

We asked consumers about their views on climate change and about positive and negative things they had heard about CER or renewable energy, with the aim of understanding what messages consumers are hearing in their everyday conversations and media consumption, and whether their views could be formed via misinformation or disinformation.

We understand **misinformation** as "false information that is spread due to ignorance, or by error or mistake, without the intent to deceive, while **disinformation** is knowingly false information designed to deliberately mislead and influence public opinion" (Australian Electoral Commission 2023).

Nearly all consumers had heard or seen at least one negative piece of information – the most commonly reported were:

- negative environmental or health impacts of wind and solar farms;
- dangers of renewable products – primarily the dangers of fire with EVs or of 'toxins' in solar panels.

The 'Transition Sceptical' segment had the most strongly held negative beliefs about CER and was the segment most likely to get their beliefs from online sources.

'Unsure & Insecure' consumers were likely to have heard negative sentiments from others and to have given them some weight but they were not always sure if they were true. Other segments were usually doubtful about dis/misinformation they had heard or seen.

Participants who had personal experience with CER (solar panels, batteries, EVs) or knew people who use them, tended to have more positive views and **were less likely to believe mis/disinformation.**

"I don't like the environmental impact of wind farms. I appreciate that they're really great but […] mainly from the conservation point of view with the Brolga and other birds and such. And the impact on people who, anecdotally, they'll say that they get headaches and such. And I could understand how that would happen even if it's not something that can be scientifically proven, it's still happening. It just hasn't been discovered as to why."

Louise P. (Change Ready)

"What I've heard is that electric vehicle cars can burn or can catch fire quicker than normal diesel petrol cars. So, I get a bit worried that they're maybe not as safe as a normal car."

Matthew M. (Adaptable & Self-Interested)

"It's strange how all these new things can be made to sound so attractive, but the media doesn't report on the fires that electrical cars and buses can cause. The cost of electric cars are out of most people's reach and the funny things is that the charging stations run 24/7 and their energy usually comes from coal!!"

Mary J. (Transition Sceptical)

Reply

"A report that I have read said that 80% of people with electric cars wish they could afford to go back to petrol." **Bernie C.**

"I've heard bits and pieces and you never know if it's true. I remember I heard something about in the US solar farms there were, like, basically killing all these birds and I don't know exactly how it works. With the reflection was causing them to, it sounded like they were self-combusting almost? […]It's some ridiculously high figure, you know, that it can't be true. But I assume there's some impact on wildlife."

Neil T. (Community Focused)

"Solar panels, my daughter and her family have got them on their house, they've put them on and they think it's great. So, so that's a positive one."

Victoria C. (Unsure & Insecure)

What consumers value and what they expect from decision-makers

Expectations of government

Discussion forum & consumer interview responses

It was apparent throughout all of the topics discussed with consumers that they expected government to lead the transition. The exception was the 'Transition Sceptical' segment members who generally had a higher level of distrust in government.

Consumers expected government **to have control over the energy transition** and to provide consumers with clear, consistent, accurate and timely information. They wanted to know where the energy sector is heading and receive information about the big picture, including a transition roadmap and timeline, the end goals and how/when the energy transition will affect and benefit them.

Consumers expected government **to represent their best interests** and to create rules and regulations to protect them, including from data breaches and from retailers who are not offering fair deals or terms.

Consumers expected government **to ensure equitable access for all energy consumers** and to make sure that no one is left behind in the energy transition. They thought government should provide more incentives (i.e., grants or subsidies) that facilitate the uptake of CER, including for lower income consumers, landlords and renters.

Consumers expected government **to be transparent about its decisions,** plans and renewable energy products. Some consumers expressed a desire to hear about the positive as well as the negative aspects of CER as they currently feel that they are being 'marketed to' them without complete disclosure of crucial details (i.e., the lifespan of solar panels and batteries and how they will they be recycled).

"I really do have concerns that this inevitable and needed transition to more sustainable energy supply, usage and storage will become another excuse for further social inequality. This is really where Governments will play their role in my opinion."

