

Endeavour Energy Customer Panel

**Revenue Reset (2024-2029)
Final Report - Waves 1, 2 and 3**

October 2022



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At a glance

- Endeavour Energy worked closely with a Customer Panel of 89 customers over a five-month period, with each participating in at least 15 hours of engagement. The Panel process was co-designed with Endeavour Energy's Regulatory Reference Group (RRG), an independent panel of customer advocates, and focused on understanding preferences on seven key questions where customer feedback could have the most value and impact.
- Customer Panel preferences show that **the majority of customers preferred service outcomes that also result in a small price increase**. The average indicative investment associated with these outcomes was \$23.77 over one year, or \$118.84 over five years.
- Customer Panel preferences were influenced by external factors, particularly **increased cost-of-living pressures** between June and September 2022. This was demonstrated by a reduction of about \$5 a year in the indicative cost of preferred service outcomes, down from \$28.42 over one year (or \$142.10 over five years) in Wave 2. Concern about cost-of-living and cost-of-energy was a major theme of discussions during Wave 3.
- Throughout the Customer Panel (May to September), **customers consistently prioritised investments in reliability, resilience and modernising the network** to provide for their future energy choices. When finalising preferences with indicative costs included in September, customers were more likely to prefer investment in resilience (75% preferred an option with a bill impact of \$7.50) and future energy choices (73% preferred options with bill impacts between \$3 and \$9). They were less likely to prefer investments in growth.
- **Customers were keen to understand what they could do** to reduce their own electricity bills and, for most, their emissions. The majority of participants were generally interested in having the opportunity to use new technologies to achieve both of these goals and felt that access to the grid and the ability to make their own choices was important for all consumers. Many were mindful of the needs of those experiencing financial pressures and took a community-minded approach to both access and pricing.
- While there was **in principle support for cost reflective tariffs** and customers were open to changing their behaviour around consuming and exporting energy, the Customer Panel increasingly preferred choice over a mandate approach to tariffs in Wave 3 when Endeavour Energy indicated this would be included in its Draft Proposal. This appears to be a result of multiple factors including a values-based preference for choice, uncertainty about their and other customers' ability to change their consumption behaviour to save money, and lack of confidence in reassurances that most customers would be better off. Several felt that such tariffs would be more equitable, but if they were to be mandated there needed to be a strong focus on education, with time allowed for transition.
- At the end of the Customer Panel process 90% of participants felt that **Endeavour Energy's Draft Proposal reflected their priorities**. Of the remaining 10%, a third were primarily concerned that the opinions of stakeholders had been considered above the views of customers, and two customers (2) were concerned about the impact on lower income earners and renters. At the same time, 87% of Customer Panel members felt positively about the way Endeavour Energy had taken the views of customers and stakeholders into account, with 9% neutral. The four customers(4)-who said their views were either somewhat or very negative were concerned that customer views had been outweighed by stakeholder opinions.
- **Participants were highly engaged in the Customer Panel process**, evidenced by both the completion rate and evaluation survey feedback. Of the 88 participants who commenced in May, 89 finished in June.



Purpose and Method

Purpose of the Endeavour Energy Customer Panel

The purpose of the 2022 Endeavour Energy Customer Panel was to deeply engage with a broad and representative cross-section of residential and small business customers through an extended deliberative online process during the pandemic to inform the organisation's 2024-2029 Regulatory Proposal.

Customer Panel participants were provided extensive background information through live Zoom presentations and capacity-building online activities to ensure they had the necessary knowledge to deliberate on key question areas and nominate preferences in a meaningful way.

The areas addressed by the Panel were informed by the results of engagement in the 'Discover', 'Explore' and 'Prioritise' phases and were designed to test Endeavour Energy's position on key issues (as outlined in the [Preliminary Proposal for Wave 1 and 2](#) and in the [Draft Proposal for Wave 3](#)) and allow in-depth exploration of customers' views. For context, an overview of the full engagement program is set out on slide 8.

The Customer Panel was made up of 89 participants who collectively spent over 1,500 hours engaging with Endeavour Energy and each other, posting over 10,000 unique responses as they individually and collectively deliberated on eight core question areas (see right) in three waves of engagement in May, June and September 2022.

The Customer Panel's preferences are being considered by Endeavour Energy as a key input alongside a series of other 'pillars of evidence' from deep and ongoing engagement with stakeholders and customer segments (local councils, high energy users), sense-checked through broader engagement methods (including the quantitative study and ongoing RepTrak surveys) with a larger and more representative sample of the community or Endeavour Energy's stakeholders. The results from Waves 1 and 2 were shared with a broader group of stakeholders who participated in Deep Dives in July and August.

Core questions

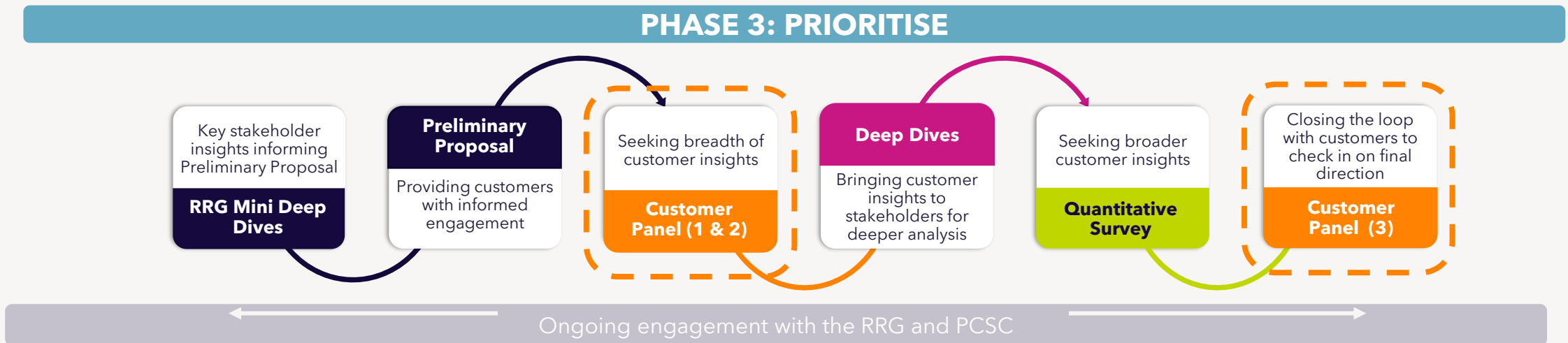
1. How should Endeavour Energy best meet customer expectations for a safe, reliable and affordable electricity supply?
2. Should Endeavour Energy take a more proactive or reactive approach to maintaining network services in the face of increasing major weather events (storm, bushfire, flood, etc)?
3. How should Endeavour Energy time the delivery of the electricity infrastructure required for the economic development of Greater Western Sydney and other areas?
4. Should new customers be required to pay "upfront" for the infrastructure required to service new development, or should the costs for this infrastructure be recovered over time from all customers through existing charges?
5. How do we modernise the network to meet emerging and future customer service expectations as technology and markets evolve?
- 6a. Should tariffs reflect the different demands customers place on the network?
- 6b. Should solar exports tariffs be introduced by Endeavour Energy to reflect the different demands customers place on the network?
7. Does Endeavour Energy's proposal reflect customers' priorities, preferred outcomes and long-term interests by providing a reliable, affordable and safe distribution network?

Overall Engagement Approach

The Customer Panel is a key element of Endeavour Energy's engagement (detailed on slide 8 with customers and stakeholders. In keeping with Endeavour Energy's core value to "find a better way" and focus on long-term customer interests, this engagement program has been co-designed with stakeholder representatives from the RRG as well as Endeavour Energy's Board and Executive. The Customer Panel represents the most extensive online engagement conducted to date by Endeavour Energy and was preferred to face to face engagement due to the anticipated impact of COVID and flu season. The areas addressed by the Customer Panel were informed by the results of engagement in the 'Discover', 'Explore' and 'Prioritise' phases. This complemented Business as Usual (BAU) engagement and included:

- 15 focus groups with residential and small and medium business customers in late 2021
- Workshops with high energy users and local councils
- Business-as-usual engagement with various customer segments, including two State of the Network forums, and ongoing engagement with Endeavour Energy's Peak Customer and Stakeholder Committee (PCSC), Regulatory Reference Group (RRG) and Future Grid committees
- Two stakeholder workshops, referred to as 'Deep Dives'
- In-language CALD engagement
- A quantitative survey with a sample of over 1,250 customers
- Release of Endeavour Energy's Preliminary 2024-29 Revenue Reset Proposal at the end of April 2022.

The diagram below shows how the key engagement activities in the Phase 3 Prioritise program from May to October 2022 are providing Endeavour Energy with the customer and stakeholder feedback necessary to share a Draft Proposal for submission to the Australian Energy Regulator (AER) in October 2022. This report relates to the feedback received in the Customer Panel, highlighted below.





Methodology

Customer Panel Approach

Almost 100 customers living or running a small to medium enterprise (SMEs) within Endeavour Energy's area of operation were recruited to participate in a series of pilot focus groups and online deliberations in May (Wave 1), June (Wave 2) and September (Wave 3) 2022.

Pilot focus groups

A group of nine customers (7 residential, 2 SME) were recruited to participate in two x three-hour online focus groups to test comprehension of the presentations and questions prior to each wave of the Customer Panel. This group also provided a 'back-up' pool of participants for the Customer Panel in case of drop-outs, with two joining the Panel in Wave 2.

The focus groups were conducted 1-2 weeks prior to the Customer Panel and findings were used to refine the presentations and other communications materials.

Customer Panel

This has comprised program of engagement with 89 customers (64 residential and 25 SMEs) who each participated for at least 15 hours across ten days in May, June and September 2022.

- Wave 1 in May comprised three hours in an online community across three days and two x 2 hour Zoom forums.
- Wave 2 in June comprised two hours in an online community across two days and two x 2 hour Zoom forums.

- Wave 3 in September comprised an additional 2 hour Zoom forum.

Online Communities

We used a platform called Recollective for the online communities. Participants were divided into three groups of around 30-35 customers based on the three regions of Endeavour Energy's network:

- Northwest Sydney, Hawkesbury & Blue Mountains
- Southwest Sydney & Southern Highlands
- Illawarra, Shoalhaven and the NSW South Coast

Participants logged on each day at a time that suited them. The platform allowed participants to complete a number of daily activities and tasks in a blog-style online forum. They answered questions in various formats including polls, 'drag and drop' questions and open-ended discussions. They watched videos and read fact sheets, using 'pins' to note questions and comments. They were also able to review presentations from the Zoom calls and FAQ documents prepared by Endeavour Energy to answer questions that could not be addressed during the Zoom calls.

After answering questions, participants could see what others had to say and comment. Discussion was actively facilitated by moderators from SEC Newgate and Endeavour Energy. This helped to build a culture of customer engagement with other Endeavour Energy staff participating as observers.

Methodology cont.

Zoom online forums

The first two waves of engagement each comprised two Zoom online forums several weeks apart that included a mix of presentations, Q&A sessions and facilitated break-out room discussions

The first forum in each wave was focused on capacity building, with a series of presentations that provided context for the key questions to be considered.

The second forum in each of these first two waves wave focused on sharing the feedback given by Customer Panel members on the key questions asked in the online community. We shared charted results of their preferences on these key questions, overall and by customer segment, as well as coded analysis of reasons for their positions. We also shared Endeavour Energy's starting position as outlined in its [Preliminary Proposal](#) and highlighted any differences. The participants asked questions and discussed the different perspectives in break-out groups before logging back onto the online platform where they were re-asked their preferences and the reasons for any changes in opinion.

The Zoom forum held as the third wave of engagement provided Panel members with an overview of how the different pillars of evidence had informed Endeavour Energy's Draft Proposal before members gave their final preferences via an online survey.

Presentations across all waves were led by Endeavour Energy's top team including its Chief Financial Officer Françoise Merit, Chief Customer & Strategy Officer Leanne Pickering, and Chief Asset and Operating Officer Scott Ryan. For most forums, an introduction was made by CEO Guy Chalkley, with wrap-up comments from Board Directors David Bartholomew (Chair of Regulatory Committee) and Trevor Danos, Director.

To ensure all voices were heard, participants were divided into 12 breakout groups at various times during the Zoom forums, with customers grouped into segments (e.g. innovators, those under financial pressure, SMEs and other residents) with a maximum of 8 participants in each.

These break-out groups were primarily facilitated by Endeavour Energy senior leaders, with assistance from SEC Newgate. Following customer feedback in Wave 1, the time allowed for the break-out groups was extended in Waves 2 and 3.

Observers

The engagement was observed by members of Endeavour Energy's Peak Customer & Stakeholder Committee (PCSC) and Regulatory Reference Group (RRG), representatives of the Australian Energy Regulator (AER) and its Consumer Challenge Panel (CCP), as well as Endeavour Energy executives, senior leaders and managers. This was considered critical to uplifting Endeavour Energy's customer engagement culture, with all sessions booked to capacity.

Recruitment

Participants were recruited to reflect the demographics and diverse experiences of Endeavour Energy's end-user small customer base, divided into three regions to ensure an appropriate geographic representation across Endeavour Energy's network area.

Each were the main or joint energy decision-maker in homes or businesses connected to mains electricity who live in LGAs/suburbs and towns serviced by the Endeavour Energy network. Participants self-identified as low, medium or high energy users, with different oad profiles based on household makeup and lifestyle.

Residential participants were also segmented into general residential, under financial pressure (defined by a range of metrics related to their financial situation) or as innovators who had at least one advanced energy technology and were investigating at least one other.

Methodology cont.

Small to medium business customers (SMEs) also included a mix of those under financial pressure and innovators.

The total sample included representative quotas of age, gender, cultural and linguistic background (CALD), Aboriginal and Torres Strait Islander people (ATSI), energy usage, those impacted by bushfires or floods in the past two years, urban, peri-urban and regional locations, income and life stage. Some participants were in multiple categories for analysis purposes (eg. SME, CALD, South-western Sydney, high-energy user).

The Customer Panel sample included over-representation of innovators meaning the representation of solar customers was higher than in the general community. Details of the Customer Panel sample composition is shown on the following slide.

Note due to the small number of participant drop-outs and changes throughout both waves of engagement, the total number of participants who completed each question varies slightly, reflected in the sample size and base number of each slide.

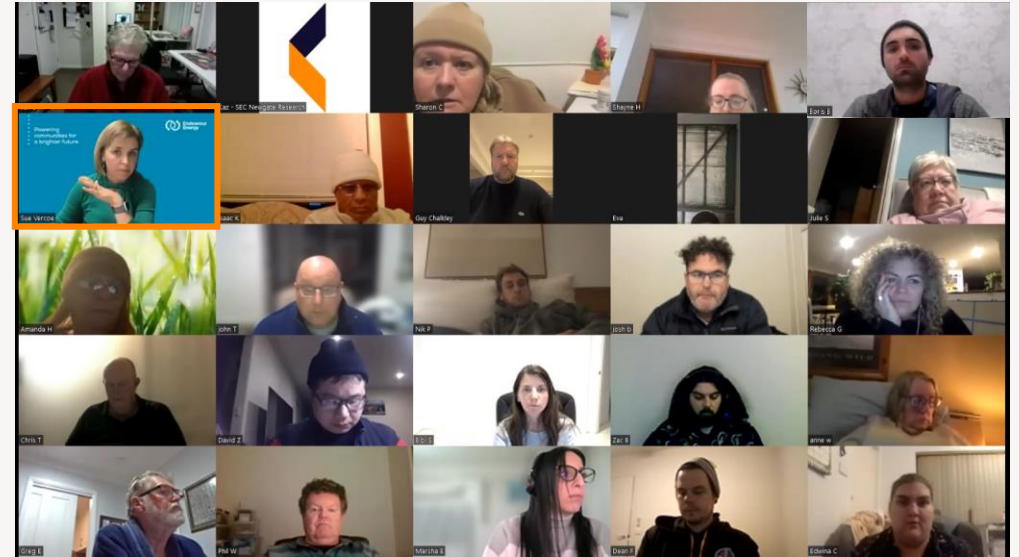
Note that three participants dropped out very early in Wave 1 of the Customer Panel and they were replaced by participants representing the same segments from the pilot focus group. There were no other drop-outs during the course of the project and members of the Customer Panel remained consistent.

Incentives

Residential participants were paid an incentive of \$60 per hour and SME participants \$140 per hour for their time, in line with market research industry practices.

Customer Panel participants who completed the optional [bonus video activity](#) at the end of Wave 2 received an extra \$20 for their time.

Participants were recruited by a specialist research recruiter.



1 How should Endeavour Energy best meet customer expectations for a safe, reliable and affordable electricity supply?

The issue

- Power outages are more likely to happen as poles, wires, substations and other infrastructure age and are put under more stress (such as on hot days). When equipment fails, this leads to outages and can cause sparks with the potential to start fires. It can also damage other nearby equipment, meaning the cost to replace it is greater. These outages occur unexpectedly, often at inconvenient times, with flow-on impacts for affected households and businesses.
- To deliver a network that meets customers' needs in terms of safety, reliability and affordability, Endeavour Energy needs to continually invest in replacing and upgrading infrastructure, especially in older areas where assets have been there for about 50 years, and in rural areas at the edge of the grid.
- A key challenge is deciding how to replace infrastructure assets and whether to replace them with traditional poles and wires network infrastructure or emerging technology solutions such as smart poles.
- It is possible for Endeavour Energy to defer or delay its investment, and in this case, customers could expect service to deteriorate over time, with increased outages. Alternatively, Endeavour Energy could maintain or increase its expenditure now, and service would remain steady, or improve with decreased outages.
- This question we are asking here is about the relative importance of reliability, safety and affordability and the timing of investment for this. Your response will inform our investment decisions going forward. Some key factors are:

 - The cost of upgrading and replacing assets across the network is paid for by all customers through their electricity bill.
 - Most Endeavour Energy customers already enjoy good reliability. Reliability is shown as the duration of outages (in minutes) for the average customer across the year and the percentage increase in the risk of equipment failure.

What's happening now

- For the past 10 years, our approach has been to replace infrastructure as it reaches the end of its life. This might mean assets stop working altogether; no longer perform their purpose; or pose an unacceptably high risk. This is the most cost-effective option, but it does come with risks. This means, aside from events caused by extreme weather or cars crashing into power poles for example, in an average year there are 74 power failures (with 2 starting fires) and 700 overhead wire failures (with 35 starting fires).

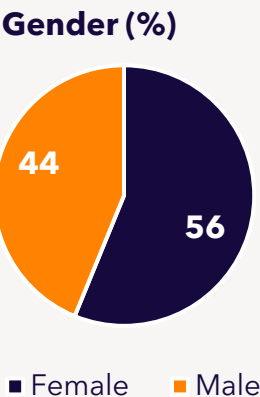
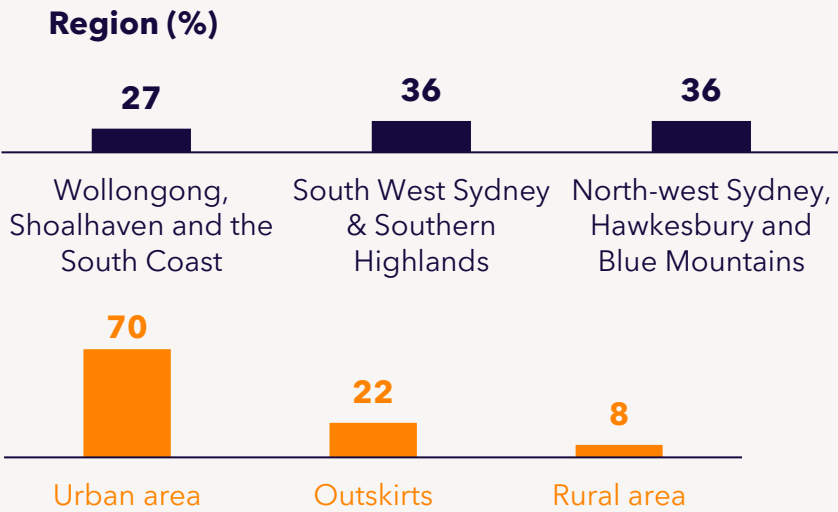
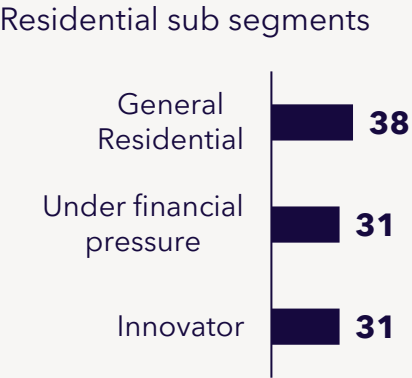
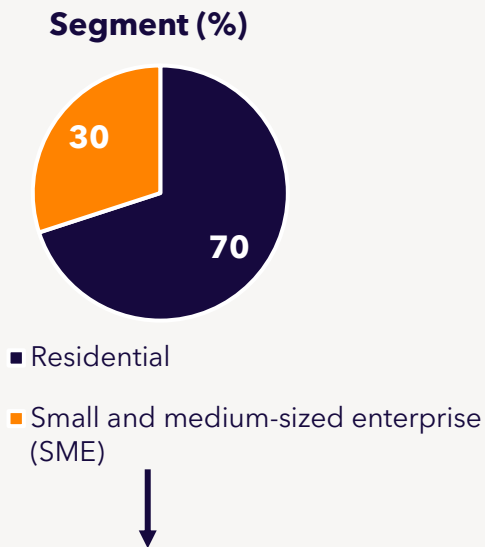
What Endeavour Energy could do

- Endeavour Energy could choose various investment options, each with different outcomes for customers in terms of reliability of service and cost, both now and in the future.
- Improved technology also allows us to use modelling to determine the likelihood of failure for each asset at every location, in advance, and know what impact that would have on customers and the broader community. This means we are better positioned to predict failures and take the necessary steps to reduce safety and reliability risks for customers. It allows us to make more targeted investments. We can also replace traditional network equipment with newer technology, like smart grids. We can also keep costs low for customers by sharing research and development costs with other networks, service providers and/or the Government.

Endeavour Energy Your Say

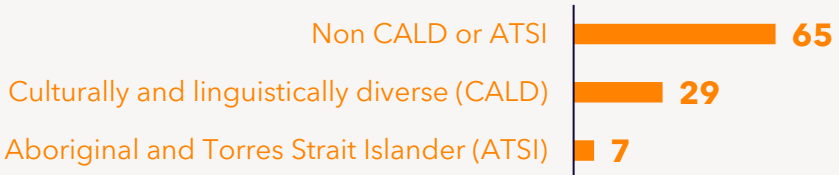
Endeavour Energy Customer Panel Profile

A total of
n=89
recruited
and
completed



Demographics (%)

Impacted by bushfires and floods in the past two years



Customer Panel Process

Wave 1 (May)

Day 1: Online Community
Getting to know each other and why we're here, intro to Endeavour Energy

Day 2: 2hr Zoom Call
Capacity building - Endeavour Energy and Wave 1 topics

Day 3: Online Community
Reliability, affordability & safety; Resilience including initial preferences

Day 4: Online Community
Growth and connections initial preferences

Day 5: 2hr Zoom Call
Feedback on preferences and participant's second vote on trade off question priorities

Wave 2 (June)

Day 1: 2hr Zoom Call
Capacity building - Wave 2 topics

Day 2: Online Community
Future energy choice initial preferences and introduction to tariffs

Day 3: Online Community
Tariffs and investment preferences

Day 4: 2hr Zoom Call
Feedback on preferences and final preferences

Test Focus Group: For Waves 1 and 2, materials were tested with a smaller representative group of Endeavour Energy's customers, distinct from Customer Panel participants. The feedback they provided helped Endeavour Energy to refine the materials to maximise ease of comprehension.

Wave 3 (September)

Day 1: 2hr Zoom Call
Reporting back to participants on how their feedback has been used and seeking feedback on Endeavour Energy's revised positions and overall Draft Proposal

1,513
+ hours of engagement

10,633
total responses



Summary of Findings

Executive summary

- **Customer Panel preferences suggest a level of service and investment higher than Endeavour Energy had set out in its Preliminary Proposal.**
 - Participants were asked their preferences at various stages through the engagement to ensure they had the opportunity to ask questions, consider the perspectives of other Customer Panel members, understand the initial positions that Endeavour Energy set out in its Preliminary Proposal (Waves 1 and 2) and the Draft Proposal (Wave 3), and think through the cumulative indicative costs associated with all potential actions or services in context.
 - At the end of Wave 3, the results show that the majority of customers preferred outcomes that result in a small price increase. The average indicative investment associated with these outcomes was \$23.77 over one year, or \$118.84 over five years. Note that Customer Panel members reduced this amount between Wave 2 (June) and Wave 3 (September) by around \$5 a year (from \$28.42 over one year or \$142.10 over five years) as concern over rising cost-of-living pressures increased.
- **Strong focus on reliability and affordability.** Throughout the engagement process it was clear that participants were keen to see delivery of a safe and reliable supply of electricity to their home or business at an affordable price.
 - Providing a safe, affordable and reliable electricity supply was the top priority for participants throughout the Customer Panel engagement.
 - At the outset, concern about reliability of supply was fairly low with most participants having limited experience of outages; but this was of higher concern to those living on the edge of grid. By the end of the engagement process, future reliability was seen as a function of the grid's resilience to major weather events and its ability to cope with increased uptake of solar panels and electric vehicles. The first Zoom forum in the second wave of engagement was held on the same evening when load shedding was anticipated, and it became a key focus of discussion.
 - Affordability became a stronger focus as the engagement progressed, especially in Wave 3. Note that many who were under financial pressure explained that they had not always chosen the cheapest option because they could see that some investments would increase efficiency and save more money over the medium term. On the other hand, many others noted they had considered the implications of their decisions on those who were under financial pressure.

Executive summary cont.

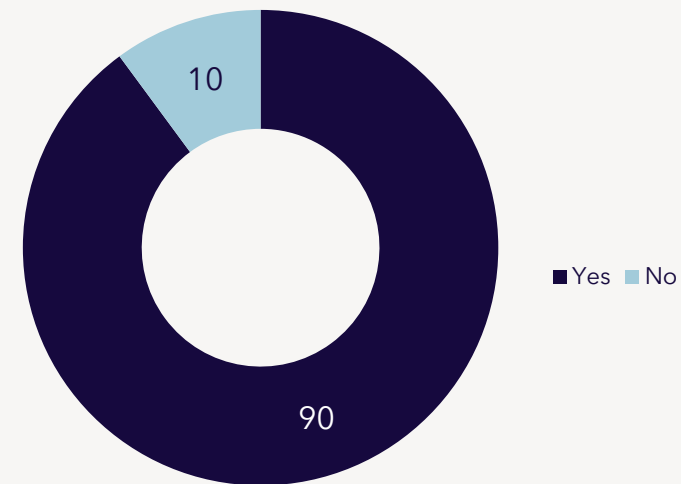
- **Context is critical and changing, but the fundamentals remain consistent.** Endeavour Energy's Customer Panel engagement was undertaken during a period of extensive media coverage of and rising consumer concern about cost of living, the Federal election, growing awareness of increasing electricity and gas prices, and media coverage of potential load shedding. Participant views were inevitably influenced by these external factors in much the same way resilience concerns were amplified by the experience of extreme bad weather events such as bushfires and floods.
- **Despite this, it is important to note that the fundamental preferences of the Customer Panel did not change significantly through the engagement period.** This is consistent with other community research work conducted by Energy Consumers Australia and SEC Newgate ('Mood of the Nation, 2022 studies) on these topics in recent years which suggests ongoing concerns about cost of living and interest in what customers can do to keep their costs down, along with clear and broad support for a transition to more renewable sources of energy and action to increase resilience in the face of major weather events. While the lived experience of research participants will periodically increase the perceived importance of a specific issue for a period of time, opinions on these topics are values-based and deeply held.
- **Strong focus on what individual customers can do to help themselves:** Customers were keen to understand what they could do to reduce their own electricity bills and, for most, their emissions. The majority of participants were generally interested in having the opportunity to use new technologies to achieve those goals and felt that access to the grid and the ability to make their own choices were important for all consumers. Many renters felt they would be unable to take advantage of new technologies and wanted to see more about the options available to them.
- **Customers were open to changing their behaviour around consuming and exporting energy but opposition to mandating cost-reflective tariffs increased in Wave 3.** This appears to be a result of multiple factors including a values-based preference for choice, uncertainty about the ability of themselves and other customers to change their consumption behaviour to save money, and lack of confidence in reassurances that most customers would be better off. Several felt that such tariffs would be more equitable, but if they were to be mandated there needed to be a strong focus on education, with time allowed for transition.
- **We found a strong focus on 'community':** We noted strong 'community-mindedness' among participants, reflected in concern for the more vulnerable members of the community and increased interest in how customers can work together to address the challenges of the energy transition using things like community batteries or VPPs. Solar and community batteries were of particular interest to renters who feared they were going to be left behind in the energy transition.
- **Committed engagement:** Participants were highly engaged in the Customer Panel process, evidenced by both the completion rate and evaluation survey feedback. Of the 88 participants who commenced the process, 89 completed. This included two participants who were replaced early in the forum from the existing pilot study group. One was unable to continue for work reasons, another missed one Zoom call but ultimately opted to catch up and complete the Panel deliberations despite challenging personal circumstances.

Customer feedback on the Draft Proposal

At the end of Wave 3, after Endeavour Energy had explained its positions for the Draft Proposal, 90% of participants felt that Endeavour Energy's Draft Proposal reflected their priorities.

- Two main reasons were given by Customer Panel members for feeling that the Draft Proposal reflected customer priorities.
 - Firstly, they felt that the outcomes and positions being taken in the Draft Proposal reflected their own views, and
 - Secondly, they were comfortable that process was robust, having seen the results of Customer Panel and stakeholder feedback during the deliberative process, with Endeavour Energy explaining how different views had been considered.
- Of the 10% of the Customer Panel (nine participants) who did not feel Endeavour Energy's proposal was in the long-term interests of customers, three (3) felt that stakeholder views had been given more weight than the views of customers and two (2) were concerned about the impact on lower income earners and renters. Other reasons given by single members included too much jargon for participants to understand, too focused on current issues and not sufficiently on the future, uncertainty about whether the issues discussed were the right ones, too much focus on emissions, and that the proposal was not sufficiently bold and should have increased investment further.
- Five of the nine Customer Panel members who did not feel that the Draft Proposal was in the long-term interests of customers were currently under financial pressure.