Pierre P. (Community Focused)

Reply

"Agreed- can absolutely see energy becoming another part in social inequality and the divide between the wealthy and not wealthy. Government needs to step up and take responsibility to ensure equitable access." **Abby B.**

"I guess it would be good to have, you know, an actual master plan. All right, we talk about going, you know, renewable, we're gonna do all this, but what does it actually mean? In 10 years' time, what does it mean?"

Marc C. (Transition Sceptical)

"I feel hopeful that our government is looking after its people and futures."

Jayne S. (Unsure & Insecure)

Reply

"I'm worried they will make choices they think is acceptable but not suit everyone. That the choice would be taken out of our hands." **Danijela S.**

"I have some mistrust about how it's driven, if it's driven by retailers or companies, then that's always about the money. That's just because that's what a business is. It's about the money. So, it has to be driven by government and what people really want and need and what the environment needs and looking at the bigger pictures and having that foresight to be able to make choices that aren't going to be exploitative."

Louise P. (Change Ready)

"I would think the government through rebates might provide more incentives towards renewable energy sources with fossil fuels a thing of the past."

Robert Z. (Adaptable & Self-Interested)

What do consumers value?
Discussion forum responses

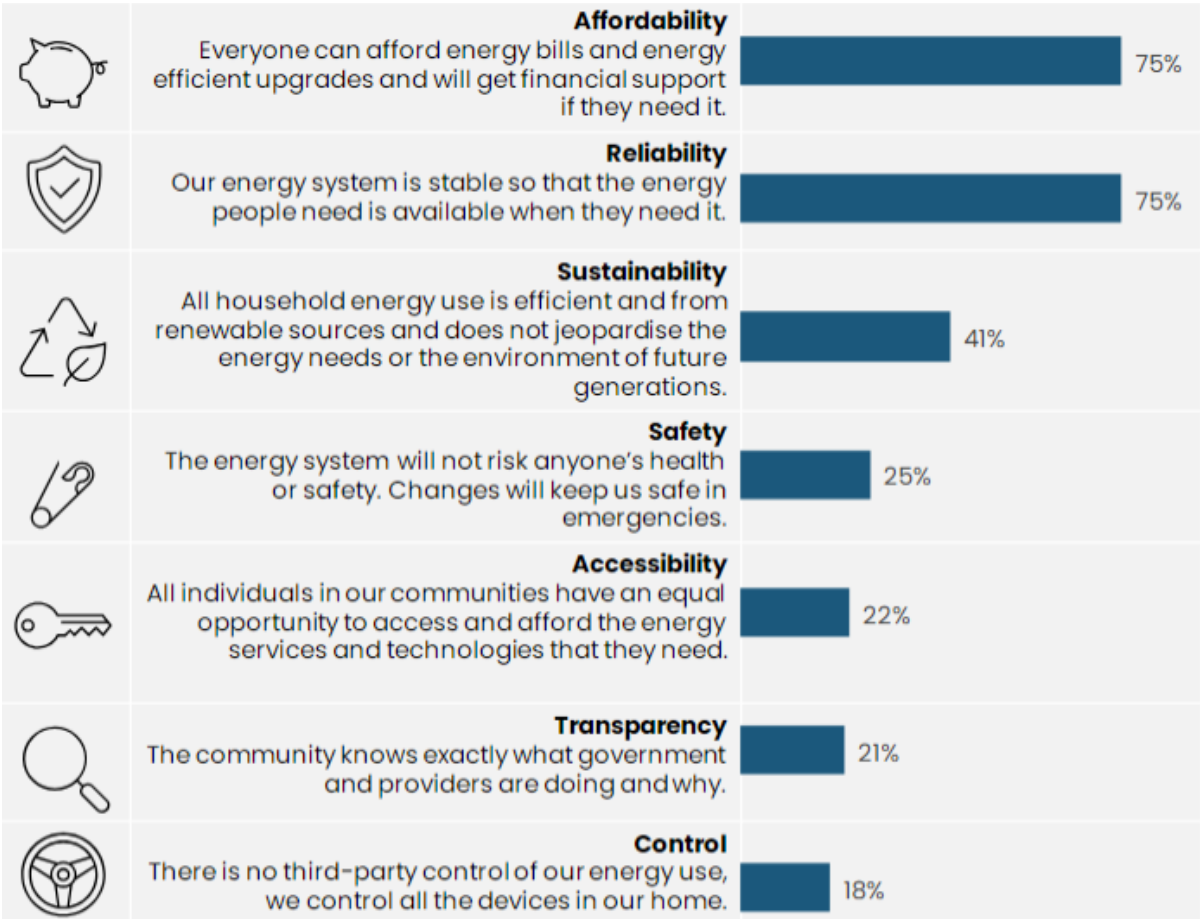
We asked the participants what values were most important to them when they think about the future of energy.

We were particularly interested in understanding consumer values as they underpin and drive behaviours and attitudes and tend to be resilient to change over time even as the consumer environment rapidly evolves.

As part of their discussion board activities, the participants were presented with **fifteen key values** and their definitions and asked to **choose three to four values** that they consider most important.

Affordability and reliability were by far the highest rated values – more than 7 in 10 people listed them in their top three/four. Sustainability was the third most important value, followed by safety, accessibility and transparency.

However, despite the clear preference of affordability and reliability, **consumers highlighted that it was difficult for them to choose between the options**, indicating that they care about other values as well.



What do different segments value?

Discussion forum responses

While affordability and reliability scored highly across all segments – there were also some significant differences.

The 'Change Ready' segment valued sustainability more highly than other segments. It even outranked affordability, reflecting their position as the segment most capable of absorbing additional costs and their strong attachment to renewables as the way forward.

Among the 'Unsure & Insecure' segment, sustainability ranked in third position, indicating that this cohort's confidence in the transition could be increased if sustainability gains are made clear to them.

'Transition Sceptical' consumers valued transparency and control particularly highly. Those values can be seen as expressions of their scepticism towards government and their desire for autonomy and independence.

Safety was another value that ranked highly across almost all segments (except for the 'Community Focused'), implying an overall concern about the potential risks of new energy technology.

'Affordable & Self-Interested' segment members were most interested in safety as a value, perhaps due to their position as 'early adopters' willing to trial new technologies on the market.

	Transition Sceptical	Unsure & Insecure	Adaptable & Self-Interested	Community Focused	Change Ready
1.	Affordability	Affordability	Reliability	Affordability	Reliability
2.	Reliability	Reliability	Affordability	Reliability	Sustainability
3.	Transparency	Sustainability	Safety	Sustainability	Affordability
4.	Control	Safety	Sustainability	Accessibility	Safety
5.	Accessibility Resilience Safety	Transparency	Independence	Transparency	Accessibility

Why these values matter to consumers

Discussion forum responses

Control

"I don't want someone else turning my power or appliances off"

Allisa M. (Transition Sceptical)

Transparency

"As we don't have an honest and transparent government now, these qualities are vitally important especially when change occurs. Our corporations, including energy retailers, are not transparent now either. Personally, I'm sick of being treated as if I cannot critically think after seeing all the facts."

Mary L. (Transition Sceptical)

Safety

"Safety that my family will be in no danger."

Paul Z. (Unsure & Insecure)

"That all consumers would maintain their equipment to a strict safety standard as to not cause energy failure or damage to premises."

Tracy T. (Unsure & Insecure)

Accessibility

"Cost of living is a huge issue, and we don't want to leave half the country behind if these technologies are too expensive."

Abby S. (Community Focused)

Sustainability

"Never more important, and an area in which Australia could/should be a true global leader."

Brendan P. (Change Ready)

"We need something to last, we can't put all our eggs into one basket and have it work but then have it only be able to function for a short period of time. We need something that is now finite."