Proportion of customers who felt Endeavour Energy's Draft Proposal reflects customers priorities (Wave 3 %)



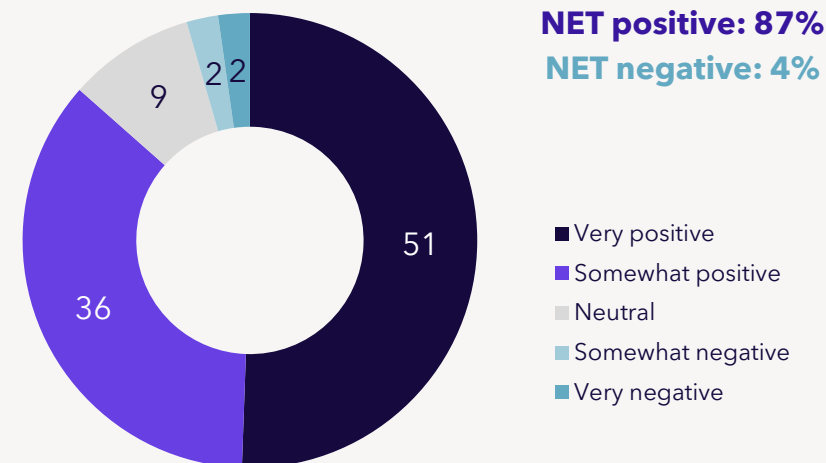
"From what I saw, the proposal incorporates most of what I heard during this process. EE clearly listened to the consensus."
(Residential, flood-impacted innovator and high-energy user, North-west Sydney)

Customer feedback on the process and outcomes

Most Customer Panel members – 87% – felt positively about the way Endeavour Energy had taken the views of customers and stakeholders into account, with a further 9% neutral.

- The reasons given for feeling positive fell into three main categories.
 1. Panel members felt that their opinions were reflected in what Endeavour Energy was putting forward in its Draft Proposal and they could see evidence of where their preferences had influenced change.
 2. The transparency and professionalism of the process, especially the collaborative approach taken by senior executives and the reporting back of Customer Panel findings gave them confidence that their views had been considered.
 3. The diversity of Panel membership and broader engagement with a range of stakeholders was viewed as evidence that all views were being considered.
- Although the vast majority of comments provided were positive, the four (4) Customer Panel members who said their views were either somewhat or very negative were concerned that customer views had been outweighed by stakeholder opinions.

Sentiment towards Endeavour Energy taking customer and stakeholder feedback into the Draft Proposal (Wave 3 %)



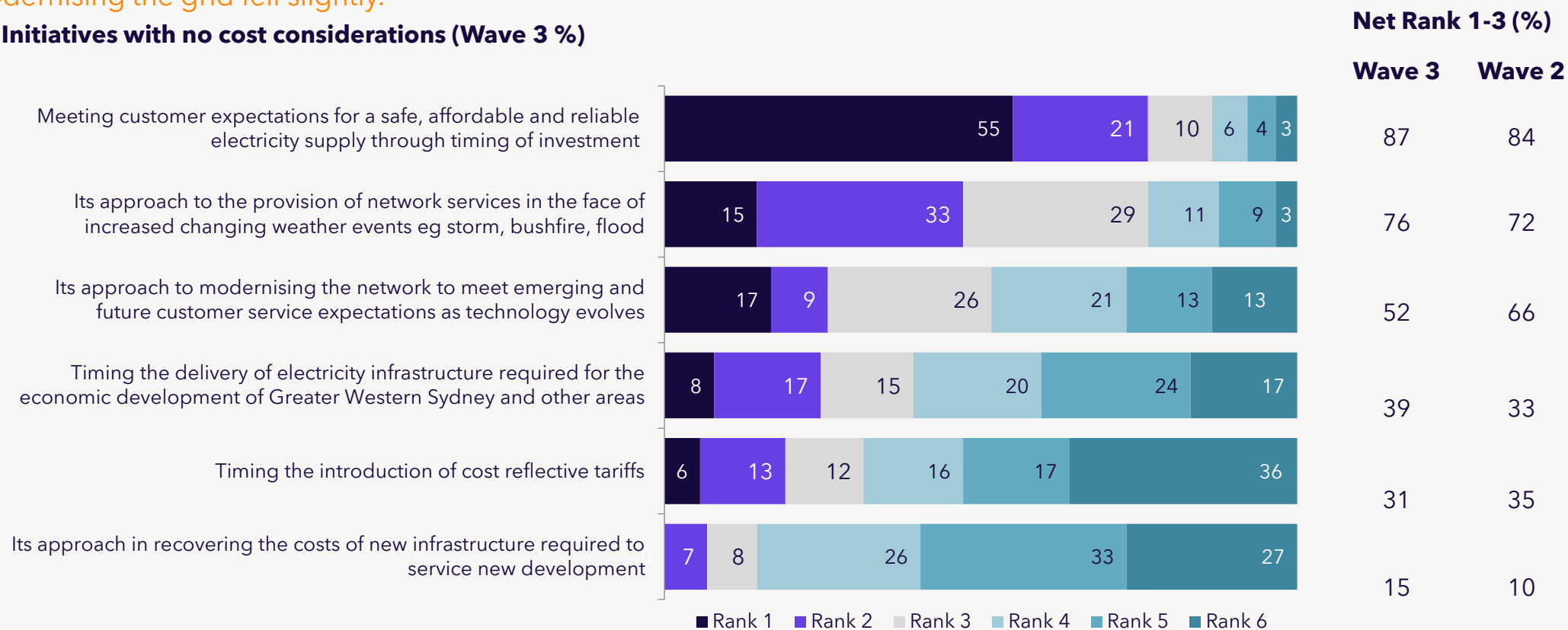
"I felt that our voices were heard and our opinions valued. It was good to see that some of EE's positions changed in response, and where they didn't, the reasons why were explained."

(Residential, under financial pressure, North-west Sydney)

Ranking overall importance of initiatives

Participants were shown a list of proposed initiatives Endeavour Energy could implement and asked to rank these based on overall importance to address the long-term interests of customers, without taking cost into account. Participants were asked this at the end of Waves 2 and 3. The top three priorities remained the same, with the level of support for a safe, affordable and reliable network, and measures to improve resilience, increasing slightly between Waves 2 and 3, while the level of support for modernising the grid fell slightly.

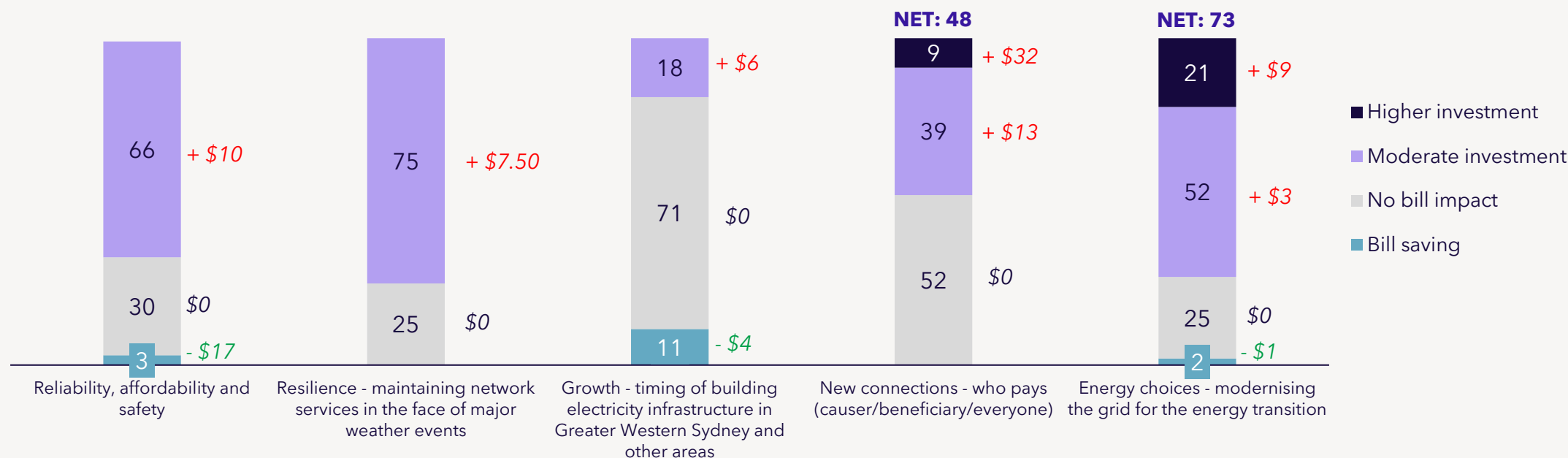
Initiatives with no cost considerations (Wave 3 %)



Service and cost impact of preferred options

When deciding preferences with indicative costs included, customers were more likely to prefer investment in resilience (75% preferred an option with a bill impact of \$7.50) and energy choices (73% preferred options with bill impacts between \$3 and \$9). They were less likely to prefer investments in growth (18% preferred an option with a bill impact of \$6).

Final preferences: Preferred investment and associated bill impact (%: Wave 3)



Key question

1

2

3

4

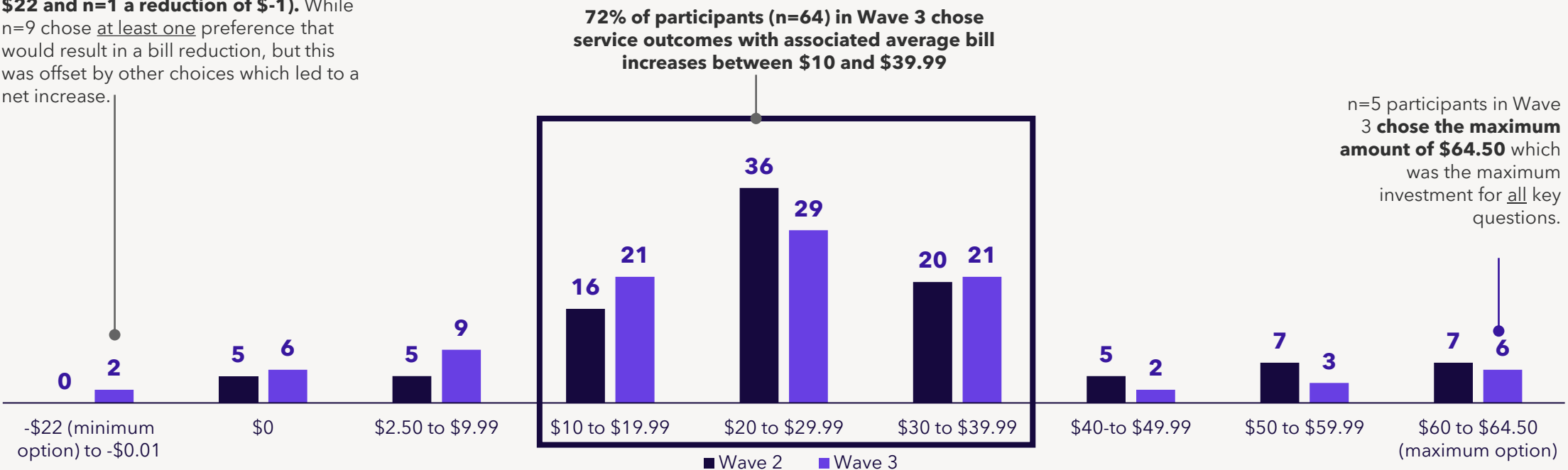
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Service and cost impact of preferred options

At the end of the engagement, Customer Panel preferences showed 92% of customers preferred increased service outcomes with associated increases to their potential bills, down from 95% in Wave 2. The average cost increase if all customer preferences at the end of Wave 3 were adopted would be \$23.77 per year (\$118.84 over 5 years)

Cost of final preferences: Calculated total bill impact per year (% in each category: Wave 3)

n=2 participants in Wave 3 had an estimated overall reduction to their potential bill (n=1 saw a reduction of -\$22 and n=1 a reduction of \$-1). While n=9 chose at least one preference that would result in a bill reduction, but this was offset by other choices which led to a net increase.



Key Findings: Safety, affordability and reliability

- At the start of the engagement affordability was top-of-mind, but most customers were best described as being 'mindful' of what they could do to reduce their energy bills, as opposed to 'concerned' about them.
- Affordability became an increasingly important contextual issue during the engagement amid increasing electricity prices and rising cost-of-living concerns more broadly, especially fuel, interest rates and groceries. Most Panel discussion about bill increases focused on unregulated parts of their bills.
- Most customers had little or no experience of outages and were comfortable with current levels of reliability. In principle, most would prefer the same level of reliability as they have now at a similar cost. Note however that those living at the edge of the grid were more concerned about current levels of reliability and in-principle most felt everyone in the catchment should have the same level of reliability.
- Although recognised as important, there was no real concern about existing safety in relation to electricity, but sufficient investment to minimise bushfire risks was a driver for increasing expenditure in this area.
- At the end of engagement around two-thirds of all participants (56% of residential participants and more than nine in ten SMEs) indicated they would prefer Endeavour Energy deliver long term improvements in service at an average cost of \$10 per year, with the remainder keen to see the current level of service and cost maintained. Those under financial pressure were more likely than others to support additional investment in this area.
- Support for long-term improvement at higher cost was primarily driven by perceptions that the amount required was relatively small, would reduce risk of fire and outages, and would save customers money in the long-term while ensuring the network remained match fit in the face of increased demand. Those preferring to maintain the current approach felt the service improvement promised was insufficient to justify additional cost.

Question #1: How should Endeavour Energy best meet customer expectations for a safe, reliable and affordable electricity supply?

Customer Panel final preference (Wave 3) %	Option	Bill impact
66%	<u>Long-term improvements in service outcomes but at higher cost</u>	+ \$10 per year (in next 5 years)
30%	<u>Maintain the current level of service and cost</u>	\$0
3%	<u>Long-term service deterioration and a deferral of cost</u>	-\$17 per year (in next 5 years)

Key Findings: Resilience

- There was strong interest in the issue of resilience and many Customer Panel members were acutely aware of issues related to bushfires and flooding, with some having been personally affected.
- Endeavour Energy was seen as having done a good job in the way it has responded to and restored power after major weather events to date, with most saying it was either in line with or had exceeded expectations.
- In future, participants felt there should be priority given to providing back-up power to critical infrastructure such as mobile phone towers, as well as taking actions like use of concrete poles and covered conductors to reduce bushfire risk.
- They noted that all three tiers of government and individual customers also have a role to play in increasing resilience and reducing risk.
- At the end of engagement around three-quarters of all participants (nearly three in four residential participants and nearly nine in ten SMEs) said they'd prefer Endeavour Energy take a mix of proactive and responsive approaches to maintaining network services in the face of major weather events at an average cost of \$7.50 per year. The remainder said they'd prefer no increase in costs and accept some declining levels of service.
- Those who favoured more proactive approaches felt the sum was relatively small, prioritised safety and would save customers money in the long-term; those who wanted to maintain the current approach felt the cost was too high and there was insufficient personal benefit.
- Taking action to improve network resilience in the face of increasing weather events was seen as a key overall priority for the regulatory proposal. Putting costs aside it was the second most important priority, following action on safety, affordability and reliability. With all costs considered, it was the top priority.

Question #2: Should Endeavour Energy take a more proactive or responsive approach to maintaining network services in the face of increasing major weather events (storm, bushfire, flood, etc)?

Customer Panel final preference (Wave 3) %	Option	Bill impact
75%	More proactive approach to <u>maintaining network services</u> in the face of major weather events and at increasing cost to customers.	+\$7.50 per year (every year)
25%	Proactive and responsive approach that has <u>some declining levels of network service</u> during major weather events but at no additional cost to customers.	\$0 Current approach

Key Findings: Growth - timing of investment

- Around three-quarters of residential participants and two-thirds of SME participants said they would prefer Endeavour Energy to invest in the infrastructure required for the economic development of Greater Western Sydney and other areas at the same time as gas, water and roads are being built, just in advance of growth and at a steady cost to customers.
- There were several reasons they preferred this option. Firstly, most saw it as a reasonable approach that would enable electricity supply to be available when needed, with less cost pressure. Some referred to previous situations where new communities has been developed without sufficient infrastructure in place and were eager to avoid this. Secondly, it seemed logical to install all utilities at the same time. Finally, while they were mostly relaxed about the current rate of development, they did not want to encourage excessive growth.
- Although most did not want to spend any more than necessary any earlier than necessary, almost a third of SMEs and one in seven residential participants said they would prefer Endeavour Energy build electricity infrastructure in advance to boost economic growth of our regions at a cost of \$6 per year.
- Around 5% of all participants said they would prefer it build electricity infrastructure only when 100% certain it is needed, with a potential short-term bill decrease of \$4 per year, but this increased to over 10% in Wave 3 as cost-of-living pressures increased.
- Putting cost aside, action on this issue was seen as the second lowest priority for Endeavour Energy, followed only by the question of who pays for growth.

Question #3: How should Endeavour Energy time the delivery of the electricity infrastructure required for the economic development of Greater Western Sydney and other areas?

Final preference (Wave 3) %	Option	Bill impact
71%	Build electricity infrastructure <u>at the same time</u> as gas, water and roads are being built, just in advance of growth.	\$0 bill would remain steady
18%	Build electricity infrastructure <u>in advance</u> to boost economic growth of our regions.	+\$6 per year (every year)
11%	Build electricity infrastructure <u>only when we are 100% certain</u> it is needed.	-\$4 per year (every year)

Key Findings: Growth - connections

- Customers have mixed views over who should meet the costs associated with new connections. In all cases, customers were considering which approach would be the 'fairest' from their own perspective.
- A slight majority of all participants preferred the 'causer pays' option with nil impact on their own bills by having new customers pay more compared to existing customers, Many commented that they didn't want to have to pay for something they would not personally use, and that new home buyers and developers are more able to afford the cost in the context of overall housing prices. This is the status quo.
- Just over one-third of participants felt that all customers should pay something under the 'beneficiary pays' model, at a cost increase of \$13 per year in the short term. Customer Panel members who supported this option felt it represented "the middle ground" or a "win-win for all". This is the AER's preferred option, and the approach taken by several other networks.
- Around 10% of all customers, including 20% of SMEs, preferred that existing customers subsidise connection costs for new customers, regardless of where they live ('everyone pays') at a cost of \$32 per year in the short term. These customers felt it would "spread the costs" across the network, help more people get into the housing market and reduce bills over time.
- A key issue in decision-making was a sense that lower costs imposed on developers would not be passed on to those buying homes as they would sell at a price the market would bear.
- Putting cost aside, action on this issue was seen as the lowest priority for Endeavour Energy in comparison to action on other issues. Most felt the issue was not particularly relevant to them personally.

Question #4: Should new customers be required to pay "upfront" for the new infrastructure required to service new development, or should the costs for this infrastructure be recovered over time from all customers through existing charges?

Customer Panel final preference (Wave 3) %	Option	Bill impact
52%	<u>"The causer pays"</u> New customers pay more compared to existing and future customers.	\$0 bill remains unchanged for existing customers
39%	<u>"The beneficiary pays"</u> There is no cross subsidy between new customers and existing customers and both benefit.	+\$13 per year for existing customers in the short term
9%	<u>"Everyone pays"</u> Existing customers subsidise connection costs for new customers, regardless of where they live.	+\$32 per year for existing customers in the short term

Key Findings: Future energy choices

- The majority (73%) of participants, including 84% of SMEs and over two-thirds of residential customers, want Endeavour Energy to modernise the network in preparation for either a rapid (very fast) or accelerated (fast) energy transition to accommodate future customer expectations as technology and markets evolve.
- The 21% who opted for a rapid transition including increased network capacity and extensive trials thought that what they described as the relatively small cost of \$9 a year was outweighed by the potential benefits of lower bills, more choice and improved access to the network. They didn't want to risk constraints and potential blackouts and felt that urgent action is required now to tackle climate change.
- The majority (52%) who preferred an accelerated transition with limited trials and a smaller cost increase of \$3 a year, saw this as a more prudent and pragmatic approach that balances innovation and bills, particularly in the face of higher cost-of-living pressures.
- Just two participants selected the lowest-cost option of a stalled energy transition, but 25% opted for a gradual change which delivers some benefits without increased bills. These customers didn't think that the case for further spending had been sufficiently made, especially in relation to trials.
- Putting cost aside, action on this issue was seen as the third highest priority behind reliability, affordability and safety, and resilience.
- In a final question, ~~when all the costs were considered~~, when deciding preferences with indicative costs included, customers were more likely to prefer investment in energy choices (73%) ahead of reliability and growth.

Question #5: How do we modernise the network to meet emerging and future customer service expectations as technology and markets evolve?

Customer Panel final preference (Wave 3) %	Option	Bill impact
52%	Plan for an <u>accelerated</u> energy transition	+\$3 per year (every year)
25%	Plan for a <u>gradual</u> energy transition	\$0 bill remains steady
21%	Plan for a <u>rapid</u> energy transition	+\$9 per year (every year)
2%	Plan for a <u>stalled</u> energy transition	-\$1 per year (every year)

Key Findings: Cost-reflective tariffs

- In principle, almost 90% of customers would choose a cost-reflective tariff for their household or business over a flat tariff, as it would give them more control over their bills and opportunities to save money.
- Initially, at the start of Wave 2, around a third-of Customer Panel members preferred an opt-in approach, with the remaining two-thirds equally split between a mandate for new and upgrading customers, and a mandate for all customers with the enabling technology. Reasons given for supporting a mandate were primarily around the need for change and equity (those responsible for increasing demand would pay their share).
- But at the end of Wave 3, after participants were told that Endeavour Energy's Draft Proposal intended to introduce cost-reflective tariffs for all customers after a transition period, the majority (60%) favoured an opt-in approach ahead of mandating cost-reflective tariffs for either new or upgrading customers (24%) or all customers with the enabling technology (17%). This view was largely consistent across residential and SME customers.
- Participants wanted to have freedom of choice in how they use energy and were concerned about the ability of themselves and other customers to change their consumption behaviour to save money, and appeared to lack confidence in reassurances that most customers would be better off. Several felt that if such tariffs were to be mandated, there needed to be a strong focus on education, with time allowed for transition so customers could understand how cost reflective tariffs could save them money.
- The strongest opposition to mandated cost-reflective tariffs came from those under financial pressure (80% support for opt-in vs 20% support for a mandate).
- The fifth in favour of a mandate for all customers liked that those using the most energy would pay more, and that tariffs would incentivise behaviour change and enable more urgent action to support grid stability and address climate change.

Question #6a: Should tariffs reflect the different demands customers place on the network?

Customer Panel final preference (Wave 3) %	Option
60%	Allow customers to <u>opt-in</u> to cost-reflective tariffs where they want to.
24%	<u>Increase</u> the take-up rate of cost-reflective tariffs by requiring new and upgrading connection customers to adopt them
17%	<u>Mandate</u> the take-up of cost-reflective tariffs for all customers who have the enabling technology (smart meters).

Key Findings: Solar export tariffs

- There was a clear preference for an opt-in approach to solar export tariffs with support from Customer Panel members ranging between 70% (June) and 53% (September).
- The primary reason given for preferring an opt-in approach over a mandate was that solar customers would be 'penalised' after having 'done the right thing' and invested in solar.
- Those who preferred a mandate (28% of participants) remained largely consistent across Waves 2 and 3 of the Customer Panel. These customers focused on fairness and equity, feeling that those with solar should be responsible for the impact of their generation and export activities on the network.
- Many of those who supported a mandate, noted that it should be accompanied with incentives or subsidies to enable those with solar to change their behaviour.
- While the preference for an opt-in approach fell between June and September (from 70% to 53%), those who changed their views shifted towards a delayed approach rather than a mandate. As a result, support for deferring the introduction of a solar export tariff until at least the next revenue reset period more than doubled in that time from 7% to 19%.
- Support for an opt-in approach for solar export tariffs was highest among general residential customers (71%), while SMEs had the highest levels of support for a mandate (32%). Innovators were the most divided on the topic, with nearly equal proportions preferring each of the three options.

Question #6b: Should solar exports tariffs be introduced by Endeavour Energy to reflect the different demands customers place on the network?

Customer Panel final preference (Wave 3) %

53%

28%

19%






Customer Panel final preference (Wave 3) %

Opt-in export tariffs for customers with solar to reflect both the positive and negative impacts they have on the whole grid.

Mandate export tariffs for all customers with solar to reflect both the positive and negative impacts they have on the whole grid.

Defer the approach to export tariffs until at least 2030

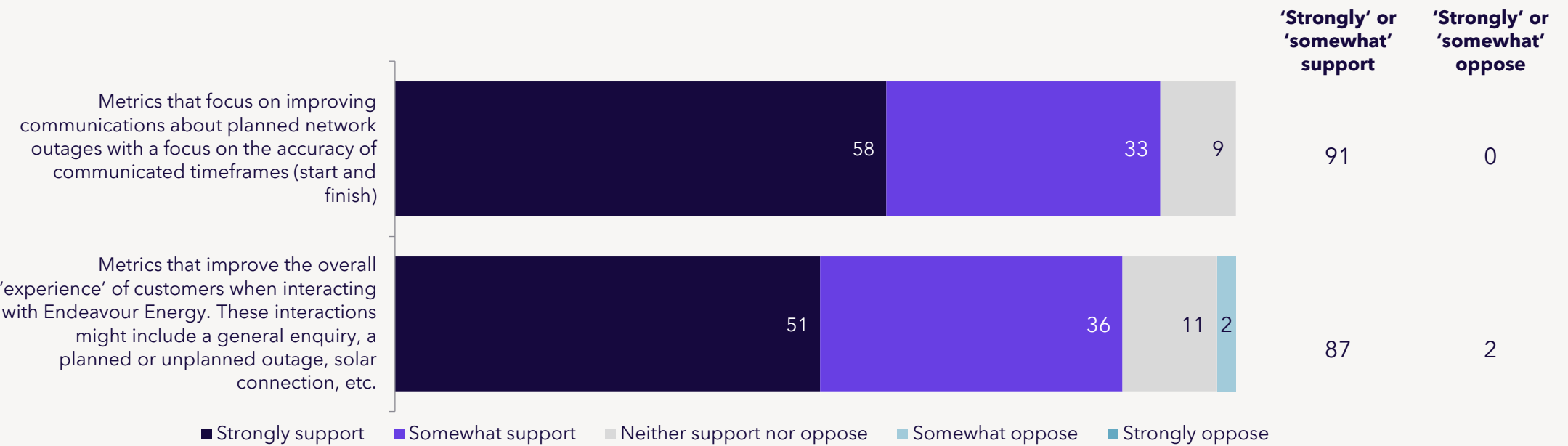
Notable differences by segment

Geographic Segments 	Financially Vulnerable 	Innovators 	CALD and/or First Nations people 	Residential & SMEs 
<p>North-west Sydney, Hawkesbury and the Blue Mountains residents were most likely to support existing customers contributing to the cost of new infrastructure required to service new development through a 'beneficiary' or 'everyone' pays approach.</p> <p>Residents in Wollongong, Shellharbour and the South Coast were more likely to support additional spending to fund long-term improvement in service outcomes at a higher cost.</p> <p>North-west Sydney, Hawkesbury and the Blue Mountains residents were most likely to support a gradual energy transition to no additional cost.</p>	<ul style="list-style-type: none"> • Most likely to want to defer the introduction of solar export tariffs. • Least likely to support additional spending to fund long-term improvement in service outcomes at a higher cost. • Least likely to support a more proactive approach to maintaining network services in the face of major weather events, at increasing costs to customers. 	<ul style="list-style-type: none"> • Most likely to want to defer the introduction of solar export tariffs. • Least likely to support additional spending to fund long-term improvement in service outcomes at a higher cost. • Least likely to support a more proactive approach to maintaining network services in the face of major weather events, at increasing costs to customers. 	<ul style="list-style-type: none"> • Less likely to support additional spending to fund long-term improvement in service outcomes at a higher cost. 	<ul style="list-style-type: none"> • Most likely to support additional spending to fund long-term improvement in service outcomes at a higher cost. • Most likely to support a more proactive approach to maintaining network services in the face of major weather events, at increasing costs to customers. • Most likely to support building electricity infrastructure in advance to boost economic growth of our regions. • Most likely to support a rapid energy transition at additional cost.

Support for Endeavour Energy's CSIS

There is strong support for Endeavour Energy's proposed CSIS metrics to improve communications about planned network outages and the overall experience of customers when interacting with Endeavour Energy.

Support for the following metrics as part of Endeavour Energy's CSIS (Wave 3 %)



- Most Customer Panel members were supportive of Endeavour Energy's proposed CSIS measures, with support slightly higher for measures focusing on communication during planned outages ahead of those measuring the overall customer experience.
- While most customers were largely happy with the reliability of their network, those who supported these new proposed measures preferred that customers be given as much information as possible in an easily digestible way so they could make decisions that best suited their circumstances.
- Those who were neutral or opposed the proposed measures mainly did so on the basis that this should be a core function for Endeavour Energy and that incentives should not be paid for what is a expected service.



Detailed Findings



**#1 Affordability,
reliability and safety**

Approach to affordability, reliability and safety

Participant views about affordability, reliability and safety were explored through a series of activities and questions both before and after presentations on the distribution network's role in the electricity supply chain. These included:

- Open-ended discussion of energy issues of most importance to participants
- Open-ended questions about customer experiences of affordability, reliability and safety
- Rating of relative importance of a list of current and future services
- Illustration of how different types of customers use the network via personas
- 'In principle' questions about their preferred overall level of reliability and importance of taking action to improve reliability at the edge of the grid
- Questions about the best way to measure reliability
- Fact sheet and explanatory video before core question '**How should Endeavour Energy best meet customer expectations for a safe, reliable and affordable electricity supply?**' and discussion of reasons for preferences

Key electricity issues

At the beginning of the engagement program, participants were asked what electricity-related issues were the most important to them, their family or business; or any other energy issues they were aware of.

- **Cost** was the most frequently mentioned issue associated with electricity, with many focused on how they could save money on their electricity bills in the broader context of cost of living pressures. Some noted this was currently a key election issue or that they'd heard about wholesale electricity price increases. Concerns about cost-of-living pressures increased by Wave 3 (September).
- **Reliability** was also mentioned as a top priority for customers. This was based on both past and current experiences, and concerns for future reliability through the energy transition. By Wave 3 (September), safety, affordability and reliability strengthened as the top priority (when cost was not a consideration).
- **Sustainability, climate change and renewables** were also key issues. Here customers were primarily talking about the shift from coal-fired to renewable energy generation, as well as the environmental impacts of their own electricity consumption and broader concerns about climate change and renewables.
- Opinions about the **energy transition** from coal-fired to large-scale and household renewable energy ranged from strong enthusiasm for increased access to clean energy via new technologies, to concerns about its implications for cost, reliability, grid capacity/equity, energy security and jobs.