Nelson W. (Community Focused)

Reliability

"With 2 young children, I frequently consume energy so I would like to know that the energy is going to be available when I need it."

Michael V. (Community Focused)

"Reliability, because without a constant reliable supply our economy and households simply can't function."

Stacey M. (Adaptable & Self-Interested)

Affordability

"Affordability (also Equity) - if support isn't provided to those who need it, then this area risks becoming a real 'have/have not' divide. We shouldn't have a system where only those lucky enough to afford the best or newest reap the benefits. Governments and providers would need to think of this as an investment, not only concern themselves with up-front costs, even though they would be substantial."

Brendan P. (Change Ready)

Consumer sentiments and engagement on CER

Existing uptake and interest in CER products
Survey responses

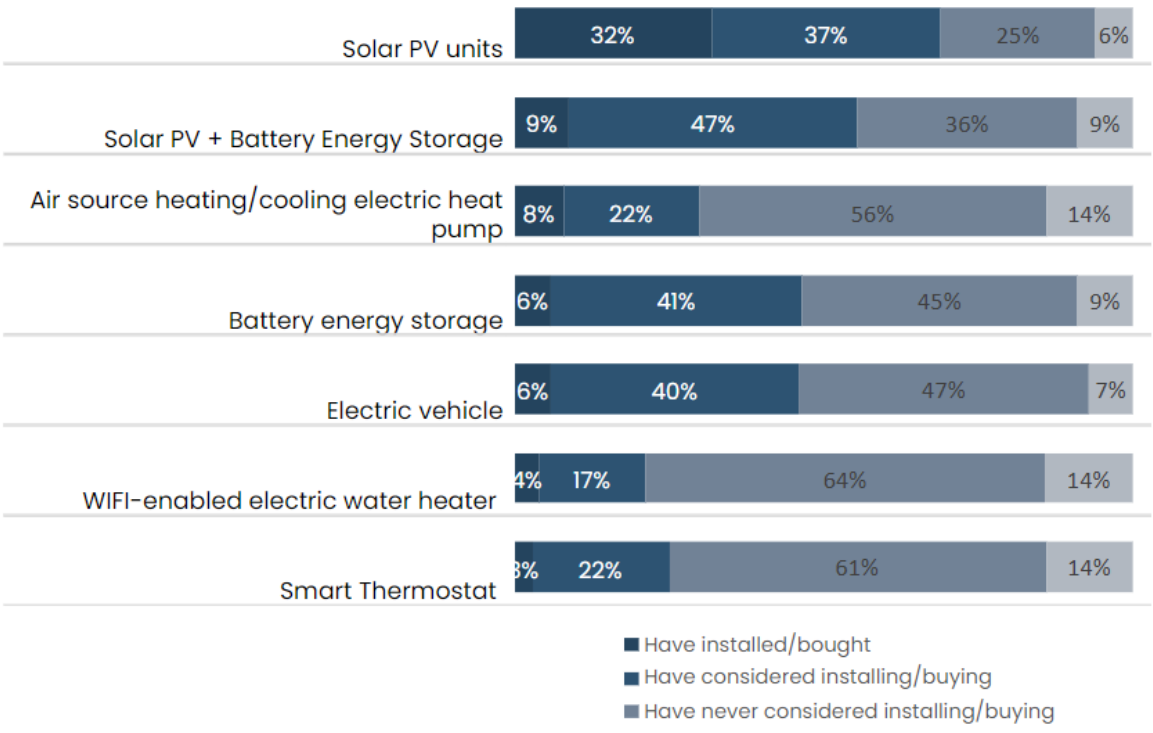
We wanted to know how keen the survey respondents were to purchase and install existing CER products as well as how many had already purchased products.

32% of survey respondents already had Solar PV units. A further 9% had a combination of Solar PV and battery storage. Electric vehicles had been purchased by 6% of survey respondents.

Predictably, uptake and interest were higher for more popular and more visible products that already have strong or emerging market penetration.

Consumers considering purchasing a product in the future was highest for Solar PV with batteries (47%), battery energy storage (41%), EVs (40%) and Solar PV units (37%). Discussion forum responses later revealed that upfront cost was the biggest barrier to battery purchases.

Survey participants had less interest in electric heat pumps and smart thermostats (only 22% had considered installing) as well as electric water heaters (17% had considered installing).



Q: Have you installed/bought or considered installing/buying any of the following in your home?
Weight: Age + State + Gender; sample size = 651; effective sample size = 481 (74%)

Current experience with CER

Discussion forum responses

We asked discussion board participants whether they had witnessed an increase in CER in their daily lives. Responses showed that where people live dramatically impacts their exposure to CER, which in turn impacts how positively they feel about it.

The most visible changes participants were aware of were **more solar panels installed on rooftops** of homes and businesses in their neighbourhoods as well as **EVs on the road.**

However, some participants, particularly **those living in regional areas, had not witnessed much energy-related change** where they live. Some explicitly stated seeing no evidence of change or infrastructure to support shifts toward CER.

Respondents living in rental homes had noticed changes around them but were most likely to feel **'left-out' and unable to make energy upgrades themselves**.

Regional residents were more likely to note the shutting down of power stations and the presence of solar or wind farms in their communities over household changes.

Family members, friends or neighbours who had CER installed at their home, or who had made other upgrades aimed at improving energy efficiency and reducing costs **were sources of motivation and information.**

Discussion board participants **were curious about the costs associated with CER** and often asked other participants with experience of owning them about what they did and what benefits they had seen.

The **costs of battery storage were a main barrier to battery uptake** and experiences with solar, although mostly positive, were mixed in terms of value consumers are seeing on upfront investment and maintenance costs – with lowering feed in tariffs a frequent topic of discussion.

Overall, responses were positive about movements towards **renewable energy, local distribution, increased efficiency and autonomy.**

But some **scepticism existed** around **costs, convenience, privacy** and how much **benefit will transfer to average consumers versus suppliers.**

Those who had already adopted technology were concerned about seeing long-term returns, not knowing the best time to upgrade, and about accessing ongoing maintenance.

Current experience with CER
Discussion forum responses

"Quite a few people had solar panels installed many years ago when they were receiving great rebates. Now the rebates are pretty meaningless and people, including me, are not swayed to get these new technologies. Quite a few people have had quotes for batteries but have worked out that they're not worth it as they cost a lot and don't save much money with their use.

I didn't even want a smart meter as I know that it can lead to companies, or the government, turning off my energy if they wish to for some reason.

It's strange how all these new things can be made to sounds so attractive but the media doesn't report on the fires that electrical cars and buses can cause. The cost of electric cars is out of most people's reach and the funny things is that the charging stations run 24/7 and their energy usually comes from coal!!"

Mary L. (Transition Sceptical)

"Unfortunately, there is no evidence in my area that reflects change. I am on our Strata Committee and we are seeking advice/guidance on the possibility of installing EV chargers and solar panels for community use."

Jayne S. (Unsure & Insecure)

"A lot of my immediate family and friends are renting so are only at the will of their landlords (myself included) and do not have the ability to make these changes of yet."

Emily B. (Unsure & Insecure)

"Just from my house, I can see 4 houses with rooftop solar. (It's an older area, so a bit of mucking around to install solar on an existing older house). And I noticed 3 electric cars on my walk up to the corner shop."

Kathleen M. (Adaptable & Self-Interested)

"Some friends have installed solar panels. However, energy storage is still an issue, and selling energy back to suppliers is not as straightforward."

Ivan C. (Adaptable & Self-Interested)

"So many houses in my local area have solar roof panels installed. I've been inspired to get solar at my home. It's being installed this week!"

Paul Z. (Community Focused)

"I've heard of a lot more people getting energy tracker systems and generally so many more households using solar energy."