Current services in order of priority

Wave 1

Overall ranking	Current services	Total times listed in top 5 (n=)
1	Reliable supply of electricity: Providing a reliable supply of electricity to customers by building, maintaining and managing the substations, poles and wires, underground cables and other equipment.	64
2	Responding to emergencies: Responding to emergencies like storms which bring down power lines and poles to reduce the safety risk and restore power as quickly and safely as possible.	53
3	Planning for the future: Planning for the future by building the electricity infrastructure to accommodate growing suburbs and industries.	42
4	Safety-related issues: Managing safety-related issues to reduce risks to the community by monitoring infrastructure, trimming trees to maintain safety clearances, managing bushfire risk and preventing blackouts caused by falling trees.	41
5	Helping vulnerable customers: Helping vulnerable customers to keep the power on when things go wrong in their lives or when they need electricity to power medical equipment to preserve life (life support customers).	41
6	New technologies: Researching, trialling, and installing new technologies such as batteries to improve efficiency of infrastructure investment where possible, helping contribute to long-term affordability of electricity bills.	39
7	Strengthening the network: Proactively strengthening the network in areas facing increasing extreme weather events to improve the resilience of exposed.	36
8	Managing the network efficiently: Managing the network efficiently to deliver electricity services in the most affordable way.	34
9	Keeping customers informed: Keeping customers informed (via SMS for all customers plus mailbox drops for life-support customers) of planned and unplanned outages to minimise disruption.	25
10	Tools to help manage electricity usage: Providing customers with tools like apps and tips to help manage electricity usage and costs via telephone, text and website.	22
11	Answering emergency telephone calls: Answering emergency telephone calls within 30 seconds.	17
12	Maintaining streetlights: Installing and maintaining streetlights for local councils to keep communities safe.	12
13	Prompt connections and disconnections: Providing prompt connections and disconnections when required, including new services and solar connections.	9
14	Reading electricity meters: Reading electricity meters and sending the data to retailers so your electricity bills are accurate.	5

At the start of the Customer Panel and before exposure to information, participants were shown a list of Endeavour Energy's current services and were asked to rate the top five in order of importance to them personally. This table shows the total number of times each of the services was listed in participants' top 5 priorities.

Future services in order of priority

Wave 1

Overall ranking	Future services	Total voted in top 5 (n=)
1	Solar panel technology: Provide the necessary technology so that anyone who wants to use solar panels to generate their own electricity and export what they don't use into the grid can do so.	62
2	Help customers save money: Help customers save money if they choose to reduce their energy consumption during a heatwave so more equipment doesn't need to be built, helping keep prices down for everyone in the longer term.	52
3	Reliability as the climate changes: Invest in infrastructure and / or new technology so the current levels of reliability (number of blackouts and speed with which they are fixed) can be maintained as the climate changes (e.g., if there are more floods and fires).	48
4	Electricity trading: Provide households with an option to send any excess energy from their solar panels to a battery shared with neighbours so they can trade electricity with each other. This would also help make the grid more efficient and keep downwards pressure on bills.	41
5	Help cut greenhouse gases: Help cut greenhouse gases and set targets to do this by 2040 through investment in new technology.	40
6	New ways of charging: Introduce a new way of charging so that customers can save money by changing the time of day they consume electricity or export solar to match the changing supply and demand in the grid.	37
7	Electric vehicles: Ensure the grid is able to cope with the increased demand likely to come from an influx of electric vehicles.	32
8	Fast-track the infrastructure needed to connect: Fast-track electricity infrastructure like substations to connect new business and housing developments so our region can grow quickly rather than invest 'just in time'.	28
9	Communication on disruptions: Provide customers more accurate and timely information about unplanned and planned disruptions.	22
10	Underground cables: replace above ground wires with underground cables to reduce fire risk and improve public amenity (note that this would cost significantly more and often takes longer to find faults).	22
11	Education and data: Help customers to understand and manage their electricity consumption and costs through education and data.	19
12	Offer small and medium businesses a range of different services: Offer small and medium businesses a range of different services and prices so they can choose what they want in terms of reliability, account management and customer service.	16
13	Premium services: Provide services to those who are willing to pay for them, instead of all customers contributing.	8
14	Increase digital security: Increase digital security to protect customers' personal data related to their energy usage.	8
15	Tailored approaches to account management: Provide small and medium businesses more tailored approaches to account management and different levels of support depending on their needs and size.	5

After rating their top current services, participants were shown a list of proposed future services Endeavour Energy could provide and asked to rate their top five in order of importance to them. This table shows the total number of times each of the services was listed in participants' top 5 priorities.

Customer experiences

Before sharing any information, in Wave 1 participants were asked a series of open-ended questions exploring their expectations and experiences in relation to the affordability, reliability and safety of their electricity supply.

Affordability

- **Top of mind** issue, particularly in context of 'cost of living'
- **Most** are mindful, but one in four are concerned
- Comments about **bill shock** tended to be related to estimated vs real meter reads rather than overall cost
- Many have, or are considering, **taking action to reduce their bills**, including switching retailer or plan, installing solar PV, reducing overall consumption, paying by regular installments and seeking government rebates. Most are pleased with the savings they have been able to achieve but remain watchful of both price increases and further opportunities to reduce their bills

Reliability

- **Most** have no or limited experience of outages
- **Those who do** are frustrated by these, especially when they are frequent and long lasting (over 4 hours)
- **Notifications** of planned outages and restoration times, along with accurate information being communicated from the call centre and via text message or app, is important. This is especially so for SME participants who put a higher value of outages during their business hours
- **Acceptance of outages during major weather events is high** (customers understand why this happens and are generally more patient)

Safety

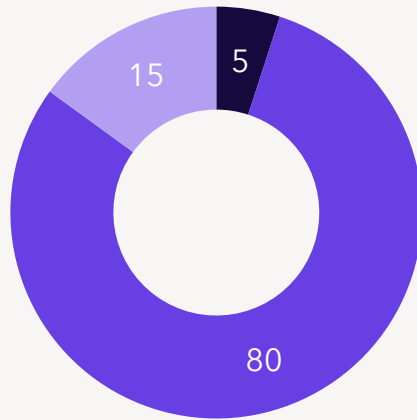
- **Most** participants have no first-hand experience nor major concerns
- **Most** think of potential issues in their own homes or businesses rather than concerns with the network itself
- **Several** mentions of broader safety issues associated with weather events, especially trees near powerlines
- Most see safety as a **joint responsibility** with high awareness of safety requirements in their own homes or businesses such as circuit breakers, faulty appliances, damaged cords, surge protector boards, etc. This focus is more widespread among SMEs
- Several mentions of increasing weather events as a safety concern, especially the risks of big trees near powerlines

Q. A key part of Endeavour Energy's job is to balance customers' expectations around the affordability of electricity, the reliability of electricity supply, and safety. We'd like you to tell us about your experience in each of these three areas. Affordability: Tell us your experiences around affordability of electricity for your home or business over the past five years. How do you feel about your electricity bill? Reliability: Tell us your experiences when it comes to reliability of electricity supply to your home or business over the past five years. Safety: Tell us of any experiences you may have had in relation to safety of electricity over the past five years. Have you ever been concerned? // Base: all participants (n=87)

'In principle' customer expectations on reliability

'In principle' most customers would prefer the same level of reliability as they have now at a similar cost, but one in four who live in Wollongong, Shoalhaven or the South Coast would prefer a higher level of reliability at a higher cost.

In principle customer expectations on reliability (Wave 1 %)



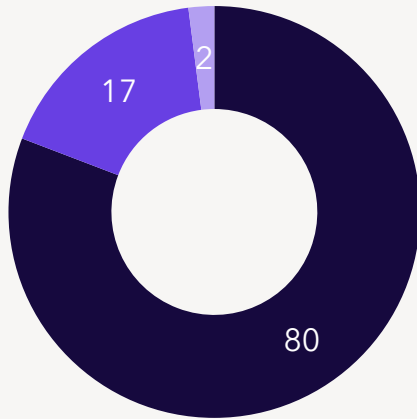
- I would prefer a lower level of reliability (with more unplanned outages) than I have now if this means a decrease in Endeavour Energy's part of my electricity bill
- I would prefer roughly the same level of reliability as I have now at a roughly similar cost on Endeavour Energy's part of my electricity bill
- I would prefer a higher level of reliability (with fewer unplanned outages) than I have now and understand it would mean an increase in Endeavour Energy's part of my electricity bill

- The majority of participants were, in principle, happy with the reliability of their electricity service and would prefer for it to remain the same as it is today at the same cost.
- Overall, 15% wanted to see a higher level of reliability with an increase in Endeavour Energy's part of their electricity bill. This was highest in the Wollongong, the Illawarra and the South Coast area (25%) and amongst SMEs (22%).
- Overall, 5% said they'd prefer a lower level of reliability and a decrease in Endeavour Energy's part of their bill. This was higher in South-west Sydney and the Southern Highlands, and amongst SMEs and customers with CALD or ATSI cultural backgrounds.
- Most Customer Panel members reported that they have limited experience of electricity outages, but those who do find them frustrating, especially if they last longer than 4 hours.
- Participants said that keeping people informed of when planned outages were happening, and how long before power would be restored during an unplanned outage, were important as it allowed them to decide what actions - if any - they needed to take. SMEs said efforts to ensure planned outages are scheduled outside of business hours were very much appreciated.

'In principle' preferences for reliability at edge of grid

Participants were provided with an explanation of 'postage stamp pricing' and information about the different levels of outages experienced by Endeavour Energy customers in different locations through the use of customer personas.

Customer preference for Endeavour Energy to take action to improve reliability (Wave 1 %)



- Endeavour Energy should take actions to improve the level of reliability of those living at the edge of the grid
- Endeavour Energy should take limited actions to maintain the level of reliability of those living at the edge of the grid
- Endeavour Energy should take no action to maintain or improve the level of reliability of those living at the edge of the grid

- Most participants, especially in North-West Sydney, Hawkesbury and the Blue Mountains, those under financial pressure and SMEs, felt it would be fairer if all customers in the catchment had the same level of reliability and felt action should be taken to improve reliability of those living at the edge of the grid.
- Of the remainder, most (17%) felt Endeavour Energy should instead work to maintain rather than improve current level of reliability for those living on the edge of the grid, noting that many would be aware of this issue when making the choice about where to live. This view was slightly higher amongst those living in South-West Sydney and the Southern Highlands, innovators and participants with CALD or ATSI backgrounds.



"People often make informed decisions to live in areas on the fringe and lower service levels are part of this decision process. While it would be wonderful to offer everyone the best available power generation system, the cost pressure it puts on everyone must be taken into consideration. This cost may be in higher prices or cost cutting in other areas which will lessen the quality or safety of the system as a whole."
(Residential, high-energy user, South-west Sydney)

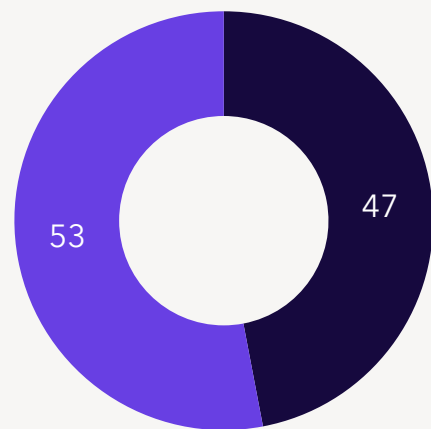


"Everyone deserves reliable energy, no matter where they live, how they live or how much they are willing to pay for it."
(Residential, under financial pressure, high-energy user, North-west Sydney)

Measuring reliability

Customers were shown how Endeavour Energy's reliability performance changes based on the inclusion or exclusion of major weather events and were asked to consider which was the most meaningful measure to inform what future investment is required

Most meaningful way for Endeavour Energy to measure and report reliability (Wave 1 %)



- Show all outages and treat major weather events as normal
- Show ordinary circumstances only and treat major weather events as exceptional

- There were mixed views on the most meaningful ways for Endeavour Energy to measure and report on reliability.
- General residential customers, those from Wollongong, Illawarra and the South Coast, and those with CALD and/or ATSI backgrounds were more likely to favour including the impacts of major weather events when measuring reliability as they saw them as increasingly becoming the 'norm'.
- Those living in North-west Sydney, the Hawkesbury and the Blue Mountains, and those recruited as innovators were more likely to prefer the status quo where major weather events are excluded from reliability measures as they are unpredictable and largely outside of the network's control.



"I think that we need to be realistic here. I believe that we need to adapt with the ever changing environment that we live in. As climate change begins to impact us more, we need to find solutions for the problems that may occur as a result of it."
(Residential, high-energy user, South-west Sydney)



"I don't think major weather events should be included with the ordinary data, because they are not ordinary. They massively affect the energy supply and are unpredictable and no matter how much we plan for them they will always cause some sort of disruption and power outages which will distort the everyday data. Ordinary circumstances data gives a much better overall indication of Endeavour Energy's reliability."
(Residential, under financial pressure, impacted by floods, South-west Sydney)

1

How should Endeavour Energy best meet customer expectations for a safe, reliable and affordable electricity supply?

1. Long-term service deterioration and a deferral of cost

Cost

- Most* customers' bills would **fall by around \$17 per year (every year)** in the next 5 years.
- Bills may increase more in the future (after 2029) because more equipment failures will start to occur requiring increasing emergency response costs.

Reliability

- Reliability would get worse. There would be more outages as infrastructure gets older or is under more stress (e.g. on the hottest days of the year).
- Most* customers would experience a total increase of 18 minutes per year in outages (up from 77 to 95 minutes a year).
- Those living or working in rural areas at the edge of the grid would be the most impacted.

Safety

- The risk associated with outages, safety incidents (e.g. outages during a heat wave) and fires caused by equipment failure would be about 50% higher than today by 2029 and increase further after that.

2. Maintain the current level of service and cost

Cost

- No bill impact for the average customer.

Reliability

- No change in duration and frequency of outages, remaining steady at 77 minutes per year on average.

Safety

- Network reliability, safety and bushfire starts caused by equipment failures to remain steady.

3. Long-term improvements in service outcomes but at higher cost

Cost

- Most* customers' bills would **increase by \$10 per year (every year)** in the next 5 years.

Reliability

- Reliability would improve. Most customers would experience a total drop of 8 minutes per year in outages (down from 77 minutes to 69 minutes a year).

Safety

- The risk associated with outages, safety incidents (e.g. outages during a heat wave) and fires caused by equipment failure would fall by around 23%.

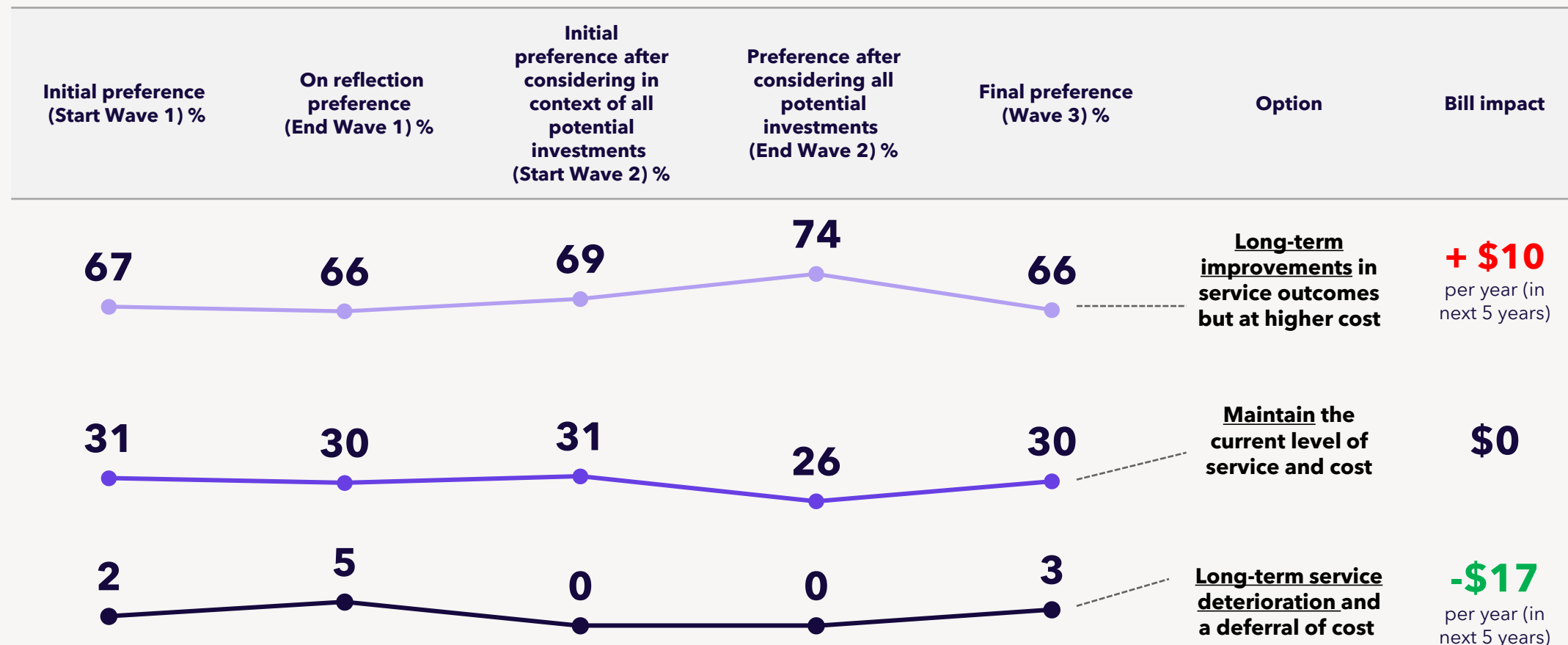
* Bill impact per customer on average across all customers (big and small) - \$ real in FY24 terms

1

Question #1: How should Endeavour Energy best meet customer expectations for a safe, reliable and affordable electricity supply?

While the overall preference for long-term improvements in service outcomes at a higher price decreased between Waves 2 and 3 (from 74% to 66%), it remained the majority preference.

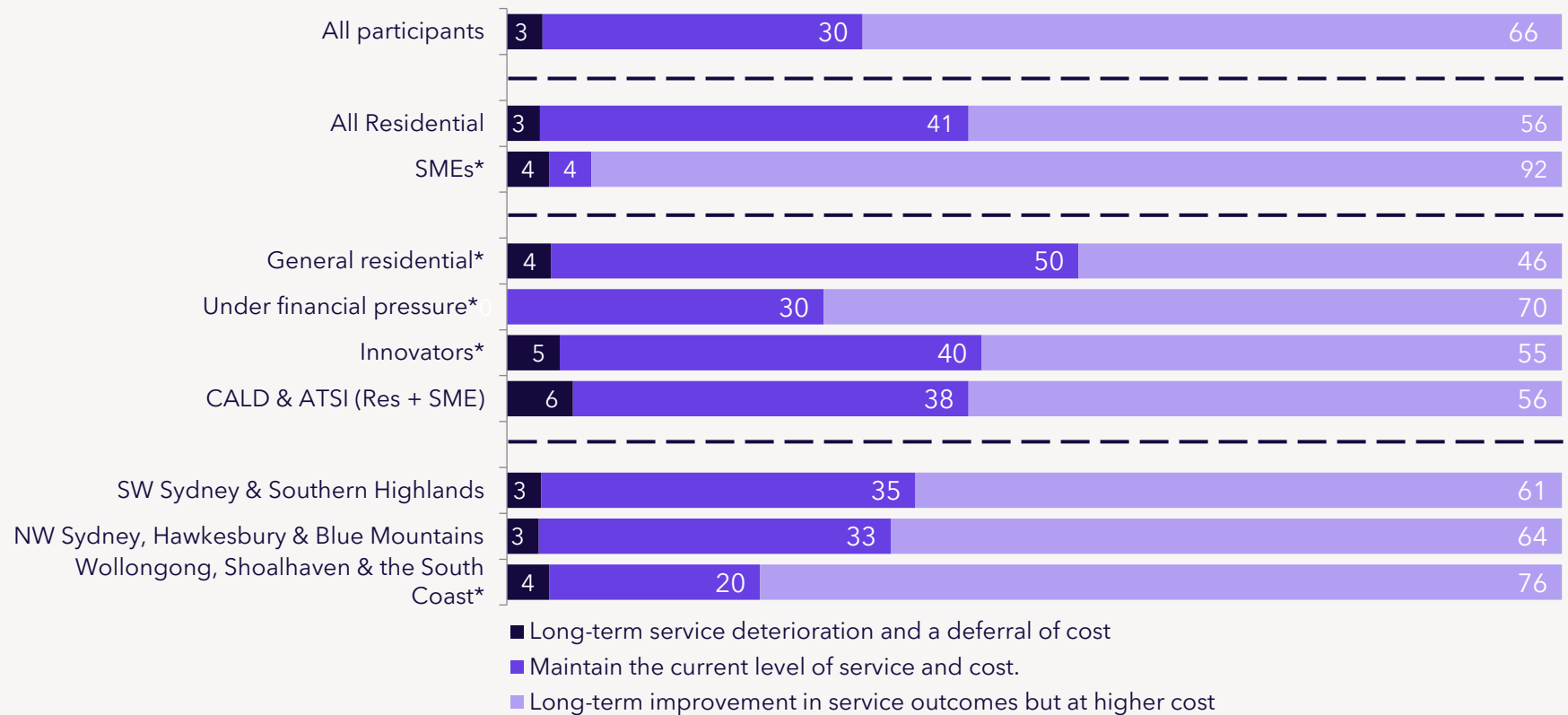
How preferences changed over time



Reliability, affordability & safety: Preferences by segment

At the end of the deliberation, just over half of all residential customers (66%) and over nine in ten small businesses (92%) would prefer to see a long-term improvement in service outcomes at a higher cost. The remainder were mostly keen to see the current level of service and cost maintained.

Customer preferences for reliability, affordability and safety (Wave 3 %)



Reliability, affordability & safety: analysis of reasons

Customer Panel members explained the reasons for their initial choices as well as reasons for any shift in preference through the course of deliberation. This slide summarises the key themes in verbatim comments.

3% preferred **long-term service deterioration** and a **deferral of cost**

+ \$10 / year

- Lower bills are the priority, particularly with wages stagnant and cost of living high
- Wait for new technology which could make improvements more affordable
- Acknowledge that service will get worse and price increases will be needed in future to catch up
- One preferred investment to improve solar access rather than reliability

30% preferred **maintaining** the current level of **service and cost**

\$0 / year

- Cost of living is already rising across the board and can't afford to pay more.
- The cost of improvements is too high
- Nothing wrong with the current service (those personally unaffected by outages so don't want to pay more for a benefit they won't see)
- Best outcome for most consumers
- The difference between 77 and 69 minutes is not sufficient to justify higher bills
- Endeavour Energy should do this as a core service and not ask for extra money

66% preferred **long-term improvements** in service outcomes but **at a higher cost**

- \$17 / year

- \$10 is a relatively small price increase
- Will save customers money in the long term
- Helps address safety concerns, especially bushfire prevention
- Improves reliability for those who have relatively poor service
- Avoids costs associated with outages, particularly for business
- Makes the network 'match fit' for the future
- Helps to manage major weather events

Reasons for preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they selected the 'maintain the current level of service and cost' approach in Wave 2.



"\$10 per year is nominal, but I chose to maintain the current level of service and cost as my business is not heavily impacted by unreliability."

(SME, impacted by bushfires, South-west Sydney)



"Endeavour Energy already provides a better than average quality of reliability to its customers."

(Residential, CALD, North-west Sydney)



"I would prefer to receive an equivalent quality of delivery in the future, because that would mean my costs are still controlled, thus ensuring a decent degree of reliability as well as affordability."

(Residential, ATSI, CALD, high-energy user, North-west Sydney)



"For a saving of \$17 a year it's not worth the system deteriorating! I have always experienced a low number of outages and I find that Endeavor Energy has great communication around the outages and a high level of maintenance/prevention of customers being impacted by storms (e.g. trimming back trees near powerlines). I don't think you should change your strategy at all around reliability. For that reason, I say maintain the current level of service and cost."

(SME, high-energy user, South Coast)



"For my extended family and close network of friends, we haven't experienced reliability or safety issues. I accept that some people, who live in high-risk areas, might experience these problems, but they are not the majority."

(Residential, innovator, high-energy user, North-west Sydney)



"My supply and reliability is very good in my area. I'd probably consider the small increase in cost, but feel it is Endeavour's responsibility to keep reliability at a certain standard."

(Residential, under financial pressure, impacted by floods, South Coast)

Reasons for preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they selected the 'Long-term improvement in service outcomes but at higher cost' approach in Wave 2.



"I believe that I can handle the price rise, but it would also be important to me that the new equipment would eventually reduce my bill and that it would last longer than current equipment."

(Residential, under financial pressure, South Coast)



"As a general principle we need to keep investing in new technology and not rely on failing, outdated infrastructure... but the problem is that this cost increase can be never ending."

(Residential, high-energy user, South Coast)



"I believe that paying a little extra now will actually save me and my children more in the future than doing nothing now. As we become more dependent on electrical devices any failure by the grid will lead to greater costs/losses to the community. A loss of power means that we have a loss of internet which leads to a loss of business or the use of generators to maintain power at a fuel cost greater than electricity." (Residential, high-energy user, North-west Sydney)



"No brainer for me. For the cost of two coffees per year, per customer you can make the system more stable, more resilient and more affordable. Assume on the affordability component the two coffees of value is offset by cost savings of those 5 years. "

(Residential, Innovator, high-energy user, South-west Sydney)



"I am tired of so many power outages, I live in a rural area and it happens more than 77min a year. I would estimate that our outages would be more that 24hours worth in a year. Upgrading the system we have now would help eliminate these problems and would also reduce the risk of bushfires, that we also suffer with."

(Residential, under financial pressure, impacted by floods and bushfires, South-west Sydney)



"I feel that \$10 per year is a very small cost to pay to enable the improvement in service outcomes. I don't think that there would be any customers who couldn't afford this extra payment. \$10 per year is really nothing compared to the inflationary cost of living. We need to plan for the future and not just think about what is happening now." (Residential, Innovator, high-energy user, North-west Sydney)

Additional comments from Wave 3

Below are a selection of verbatim responses given by Customer Panel participants on why they selected their preferences in relation to safety, affordability and reliability and the end of Wave 3.



"I prefer something reliable in the long term but with no extra cost as already things are getting very expensive."

(Residential, CALD, high energy user, South-west Sydney and Southern Highlands - had changed preferences between Wave 2 and 3 due to cost-of-living concerns)



"No change, I feel the balance is still right in terms of cost and long-term stability."

(Residential, CALD, Innovator, South-west Sydney and Southern Highlands - no change to preferences between Wave 2 and 3)



"I still feel strongly about more investment, I am not sure if this has changed in the questions that have been posed."

(Residential, CALD, flood-affected, South-west Sydney and Southern Highlands - unsure if preferences changed between Wave 2 and 3)



"As a senior citizen, reliability of electricity supply is most important for me and my family. We depend on electricity for our most basic needs. As I've aged, I find myself not so resilient in many ways. Knowing that my electricity will always (or nearly always) be there for me is vital."

(General residential, Wollongong, Shoalhaven and the South Coast - had changed preferences between Wave 2 and 3 - reason unclear)



"Reliability has been of the utmost importance throughout this whole research. For my small business, it's paramount I have this and having that communication of outages is important to me."

(SME, high energy user, CALD, Wollongong, Shoalhaven and the South Coast - no change to preferences between Wave 2 and 3)



"Safety, reliability and affordability should be the cornerstone due to the increasing pressures of cost of living as well as taking into account the needs of the future economy."

(General residential, North-west Sydney, Hawkesbury and the Blue Mountains - no change to preferences between Wave 2 and 3)



#2 Resilience

Approach to resilience

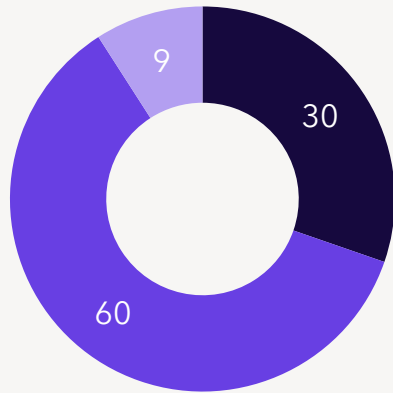
Participants were provided with information about the resilience of the network in the face of major weather events during the live Zoom forum, before exploring their views in break-out group discussions and activities in the online community. These included:

- Open-ended discussion of their own experiences, or the experiences of others they were aware of, with weather events that impacted electricity supply in the last few years
- Rating of Endeavour Energy's response to these events
- Rating of relative importance of a list of actions that could be taken in relation to resilience, and sorting these according to who should be most responsible for each
- Prioritisation of actions to address different specific areas of the network most exposed to climate extremes
- Fact sheet and explanatory video before core question **'Should Endeavour Energy take a more proactive or responsive approach to maintaining network services in the face of increasing major weather events (storm, bushfire, flood, etc)?'** and discussion of reasons for preferences
- *Note: The wording of this question changed slightly (replacing 'reactive' with 'responsive' between the first and second time it was asked to improve clarity for participants based on advice from the RRG*

Customer expectations on resilience

Based on their own experiences or those of people they know, 90% felt that Endeavour Energy responded in line with or better than their expectations, in dealing with disruptive events.

Customer expectations on reliability (Wave 1 %)



- Its performance was better than I would have expected
- Its performance was in line with my expectations
- Its performance was worse than I would have expected

- Most customers had not given much thought to resilience and so had low or moderate expectations based on the restoration of power supply.
- In most cases, participants understood that circumstances sometimes meant this took time and they felt Endeavour Energy responded in line with their expectations.
- Those with first-hand experiences of major weather events were more likely to rate Endeavour Energy's performance either better than expected based on the efforts they had seen on the ground, or for some, worse than expected due to either lengthy outages or lack of information about restoration times.



"Its performance was in line with my expectations. The response was timely considering the damage that occurred." (Residential, innovator, ATSI, Wollongong, Shoalhaven and South Coast)

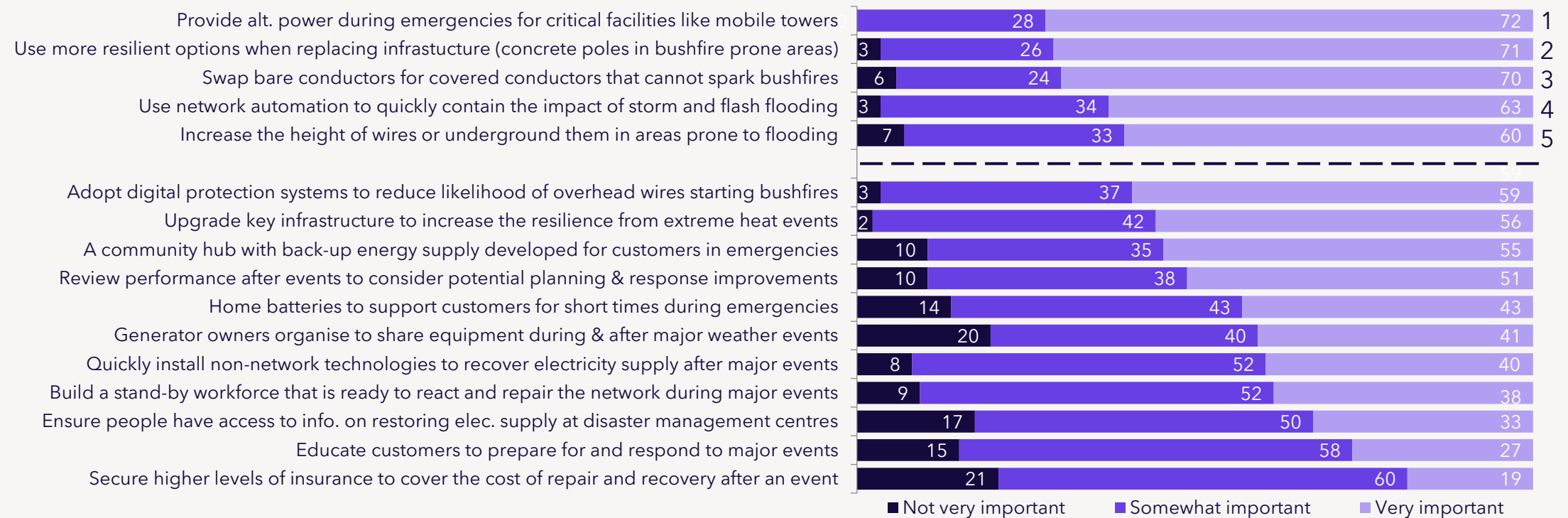


"Endeavour Energy had the worst fires in NSW history thrown at its supply chain and still managed to keep a town ... alive, accessible and powered."
(Residential, under financial pressure, high-energy user, Blue Mountains)

Building resilience for major weather events

Early in the Customer Panel deliberations, participants were provided the following sixteen actions and asked to drag each into the bucket they thought best reflected their views in order of importance. The priorities are listed in descending order below, with the top five above the line below.

Perceived importance of various actions to build resilience (Wave 1 %)



Responsibility for building resilience for major weather events

Participants were provided with the same sixteen actions and were asked to drag each into the bucket representing the organisation they thought should be most responsible for managing it. The results, shown below, show a mix of responsibilities.

Actions	Responsibility (Wave 1 %)					
	Endeavour Energy	NSW Gov.	Local Council	Individual Customer	Federal Gov.	Local comm. group
Use network automation to quickly contain the impact of storm and flash flooding	83	10	3	2	1	0
Swap bare conductors for covered conductors that cannot spark bushfires	78	10	5	2	5	0
Adopt digital protection systems to reduce the likelihood of overhead wires starting bushfires	76	13	5	2	5	0
Use more resilient options when replacing infrastructure eg. concrete poles in bushfire areas	71	10	6	0	13	0
Quickly install non-network technologies to recover elec. supply to customers after major events	66	14	12	2	6	0
Increase the height of wires or underground them in areas prone to flooding	65	17	6	1	10	0
Review performance after events to consider potential improvements to planning and response	58	21	8	3	7	2
Upgrade key infrastructure to increase the resilience from extreme heat events	56	19	3	2	20	0
Provide alternative power during emergencies for critical facilities like mobile towers	47	28	12	2	10	1
Build a stand-by workforce that is ready to react and repair the network during major events	47	31	8	1	9	3
Secure higher levels of insurance to cover the cost of repair and recovery after an event	35	28	3	16	17	0
Home batteries to support customers for short times during emergencies	19	20	20	27	12	3
Ensure people have access to info. about restoring elec. supply at disaster management centres	19	23	35	7	9	7
Educate customers to prepare for and respond to major events	13	29	23	14	14	7
Community hub with back-up energy supply developed for customers to go to in emergencies	8	12	60	1	2	16
Generator owners organise to share equipment during and after major weather events	3	10	69	6	0	12

Q. Below are the same broad actions, and we now would like you to drag and drop each element into the 'bucket' to reflect who you think should be most responsible for managing that action.it. // Base: all participants (n=86)

Priorities

After receiving information on the impact of major weather events on the network, participants were asked to rate the below actions Endeavour Energy could take for each of the following weather events in order of priority.

Wave 1					
Areas most exposed to risks from major weather events	Ranked 1 (%)	Ranked 2 (%)	Ranked 3 (%)	Ranked 4 (%)	Ranked 5 (%)
Bushfires: Replacing bare overhead wires with covered wires less likely to cause sparks that start bushfires, or improving technologies such as protection systems to reduce the likelihood of them starting bushfires	40	33	19	5	5
Identifying local critical infrastructure: Identify facilities used during emergencies (such as local community centres, petrol stations, telecommunications towers, water facilities) and providing alternative solutions such as batteries to ensure supply to them is maintained	26	13	9	14	38
Hawkesbury flooding: Upgrading electricity infrastructure in the area or finding alternative technologies, such as microgrids, to increase reliability for communities cut off from the grid by flooding	15	28	19	26	13
Western Sydney heat waves: Upgrading key assets to protect against extreme heat events	10	16	23	27	23
South Coast storm path: Increasingly using network automation to allow parts of the network to “self-heal” or “self-respond” to storm and flash flooding impacts	9	10	30	29	21



2

Should Endeavour Energy take a more proactive or responsive approach to maintaining network services in the face of increasing major weather events (storm, bushfire, flood, etc)?

1. More proactive approach to maintaining network services in the face of major weather events and at increasing cost to customers.

Cost

Bill impacts for the average customer would **increase by \$7.50 per year** (every year).

Responding to changes in climate

We would use localised climate modelling to identify areas of the network exposed to climate extremes and where to proactively work with the community to identify tailored solutions. Some of examples of these were shown in the fact sheet.

Impacts to network services on all customers stay steady while major weather events increase

This approach would aim to keep steady the impact of outages that result from increasing major weather events:

- Excluding major events, the average duration of outages would still improve from 77 minutes to 71 minutes.
- The average impact to customers of all outages, including those caused by major events remains unchanged at 147 minutes per customer.
- For customers who have the lowest levels of network service (the lowest 1% or 10,000 customers), the average impact of all outages, including those caused by major events remains unchanged at 2,000 minutes (1.4 days) or more without supply per year.

2. Proactive and responsive approach that has some declining levels of network service during major weather events but at no additional cost to customers.

Cost

Bills remain largely unchanged for average customer (i.e. current approach).

Responding to changes in climate

This is similar to the proactive option but we would use the localised climate modelling to identify a **smaller number of areas that are most exposed** to climate extremes and then work with these communities to identify tailored solutions.

Impacts to network services on all customers increase as major weather events increase

There would be an increase in outages related to major weather events.

- Excluding major events, the average duration of outages would still remain steady at approximately 77 minutes per customer.
- The average impact to customers of all outages, including those caused by major weather events increases from 147 to 208 minutes per customer.
- For customers who have the lowest levels of network service (the lowest 1% or 10,000 customers), the average impact of all outages, including those caused by major events increases from 2,000 minutes (1.4 days) to 3,000 minutes (2 days) or more without supply per year.

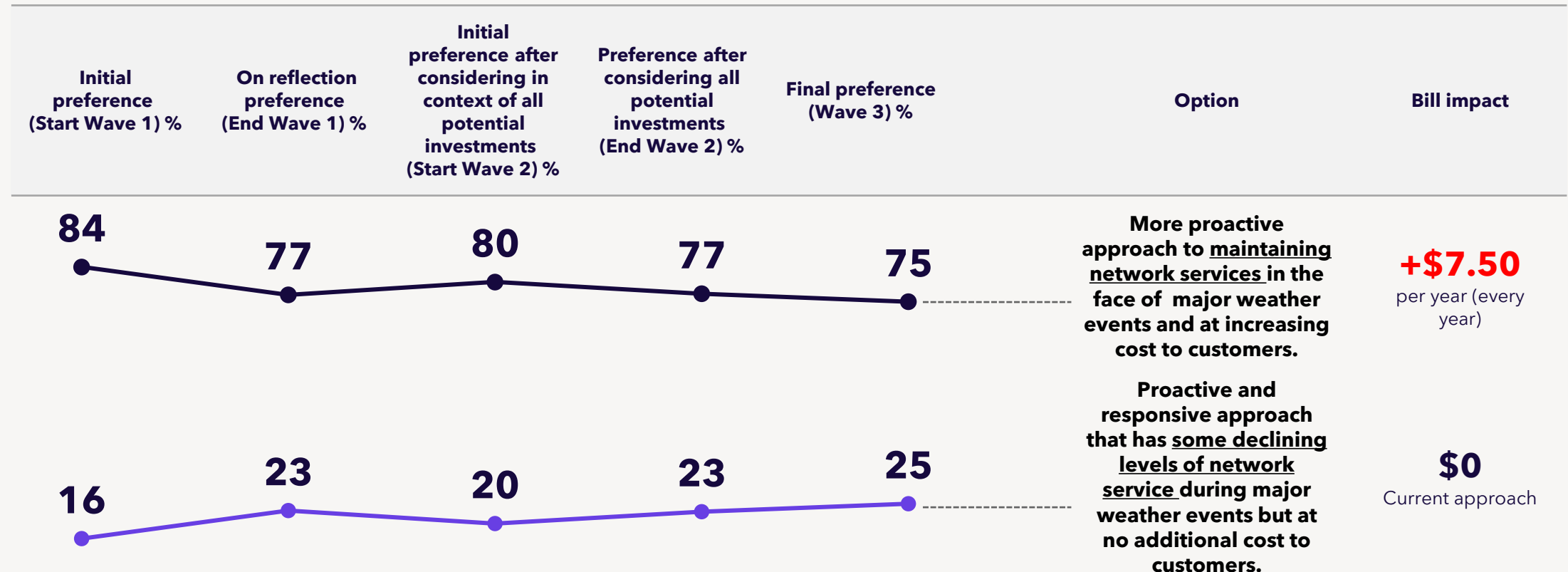
Note: The wording of this question changed slightly (replacing 'reactive' with 'responsive' between the first and second time it was asked) to improve clarity for participants based on advice from the RRG.

2

Question #2: Should Endeavour Energy take a more proactive or responsive approach to maintaining network services in the face of increasing major weather events (storm, bushfire, flood, etc)?

The overall preference for taking a more proactive approach softened slightly throughout the engagement as participants considered more information and the cumulative impact of their preferences but remained the preferred option for three-quarters of Customer Panel members.

How preferences changed over time



Resilience: Customer preferences by segment

Small and medium business customers were the most likely to support Endeavour Energy taking a more proactive approach to maintaining network services in the face of major weather events, at increasing cost to customers (88%). Innovators were least likely to prefer a proactive approach to resilience.

Customer preference for Endeavour Energy to adopt a more proactive or responsive approach (Wave 3 %)



■ More proactive approach to maintaining network services in the face of major weather events and at increasing cost to customers.

■ Proactive and responsive approach that has some declining levels of network service during major weather events but at no additional cost to customers.

Resilience: analysis of reasons

75% preferred a more **proactive approach** to maintaining network services in the face of major weather events

+ \$7.50 / year

- The economic and social benefits of avoiding or minimising lengthy disruptions outweigh the relatively small cost of \$7.50
- Safety should be the #1 priority; need to act urgently due to climate change
- Failure to spend now would be more costly in the long-run
- It is fairer for everyone to put in a small amount - costs shouldn't just be borne by those living in affected areas
- Would prefer money is spent on infrastructure rather than insurance premiums
- Customers in Wave 3 stressed the importance of a proactive approach in light of increasing major event events - NSW suffered another round of floods as recently as July with some panel members being affected by this.

25% preferred a **proactive and responsive approach** that has some declining levels of network service during major weather events

\$0 / year

- Proposed cost increase is too high, especially when added to other priorities
- Not personally impacted by major weather events so it won't benefit them
- Government, Endeavour Energy's investors or others should fund these costs - customers are not to blame for climate-change induced major events
- Recovery costs from any major weather event will still be high regardless of any resilience actions taken in advance

Some said they'd prefer an option between these two

Reasons for preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they preferred the 'More proactive approach to maintaining network services in the face of major weather events and at increasing cost to customers' in Wave 2.



"If it does only cost the consumer \$7.50/year, it seems an obvious choice to go the proactive route. At that price, it would certainly outweigh the potential cost."
(Residential, under financial pressure, South-west Sydney)



"It is important to be proactive given major weather events are occurring at a higher and more regular frequency... \$7.50 each year is a small cost that would pay its return 10-fold."
(SME, ATSI, South Coast)



"Proactive approach should be taken. I believe doing this will save lives and property well beyond what is required by Endeavour Energy. If a bushfire is started because of sparks from old wires this has proven to be fatal in the past. Not undertaking this maintenance is life changing."
(SME, high-energy user, South Coast)



"If major weather events are going to continue, the flow on effects from taking reactive measures rather than proactive measures will have a greater effect on the community than an increased power bill."
(Residential, under financial pressure, South Coast)



"A proactive approach might be costly at first, but the overall outcome would even itself out over the next 20 years. Moving away from the fossil fuel industry and into renewable energy means we will need to have solid infrastructure in place."
(SME, high-energy user, North-west Sydney)



"Proactive approaches decrease the risk of adverse events, if the initial outlay was not ridiculous, it would be much more beneficial in the long run."
(Residential, innovator, ATSI, South Coast)

Reasons for preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they preferred the 'Proactive and responsive approach that has some declining levels of network service during major weather events but at no additional cost to customers' in Wave 2.



"An in between option would be the best as obviously any increase in costs of already expensive but absolutely essential utility services like electricity is not preferable.

Therefore, a fine balance between a proactive and a reactive approach would be the optimum solution at this stage."

(Residential, CALD, high-energy user, North-west Sydney)



"I feel that an approach between these two would be required even if it did require a small additional cost to customers. That would be one that targets those improvements and changes that can have the most impact of customers per \$ spent."

(Residential, Innovator, South-west Sydney)



"Whilst I would prefer that the infrastructure is improved to safeguard it from hazards, it seems as though there wouldn't be a significant improvement to justify spending an extra \$7.50 per year. As a result, I have selected the response approach and would prefer that Endeavour Energy works with those communities at most risk of climate extremes to find a tailored solution for their issues."

(Residential, high-energy user, South-west Sydney)



"The electricity bills are already so high due to the circumstances in the past two years. We don't want to pay any additional cost on top of that. I think the government should take care of all these expenses."

(CALD, high-energy user, South-west Sydney)



"Electricity bills are already so high. I don't want to pay any additional cost. I think the government should take care of these expenses."

(SME, CALD, South-west Sydney)



"A balance between a proactive and reactive approach would be the optimum solution at this stage. Any increase in costs is not preferable."

(Residential, CALD, North-west Sydney)

Additional comments from Wave 3

Below are a selection of verbatim responses given by Customer Panel participants on why they selected their preferences in relation to resilience at the end of Wave 3.



"With increased weather events and so many floods in NSW this year alone, and also forever increasing bushfire threats, I put my number one choice here...but I am very aware of the cost of living increases climbing up now even more than back when I started this forum. "

(Residential, high-energy user, impacted by floods and bushfires, financially vulnerable, North-west Sydney, Hawkesbury and the Blue Mountains - unsure if preferences changed between Wave 2 and 3)



"Given disastrous weather events are becoming a norm, I guess it is important that we take on more of a proactive response to ensure that we can minimise the impact that these events can have on our electricity access/use.

(General residential, high-energy user, South-west Sydney and Southern Highlands - no change to preferences between Wave 2 and 3)



"We have seen unprecedented weather conditions and these events need a proactive rather than a reactive approach. And while the costs can blow out too significantly, the proposed changes are minimal over a full year and personally and from what the responses have been, it seems most people are more conscious of covering future needs and are prepared to pay extra to achieve it...While personally and at work, we haven't had any supply issues at all, I'm happy to contribute to ensure than others in fire and flood zones or in areas with old wiring etc can get the improvements needed and also, so that in the long run, electricity will remain affordable for all, even if its at a higher cost for now."

(SME, high-energy user, North-west Sydney, Hawkesbury and the Blue Mountains - no change to preferences between Wave 2 and 3)



Growth:
#3 Timing of investment and
#4 'who pays' for connections

Approach to growth

Participants were provided with information about growth underway or planned for many areas of Endeavour Energy's catchment and the investment required to ensure the necessary electricity infrastructure is in place to support it. They were then asked open-ended questions about any benefits or concerns they have about growth, before focusing on two key areas of investment:

- Large-scale infrastructure that expands network capacity to cope with additional demand without impacting electricity supply to current customers; and
- The actual physical connection of new customers to the grid.

Fact sheets and explanatory videos were provided before two key questions concerning growth were explored:

- **'How should Endeavour Energy time the delivery of the electricity infrastructure required for the economic development of Greater Western Sydney and other areas?'** and
- **'Should new customers be required to pay "upfront" for the infrastructure required to service new development, or should the costs for this infrastructure be recovered over time from all customers through existing charges?'**

3

How should Endeavour Energy time the delivery of the electricity infrastructure required for the economic development of Greater Western Sydney and other areas?

1. Build electricity infrastructure in advance to boost economic growth of our regions. This could increase costs to current customers if that infrastructure is not fully utilised but it could help accelerate economic growth in our regions.

Cost

- The average customer's bill would **increase by \$6 per year (every year)**.
- As the population increases and new customers connect, the costs are shared among a bigger number of customers and will start to go down.

What this means for Endeavour Energy

- Where areas are identified in NSW Government plans as 'employment lands' Endeavour Energy would put electricity infrastructure in place early.
- We would move more slowly in residential growth areas and build infrastructure at the same time that gas (where used), water and roads are being built. That is, 'just in advance' of when it will be needed.

Considerations for customers

- Early investment in 'employment lands' will attract large industrial and commercial businesses. This creates jobs, attracts investors and stimulates the economy.
- There is a chance that the electricity infrastructure built in 'employment lands' will be no longer needed if economic conditions or government plans change.

2. Build electricity infrastructure at the same time as gas, water and roads are being built, just in advance of growth. This would be done at a steady cost to customers.

Cost

- The average customer's bill would remain steady.

What this means for Endeavour Energy

- We time the delivery of electricity infrastructure according to NSW Government plans. We also keep an eye on economic and population growth.
- We would invest 'just in advance' of when electricity infrastructure is needed, both in 'employment lands' and residential growth areas.

Considerations for customers

- This approach means there is only a very small likelihood that the electricity infrastructure built will be no longer needed.
- This approach also means there is a small likelihood that the electricity infrastructure will not be built in time which could slow down development and economic growth.

3. Build electricity infrastructure only when we are 100% certain it is needed. This would be done at a reduced cost to customers but potentially delay growth in our regions

Cost

- The average customers' bill would **fall in the short term by \$4 per year (every year)**.
- This may result in a situation where the network will need to use 'stop-gap measures' such as delaying connections or the use of temporary or mobile infrastructure. This 'stop gap' infrastructure would later become redundant or need to be moved, which could increase longer term costs for all customers.

What this means for Endeavour Energy

- We only build electricity infrastructure when we are 100% certain it is needed - when a confirmed plan is submitted.

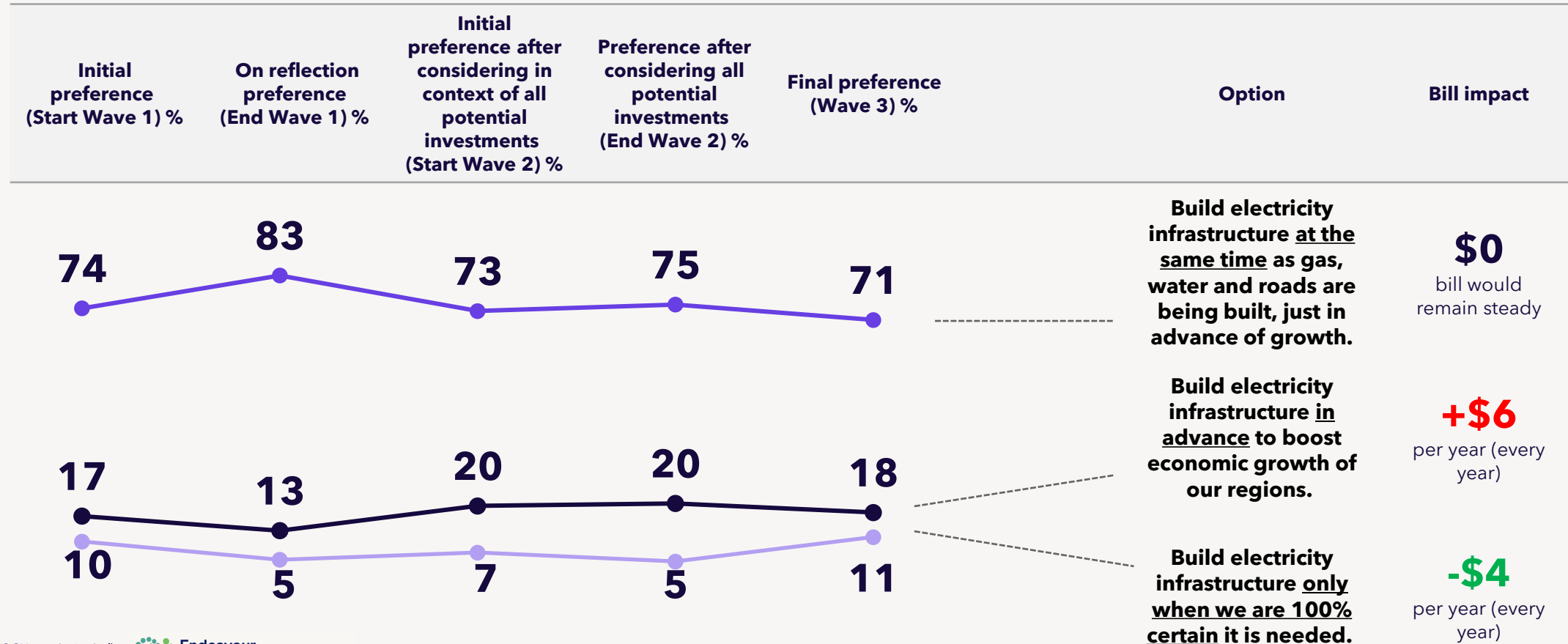
Considerations for customers

- This could potentially slow economic growth and job creation.
- It could mean the existing electricity network has to work harder which could lead to an increased risk of outages as the population and businesses grow.

Question #3: How should Endeavour Energy time the delivery of the electricity infrastructure required for the economic development of Greater Western Sydney and other areas?

The overall preference to build electricity infrastructure 'at the same time' as other utilities remained broadly consistent, with 71% preferring this option by Wave 3.

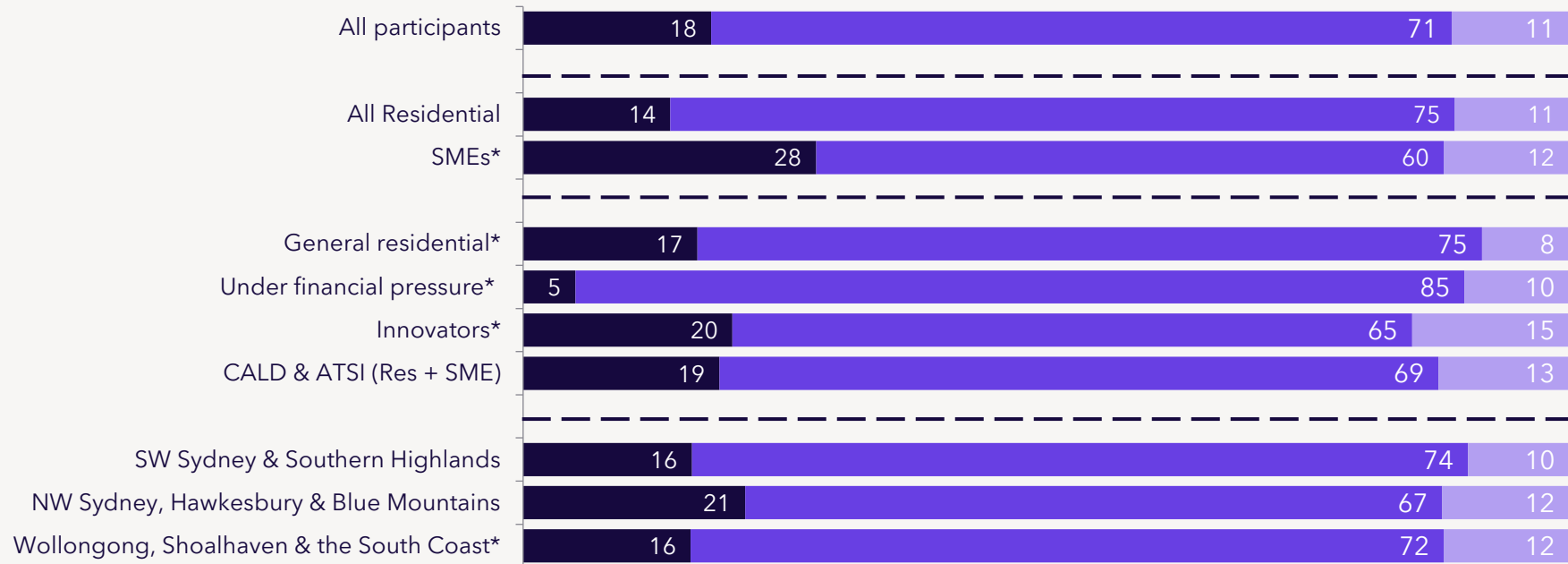
How preferences changed over time



Timing of investment: Customer preferences by segment

Most customers across all segments support infrastructure being built 'just in advance' of growth.

Customer preferences for growth in Greater Western Sydney and other areas (Wave 3 %)



- Build electricity infrastructure in advance to boost economic growth of our regions. This could increase costs to current customers if that infrastructure is not fully utilised but it could help accelerate economic growth in our regions
- Build electricity infrastructure at the same time as gas, water and roads are being built, just in advance of growth. This would be done at a steady cost to customers
- Build electricity infrastructure only when we are 100% certain it is needed. This would be done at a reduced cost to customers but potentially delay growth in our regions

Q. How should Endeavour Energy time the delivery of the electricity infrastructure required for the economic development of Greater Western Sydney and other areas? // Base: all Wave 3 participants (n=89), All Residential (n=64), SME (n=25), General residential (n=24), Under financial pressure (n=20), Innovators (n=20), CALD & ATSI (n=32), SW Sydney & Southern Highlands (n=31), NW Sydney, Hawkesbury & Blue Mountains (n=33), Wollongong, Shoalhaven & the South Coast (n=25) *Note, low sample size (n<30) results to be interpreted with caution

Timing of investment: Analysis of reasons

18% preferred building **well in advance** of growth

+ \$6 / year

- Infrastructure always lags demand and we need to take action to change this
- Infrastructure could help create demand and generate economic growth including jobs and infrastructure to accommodate for new and emerging technologies
- Does more to ensure a sustainable and reliable network
- Data centres will require it
- Does more to protect reliability

71% preferred building **just in advance** of growth

\$0 / year

- The most reasonable approach - electricity supply available when needed, less cost pressure and infrastructure keeps up with demand
- Comfortable with the rate of development
- Reliability protected for those already in the area
- Doesn't slow the economy but also doesn't encourage excessive growth
- Expect efficiencies from utilities going in at the same time
- New technologies could change what is needed in future

11% preferred building only when **certain** it is needed

- \$4 / year

- Project timelines always blow out so needs change
- The benefit from investment here seems less important and delivers less benefits to customers than other questions so far
- Note that a few were worried about safety and reliability impacts and felt it wasn't a real option
- Some said they were not clear on the potential impacts of delayed economic growth

Some said they'd prefer an option between 'just in advance of growth' and 'well in advance of growth' - they wanted utilities to all go in at the same time

Reasons for initial preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they preferred "Build electricity infrastructure in advance to boost economic growth of our regions" in Wave 2.



"I think a mix of the first two options would be the best. The infrastructure will have to be built sooner rather than later."
(SME, high-energy user, North-west Sydney)



"The infrastructure will have to be built sooner rather than later and then everyone is playing catch up, forward planning and estimations of what might be needed in the future should be paramount. The mention of data centres just goes to prove why investment in that area should be undertaken now rather than in the future."
(SME, Impacted by the floods, North-west Sydney)



"Looking at the extra cost to be incurred by the end-customers each year, \$4 extra per year is acceptable for the greater economic benefit and assurance this option will provide. It is less likely that the planned growth will not occur, due to so many people now wanting to move away from the city and move to more remote areas. So the economic growth from businesses and new homes will continue in these regions. So, it is highly unlikely that the in-advance infrastructure will go to waste."
(Residential, CALD, Innovator, South-west Sydney)



"I feel that building infrastructure in advance is definitely the way to go. This would ensure that all the future needs are covered. It also covers the needs for the large number of customers who will move into the area in the future. It would also ensure the best economic outcome for growth in the area."
(Residential, Innovator, high-energy user, North-west Sydney)



"The economic development should be done in advance as it would support the growth and establishment of businesses that are in the environmental, renewable and green energy sectors. The cost to the energy bills also seems minimal, and I feel most people would be supportive if the benefits of the developments were laid out to them."
(Residential, under financial pressure, impacted by bushfires, high-energy user, North-west Sydney)

Reasons for initial preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they preferred "Build electricity infrastructure at the same time as gas, water and roads are being built, just in advance of growth" in Wave 2.



"At the same time, it seems to be the safest option. Less upfront expenses, but also new homes and businesses will have their energy when they move in, like gas and water, and there will be no delays or stop gaps."

(Residential, under financial pressure, South-west Sydney)



"Customers want improved services but have limited appetite for big bang spikes in their energy bills. As a provider, it's important to plan but execute in line with other services to appear more reasonable to paying customers."

(Residential, CALD, South-west Sydney)



"Technology is changing so rapidly that I believe 'at the same time' is the best option. For instance, you may invest in thousands of batteries and then two years later they invent some that are more efficient. This option allows growth without over-investing."

(SME, high-energy user, South Coast)



"I don't feel comfortable having my bill raised for the sake of economic growth. For safety and reliability, yes, but this is a cost that should be shouldered by Endeavour Energy."

(Residential, under financial pressure, South Coast)



"I always prefer to choose the safe option that requires the least amount of change, which I know isn't always the best option, but I've done that here. This option offers some growth, but it is safe, so customers aren't hit with a steep rise in costs, and infrastructure that isn't needed isn't paid for then discarded."

(Residential, CALD, high-energy user, South-west Sydney)



"It would be good to see Endeavour Energy work with gas suppliers, Sydney Water and developers to share costs in earth moving and infrastructure roll out, to ensure they are able to do so at the best rates possible."

(Residential, Innovator, South-west Sydney)

Reasons for initial preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they preferred "Build electricity infrastructure only when we are 100% certain it is needed."



"Product development is a business decision. As a consumer I have little interest in the development plans you have. I want the product to do for me what is expected in a safe, timely and cost-effective way."
(Residential, high-energy user, South Coast)



"At first glance this feels like the best answer because the costs to customers is lower. As I don't fully appreciate the impact of a potential delay in growth will have, it's difficult to justify yet another increase in costs of living to simply assist an even faster pace of development."
(SME, South-west Sydney)



"I feel we don't want to put too much pressure on customers' bills for the sake of investing in complete growth."
(Residential, CALD, North-west Sydney)

Additional comments from Wave 3

Below are a selection of verbatim responses given by Customer Panel participants on why they selected their preferences in relation to growth at the end of Wave 3.



"Timing is everything - in life and this sector. The sooner infrastructure can be done and the sooner problems can be resolved, the cheaper things will (hopefully) be and those savings can be channeled back into new and maintenance."

(General residential, high energy user, North-west Sydney, Hawkesbury and the Blue Mountains - no change to preferences between Waves 2 and 3)



"As Greater Western Sydney is growing and being developed at such a fast pace, the timing of infrastructure and delivery to these new areas is a necessary and important part in keeping the wheels of development turning and ensuring that there are no delays to those who require the energy to power homes and businesses."