Sree S. (Change Ready)

"Where we live most of the people do not have solar as they work for the power station and believe that if they put solar on their roofs it will take away their jobs. If the power station closes (which is predicted for the future) then a lot of people will be without jobs and there is not enough jobs around for these people to be employed. They are already in the process of creating a solar and wind farm near us."

Tanya C. (Change Ready)

Responses to the ‘big picture’ on CER

Discussion forum responses to explainer videos

To engage participants on the ‘big picture’ we showed them three short, accessible videos – two from ARENA and one from ECA – that explain the system level changes involved in DER/CER. These videos were selected on the basis of coming from trusted Australian sources and explaining DER/CER in language accessible to the average consumer.

Video 1: Australian Renewable Energy Agency – What are distributed energy resources (2:00)

Video 2: Australian Renewable Energy Agency – Distributed energy resources are transforming the electricity network (1:33)

Video 3: ECA – Redefining consumer energy resources (3:47)

We then asked participants whether they learnt anything new and what information they found most interesting/relevant.

Many indicated that they learned new terminology and details, especially about how household changes were transforming the wider network.

Concerns were raised around the practicalities of fair and affordable implementation, particularly upfront costs for consumers, with government subsidies often suggested to aid adoption.

Many participants **wondered how the infrastructure costs would be funded** and who would oversee the networks connecting households. There was also scepticism around **whether the consumer would benefit in the long run,** and **concerns about fairness** in how energy would be shared.

The **terminology shift from DER to CER resonated with many people** as it focuses on the consumer experience.

Overall, **short, informative videos** like these seemed to be an **effective way of introducing complex changes** to the energy system to a broad range of energy consumers.

Responses to the 'big picture' on CER

Discussion forum responses to DER/CER explainer videos

Positive sentiments

"I already knew sketchy details about but great to see more detail filling in the big picture. Rather than just individual electricity providers and suppliers setting their own agendas, it's great to see that there's a proactive focus, led by the government […] Great to hear that there is such a focus on the consumer."

Alice W. (Change Ready)

"I feel hopeful and support this idea to empower consumers to have more choices towards their energy usage and consumption. My only concern is there should be some regulations to ensure there is no monopoly in the market for only giant vendors."

Vorrasit S. (Unsure and Insecure)

"The re-imagination of consumer energy resources to produce a system the serves the community sounds like a great idea. Being able to contribute to your community instead just a black hole run by big business sounds a lot more worthwhile."

Paul Z. (Community Focused)

"I did learn something new and that is mostly from the last video when the lady spoke about direct energy resources becoming consumer energy resources and making it more focused on consumers instead of businesses and targeting the real end users who pay for their individual setups. It seems a lot more fair to deal with it this way. I like how they acknowledge consumers and end users in this way."

Kevin A. (Adaptable & Self-Interested)

"I have known about DER for a while, and it always sounded like the 'system' or 'network' has to deal with them and the issue they cause. I really found the change in tone from the CER video to be interesting. In that video, it sounds like households will be at the centre of the energy system and the 'network' or 'system' has to work around that to achieve outcomes. I want the power to be in the hands of us, the producers".

Mark. R. (Transition Sceptical)

Responses to the 'big picture' on CER

Discussion forum responses to DER/CER explainer videos

Negative sentiments

"I find this whole thing quite overwhelming. My concern is what about the people who don't have solar panels or batteries? I live in a housing commission property and from what I understand they have no intention of putting on solar panels, so where does that leave us when it comes to power?"

Kerryn G. (Transition Sceptical)

It was good in ideas - that you all contribute and share to keep costs down - or that was the message I felt - but what if you are not in a position to do this? It has scope to become unfair. The next one was more in the hands on the consumer and I felt was good as you have more control over what you can do."

Sally B. (Unsure & Insecure)

"Why should 5/10 houses have to pay for the whole solar set up and share their generated electricity with people who don't have solar / aren't generating any electricity to share... seems like a win for the people who haven't purchased a solar power system?"