(Residential, financially vulnerable, South-west Sydney and Southern Highlands - changed preferences between Waves 2 and 3 as they now felt more informed)



"I think that it is a better choice to invest in growth in line with other utilities such as phone, gas etc. This lessens the chance for bad investments or investing too soon and consumers having to wear the costs."

(Residential, innovator, South-west Sydney and Southern Highlands - unsure if preferences changed between Waves 2 and 3)

Should new customers be required to pay “upfront” for the new infrastructure required to service new development, or should the costs for this infrastructure be recovered over time from all customers through existing charges?

1. “Everyone pays”. Existing customers subsidise connection costs for new customers, regardless of where they live.

Cost

- The average customer’s bill would **increase by \$32 per year** for existing customers in the short-term.
- It would **decline** over the medium-term as more new customers connect.

Development impact

- There would be no up-front costs for developers (and individuals or businesses they sell to) or land purchasers in new areas.

Consideration for customers

- Developers would pay about \$8,000 less than they do now to connect a typical new home. If they pass these savings on then the prices for new properties could be lower than they are now. This could stimulate further economic growth.

2. “The beneficiary pays”. There is no cross subsidy between new customers and existing customers and both benefit.

Cost

- The average customer’s bill would **increase by \$13 per year** for existing customers in the short-term.
- It would **decline** over the medium-term as more new customers connect and consume energy.
- Over the medium-term new customers and existing customers total expenses are the same

Development impact

- Developers have some upfront costs. They are required to partly fund network expansion if it isn’t recovered by electricity bill charges over time. They would pay an average of 40% of the cost or about \$3,600 for each typical new home.

Considerations for customers

- The costs paid by developers flow through to individuals or businesses they sell to and land purchasers in new areas.
- Developers would pay around \$5,400 less than they do now to connect to a typical new home. If they pass these savings on then the prices for new properties could be lower than they are now. This could stimulate further economic growth.
- This is the energy regulator’s preferred approach and the most common approach of other distributors

3. “The causer pays”. New customers pay more compared to existing and future customers

Cost

- The average customer’s bill would remain unchanged for existing customers in the short-term.
- It would **decline** further in the medium-term as more new customers connect.

Development impact

- Developers have significant upfront costs. They are required to fund most of the network expansion if it isn’t covered by electricity bill charges. They would pay an average of 88% of the costs or about \$8,000 for each typical new home.

Considerations for customers

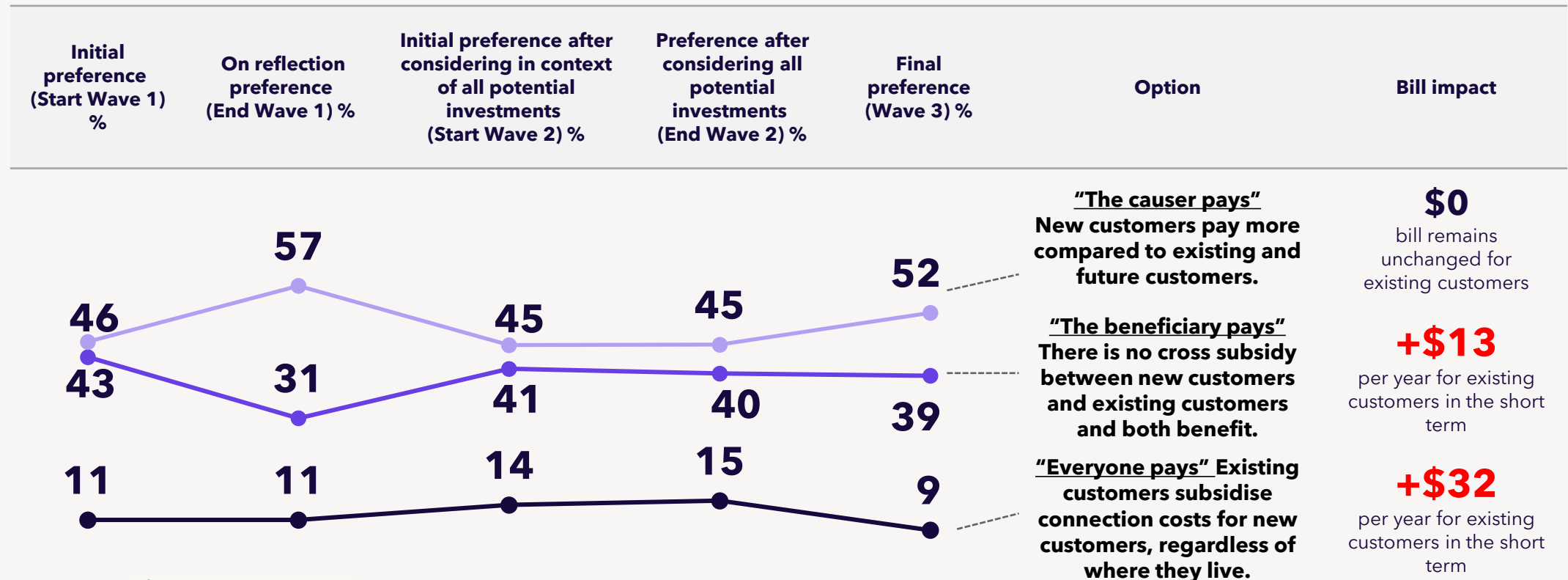
- Developers effectively “gift,” electricity assets to Endeavour Energy. The new customer also pays a fixed network charge in every bill, like all existing customers do.
- This bill outcome is a cross subsidy from new customers in favour of existing customers.
- This is Endeavour Energy’s current practice.

4

Question #4: Should new customers be required to pay “upfront” for the new infrastructure required to service new development, or should the costs for this infrastructure be recovered over time from all customers through existing charges?

A little over half preferred new customers meet all of these costs with a ‘causer pays’ approach. Just under half (48%) felt that all customers should pay *something*, with the majority of these customers opting for ‘the beneficiary pays’ approach with a lower bill impact.

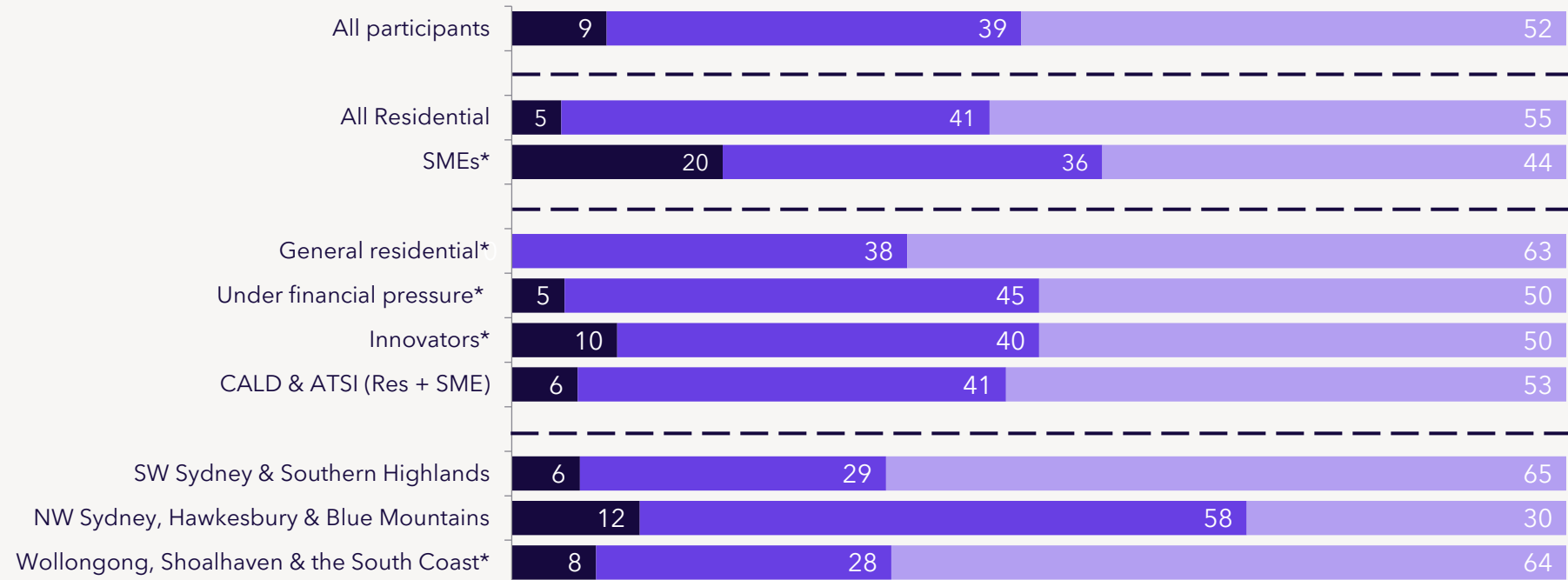
How preferences changed over time



Who pays for connections: Preferences by segment

Preference for the 'causer pays' approach was higher among General Residential, SW Sydney and Southern Highlands and Wollongong, Shoalhaven and the South Coast segments. NW Sydney, Hawkesbury and Blue Mountains preferred 'beneficiary pays'. NW Sydney, Hawkesbury and Blue Mountains preferred 'beneficiary pays'

Customer preferences for connections (Wave 3 %)



- "Everyone pays". Existing customers subsidise connection costs for new customers, regardless of where they live.
- "The beneficiary pays". There is no cross subsidy between new customers and existing customers and both benefit
- "The causer pays". New customers pay more compared to existing and future customers

Q. Should new customers be required to pay "upfront" for the new infrastructure required to service new development, or should the costs for this infrastructure be recovered over time from all customers through existing charges? // Base: all Wave 3 participants (n=89), All Residential (n=64), SME (n=25), General residential (n=24), Under financial pressure (n=20), Innovators (n=20), CALD & ATSI (n=32), SW Sydney & Southern Highlands (n=31), NW Sydney, Hawkesbury & Blue Mountains (n=33), Wollongong, Shoalhaven & the South Coast (n=25) *Note, low sample size (n<30) results to be interpreted with caution

Connections: Analysis of reasons

9% preferred that **everyone pays** where existing customers subsidise connection costs for new customers
+ \$32/year

- Feels fair as it “spreads the cost” across the network
- Would give more people a chance to get into the housing market
- Accept it would lead to higher costs but were reassured that prices would reduce in time

39% preferred that the **‘beneficiary pays** where there is no cross subsidy and new customers and existing customers both benefit
+\$13/year

- Feels fair as it represents “the middle ground” or a “win-win for all”; it felt “reasonable” and “realistic”
- Could keep house prices down (if developers pass on savings) at a relatively small cost to customers
- Reassured that this was the regulator’s preferred option and the most common approach across other DNSPs

52% preferred that the **‘causer pays’** where new customers pay more compared to existing and future customers
\$0/year

- Feels fair as customers do not want to pay for something they would not personally use
- Those who pay are those who can most afford it (new house buyers and developers)
- The lowest cost option for customers
- Strong views that developers can afford additional costs and would not pass on savings unless mandated
- \$8,000 per home doesn’t seem too expensive in the context of Sydney house prices
- Most straight-forward option
- This is the status quo

Some were torn between ‘causer pays’ and ‘beneficiary pays’. They liked ‘beneficiary pays’ in principle but were reluctant to pay.

Reasons for final preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they preferred the “Everyone pays” approach.



“This appears to be a fair and equitable system for new home owners as it avoids them having to pay twice for infrastructure and energy charges. It would stimulate economic growth and allow more people the chance to purchase a home. No upfront costs for developers is very attractive. The initial higher charges added to the energy bill would be affordable for most and would decline over time. I feel that the majority of people would be happy to pay for such a system given the savings that would be passed on to them and also to achieve the benefits of home ownership.”

(Residential, under financial pressure, impacted by bushfires, high-energy user, North-west Sydney)



“Endeavour Energy stands to gain from all new connections and developments over the long term. It makes sense for Endeavour Energy to pay for all energy expansion and development in their area and manage those costs within their business. Keeping in mind that they are gaining new customers so will be making more money, I believe Endeavour Energy could absorb most of this cost into the expansion of their own business.”

(SME, impacted by floods and bushfires, high-energy user, North-west Sydney)



“I think the cost should be spread across the network. With more customers connecting and contributing, the pay off will happen over time.”

(SME, high-energy user, South Coast)

Reasons for preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they preferred "The beneficiary pays" approach.



"Beneficiary pays in my view considers the cost for everyone and at the same time supports growth in the newly developed area. The other options in my view fall short of morality and the expectations of customers. Most people understand that they must pay for new connections but it is not fair for them to pay twice, nor is it fair to expect current customers who have already paid in the past for their connection to have to pay for others."
(SME, ATSI, high-energy user, South Coast)



"This option seems to provide the most fairness across the board. In particular when, despite the short term increase for most customers, in the long term all bills reduce across the board. I do not believe it is fair for inequity in bills with some customers paying more in the long term (causer pays) but nor do I believe it is the responsibility of the entire network to pay for new development."
(Residential, impacted by bushfires, South Coast)



"I don't agree with existing customers having to shoulder the expenses for new infrastructure at all. However, in terms of residential areas and keeping the cost of housing from becoming even more ridiculous I can understand the need to increase existing customers bills in order to have the space in the budget to afford the new infrastructure."
(Residential, under financial pressure, South Coast)



"A win-win option for everyone on the network; if you are building a new home or a business and you're not willing to invest in your power supply for the future, what will you be expecting from the network if things start to fail?"
(SME, impacted by floods, South Coast)



"Because there is no cross subsidy between customers and existing customers. In this approach the average bill would increase by \$13 which is not much and would decrease in the long term. In this approach developers would pay less which helps to enhance economic growth."
(Residential, CALD, high-energy user, North-west Sydney)



"I think this is the best option overall and is fair to existing customers. The overall impact is minimal to existing customers. It is keeping the cost of new homes as low as possible especially when interest rates are increasing."
(Residential, innovator, high-energy user, North-west Sydney)

Reasons for preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they preferred "The causer pays" approach.



"Customers in new areas should be charged. It's unfair for customers in established areas who may be already financially burdened to bear another cost which has no connection to them."

(SME, high-energy user, North-west Sydney)



"I am a user pays believer. I don't trust developers to pass on savings. I know it is an impost on people or businesses moving into a new area. As a current customer I am happy to pay for upkeep and improvements to current infrastructure, and I think those moving into the new areas need to pay."

(Residential, high-energy user, South-west Sydney)



"I don't feel where a developer saves it will benefit the customer unless it is mandatory for them to pass the savings on then it might work."

(Residential, CALD, high-energy user, North-west Sydney)



"I feel the current approach is right. This is a cost that will be baked into the property and can be recouped when selling. Additionally, it ensures new communities and businesses contribute to this growth."

(Residential, Innovator, South-west Sydney)



"The causer pays is the best option. Developers won't pass on the savings, and we'll all be paying more for something that's of zero benefit to us!"

(SME, high-energy user, South Coast)



"For me as a pensioner, \$32 is a surprisingly significant amount. Especially when added to the previous increases we've discussed. I think the cost should be borne by both parties."

(Residential, under financial pressure, North-west Sydney)

Additional comments from Wave 3

Below are a selection of verbatim responses given by Customer Panel participants on why they selected their preferences in relation to connections at the end of Wave 3.



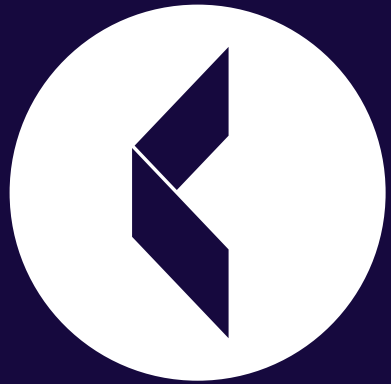
"I believe that all customers should share and pay for the upgrading of any connections. Tariffs despite being unpopular, need to be shared."

(General residential, CALD, flood-impacted, high energy user, South-west Sydney and Southern Highlands - no change to preferences between Waves 2 and 3)



"New connections should have the tariffs from the start."

(Residential, innovator, high-energy user, North-west Sydney, Hawkesbury and the Blue Mountains - no change to preferences between Waves 2 and 3)



#5 Future energy choices

Approach to future energy choices

Participants were provided with information about new technologies and future energy choices that could be facilitated by the distribution network during the live Zoom forum, before exploring their views in break-out group discussions and activities in the online community. These included:

- Rating of likelihood to generate, use and share electricity in different ways
- 'In principle' questions about their preferred approach to grid access for solar exports and electric vehicle charging and exports
- Fact sheet and explanatory video before core question '**How should Endeavour Energy modernise the network to meet emerging and future customer service expectations as technology evolves?**' and discussion of reasons for preferences

Future energy actions

Early in Wave 2 of the deliberative process, participants were provided with a list of ways people might generate, use and share electricity in the next ten years. They were then asked to sort these into four different buckets. The key findings for each bucket are listed below.

Already doing

- Over three in five are only **purchasing appliances with high energy efficiency** ratings
- Almost half are **monitoring energy consumption** and/or generation to identify ways to maximise efficiency
- Around one-third are using the **electricity they generate from rooftop solar**
- Almost one-quarter are using the **delay function on smart appliances**

Very likely to do in the future

- More than half say they are likely to opt into an **energy demand incentive scheme** by reducing demand at peak times; and/or **closely monitor their energy consumption using a smart meter**
- Almost half are likely to **use their own battery**
- Just over 40% say they are very likely to access a **community battery** to store their excess solar energy

Might consider in the future

- Around two-thirds might consider connecting to a **local microgrid** in place of the main network; or combining with neighbours in a **Virtual Power Plant** to save money
- Around half would consider purchasing access to a **local community solar plant**; or using **home automation 'hubs'** to manage energy consumption

Unlikely to do

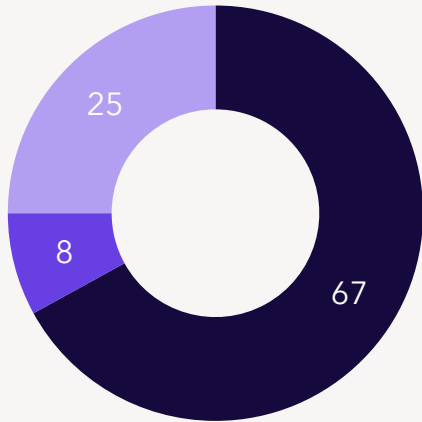
- Around half are unlikely to **allow their retailer or another energy business to manage their energy use**

Q. Endeavour Energy is keen to understand how you use electricity and access the grid now, and how you think you might want to be able to use it in the future. Listed below are some examples of the types of ways people might generate, use and share electricity in the next 10 years. We would like you to read each description listed in the dot points below. Once you have read each description listed, drag and drop each card into one of the four buckets provided according to whether you think you...Are already doing this, Are very likely to do this in the future, Might consider doing in the future, are unlikely to do this in the future ...// Base: all participants (n=88).

Customer independence is a priority - solar

Most participants favour customers having maximum flexibility for importing and exporting solar to the grid

In principle customer preferences: Solar access (Wave 2 %)



■ I would prefer that anyone who wants to install rooftop solar should be able to connect to the network and export their excess energy to the grid at any time.

■ I would prefer that customers who are already exporting excess solar to the grid are able to continue doing so at any time, but customers installing solar in the future are constrained to limit the amount of network investment required.

■ I would prefer that anyone with solar now or in the future faces the same constraints so that the total amount of solar exported does not require substantial investment in the network.

- In principle, two-thirds of Customer Panel members said they would prefer that anyone who wants to install solar should be able to connect to the network and export their excess energy to the grid at any time. This option was particularly favoured by those under financial pressure.
- The main reason given for choosing this option is interest in maximising customer flexibility rather than reducing pressure on the network.
- The remaining third - 25% of all Customer Panel members - preferred that any future constraints to connecting and exporting would apply equally to both new and existing solar owners.
- Less than 10% preferring that future restrictions should only apply to those installing solar in the future. This view was three times more likely among SMEs than residential customers.



"Think the rule needs to be fair for all. I also believe that if the rule isn't across board, you will limit the amount of houses looking to install solar, putting strain on the network."

(SME, high energy user, South-west Sydney)



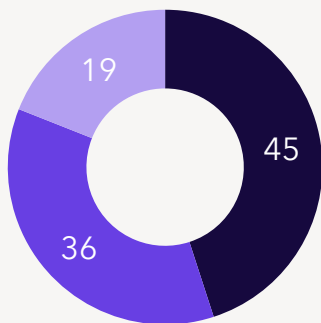
"Treating everyone equally, not based on when they were able to improve on their energy requirements and supply, goes a long way in helping to change from our current energy supply, to a greener alternative."

(Residential, under financial pressure, impacted by bushfires, North-west Sydney)

Customer independence is a priority - electric vehicles

Most participants feel it is important to be able to charge electric vehicles at any time, but there are mixed views about whether exports should be able to happen at any time or just when demand exceeds supply

In principle customer preference: Grid access for electric vehicles (EVs) Wave 2 %)



- I would prefer that people with electric vehicles are able to charge their vehicles and export excess energy unused by the vehicle at any time when it is convenient for them.
- I would prefer that while electric vehicle charging could happen at any time, exporting excess energy back to the grid would be limited to times when the demand for electricity is greater than the supply.
- I would prefer that electric vehicles could only be charged when solar generation is highest (in the middle of the day) or during low demand (overnight) and the unused energy stored in the vehicle energy could only be exported to the grid at times of peak

- There are diverse views about how electric vehicles should be able to access the grid.
- Most participants felt that charging should be allowed at any time convenient for the electric vehicle owner as maximising customer flexibility (such as overnight charging) would be important to support the take up of electric vehicles. This view was most strongly supported by innovators.
- But, mindful of grid constraints and associated costs, just under half supported this level of flexibility for exporting excess energy back to grid.
- One-in-five felt that both charging and exporting should be limited to the times when it would most benefit the grid and other customers.



"I think most people want to be able to charge their vehicles and export excess energy whenever they can. Most people who work during the day would be unable to charge their cars during the day."
(Residential, innovator, impacted by floods and bushfires, North-west Sydney, Hawkesbury and Blue Mountains)



"Not knowing a lot about electric cars, I would imagine they take up a lot of energy to charge the battery. I feel with the current issues around electricity, charging should not be done in peak times."
(SME, impacted floods, high-energy user, Wollongong, Shoalhaven and the South Coast)

How do we modernise the network to meet emerging and future customer service expectations as technology and markets evolve?

1. Plan for a rapid energy transition by undertaking extensive trials of innovative technology that is ahead of need, further increasing network capacity to support customer technology choices

Cost

- The average customer's bill would **increase by \$9 per year**, every year.

What Endeavour Energy could do

- Plan for scenarios in which customers rapidly adopt new technologies and participate in non-traditional network solutions (such as microgrids) that jointly contribute to rapid decarbonisation of the economy.
- Invest in new and future-proof operational capabilities and innovation that may have revolutionary potential to coordinate the flow of energy and data for customers and across the grid.

Customer impacts

- Customers could have confidence in exporting all excess electricity to the grid and charge their EV when they want to
- Benefits from innovation technology could be high.
- All customers could benefit from a network that evolves ahead of change and has the potential to improve services and opportunities for the future.
- Fairer pricing and deployment of community energy projects.
- Helps drive Australia's move to net zero emissions

2. Plan for an accelerated energy transition by supporting trials that respond to evident trends and have high probability of success, further increasing network capacity to support customer technology choices

Cost

- The average customer's bill would **increase by \$3 per year**, every year.

What Endeavour Energy could do

- As with Option 1, plan for scenarios that reflect momentum in the continuing decarbonisation of the economy and uptake of new technology by customers.
- As with Option 1, provide capacity and coordination to minimise constraints, e.g. on solar exports, EV charging.
- Invest in new operational capability and new technologies that are proven in other contexts (differs to Option 1 in the scope of innovation investment).

Customer impacts

- Customers could have confidence to export most of the excess electricity to the grid and charge their EV with some limitations.
- Most innovation investments are likely to yield benefits to customers.
- More customers would benefit from network investments that keep pace with change and improve services and technology opportunities for the future with fairer pricing and deployment of some community energy projects.
- Helps underpin Australia's move to Net Zero emissions

3. Plan for a gradual energy transition by addressing existing known network constraints, alongside a modest investment in trials whilst maintaining modest levels of network capacity supporting customer technology choices

Cost

- The average customer's bill would remain steady.

What Endeavour Energy could do

- Plan for a gradual decarbonation of the economy but at a slower pace than in Options 1 and 2.
- Respond to demand and provide capacity that avoids most, but not all constraints on solar, EV.
- Modest investment in innovation targeted to solutions where service limitations are being experienced.

Customer impacts

- It is likely that some customers would not be able to export excess capacity to the grid if uptake of technology is faster than expected or due to local network issues.
- Some areas may suffer interruptions to supply if EV uptake is faster than anticipated meaning some network service issues could emerge
- Technology deployments are likely to yield benefits to most customers.
- Supports Australia's move to Net Zero emissions

4. Plan for a stalled energy transition by making minimal investment to address network constraints, with small-scale investment in trials and increasing customer technology hosting constraints

Cost

- The average customers' bill would **fall in the short term by \$1 per year**, every year.

What Endeavour Energy could do

- Plan for a slow and conservative decarbonisation of the economy when there is close to 100% certainty there are problems involving customers' ability to export electricity back into the grid.
- Invest in small number of trials that react to industry trends and may tail other distribution companies by 3-5 years.

Customer impacts

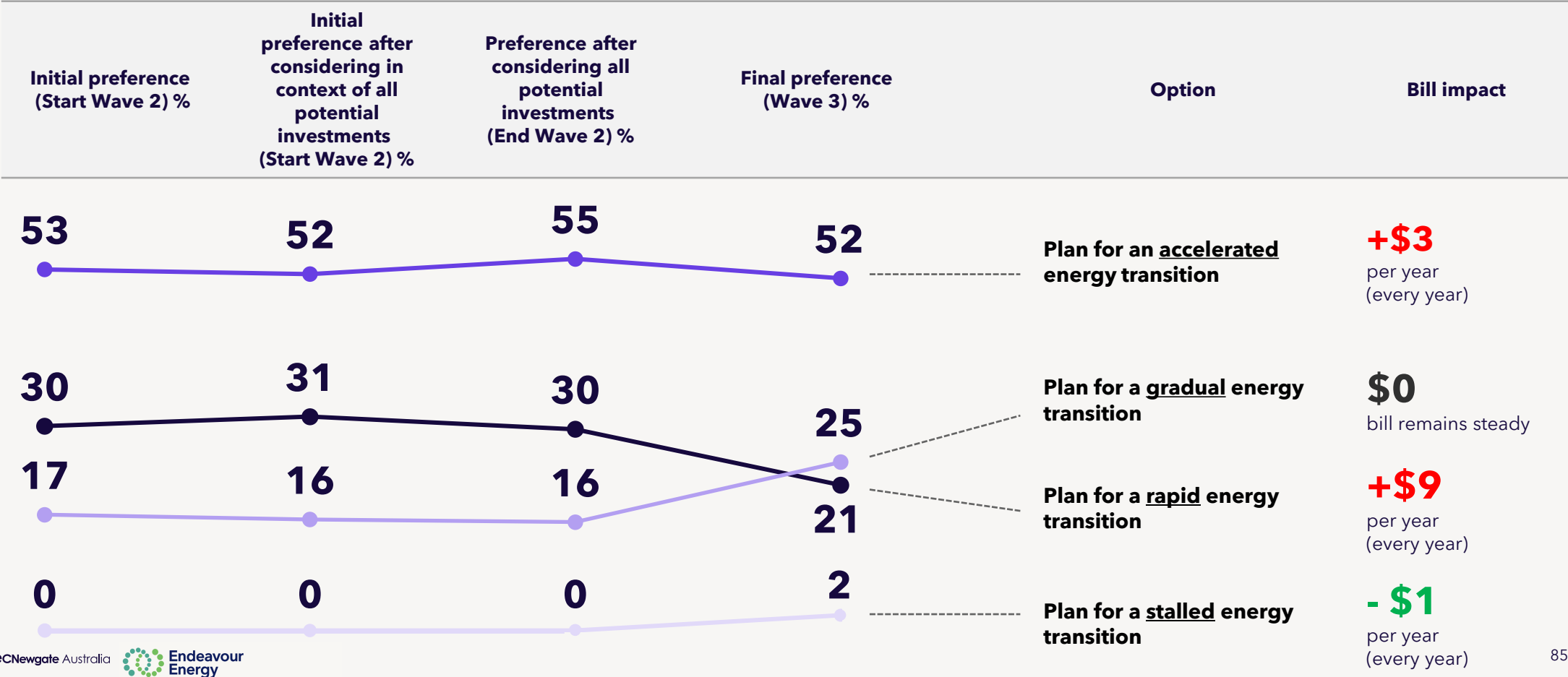
- It is likely that some customers would not be able to export excess capacity to the grid, particularly if more customers adopt solar or EVs than the network planning accommodates, which could impact the network resulting interruptions to supply.
- Network services could be compromised leading to increased curtailment or even failure of supply.
- May not address likely changes in customer service expectations
- Provides limited support to move Australia to Net Zero emissions

5

Question #5: How do we modernise the network to meet emerging and future customer service expectations as technology and markets evolve?

Preferences for an accelerated energy transition remained largely unchanged throughout the engagement (52%), while in Wave 3 we saw preferences for a rapid transition decrease (21%) and a gradual transition increase (25%). The majority (73%) still preferred either an accelerated or rapid transition, noting this support was higher in Wave 2, at 85%.

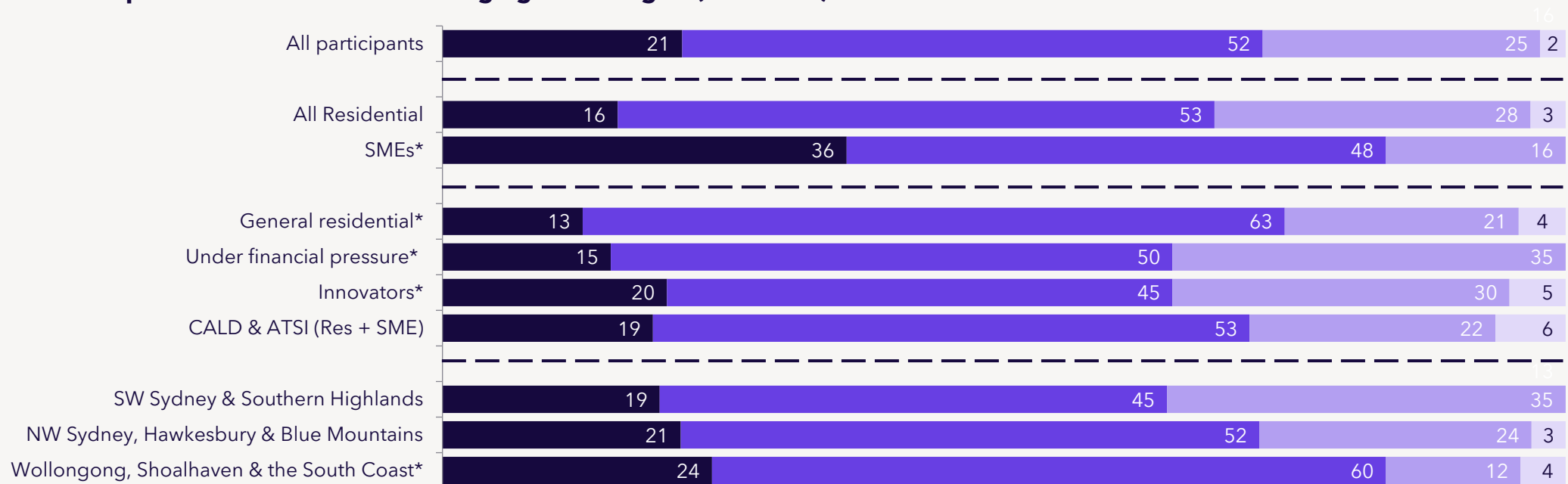
How preferences changed over time



Future energy choices: Customer preferences by segment

SMEs have the highest preference for a rapid or accelerated transition (84%). Preference for a 'no additional cost' gradual transition was more likely to be preferred by segments under financial pressure or in SW Sydney and Southern Highlands (35%).

Customer preferences for new and emerging technologies (Wave 3 %)



- Plan for a rapid energy transition by undertaking extensive trials of innovative technology that is ahead of need, further increasing network capacity to support customer technology choices
- Plan for an accelerated energy transition by supporting trials that respond to evident trends and have high probability of success, further increasing network capacity to support customer technology choices
- Plan for a gradual energy transition by addressing existing known network constraints, alongside a modest investment in trials whilst maintaining modest levels of network capacity supporting customer technology choices
- Plan for a stalled energy transition by making minimal investment to address network constraints, with small-scale investment in trials and increasing customer technology hosting constraints

Q. How do we modernise the network to meet emerging and future customer service expectations as technology evolves? // all Wave 3 participants (n=88), All Residential (n=64), SME (n=25), General residential (n=24), Under financial pressure (n=20), Innovators (n=20), CALD & ATSI (n=32), SW Sydney & Southern Highlands (n=31), NW Sydney, Hawkesbury & Blue Mountains (n=33), Wollongong, Shoalhaven & the South Coast (n=25) *Note, low sample size (n<30) results to be interpreted with caution

Future energy choices: Analysis of reasons

21% prefer to plan for a **rapid energy transition** with extensive trials and increased network capacity
+ \$9/year

- The potential benefits of lower bills, more choice and improved access to the network outweigh what participants saw as the relatively small cost of \$9 a year
- Don't want to risk constraints and potential blackouts (like those happening now) in the future
- Urgent action is required now to tackle climate change

52% prefer to plan for an **accelerated energy transition** with increased network capacity and some trials
+\$3 / year

- A more prudent and pragmatic approach that balances innovation and bills, particularly in the face of higher cost-of-living pressures
- Would prefer a focus on trials with a higher probability of success

25% prefer to plan for a **gradual energy transition** addressing known network constraints
+\$0 / year

- A compromise - it delivers some benefits without increased bills as other costs-of-living rise
- Insufficient case made for the need for further investment, especially in trials
- Focus should be on educating customers to use the grid we have more efficiently

2% prefer a **stalled energy transition** with limited investment to address constraints

- \$1 / year

Note: When costs were not provided, Customer Panel members were very interested in this topic and supportive of further action. Once indicative costs were applied, several participants had difficulty choosing between these three options as they could see both positives and negatives in each of them.

Reasons for preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they preferred to “plan for a rapid energy transition with extensive trials and increased network capacity” in Wave 2.



“Just go for it! What do we have to lose? Growth and expectations often increase faster than planned so no use getting left behind. Innovative work now could actually manifest into potential savings later.”

(Residential, under financial pressure, South-west Sydney)



“My power bill will increase by \$1000 a year due to costs of generation, or I pay 9 bucks to enhance the network? I will pay 10k-20k to for new batteries and solar to save \$2k per year. It's a 10yrs payback.” (Residential, Innovator, CALD, South-west Sydney)



“I believe a rapid transition is the best choice as the network is at present in a critical situation which needs urgent attention. The increases will always effect all customers but the long term effect will have peace of mind.”

(SME, high-energy user, South Coast)



“I think in the long run it would be investing and exploring all the options available, instead of waiting for evident trends. Also, customers would have more options to explore what would be the best solution for them.”

(Residential, Innovator, high-energy user, South-west Sydney)



“I feel that a rapid transition will bring forward potential savings for customers via connections to community batteries and energy trading. It also allows Endeavour Energy to be at the forefront of new technologies in this area and allow them to assist in shaping it. A modest investment of \$9 a year will unlock many benefits in the near future for customers.”

(Residential, Innovator, South-west Sydney)



“\$9 a year to keep up with the rest of the world, is a no brainer! I think we can afford this especially if this extra research brings costs down in the future.”

(SME, high-energy user, South Coast)

Reasons for preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they preferred "to plan for an accelerated energy transition with increased network capacity and some trials" in Wave 2.



"Plan for the future but at a more progressive rate in order to strike a balance between cost escalations and infrastructure upgrades."
(Residential, CALD, North-west Sydney)



"I feel this option is the more balanced approach. It still plans for the future but in taking a bit of a slower pace, it means you can monitor the market and adapt the plan/approach along the way if needed."

(Residential, Innovator, impacted by floods and bushfires, high-energy user, North-west Sydney)



"The cost is not unreasonable and can still enjoy the benefits of their investments. A rapid decarbonization would create a shock wave in society. A gradual transition is more likely to gain community (silent majority) support."

(Residential, Innovator, impacted by floods, North-west Sydney)



"I chose the 2nd option because \$3.00 is a minimal cost, less than 1 cup of coffee per year, but it gives an opportunity for the company to trial and implement new technology. It also gives the customer the opportunity to benefit from the new technology."

(General residential, high-energy user, South-west Sydney)



"It is an investment in technology which has a high probability of success. It allows most excess power generated to be exported to the grid and it is keeping up with other technologies. It is cheaper than option 1 whilst allowing for most excess power to be exported to the grid. Despite the \$3 increase those with solar will likely break even with the exports."

(Residential, CALD, Innovator, South-west Sydney)



"In my opinion, this is the most reliable approach to achieving the most advanced technology, customer independence and affordability."
(General residential, CALD, South Coast)

Reasons for preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they preferred to “plan for a gradual energy transition addressing known network constraints” in Wave 2.



“With the cost of living going up, a gradual energy transition is best for the economy as it allows the addressing of existing known network constraints + a modest investment in trials.”

(Residential, CALD, South-west Sydney)



“It’s the best way to proceed so that it doesn’t hurt peoples back pocket financially and also need to continue educating all generations on effective energy use.”

(SME, impacted by floods, high-energy user, North-west Sydney)



“I think a gradual energy transition will be safer in the long term and also hopefully take into account all the various population numbers and growth that is being reflected in Sydney.”

(Residential, CALD, impacted by floods, South-West Sydney)



“Rapid or accelerated technology risks incurring excessive costs, while stalling means that constraints will tighten and eventually the technology will be too advanced to catch up on.”

(Residential, ATSI, Innovator, South Coast)



“Encourage more solar panels installation and people to export unused energy back to the grid. Be transparent in how people can reduce the usage during peak hours, send brochures in the mail/email/with the bill. Work on addressing existing network constraints, encourage everyone to install solar panels, not only 20% of customers, which is very low.”

(Residential, CALD, Innovator, Impacted by floods and bushfires, South Coast)

Additional comments from Wave 3

Below are a selection of verbatim responses given by Customer Panel participants on why they selected their preferences in relation to future energy choice at the end of Wave 3.



"This, in my view, is as important as it was in May and June. We were informed there will be massive housing and commercial developments impacting the current network. We must invest in the future to make it more affordable for the next generation."

(SME, innovator, high energy user, South-west Sydney and Southern Highlands - no change in preferences between Waves 2 and 3)



"If money was not a barrier, then I would focus on upgrading and modernising the whole network in order to meet and exceed customers expectations, in the present and in the future."

(Residential, financially vulnerable, high energy user, South-west Sydney and Southern Highlands - no change in preferences between Waves 2 and 3)



"I think the renewables energy generation is critical to the future of NSW and Australia. I know there are scope limits to the remit. But generation is not simply limited to the coal fired power stations, solar farms and wind farms. Home generated solar is a roots level way of transforming generation. Endeavour should be ready to adapt to this disruption."

(Residential, innovator, CALD, South-west Sydney and Southern Highlands - unsure if preferences changed between Waves 2 and 3)

"If money was no object, I'd love to see advancements in technology in the hopes that it will become the source of providing safer and more affordable electricity in the future."

(Residential, financially vulnerable, Wollongong, Shoalhaven and the South Coast - no change in preferences between Waves 2 and 3)



Future tariffs:

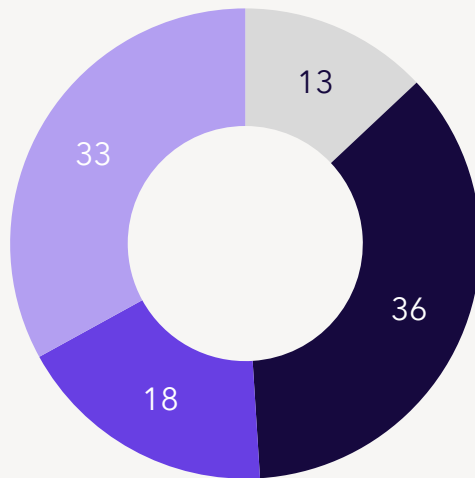
#6a Cost-reflective tariffs and

#6b Solar energy tariffs

Customer preference for tariffs

If they had the choice, most participants said they would choose a cost reflective tariff for their household or business in Wave 2. They felt this would enable customers such as themselves to receive the financial incentive to change their behaviour.

Customer preferences for cost reflective tariffs (Wave 2 %)



- Flat tariff
- Time of use energy
- Time of use demand
- Time of use - but I'm not sure which one

NET prefer a cost reflective tariff: 87%

- In principle, the vast majority of participants said they would choose a cost-reflective (or Time-of-Use) tariff, whether that was Time-of-Use Energy, Time-of-Use Demand or either one of them. Just 13% said they'd prefer to stick with the flat tariff, which is what most customers are on today.
- Even though many participants felt it would be difficult to change the way they or others use energy (particularly among working families), they preferred a tariff that gave them the ability to reduce costs by managing their energy behaviour.
- This view was most strongly held among general residential customers and those living in Wollongong, the Shoalhaven or the South Coast. Around one-quarter of innovators preferred a flat tariff because they already had solar and felt they would be disadvantaged with higher prices in the evening peak.



"I have rooftop solar so I can use my day time solar production for our own use and at evening just pay for the evening use using the flat rate. With this option I won't have to pay higher cost. I already invested lots of money on solar to reduce my bill."
(Residential, innovator, South-west Sydney)



"I think it's a great idea, although hard for most people due to not being home in off peak periods. Would encourage me to learn auto functions on my appliances."
(SME, high-energy user, North-west Sydney)

Approach to future tariffs

Participants were provided with information about different types of tariffs - including cost-reflective, solar 'soaker' and solar export tariffs - during both the live Zoom call and the online community. Activities included:

- Open-ended questions about their positive and/or negative views of the concept
- Illustration of how different types of customers would be impacted by Seasonal Time of Use Energy, Seasonal Time of Use Demand, 'solar soaker' and solar export tariffs
- 'In-principle' preferences for the tariff type for their own household or business
- 'In-principle' support or opposition to the introduction of a 'solar soaker tariff'
- 'In-principle' support or opposition to the introduction of a solar export tariff
- Question about whether retailers should be required to pass on cost-reflective pricing to customers

Fact sheets and explanatory videos were provided before two key questions were explored:

- **'Should tariffs reflect the different demands customers place on the network?' and**
- **Should solar exports tariffs be introduced by Endeavour Energy to reflect the different demands customers place on the network?**

Should tariffs reflect the different demands customers place on the network?

1. Allow customers to **opt-in to cost-reflective tariffs where they want to.**

Customers would choose to opt-in to cost-reflective time-of-use pricing rather than a flat tariff.

For the majority of customers, the tariffs they pay do not reflect the demands they make of the network.

Impact on individual customers who are on cost-reflective tariffs

- Customers who consume most electricity at peak times (e.g. weekdays 4pm-8pm in Summer) will pay more than today if they don't change their energy consumption patterns.
- Customers who use less electricity at peak times will pay less.

Cost impact on customers as a whole

- Estimated number of customers on cost reflective tariffs by 2029: 170,000 **(15%)**
- Fewer incentives for customers to invest in new technology to help them save money by changing when they consume electricity.
- Continued investment in the network will be needed to meet peak demands, meaning overall prices for all customers do not start to reduce significantly for 15+ years.

2. Increase the take-up rate of cost-reflective tariffs by requiring new and upgrading connection customers to adopt them.

New customers and those who have upgraded their network connection service will be placed on a cost-reflective tariff with no ability to opt-out.

Customers would choose between different cost reflective tariff options. Transitional arrangements will be offered to limit the impact of prices and allow customers to change their behaviour over many years.

This means some customers will pay rates that reflect the demands they make of the network while some customers won't.

Impact on individual customers who are on cost-reflective tariffs

- Same outcome as Option 1 but this applies to a greater number of customers.

Cost impact on customers as a whole

- Estimated number of customers on cost reflective tariffs by 2029: 550,000 **(45%)**
- More customers incentivised to invest in new technology to save money by changing when they consume electricity.
- Overall prices start to reduce in 5-10+ years as Endeavour Energy needs to spend less on infrastructure.

3. Mandate the take-up of cost-reflective tariffs for all customers who have the enabling technology (smart meters).

All customers with smart meters will be placed on cost-reflective tariffs with no ability to opt-out.

Like Option 2, customers would choose between different cost reflective tariffs. Transitional arrangements will be offered to limit the impact of prices and allow customers to change their behaviour over several years.

All customers will pay rates that reflect the demands they impose on the network.

Impact on individual customers

- Same outcome as Option 1 but this applies to the majority of customers.

Cost impact on customers as a whole

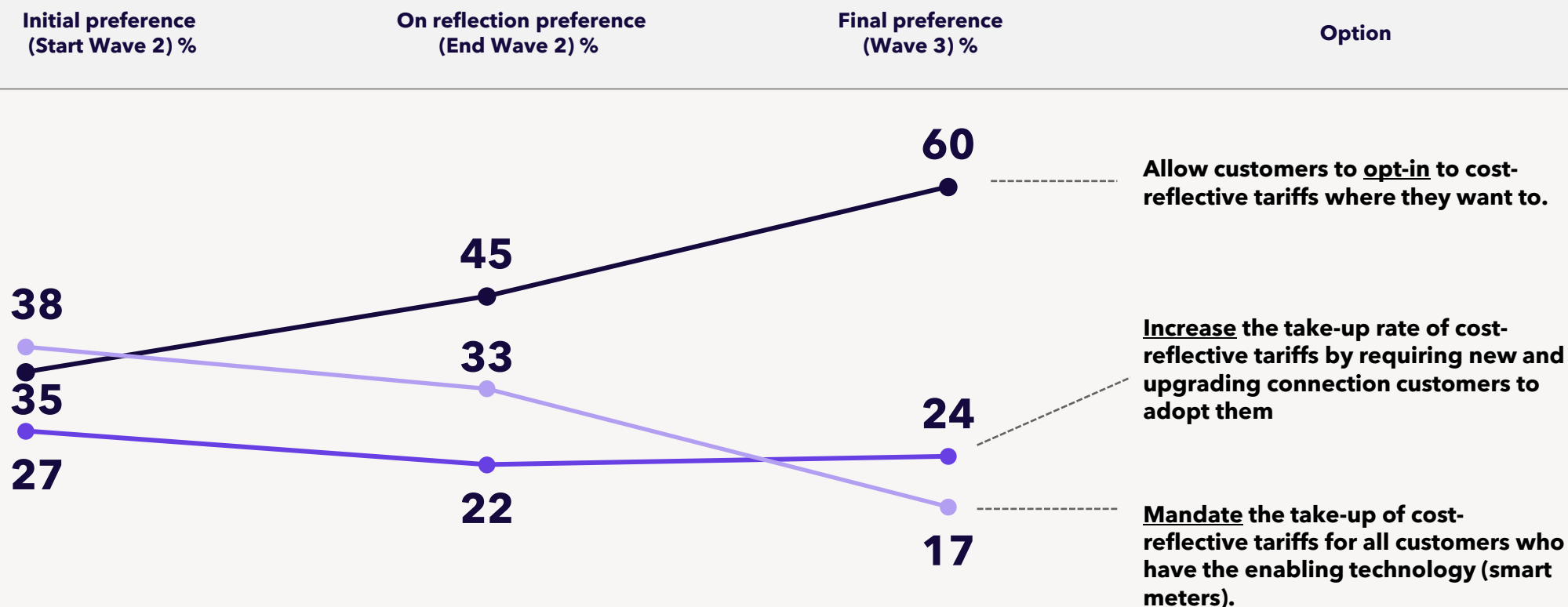
- Estimated number of customers on cost reflective tariffs by 2029: 740,000 **(60%)**
- Majority of customers incentivised to invest in new technology to save money by changing when they consume electricity.
- Overall prices start to reduce in 5-10 years as Endeavour Energy needs to spend less on infrastructure.

Note: At the moment, retailers control the pace of smart-meter roll-out. This impacts the rate at which customers can take-up these tariff options to save money.

Question #6a: Should tariffs reflect the different demands customers place on the network?

Preference for an opt-in approach has risen steadily across the last two waves, now at 60% (previously 45% and 35%). In contrast, two in five (40%) preferred some kind of mandated approach. All felt education would play an important role in the transition.

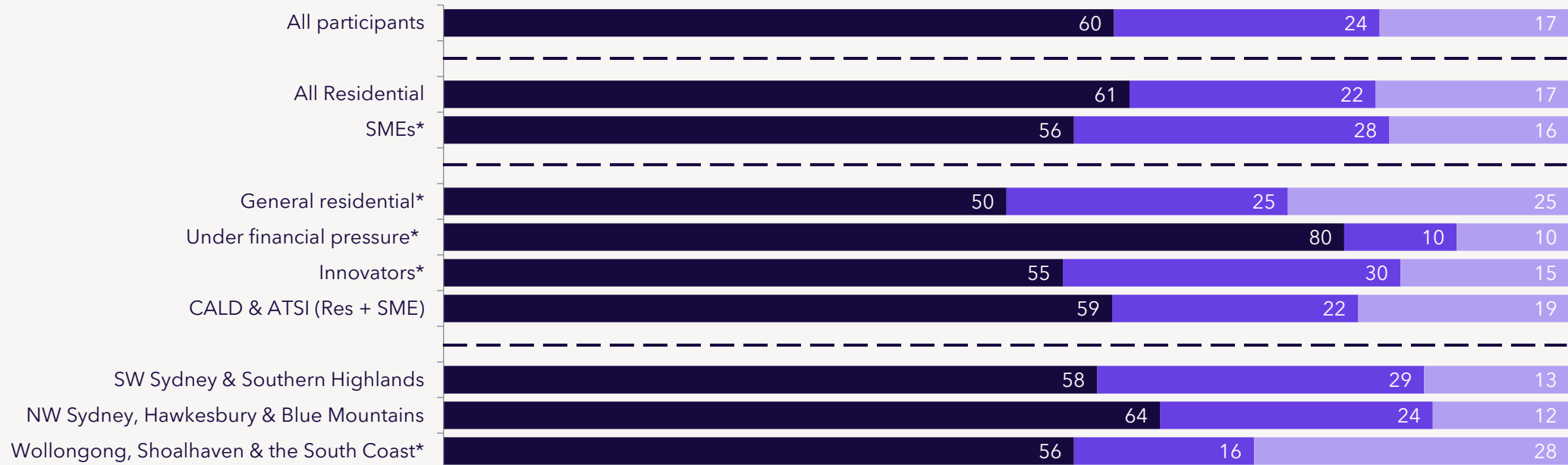
How preferences changed over time



Cost-reflective tariffs: Customer preferences by segment

The preference across all segments was for an opt-in approach and this was highest amongst those under financial pressure at 80%. Support for some kind of mandated approach was higher among the general residential and Innovator segments (between 45% and 50%)

Customer preferences for cost reflective tariffs (Wave 3 %)



- Allow customers to opt-in to cost-reflective tariffs where they want to.
- Increase the take-up rate of cost-reflective tariffs by requiring all new and upgrading connection customers to adopt them.
- Mandate the take-up of cost-reflective tariffs for all customers who have the enabling technology (smart meters).

Cost-reflective tariffs: Analysis of reasons

60% prefer customers to **opt-in to cost-reflective tariffs where they want to.**

- At its core, consumer choice is a priority and people value their freedom in how they use energy.
- Some can't take advantage of cost-reflective tariffs to save money (can't change behaviour or circumstances) so are concerned they would be worse off.
- If good education is provided, many customers would *want* to receive cost-reflective tariffs anyway.
- Wave 3 of the engagement saw customers express increased concern about the cost of living, especially their rising energy bills. This means they were feeling particularly sensitive to any kind of change towards a mandated approach.

24% prefer to see an **increase** in the take-up rate of cost-reflective tariffs by **requiring all new and upgrading connection customers to adopt them.**

- This option was seen as allowing a phased approach that will help accelerate the roll-out, but at a modest pace.
- Customers selecting this option felt it has some mandating element to move the network forward without placing an undue burden on customers.
- There is an element of choice as people are choosing a new house or upgraded connection.
- Several mentioned that if you're already making changes to your electricity set-up then it makes sense to do this.

17% prefer **mandated take-up of cost-reflective tariffs for all customers** who have the enabling technology (smart meters).

- A mandate will drive behaviour change and hold people accountable. Those who use more energy would pay their share.
- Several felt that this approach must be supported by an education and information campaign so customers can understand the benefits.
- Mandating the roll-out was seen as enabling more urgent action on making the grid more stable and helping to address climate change.
- Some felt that smart meters should be mandated as well.

Reasons for preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they preferred to “allow customers to opt-in to cost-reflective tariffs where they want to” in Wave 2.



“My reasoning is based on freedom of choice in order to allow customers to opt-in to cost-reflective tariffs where they want to.”

(Residential, CALD, Impacted by floods, high-energy user, South-west Sydney)



“I think that giving consumer choice is a good way to go forward...I'm not sure how it will affect the grid, or if it's actually viable but I feel giving people choice is a good move.”

(Residential, under financial pressure, South Coast)



“Flexibility is the way to go and giving customers choices rather than demands works better. Mandates is something we have all had enough of.”

(Residential, under financial pressure, high-energy user, North-west Sydney)



“We rent. We can't afford to upgrade our appliances to take advantage of the “brave new world”. I doubt prices will reduce regardless of what we do because there will always be investment required. The shareholders will always need their returns. Unless there is a clear benefit and financial assistance to upgrade appliances, it's out of our reach.”

(Residential, under financial pressure, South Coast)



“It allows customers to opt-in and opt-out of cost reflective tariffs. That alternative is more versatile and convenient. It's optional and not mandatory. All the different options of technology should be available to customers, depending on their needs and desires.”

(General residential, CALD, impacted by floods, South-west Sydney)



“It is imperative that customers have a choice in whatever they buy, lease, make use of and this applies to this energy sector as well. Seeing as Endeavour is our distributor then it is even more imperative for us to have the freedom of choice here.”

(General residential, high-energy user, North-west Sydney)

Reasons for preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they preferred to “prefer to see an increase in the take-up rate of cost-reflective tariffs by requiring all new and upgrading connection customers to adopt them allow customers to opt-in to cost-reflective tariffs where they want to” in Wave 2.



“My initial view was that the customer should decide whether to opt-in or not. However, after learning the benefits of cost-reflective tariffs, I'm in favour of increased take-up of cost-reflective tariffs. Over time, we will be able to lower costs and increase the stability of the network.”
(Residential, CALD, South Coast)



“It's the more conservative approach at this stage. It wouldn't be forcing anyone that isn't ready for change but will still speed up the change to cost reflective tariff.”
(Residential, high-energy user, North-west Sydney)



“I think the more funds we as customers contribute the better energy we receive, for instance if we pay to change to solar, we will get better and cheaper energy.”
(SME, CALD, high-energy user, South-west Sydney)



“I feel that option 2 is a fair approach in that it requires an action to be taken by the customer before they are moved to the cost reflective tariffs. Therefore, it does not penalise existing customers who have done nothing wrong.”
(Residential, Innovator, South-west Sydney)



“This option seems like the best one for a phased approach to consumers changing to cost reflective tariffs. I think it also gives consumers time to get used to the idea of this kind of tariff. For customers who are less keen on the idea, it gives them the time to become more familiar with it, and potentially be more ok with it when it happens (better for over-all satisfaction as well).”
(Residential, innovators, impacted by floods and bushfires, high-energy user, North-west Sydney)



“I think option 2 is the fairest for all and gives the company a good outlook. I don't think mandating change is the way to go even though it would possibly bring the cheapest prices in the shortest time.”
(General residential, high-energy user, South-west Sydney)

Reasons for preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they preferred the “mandated take-up of cost-reflective tariffs for all customers who have the enabling technology (smart meters)” in Wave 2.



“We're at the point where we need to take drastic action for the future in establishing the path ahead. At this point, we need to change consumer behaviour broadly and mandating the new tariffs would force that change.”
(Residential, impacted by bushfires, South Coast)



I like the option of the mandate as transitional arrangements will be put in place to limit the impact of prices and allow customers to change behaviour over a few years. Customers will be highly incentivised to invest in new technology to save money (and I feel it is important that customers invest in the new technology which we need to move toward for the future).” (Residential, under financial pressure, high-energy user, North-west Sydney)



“I think we need to increase the uptake to go to cost-reflective tariff at the highest rate, as then it will speed up lowering cost in the long run, so mandating it would make that possible.”
(Residential, CALD, Innovator, South-west Sydney)



“I believe that mandating is the best and fairest way - but that smart meters should be supplied as part of the infrastructure, not as an additional cost for householders and other consumers.” (Residential, under financial pressure, South-west Sydney)



“It should become mandatory at first. Once they realise its beneficial for them, they will start using it and it will become a part of their day-to-day life.”
(SME, high-energy user, South-west Sydney)



“I think it should be mandated as overall it seems like the smartest way forward, and rather than drip-feed the take up, why not change it completely. People who want to change habits to make the most of the opportunity to save will change their behaviour, and those that don't will likely just carry on as they do now.”
(SME, South-west Sydney)

Additional comments from Wave 3

Below are a selection of verbatim responses given by Customer Panel participants on why they selected their preferences in relation to cost-reflective tariffs at the end of Wave 3.



"Cost reflective tariffs drive behaviour, which reduces peak load, and increased load where excess supply is provided is currently a major network issue and is forecasted to be a network issue. On top of network/distribution issues, this also drives generator behaviour and drives lower overall costs by reducing the peak demand."
(Residential, innovator, North-west Sydney, Hawkesbury and the Blue Mountains - changed preferences between Waves 2 and 3 due to increased knowledge)



"I feel it makes sense and is more fair that the costs we face are indicative of the strain placed on the network. However, this is not feasible for so many customers, mainly renters who are unable to have smart meters installed for charges to be billed in this manner, which is incredibly frustrating as a renter especially in the face of increasing costs."
(Residential, financially vulnerable, North-west Sydney, Hawkesbury and the Blue Mountains - no change in preferences between Waves 2 and 3)



"It's all about the customer's choice and, cost wise, my latest bill floored me and quite frankly I have had enough of people mandating and deciding what people should do. If I'm to pay a \$900 quarterly bill then I will refuse to be mandated into anything." (Residential, financially vulnerable, North-west Sydney, Hawkesbury and the Blue Mountains - no change to preferences between Waves 2 and 3)



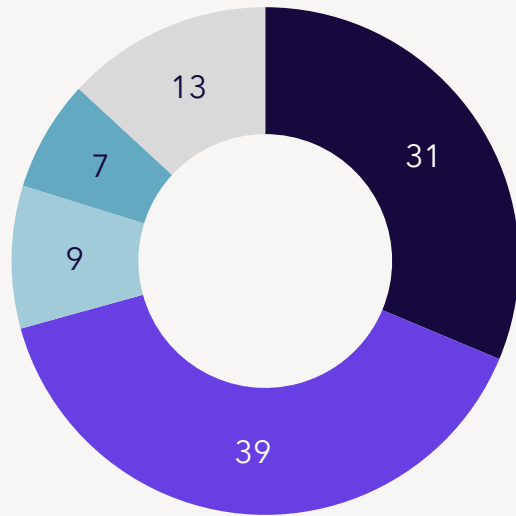
"Cost-reflective tariffs are needed because people tend to use less energy during the day except for the larger population who work from home. This encourages people to wash their clothes, do more of the cooking and charging their devices like I do more during the day."
(General residential, CALD, South-west Sydney and the Southern Highlands - changed preferences between Waves 2 and 3 towards a more proactive approach towards resilience)

"Customers should not incur penalties in order to access better use of the network or alternatively for adopting methods to reduce their outlay. If EE feels the need to penalise customers as an offset for incentivising customers, then sadly it is putting its profits ahead of its customers."
(SME, North-west Sydney, Hawkesbury and the Blue Mountains - unsure if preferences changed between Waves 2 and 3)

In-principle customer support for a solar soaker tariff

Customers are wary of tariffs they believe target solar households and small businesses – but most support the 'solar soaker' tariff which lowers costs for everyone in the middle of the day

Support for the solar soaker tariff (Wave 2 %)



- I strongly support this idea in principle
- I somewhat support this idea in principle
- I somewhat oppose this idea in principle
- I strongly oppose this idea in principle
- I would prefer another option

NET support: 71%
NET oppose: 16%

- The majority of participants who supported this idea felt that it would be good way to use clean and cheap energy more effectively. This view was strongest among innovators and those living in North-west Sydney, the Hawkesbury and the Blue Mountains.
- Those who opposed the solar soaker tariff were wary of the term 'solar soaker tariff' and thought it would increase costs for solar customers. Around 20% of participants living in South-west Sydney and the Southern Highlands, and those under financial pressure felt this way.



"There is a portion of the day where solar panels produce the most energy, however this is usually the time that people don't use their solar energy as they're not home. I think energy use during this period of the day could be utilised better, and the solar soak tariff has the greatest potential to change customer behaviour."

(Residential, innovator, North-west Sydney, Hawkesbury and the Blue Mountains)



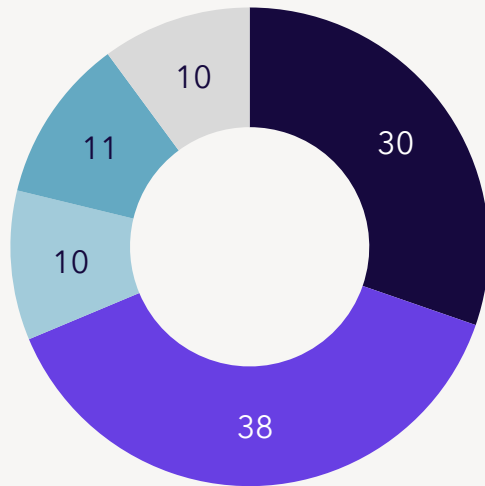
"We don't have a battery to determine when to use our solar, meaning that we would not benefit greatly."