Denise P. (Adaptable & Self-Interested)

"I feel that the government has taken the soft approach to environmental changes and putting it back onto the consumer. I still feel that we as the consumer will be paying for it in the long run. Call me sceptical but this is how I feel. The cost for this DER / CER is something that we (the consumer) will end up paying for immensely. So, to answer the question - not really learnt anything new."

Adam V. (Community Focused)

"The first two videos left me feeling quite angry. As a consumer I felt like I was being screwed over by less convenience, for the benefit of power station and distribution companies. […] The third video has brought some relief by recentering on the consumer."

Karl S. (Change Ready)

Summary of concerns about CER

Discussion forum responses

While most participants welcomed the switch to renewable energy generated by consumers, many also expressed a number of concerns.

The **key areas of concerns** about CER were around **the upfront costs for consumers, long-term affordability and accessibility** (i.e. for renters and apartment dwellers).

Participants across all segments also worried about the **impact smart technology could have on their privacy**, how secure CER appliances are and how safe their data is from online breaches.

Overview of key concerns:

Fairness & accessibility

- Concerns about exclusion of low-income, rental and apartment households
- Concerns that households that adopt CER will pay or contribute 'more than their fair share'

Costs

- Costs of appliances, installation and maintenance were a major concern
- CER uptake will not be affordable for all
- Uncertainty about the right time to invest and whether technology will become obsolete or more affordable in the future

Safety

- Concerns about safety and security issues of CER (i.e. batteries)
- Confusion about whether CER is covered by insurance
- Concerns about responsibility/liability for damage to CER or outages

Reliability

- What impact the weather will have on energy generation (i.e. cloudy days)
- Where energy will come from in an emergency or when CER breaks
- Questions about who is responsible for ensuring reliable energy supply in a distributed system

Transparency

- Lack of transparency about the 'downside' of CER technology
- Concern over privacy issues, data security and online data breaches
- Lack of awareness of consumer rights in relation to CER

Control

- Loss of control over energy appliances through smart technology and third-party control

Wider implications

- Unemployment due to closing power stations
- Long-term environmental sustainability of CER components
- How energy sharing within the neighbourhood works

Summary of concerns about CER

Discussion forum responses

Costs/Up-front investments

"I feel that DER/CER will result in less convenience, and higher costs. "smart" tech will cost more too. I ask who is it smart for? Me, or the power companies?"

Karl S. (Change Ready)

Energy sharing

"I like the idea of energy being shared between consumers but am concerned that some people or businesses might be able to take advantage of it."

Lara G. (Community Focused)

"What would the incentives be for the people who have paid (a lot of money sometimes!) for their solar panel system and to share energy with others?"

Denise P. (Adaptable & Self-Interested)

Consumer interests/power

"I have concerns that despite what is said, the consumer will have no power in the system."

Marc R. (Transition Sceptical)

Privacy/Data security

"The only fear is that every business can be affected. Look at Medibank, Optus, if that were to happen to the "grid" it would be chaos."

Ben C. (Community Focused)

Renters/Apartment dwellings

"I wonder once again how this would apply to renters. For example, would landlords pass on the cost of implementing such infrastructure to the renters? Would eco-conscious renters be able to have a say in what powers their homes even though they are not the homeowners? Also, how will these be implemented on people whose houses are apartments?"

Eisabess C. (Community Focused)

Responsibility

"What happens if it doesn't work, if the system overloads or gets damaged? And the electricity company takes no responsibility for consumers' panels, so when they are damaged or worn out it will be our cost to replace, even though we are supplying power for others."

Sarah A. (Adaptable & Self-Interested)

Reliability

"Would the system be strong enough to carry the load during peak times? Being that it will be stored virtually I would question would it be like an internet connection at times might be slow & service not received automatically?"

Danijela S. (Unsure & Insecure)

Transparency

"It all sounds good but there's NO mention of any pitfalls as usual. […] How much do these things really cost? How long to they last and can they be recycled? Do they cause any damage to human health? Animal health? The environment? How long do these things last?"

Mary L. (Transition Sceptical)

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