(Residential, ATSI, innovator, Wollongong, Shoalhaven and the South Coast)

In-principle customer support for a solar export tariff

Most participants supported a solar export tariff that charges those exporting rooftop solar to the grid when it is congested, but around one-third were either opposed or unsure

Support for a solar export tariff (Wave 2 %)



NET support: 69%

NET oppose: 31%

- I strongly support this idea in principle
- I somewhat support this idea in principle
- I somewhat oppose this idea in principle
- I strongly oppose this idea in principle
- I would prefer consideration of this tariff was deferred to the future

- In principle, most participants supported the concept of a solar export tariff, with over three-quarters of SMEs and innovators feeling this way. Most innovators were solar owners.
- Many of those who supported the idea felt that it should be accompanied with subsidies or incentives for home batteries.
- The one-third who were opposed to, or were unsure of, solar export tariffs were concerned that people who had already invested in solar were being penalised through no fault of their own, that such a tariff would slow down the take up of renewables, and/or that networks should solve the problem without charging customers more.



"Whilst this still seems to punish solar owners, it does incentivise exporting to the grid during peak times which is a step in the right direction for addressing renewably generated power availability at peak times."

(Residential, impacted by bushfires, Wollongong, Shoalhaven and the South Coast)



"I think punishing people that have already made an investment in energy would just be poor form and would be very disappointing, particularly as it would lead to extended payback periods."

(Residential, innovator, under South-west Sydney and Southern Highlands)

Should solar exports tariffs be introduced by Endeavour Energy to reflect the different demands customers place on the network? *(This is separate from feed-in tariffs paid by some retailers.)*

1. Mandate export tariffs for all customers with solar to reflect both the positive and negative impacts they have on the whole grid.

All customers can generate a minimum level of electricity (2kW) and export it to the grid. All customers who generate more will be subject to an export tariff if the generation is not beneficial to the network. The average household solar system currently generates 6kW.

Impact on individual customers

- Any customer can export a minimum amount of electricity to the grid at any time.
- Customers who export to the grid when electricity demand is high (e.g. 4pm to 8pm) will be rewarded with tariff incentives (Endeavour Energy will pay the customer **14 c /kW/day demand**). Those who export more than 2kW to the grid when demand is low would have to pay a tariff for the extra energy above 2Kw (**3 c /kW/day demand**) to reflect the costs of managing this excess solar energy.
- Customers can respond to these incentives by purchasing solar panels, re-orienting their solar panels, or purchasing a battery or EV.

Impact on customers as a whole

- The network can handle an increased amount of solar exports and the cost of managing the increased exports is funded by the customers who necessitate those costs.
- There would be less investment required in the network and it will effectively be funded by those using the new technologies, including solar.
- This would help underpin decarbonisation of the economy and transition to net zero emissions.
- It is 'cost reflective' because it reflects the demands that each customer makes on the network.

2. Opt-in export tariffs for customers with solar to reflect both the positive and negative impacts they have on the whole grid.

Export tariffs are offered as an opt-in service for those who export above the minimum level and who choose to use it to earn or save money.

Impact on individual customers

- As for Option 1 but individual customers choose whether or not they participate in the export tariffs scheme.

Impact on customers as a whole

- As for Option 1, it would help the network handle an increased amount of solar exports. Most of this will be funded by those using the new technologies including solar.
- It is somewhat 'cost reflective'. Those customers who have batteries or who can change their behaviour through use of technology will be more likely to opt-in to get a reward. The reward paid to export at peak demand times would effectively be paid for by other customers.
- This would help support the decarbonisation of the economy and transition to net zero emissions.

This could potentially be used as a transitional arrangement before moving to option 1 at a later date as it would give customers time to consider how to respond to price signals.

3. Defer the approach to export tariffs until at least 2030

There is no export tariff or incentive offered from Endeavour Energy.

Impact on individual customers

- Customers can continue to export solar to the grid without tariffs or rewards.
- Endeavour Energy cannot guarantee unconstrained exporting of solar energy will continue as the number of solar customers rises. Constraints on solar exports are possible, pending decisions that Endeavour Energy makes to invest to address this.

Impact on customers as a whole

- Increasingly Endeavour Energy would need to invest more in the network to reduce constraints on customers exporting solar to the grid during the middle of the day. These costs would be paid for by all customers, not just those who necessitate the investment. This means solar customers who export are cross-subsidised by non-solar customers.
- This scenario would also potentially reduce the amount of solar hosting Endeavour Energy could provide which could slow down the decarbonisation of the economy and means customers may not be able to get the most out of their solar investments.

6b

Question #6b: Should solar exports tariffs be introduced by Endeavour Energy to reflect the different demands customers place on the network? (This is separate from feed-in tariffs paid by some retailers.)

The preference for an opt-in solar export tariff softened at the end of the engagement, from 70% in Wave 2 to 53% in Wave 3. The preference to defer solar export tariffs until at least 2030 more than doubled to 19%.

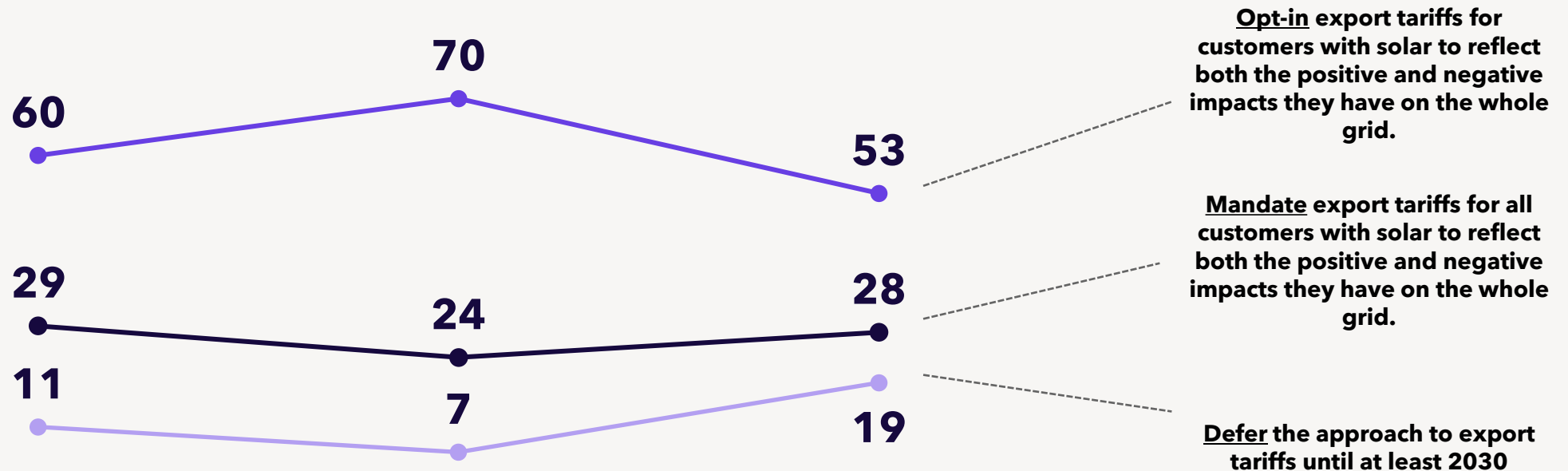
How preferences changed over time

Initial preference
(Start Wave 2) %

On reflection preference
(End Wave 2) %

Final preference
(Wave 3) %

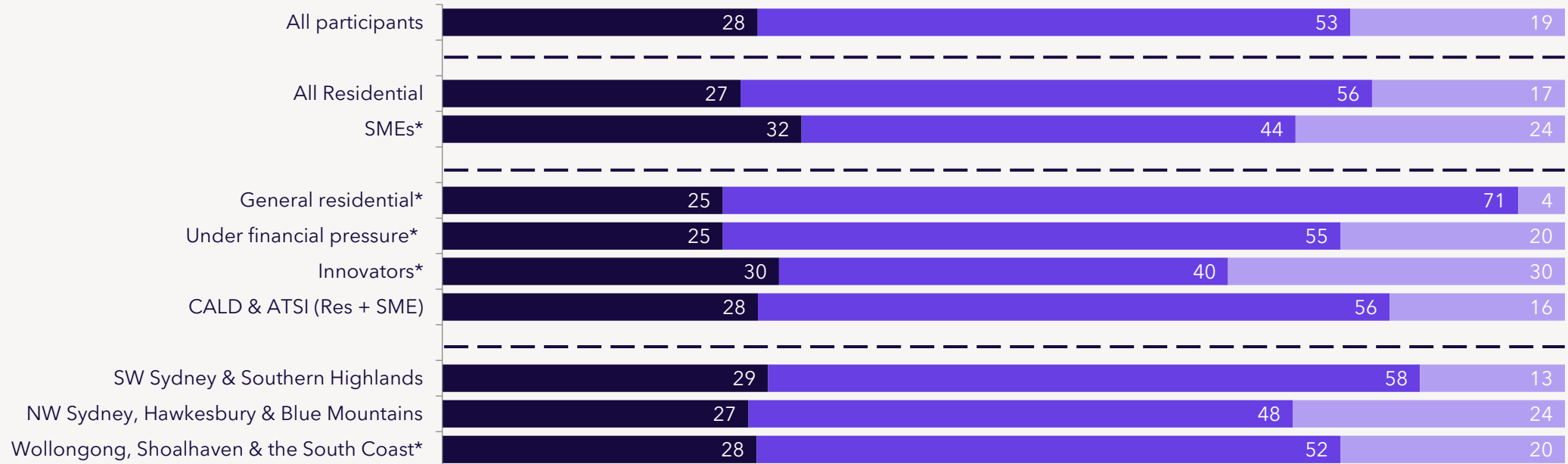
Option



Solar export tariffs: Customer preferences by segment

Just over half of all participants (53%) preferred an opt-in approach for solar export tariffs, which was highest among General residential customers (71%), while SMEs had the highest levels of support for a mandated approach (32%). Innovators were the most divided on the topic, with nearly equal proportions preferring each of the three options.

Customer preferences for solar export tariffs (Wave 3 %)



- Mandate export tariffs for all customers with solar to reflect both the positive and negative impacts they have on the whole grid.
- Opt-in export tariffs for customers with solar to reflect both the positive and negative impacts they have on the whole grid.
- Defer the approach to export tariffs until at least 2030

*Q. Do you think solar exports tariffs should be introduced by Endeavour Energy to reflect the different demands customers place on the network? // Base: all Wave 3 participants (n=89), All Residential (n=64), SME (n=25), General residential (n=24), Under financial pressure (n=20), Innovators (n=20), CALD & ATSI (n=32), SW Sydney & Southern Highlands (n=31), NW Sydney, Hawkesbury & Blue Mountains (n=33), Wollongong, Shoalhaven & the South Coast (n=25) *Note, low sample size (n<30) results to be interpreted with caution.*

Solar tariffs: Analysis of reasons

28% prefer **mandated export tariffs for all customers with solar.**

- Incentivises those with solar to shift their consumption to times of peak generation or consider getting a battery.
- Ensures those with solar are responsible for the impact of their generation and export activities on the network.
- *Note that some were concerned that there need to be incentives or subsidies to purchase batteries because they are currently very expensive, especially as they had already made an investment in solar.*

53% prefer **opt-in export tariffs for customers with solar.**

- There is strong negativity towards a mandate and concerns that solar customers would be 'penalised' after having 'done the right thing' and invested in solar.
- They feel an opt-in approach with incentives would naturally drive take-up while leaving customers with choice.
- Some concern that customers purchased solar systems as a way to save money and now the terms might be changed through no fault of their own.

19% prefer that the approach to export tariffs is **deferred until at least 2030.**

- A cautious wait and see approach, giving customers more time to decide which tariff option (and technology) is right for them.
- Money could instead be invested in boosting the capacity of the grid to accept more solar power.
- Some felt that education about solar was required before this could be introduced.

Reasons for preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they preferred the “mandated export tariffs for all customers with solar” approach in Wave 2.



“I feel mandated export tariffs is best as overall it benefits the most people and customers are able to receive a benefit for exporting energy back to the grid, whilst also not placing increasing costs on those who are unable to have solar panels.” (Residential, under financial pressure, North-west Sydney)



“I think [mandated export tariffs] are great to encourage solar panel installations and battery use but I recognise this is expensive and I don't think it's realistic and conducive to supporting green energy transition by complicating and penalising those who install solar panels.” (SME, CALD, high-energy user, North-west Sydney)



“Mandating solar panel export tariffs will encourage households and business owners to purchase battery storage. The incentive for these groups is power storage when wanted and needed. Assisting with achieving net zero by 2050 and again, making all customers accountable for their own financial savings.” (SME, impacted by bushfires, South-west Sydney)



Mandate export tariffs would encourage customers to change their behaviour and in return they get an incentive which would keep them going and sticking to the same pattern. This approach gives flexibility to the customers - they can store as much energy as they want and export to the grid anytime and help encourage customer to buy more solar panels.” (Residential, CALD, high-energy user, North-west Sydney)



“I prefer this option as it factors in customers who export to the grid when electricity demand is high, who will be rewarded with tariff incentives.” (General residential, CALD, impacted by floods, South-west Sydney)



“It's just easier to get the ball rolling sooner rather than later and it seems fair that everyone gives the same amount back to the grid.” (Residential, ATSI, under financial pressure, impacted by floods and bushfires, South-west Sydney)

Reasons for preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they preferred the “opt-in export tariffs for customers with solar” approach in Wave 2.



“I like the idea of opt-in export tariffs being a transition phase to option one (mandate) as people adjust and better understand the pricing implications.”
(SME, Impacted by the bushfires, South-west Sydney)



“I think this really depends on every personal situation and therefore should be an opt in concept. Those who want high reward and penalty can decide if it is right for them.”
(SME, ATSI, high-energy user, South Coast)



“[Opt-in export tariffs] empowers the customer to become involved in not only their individual circumstance but the larger issue of decarbonisation.”
(General residential, ATSI, South Coast)



“Because it [opt-in export tariffs] gives the opportunity to people who have solar, to choose if they want to pay or not for this tariff or if they want to store it for themselves or anything else they can do with that.” (Residential, North-west Sydney)



“I don't feel that it is fair to punish customers that have installed solar after it has been encouraged by governments, retailers and installers for many, many years and is still being done. To turn around now and charge customers for doing exactly what they have been asked and encouraged to do would not be fair.”
(Residential, innovator, South-west Sydney)



“Again, giving people a choice works better on a whole, as it does make one feel like they have some control, and for those who can control when they use energy, the option [opt-in export tariffs] would help them feel more in control.”
(Residential, under financial pressure, North-west Sydney)

Reasons for preferred approach

Below are a selection of verbatim responses given by Customer Panel participants on why they preferred "to export tariffs is deferred until at least 2030" approach in Wave 2.



"Again, the infrastructure can't handle the supply generation, even though total demand can outstrip total supply, it means you are trying to solve a sometimes problem. Divert traffic through the town centre cause the freeways are full. Build bigger freeways. Build more public transport. Don't limit the number of commuters. So don't limit the generation."
(Residential, CALD, innovator, South-west Sydney)



"I don't think it fair to expect current customers to pay for export tariffs at the moment because many don't understand it."
(Residential, Innovator, high-energy user, North-west Sydney)



"If solar roof panels and batteries are the way for the future, I do not believe that customers should be slugged an export tariff for excess solar. If anything, Endeavour Energy should be looking for ways to save this excess solar in say a community battery for evening use."
(General residential, high-energy user, South-west Sydney)



"This would be the preferred option as it has the vision for the foreseeable future but also it benefits the maximum number of people in the long run." (General residential, CALD, high-energy user, North-west Sydney)



"I feel like this is a bad idea. Opt-in tariffs is a lead in to mandating solar tariffs which will discourage the uptake on solar and will effectively encourage coal / traditional power generation to continue. The government is responsible for upgrading and catering to changing technologies as we modernise the country and progress towards decarbonisation. Other ideas to handle excess power such as localised & community batteries need to be implemented rather than imposing penalties on customers trying to do the right thing."
(SME, South Coast)

Additional comments from Wave 3

Below are a selection of verbatim responses given by Customer Panel participants on why they selected their preferences in relation to solar export tariffs at the end of Wave 3.



"I understand smart meters assist those who have it to take up the cost-reflective tariffs, hence why not mandate it. [For] Those with solar like myself, there should be a mandate to reflect both the +ve & -ve impacts on the grid as I proactively try to use as much energy as I can already during the daytime hours."

(Residential, CALD, high energy user, South-west Sydney and Southern Highlands - changed preferences between Waves 2 and 3 towards a more proactive approach towards resilience)



"Opt-in solar exports tariffs should be the only option for existing customers as they can reflect the positive and negative impacts they have on the whole grid. It's an important feedback to reach out the Australian community."

(Residential, CALD, low energy user, South-west Sydney and Southern Highlands - no change to preferences between Waves 2 and 3)



"Due to increase costs, please, defer this new tariff."

(General residential, low energy user, North-west Sydney, Hawkesbury and the Blue Mountains - no change to preferences between Waves 2 and 3)



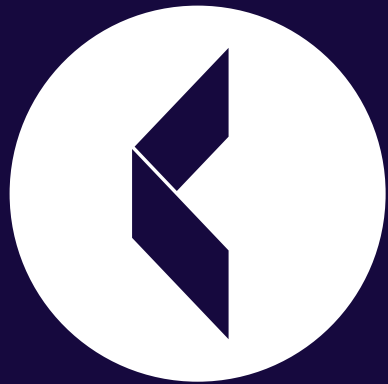
"Let customers have an option, where possible. But don't punish those who have tried to do good (installing solar panels.)"

(Residential, innovator, high energy user, North-west Sydney, Hawkesbury and the Blue Mountains - no change to preferences between Waves 2 and 3)



"I chose defer, as I think there still isn't enough information to support people in making informed choices about solar. I still don't understand how it all works and have not installed solar as I don't completely understand it. There needs to be more education...if I am getting solar I want to know it will save me money"

(SME, Wollongong, Shoalhaven and the South Coast - no change to preferences between Waves 2 and 3)



#7 Long-term interests

Approach to long-term interests

At the end of Wave 2 and Wave 3 engagement Customer Panel members were asked to 'take off their individual customer hat' and consider their priorities and the cumulative impact of their preferences in:

- delivering a reliable, affordable and safe distribution network they believe is in the best long-term interests of all Endeavour Energy customers; and
- how those decisions could, in an indicative way, impact bills.

Participants did this in two ways.

Firstly, they ranked the earlier six key question areas they had explored (excluding tariffs) from first to last priority on the basis that costs were no barrier.

They then used an Excel spreadsheet (with assistance from moderators when required) to calculate the cumulative bill impact of their preferences, and had the option to adjust these to come to a total average bill impact that they felt delivered the best long-term outcome for all customers.

Customer Panel members were asked to provide the reasons for the decisions they made, and undertook these exercises twice; once at the end of the final day of the online community and again at the end of the 22 June Zoom call after clarifying information, small-group discussions and frequently asked questions were addressed.

Ranking overall importance of initiatives

Participants were shown a list of proposed initiatives Endeavour Energy could implement and asked to rank these based on overall importance to address the long-term interests of customers. Participants were asked this twice in Wave 2, and once in Wave 3. Results below represent the final rankings at the end of the engagement.

Wave 3:

Initiatives with no cost considerations	Rank 1 (%)	Net Rank 1-3 (%)
Meeting customer expectations for a safe, affordable and reliable electricity supply through timing of investment (eg. maintaining or improving reliability now, deferring investment to increase affordability).	55	87
Its approach to modernising the network to meet emerging and future customer service expectations as technology evolves (eg. Invest in leading the way so the network capacity is ready for future customer choices, spending less and limiting customer choices such as solar exports, or somewhere in between)	17	52
Its approach to the provision of network services in the face of increased changing weather events eg storm, bushfire flood (eg. spending more on a proactive approach such as reducing bushfire risk by covering conductors, or taking a more responsive approach at no additional cost)	15	76
Timing the delivery of electricity infrastructure required for the economic development of Greater Western Sydney and other areas (eg. well in advance, just in time to meet demand, or only when it is 100% needed)	8	39
Timing the introduction of cost reflective tariffs (eg. requiring customers to switch from flat to time of use pricing so they are charged less for the electricity they use when demand for the network is low and more when demand is high, mandating it only for customers with solar and batteries, or maintaining the current tariff structure)	6	31
Its approach in recovering the costs of new infrastructure required to service new development (eg. new customers covering all costs, spreading the costs across both new and existing customers, or only existing customers pay)	0	15

- The ranking of the top 3 and the lowest priority initiatives were unchanged between the three times the activity was completed by participants.
- The main change in ranking was in the decrease in participants prioritizing safety, reliability and affordability (67% rated this #1 in Wave 2; 55% in Wave 3) and an increase in participants prioritizing modernising the network (11% rated this #1 in Wave 2; 17% in Wave 3)

Top ranked overall importance of initiatives – by segment

Wave 3:

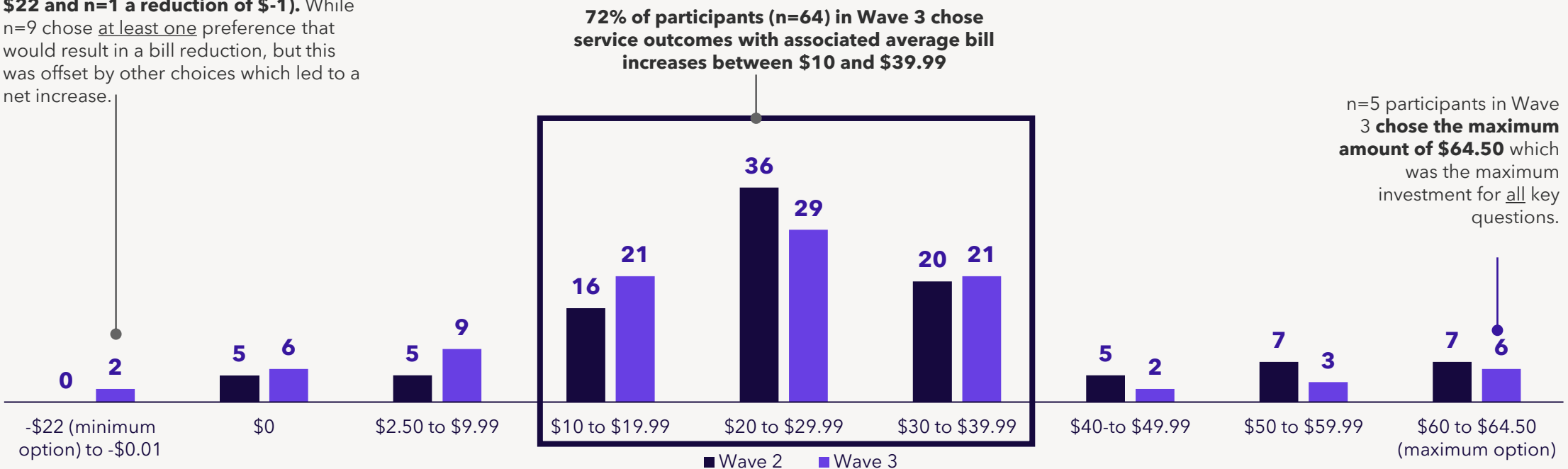
Initiatives with no cost considerations (Rank 1)	All residential (%)	SMEs* (%)	General residential* (%)	Under financial pressure* (%)	Innovators* (%)	CALD + ATSI (%)	SW Sydney (%)	NW Sydney (%)	South Coast* (%)
Meeting customer expectations for a safe, affordable and reliable electricity supply through timing of investment (eg. maintaining or improving reliability now, deferring investment to increase affordability).	56	52	58	50	60	66	45	58	64
Its approach to modernising the network to meet emerging and future customer service expectations as technology evolves (eg. Invest in leading the way so the network capacity is ready for future customer choices, spending less and limiting customer choices such as solar exports, or somewhere in between)	13	28	13	10	15	13	19	12	20
Its approach to the provision of network services in the face of increased changing weather events eg storm, bushfire flood (eg. spending more on a proactive approach such as reducing bushfire risk by covering conductors, or taking a more responsive approach at no additional cost)	14	16	13	25	5	9	16	15	12
Timing the delivery of electricity infrastructure required for the economic development of Greater Western Sydney and other areas (eg. well in advance, just in time to meet demand, or only when it is 100% needed)	9	4	8	10	10	6	13	6	4
Timing the introduction of cost reflective tariffs (eg. requiring customers to switch from flat to time of use pricing so they are charged less for the electricity they use when demand for the network is low and more when demand is high, mandating it only for customers with solar and batteries, or maintaining the current tariff structure)	8	0	8	5	10	6	6	9	0
Its approach in recovering the costs of new infrastructure required to service new development (eg. new customers covering all costs, spreading the costs across both new and existing customers, or only existing customers pay)	0	0	0	0	0	0	0	0	0

Service and cost impact of preferred options

At the end of the engagement, Customer Panel preferences showed 92% of customers preferred increased service outcomes with associated increases to their potential bills, down from 95% in Wave 2. The average cost increase if all customer preferences at the end of Wave 3 were adopted would be \$23.77 per year (\$118.84 over 5 years)

Cost of final preferences: Calculated total bill impact per year (% in each category: Wave 3)

n=2 participants in Wave 3 had an estimated overall reduction to their potential bill (n=1 saw a reduction of -\$22 and n=1 a reduction of \$-1). While n=9 chose at least one preference that would result in a bill reduction, but this was offset by other choices which led to a net increase.



Customer feedback on their investment decisions

While cost was the primary consideration for many, there was a sense of urgency around the need to take action to both modernise the grid and address climate-change related resilience.

Trade-offs made when prioritising preferences

- Many said cost was their primary consideration when revisiting their preferences.
 - We saw a noticeable increased focus on affordability compared with the first wave.
 - Many described their choices as 'modest'.
 - Some weighed up what they could save now vs what they would be likely to save later.
- The secondary consideration was how quickly they felt change needed to be made to accelerate transformation of the energy grid to address climate change and overcome reliability challenges. The timing of the engagement likely impacted views here.
- A further consideration was what services customers would get in exchange for higher bills. Many said the community or personal benefits needed to be clear.

Particularly challenging decisions

- Many felt conflicted when balancing what they saw as a need to invest in new technology with the desire to keep prices low.
 - They noted they wanted some investments but didn't feel they could recommend it given the current economic environment.
- Some noted the felt experience of having seen the impact of major weather events on communities and said this made it hard to make cost-based decisions that could have real human impacts.
- Connections policy was often raised as a challenging trade off. Participants expressed concern about paying for something that would not personally benefit them.

Customer feedback on their investment decisions

Reasons for settling on their final investment decision they believe meets the long-term interests of customers

- Most felt that they had made common sense, fair or moderate decisions.
- Many noted that they felt their decisions would benefit others and were in the best interests of future generations.
- Some noted that their preferences had not changed as a result of the calculator exercise.
 - Some noted that it was lower than they might have expected, with some revising their choices to pick more expensive options.
- When it came down to it, some felt that investing more now may be a way to address uncertainty (ie a sense that we just need to get it done and stop deferring) and could deliver lower prices in the future.
- It was also noted that the proposed cost increases felt reasonable to some, when they spread the increase over the quarter, month or week.
- Finally, a small number felt these investments were inevitable in the face of increasing climate change.

Reasons for investment decisions

Verbatim responses from Customer Panel participants whose investment decisions fell within the \$0 and \$3 to \$9.99 range in Wave 2. These reasons were largely unchanged in Wave 3 for those whose preferences fell within this range.



"I am currently happy with my electricity service and therefore do not see a need to spend more to improve it. New customers should be paying for new infrastructure as it would have been their choice to move into a new development instead of current customers having to foot the bill for it. I think that there should be a gradual energy transition as there could be newer and more efficient technologies that come about in 10 years time."

(General residential, high-energy user, South-west Sydney)



"I made decisions based on a steady see-how-you-go approach and then react on a timely manner. I never over commit on new technology schemes nor am I too passive when it comes to solutions. Building electricity infrastructure and improving network services should be decisive; that is aimed for convenience and comfort."

(General residential, CALD, impacted by floods, South-west Sydney)



"Costs played a big part in my decisions and I made the investment decision based on what would be good for my family and new development that may occur."

(General residential, high-energy user, South-west Sydney)



"I was happy with my choices here. Major weather events impact us all especially people in bushfire and flood prone areas. This is why I chose the more proactive approach here to maintain services in these events, not looking at costs but service. Next choice was to modernise the network as technology evolves. And with the higher probability of success, I don't want to pay any more costs so I would prefer zero costs but I am looking at this in long term interests of customers. So not just for myself on a tight budget but for all customers in different situations. "

(Residential, under financial pressure, impacted by floods and bushfires, North-west Sydney)

Reasons for investment decisions

Verbatim responses from Customer Panel participants whose investment decisions fell within the \$10 and \$19.99 and \$20 to \$29.99 ranges in Wave 2. These reasons were largely unchanged in Wave 3 for those whose preferences fell within this range.



"I am happy to pay a little extra for the electricity network per year to keep it in good order (this will result in lower electricity prices over time)."
(Residential, ATSI, innovator, South-west Sydney)



"The trade off was pro-activity for management of disasters, improved infrastructure etc for less increase of cost. I found the question around choosing to be more proactive for disasters very difficult to answer, and I'm on the fence as I think long terms perhaps the additional \$7.50 increase isn't that bad."
(SME, impacted by bushfires, South-west Sydney)



"Future-proofing the network against natural disasters. I would accept/anticipate a degradation of services during such times. I believe my investments were balanced, affordable, and logical for the typical consumer."
(Innovator, impacted by floods, high-energy user, North-west Sydney)



"I prefer options that cost people money as an opt in thing. People don't have to buy houses in new developments. On the other hand, we do need to invest in an energy transition."
(General residential, high-energy user, South Coast)



"I focused on priorities in the context of limited financial resources and uncertainty. In my view, providing long-term improvements in service outcomes is the top priority. As we have seen a lot of severe weather events recently, a more proactive approach is needed to maintain network services during weather events too."
(General residential, CALD, South Coast)



"We are better off just getting things done now rather than waiting! At least by getting it done now future generations (our kids etc) will benefit."
(Residential, ATSI, under financial pressure, South-west Sydney)

Reasons for investment decisions

Verbatim responses from Customer Panel participants whose investment decisions fell within the \$30 and \$39.99 and \$40 to \$49.99 ranges in Wave 2. These reasons were largely unchanged in Wave 3 for those whose preferences fell within this range.



"Investments are always beneficial for future aspects. As a business person, I believe in investment for securing a better future."
(SME, CALD, high-energy user, South-west Sydney)



"I believe in being proactive in life in general and genuinely think Endeavour has this ability as well. I believe my investments will pay many positive dividends in the mid to long term. I did not find any decisions too challenging but did have to read through them twice and watch the video to get my head around it all. I am in the fortunate position to be able to afford these investments and "for the greater good" of all of our futures, am very happy to make this contribution."
(General residential, high-energy user, North-west Sydney)



"Balancing cost and service, it's more important to make sure the network is stable and able to respond to coming challenges. If you can afford to build a home, you can afford a few more thousand to pay for batteries and solar panels or heat pumps - negotiate with your builder."
(Residential, under financial pressure, impacted by floods, high-energy user, South Coast)



"I opted to rapidly invest in the network for almost all options. The cost of under \$50 per year is about \$12 per quarter. Almost all people wouldn't even notice this increase."
(General residential, impacted by bushfires, South Coast)



"I'm pretty satisfied with these decisions. It seems to be a balance between waiting till something is needed (low cost in the short term but longer negative outcomes) and going ahead full bore (lots of cost but maybe some wasted funds on projects that aren't needed.)"
(General residential, South Coast)



"Its important that planning be made keeping in view the emerging trends and also preparedness for the future needs. Its important everyone pitches in to ensure the network is upgraded and is reliable to service the customers."
(Residential, CALD, Innovator, high-energy user, North-west Sydney)

Reasons for investment decisions

Verbatim responses from Customer Panel participants whose investment decisions fell within the \$50 and \$59.99 and \$60 to \$64.50 ranges in Wave 2. These reasons were largely unchanged in Wave 3 for those whose preferences fell within this range.



"I didnt really find anything challenging nor did I have any trade offs. The reality is that money needs to be spent to modernise infrastructure, research and implementation."
(SME, ATSI, high-energy user, South Coast)



"The obvious trade off is cost for service and reliability. I am willing to service an increased cost if Endeavour Energy is investing that money in a stable and reliable energy network for the future."
(SME, high-energy user, North-west Sydney)



"I believe that by investing in the technology at a slightly quicker rate we will all benefit from lower transmission and generation costs in the future. This should impact two major parts of our bills. I am not keen on putting up costs for the most vulnerable, but the addition of smart meters will help them and hopefully offset some of the additional costs of the technology increase. At a cost of about \$1 a week I think this will speed up the rate of take up [of solar and storage units which has to have a benefit to us all in the long run.]"
(General residential, high-energy user, South Coast)



"I think we need to invest in the network and make all the changes possible as the longer we wait the more it will cost in future. Imagine how much less it would have been if we did it 10 years ago? Waiting will increase the cost. It equates to \$1.20ish/week increase."
(SME, high-energy user, South Coast)



"I think that the cost is reasonable. The decision was fairly easy to make. I feel that paying a bit upfront will have better outcomes in the future."
(Residential, innovator, high-energy user, North-west Sydney)

Customer reasons for changing their views

At the end of Wave 3, after Endeavour Energy had explained its positions for the Draft proposal, customers were asked to record their preferences based on this new information and whether they had changed their preferences. Below are a selection of verbatim responses given by Customer Panel participants on why they preferred “to export tariffs is deferred until at least 2030” approach in Wave 2.

- 15% of Customer Panel members said they had changed their preferences since Wave 2 (73% thought their views were unchanged, and 12% were unsure).
- Despite feedback from the break-out groups that cost-of-living pressures were starting to bite, reasons given for changing views were mixed.
- Around half cited cost-of-living pressures, with others saying they felt more informed. Some pointed out that their main change has been in relation to their position on cost reflective tariffs, moving from mandated to opt-in. Two said they now preferred a more proactive and costly approach as they saw increased needs or felt they could afford more than the \$34 proposed.

“I originally opted for long term improvement for service outcomes, but I now opt for the cost neutral option. This is due to cost-of-living expenses.”
(General residential, high-energy user, South-west Sydney and Southern Highlands)

“Opinions have become stronger over time from knowledge.”
(Residential, innovator, North-west Sydney, Hawkesbury and the Blue Mountains)

“Yes it did change. I am ok to pay a bit more for better future improvements but not too much high cost..”
(SME, CALD, South-west Sydney and Southern Highlands)

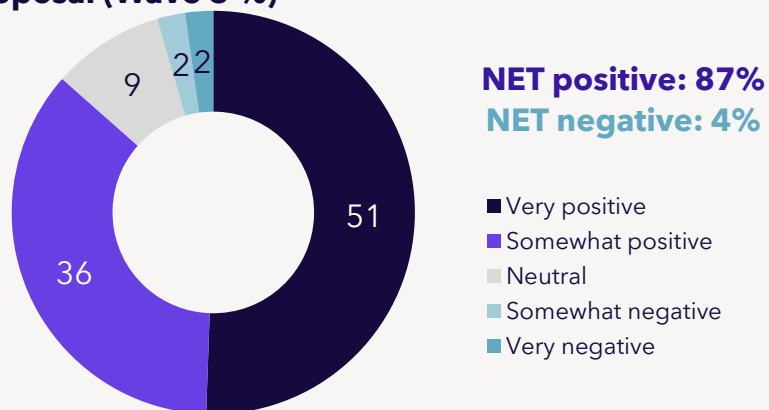
“I think I was initially against the user pays system where peak and off peak tariffs are applied. I now believe customers should have a choice in whether they opt in for these choices.”
(Residential, under financial pressure, South-west Sydney and the Southern Highlands)

“I think my preference regarding mandated solar tariffs changed. I didn’t want to discourage the use of solar but I guess its just unfair to make others pay for the updates to the grid that are needed for it.”
(General residential, CALD, Wollongong, Shoalhaven and the South Coast)

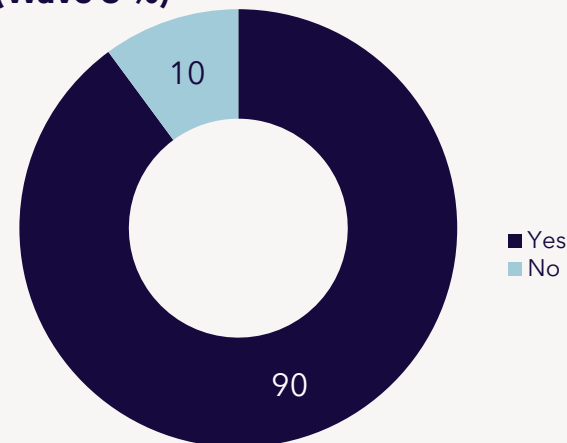
Customer feedback on the Draft Proposal

At the end of Wave 3, after Endeavour Energy had explained its positions for the Draft proposal, 90% of participants – felt that Endeavour Energy's Draft Proposal reflected their priorities, and 87% felt positively towards the way Endeavour Energy had taken the views of customers and stakeholders into account.

Sentiment towards Endeavour Energy taking customer and stakeholder feedback into the Draft Proposal (Wave 3 %)



Proportion of customers who felt Endeavour Energy's Draft Proposal reflects customers priorities (Wave 3 %)



- Although the vast majority of comments provided were positive, all four (4) of the Customer Panel members who said their views were either somewhat or very negative were concerned that customer views had been outweighed by stakeholder opinions.
- Of the 10% of the Customer Panel (nine participants) who did not feel Endeavour Energy's proposal was in the long-term interests of customers, five (5) were under financial pressure. Three (3) Panel members felt that stakeholder views had been given more weight than the views of customers and two (2) were concerned about the impact on lower income earners and renters. Other reasons given included too much jargon for participants to understand, too focused on current issues and not sufficiently on the future, uncertainty about whether the issues discussed were the right ones, too much focus on emissions, and that the proposal was not sufficiently bold and should have increased investment further.

Reasons for views about the Draft Proposal

The vast majority of comments were positive, with those feeling somewhat or very negative were solely concerned about their views were given sufficient weight compared to the views of stakeholders.



"I felt that our voices were heard and our opinions valued. It was good to see that some of EE's positions changed in response, and where they didn't, the reasons why were explained."

(Residential, under financial pressure, North-west Sydney, Hawkesbury and the Blue Mountains)



"From what I saw, the proposal incorporates most of what I heard during this process. EE clearly listened to the consensus."

(Residential, flood-impacted innovator and high-energy user, North-west Sydney, Hawkesbury and the Blue Mountains)



"My break away group alone relies solely on what is provided to them, none of us can put solar panels on our homes, we can't install smart meters, we have to rely on our local and state governments to provide community batteries. The whole proposal is focusing on going green, relying on technology that has failed in every country that has gone green and being a cost effective move only for a select group who can afford to go along with it."

(Residential, financially vulnerable, North-west Sydney, Hawkesbury and the Blue Mountains)



"it's balanced and seems quite measured. also seems like it's practical and will make a dent in improving electricity in vulnerable areas eg bushfire or flood prone."

(SME, impacted by floods and bushfires, North-west Sydney, Hawkesbury and the Blue Mountains)

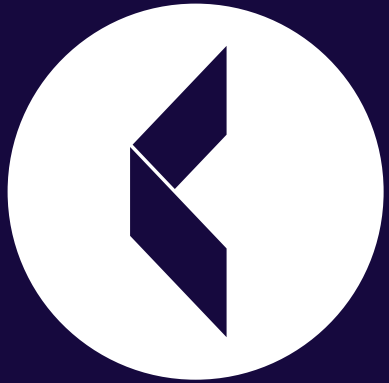


"This proposal needs MUSCLE to benefit its customers both in the shorter and longer terms and EE must do everything it can to help its customers positively and resourcefully."

(Under financial pressure, CALD, South-west Sydney and Southern Highlands)



"I feel it reflects what the stakeholders wanted."
(Residential, under financial pressure, Wollongong, Shoalhaven and the South Coast)

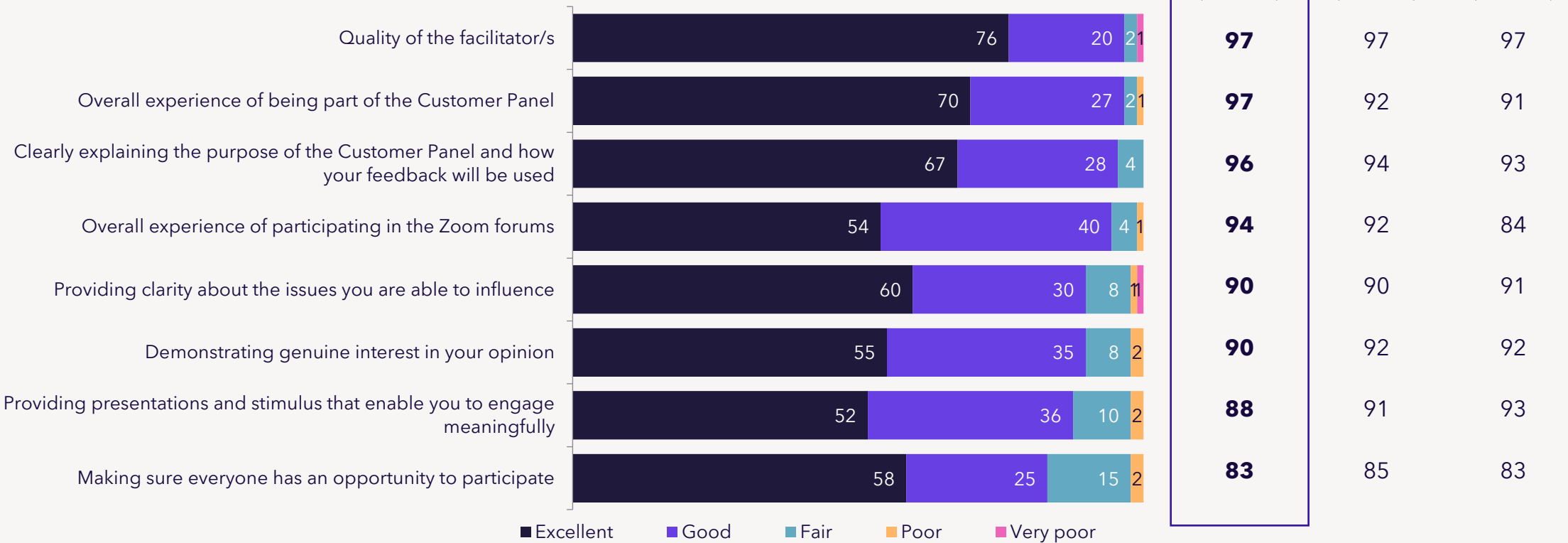


Evaluation

Post-engagement evaluation survey results

Customer Panel members were asked to complete an evaluation survey at the end of each wave (in May, June and now September). They rated Endeavour Energy's engagement performance on a series of attributes and provided commentary on what they felt it had done well and potential areas for improvement.

Attributes (Wave 3%)



What was done well

Across all waves of engagement, Customer Panel feedback was largely positive with most expressing gratitude for the opportunity to be involved in the engagement process and have their say in the future of the network.

- **Genuine engagement:** Most thanked Endeavour Energy for giving them the opportunity to have their voices heard. Many said they felt valued throughout the experience and enjoyed hearing from members of the Endeavour Energy executive team, with some noting that they were surprised how much they had enjoyed the process. They commented that Endeavour Energy demonstrated a genuine interest in hearing from its customers and that they enjoyed the opportunity to learn more about the energy industry and have an influence in its future planning. Almost 90% said they would be happy to participate in a further survey in 2023.
- **Clear and concise presentations:** Most described the information provided as clear, interesting, educational, well-organised and engaging. They felt the information was provided in a digestible way and liked that it was presented into "bite-sized chunks".
- **Executive and Board involvement:** Most praised the Endeavour Energy executive team for their clear presentations and described them as approachable, down to earth and transparent. They liked that they were present at all Zoom forums and were engaging during their presentations.
- **Break-out room facilitators:** Participants said they enjoyed the breakout room discussions on the Zoom forums. They felt these were a more intimate way to share their opinions and liked being able to hear the views of other customers within the network. They appreciated being encouraged to share their opinion by facilitators and felt comfortable doing so. They described facilitators as friendly, respectful, knowledgeable and helpful, with in-depth knowledge of the topics covered. Participants also liked being with the same people during the break-out rooms throughout all waves of engagement.
- **Keeping participants up-to-date with engagement findings:** A lower order mention which was made by a couple of participants was that they appreciated being kept up-to-date with the findings from each wave of engagement. Participants liked that the engagement findings were shared with them.



"Endeavour Energy put so much time and effort into this. The information provided was extensive, interesting and well presented. It was fantastic that the key personnel involved all got to speak and present. Everything was so professionally run and put together and I loved being part of it."
(SME, high-energy user, North-west Sydney)



"I loved the facilitators and that they remained the same throughout. It made it more personal, and that we, the customers, were important."
(Residential, innovator, North-west Sydney)



"I really felt privileged to be one of the chosen ones to participate and have my say. I really enjoyed the speakers on zoom talking and being so professional with talking to us and I really liked the slides information you put up to show and explain to us. It was well organised and professional and very interesting I felt. It was well put together. It gave me insight into what's going on and future plans and for us all to have our input on this as a group."
(Residential, under financial pressure, impacted by floods and bushfires, North-west Sydney)

What was done well - feedback from Wave 3



"Being able to be a more informed customer, it has changed the way I think and has prompted me to invest in an electric car. Additionally, it was great to see the passion of those involved behind the scenes at Endeavour and who knows may prompt me to want to become part of the team." (Residential, innovator, South-west Sydney)



"I really enjoyed the educational factors; I have learnt so much from participating and would like to be involved in any future panels." (SME, South Coast Sydney)



"Everything was done well in this Customer Panel. I feel so enriched and informed now." (SME, South Coast Sydney)



"Meeting everyone, both on the Endeavour team and customers. I think it is nice to see faces of those who work at corporate companies as it adds the human element to it." (Residential, under financial pressure, impacted by bushfires, North-west Sydney)



"Not only have Endeavour Energy collected my feedback, but they have gone out of their way to educate and ensure it was an interesting and positive experience to be involved in." (SME, South-west Sydney)



"I thought the facilitators and presenters were all excellent and very engaging. They explained all of the concepts really well and were able to answer all questions very clearly." (Residential, under financial pressure, impacted by bushfires, North-west Sydney)



"I've enjoyed learning so much about the sector and the complexities Endeavour Energy (and other market players) face. The level of engagement I felt from the executives was excellent." (Residential, under financial pressure, North-west Sydney)



"That my feedback will help shape the future investment." (SME, innovator, CALD, South-west Sydney)



"I appreciated the genuine interest that Endeavour took in the respondents' thoughts" (Residential, impacted by bushfires, South Coast Sydney)



"I enjoyed being apart of something that could be the future change that Australia needs." (Residential, under financial pressure, North-west Sydney)

What could be improved

Customer Panel members were encouraged to provide suggestions of what could be improved for future forms or similar customer engagement. Feedback was mainly positive, reflecting participants' high engagement and interest.

- **More time for breakout group discussions:** Some expressed a desire to have more time allocated for breakout rooms to enhance the amount of time for panel discussion and have a greater number of breakout rooms throughout the session. Customers wanted more opportunities to discuss the content learnt and express their ideas. One felt that there needed to be more specific questions asked in the breakout rooms to ensure participants stay on target, and another suggested presentations be given in breakout rooms to facilitate more question-and-answer opportunities.
- **Reduce the technical jargon on slides and increase graphics:** Some suggested the presentations be made more engaging by having more graphics, or that the text be shortened so that participants could read them more easily. A couple suggested the technical jargon be reduced so that information is more digestible for customer panel members.
- **Presentation packs to be distributed to customers prior to the Customer Panel:** A few participants were keen for more time to digest the content and suggested presentation slides be sent to participants prior to the online Zoom forums so they could read through, make notes and absorb the information before the session begins.
- **Continue with ongoing engagement:** a couple suggested customer engagement be held more frequently, with calls for it to be held on an ongoing basis. Another suggested customer engagement be held annually with members appointed on a twelve-month rotating basis.



"Simplifying some of the language and definitions. Even having a definitional booklet or something available that people could reference with explanations on the various things that were being discussed. i.e. tariffs."

(Residential, under financial pressure, low-energy user, Wollongong, Shoalhaven & the South Coast)



"I would love to have a copy of the slides in the Zoom meeting. Sometimes I wanted a couple of extra seconds to take them in, especially the really dense ones. And it was frustrating in my breakout group tonight to want to ask a question but not being able to refer to the slide to frame the question in a meaningful way."

(Residential, under financial pressure, low-energy user, North-west Sydney)



"Endeavour Energy should cut down on its technicalities and make it easier for us to understand them."

(Residential, CALD, under financial pressure, South-west Sydney)

Additional comments from Wave 3

Customer Panel feedback on the engagement process remained consistently positive throughout, with Panel members asked to provide ideas to improve the process for the future.



"Perhaps have a few different timeslots for group sessions. I notice that with the nighttime sessions, some people appear very tired or distracted with young children and family duties."

(Residential, under financial pressure, North-west Sydney, Hawkesbury and the Blue Mountains)



"I have done similar customer forums online but this has been the best by far."

(SME, Wollongong, Shoalhaven and South Coast)



"Keep this community going and get live feedback."

(General residential, CALD, South-west Sydney and Southern Highlands)



"There was A LOT of info! Could be diluted down. Less text and more graphs also!"

(SME, North-west Sydney, Hawkesbury and the Blue Mountains)



"More time in the smaller groups, but I realise this is difficult considering the volume of information that needs to be shared."

(General residential, CALD, South-west Sydney and Southern Highlands)



"I would love to have a copy of the slides in the Zoom meeting. Sometimes I wanted a couple of extra seconds to take them in, especially the really dense ones. And it was frustrating in my breakout group tonight to want to ask a question but not being able to refer to the slide to frame the question in a meaningful way."

(Residential, under financial pressure, North-west Sydney, Hawkesbury and the Blue Mountains)



"Not sure really except to remember me and choose me if I am available lol. Apart from that nothing I can think of off hand. As I feel it was well put together with so many different people. Thanks again I will miss you all now and this project. The year has seemed to go fast and now it's September already. 😊."

(Residential, under financial pressure, North-west Sydney, Hawkesbury and the Blue Mountains)



Appendices

Current services prioritisation activity

Below are screenshots of the current services activity participants were asked to complete on the online community. Participants were shown a list of these current services and asked to rate them in order of importance to them.

Current services

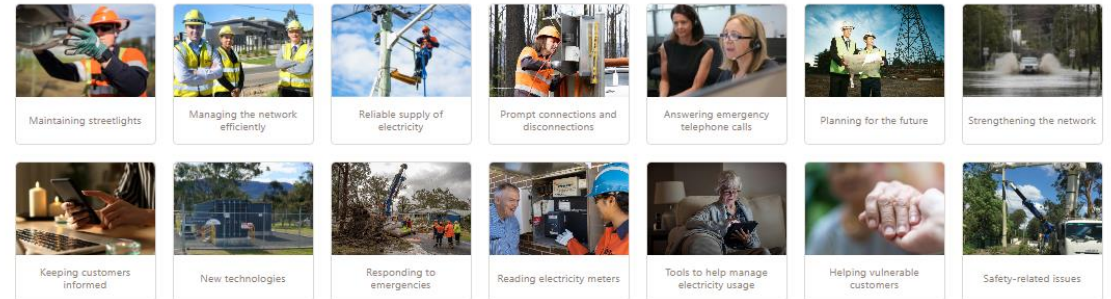
Listed below are some of Endeavour Energy's **current** services. We would like you to identify the five services from the list that are most important to you personally. Start by reading each service description and then drag and drop your top five into the 'ranking bucket' in order of importance. We are interested in your views based on what you know today – there are no right or wrong answers.

- **Reliable supply of electricity:** Providing a reliable supply of electricity to customers by building, maintaining and managing the substations, poles and wires, underground cables and other equipment.
- **Safety-related issues:** Managing safety-related issues to reduce risks to the community by monitoring infrastructure, trimming trees to maintain safety clearances, managing bushfire risk and preventing blackouts caused by falling trees.
- **Managing the network efficiently:** Managing the network efficiently to deliver electricity services in the most affordable way.
- **Planning for the future:** Planning for the future by building the electricity infrastructure to accommodate growing suburbs and industries.
- **Responding to emergencies:** Responding to emergencies like storms which bring down power lines and poles to reduce the safety risk and restore power as quickly and safely as possible.
- **Strengthening the network:** Proactively strengthening the network in areas facing increasing extreme weather events to improve the resilience of exposed.
- **Keeping customers informed:** Keeping customers informed (via SMS for all customers plus mailbox drops for life-support customers) of planned and unplanned outages to minimise disruption.
- **Prompt connections and disconnections:** Providing prompt connections and disconnections when required, including new services and solar connections.
- **Helping vulnerable customers:** Helping vulnerable customers to keep the power on when things go wrong in their lives or when they need electricity to power medical equipment to preserve life (life support customers).
- **New technologies:** Researching, trialling, and installing new technologies such as batteries to improve efficiency of infrastructure investment where possible, helping contribute to long-term affordability of electricity bills.
- **Maintaining streetlights:** Installing and maintaining streetlights for local councils to keep communities safe.
- **Tools to help manage electricity usage:** Providing customers with tools like apps and tips to help manage electricity usage and costs via telephone, text and website.
- **Answering emergency telephone calls:** Answering emergency telephone calls within 30 seconds.
- **Reading electricity meters:** Reading electricity meters and sending the data to retailers so your electricity bills are accurate.

Move a card into a group by clicking the card and selecting the desired group from a list. You can also drag cards directly into groups. Reorder cards by dragging them up and down or selecting "Move Up" / "Move Down" from card's menu.

1 Drag or add exactly 5 cards into any group

Cards



Groups

Ranking

Most important



Future services prioritisation activity

After rating their top current services, participants were shown the below list of proposed future services Endeavour Energy could provide and asked to rate their top five in order of importance to them.

Future services

Now we'd like you to identify what you see as the five most important services that Endeavour Energy could provide in future. These are the services that Endeavour Energy is thinking may be needed over the next five years or more.

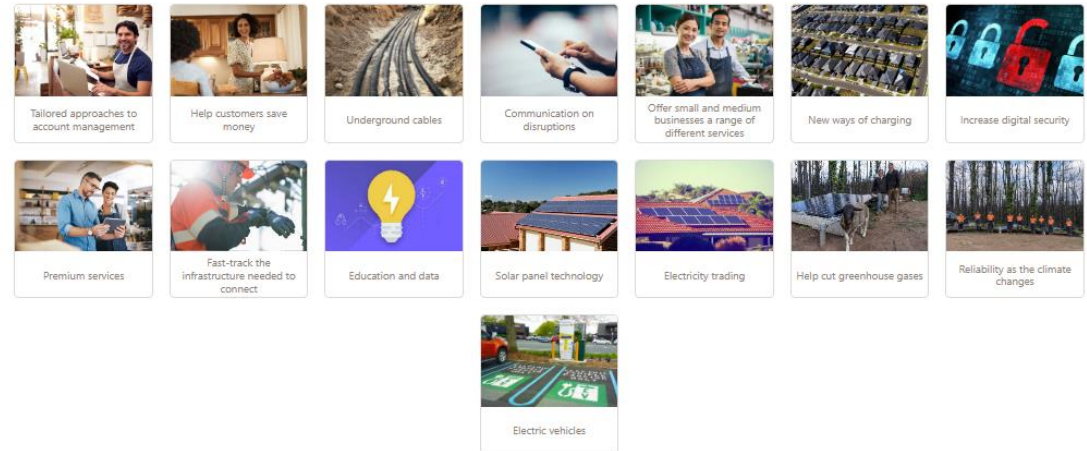
Just like the last task, please read each service description and then drag and drop your top five into the 'ranking bucket' in order of importance to you personally.

- **Solar panel technology:** Provide the necessary technology so that anyone who wants to use solar panels to generate their own electricity and export what they don't use into the grid can do so.
- **New ways of charging:** Introduce a new way of charging so that customers can save money by changing the time of day they consume electricity or export solar to match the changing supply and demand in the grid.
- **Education and data:** Help customers to understand and manage their electricity consumption and costs through education and data.
- **Reliability as the climate changes:** Invest in infrastructure and / or new technology so the current levels of reliability (number of blackouts and speed with which they are fixed) can be maintained as the climate changes (e.g., if there are more floods and fires).
- **Electricity trading:** Provide households with an option to send any excess energy from their solar panels to a battery shared with neighbours so they can trade electricity with each other. This would also help make the grid more efficient and keep downwards pressure on bills.
- **Fast-track the infrastructure needed to connect:** Fast-track electricity infrastructure like substations to connect new business and housing developments so our region can grow quickly rather than invest 'just in time'
- **Help customers save money:** Help customers save money if they choose to reduce their energy consumption during a heatwave so more equipment doesn't need to be built, helping keep prices down for everyone in the longer term.
- **Communication on disruptions:** Provide customers more accurate and timely information about unplanned and planned disruptions.
- **Electric vehicles:** Ensure the grid is able to cope with the increased demand likely to come from an influx of electric vehicles.
- **Underground cables:** replace above ground wires with underground cables to reduce fire risk and improve public amenity (note that this would cost significantly more and often takes longer to find faults).
- **Premium services:** Provide services to those who are willing to pay for them, instead of all customers contributing.
- **Increase digital security:** Increase digital security to protect customers' personal data related to their energy usage.
- **Help cut greenhouse gases:** Help cut greenhouse gases and set targets to do this by 2040 through investment in new technology.
- **Offer small and medium businesses a range of different services:** Offer small and medium businesses a range of different services and prices so they can choose what they want in terms of reliability, account management and customer service.
- **Tailored approaches to account management:** Provide small and medium businesses more tailored approaches to account management and different levels of support depending on their needs and size

Move a card into a group by clicking the card and selecting the desired group from a list. You can also drag cards directly into groups. Reorder cards by dragging them up and down or selecting "Move Up" / "Move Down" from card's menu.

1 Drag or add exactly 5 cards into any group

Cards



Groups

Ranking

Most important



Q. Now we'd like you to identify what you see as the five most important services that Endeavour Energy could provide in future. These are the services that Endeavour Energy is thinking may be needed over the next five years or more. Just like the last task, please read each service description and then drag and drop your top five into the 'ranking bucket' in order of importance to you personally. // Base: all participants (n=87)

Building resilience prioritisation activity

Participants were provided with the following sixteen actions and were asked to drag each into the bucket they thought best reflected their views in order of importance.

Prioritisation exercise

Below is a list of some broad actions that people have been talking about in relation to resilience. Please put each one into the 'bucket' that best reflects your views of its importance for your household or business. Let us know which you feel are very important, somewhat important, or not very important. The order within each 'bucket' doesn't matter.

To sort and rank these cards, click on the desired card and drag it into the rating 'bucket' that best reflects your views – Very important, somewhat important, not very important. You can reorder the cards by dragging them up and down or selecting "Move Up" / "Move Down" from card's menu.

Drag or add exactly 16 cards into any group

Use network automation to quickly contain the impact of storm and flash flooding

Secure higher levels of insurance to cover the cost of repair and recovery after an event

Ensure people have access to information about restoring their electricity supply at disaster management centres

Upgrade key infrastructure to increase the resilience from extreme heat events

Educate customers to prepare for and respond to major events

Adopt digital protection systems to reduce the likelihood of overhead wires starting bushfires

Home batteries to support customers for short times during emergencies

Quickly install non-network technologies to recover electricity supply to some customers after major events

A community hub with a back-up energy supply is developed for customers to go to in emergencies

Review performance after events to consider potential improvements to planning and response

Generator owners (councils, community centres etc.) organise to share equipment during and after major weather events

Swap bare conductors for covered conductors that cannot spark bushfires

Increase the height of wires or underground them in areas prone to flooding

Build a stand-by workforce that is ready to react and repair the network during major events

Use more resilient options when replacing infrastructure eg. concrete poles in bush-fire prone areas

Provide alternative power during emergencies for critical facilities like mobile towers

Very important

Somewhat important

Not very important

Q. Below is a list of some broad actions that people have been talking about in relation to resilience. Please put each one into the 'bucket' that best reflects your views of its importance for your household or business. Let us know which you feel are very important, somewhat important, or not very important / Base: all participants (n=86)

Responsibility for building resilience prioritisation activity

Participants were provided with the same sixteen actions and were asked to drag each into the bucket representing the organisation they thought should be most responsible for managing it.

Responsibilities

Below are the same broad actions, and we now would like you to drag and drop each element into a 'bucket' to reflect who you think should be **most responsible** for managing it that action.

1 Drag or add exactly 16 cards into any group

Cards

Swap bare conductors for covered conductors that cannot spark bushfires

Increase the height of wires or underground them in areas prone to flooding

Upgrade key infrastructure to increase the resilience from extreme heat events

Quickly install non-network technologies to recover electricity supply to some customers after major events

Build a stand-by workforce that is ready to react and repair the network during major events

Educate customers to prepare for and respond to major events

Home batteries to support customers for short times during emergencies

Use more resilient options when replacing infrastructure eg. concrete poles in bush-fire prone areas

Generator owners (councils, community centres etc.) organise to share equipment during and after major weather events

Adopt digital protection systems to reduce the likelihood of overhead wires starting bushfires

Use network automation to quickly contain the impact of storm and flash flooding

Ensure people have access to information about restoring their electricity supply at disaster management centres

Provide alternative power during emergencies for critical facilities like mobile towers

Secure higher levels of insurance to cover the cost of repair and recovery after an event

Review performance after events to consider potential improvements to planning and response

A community hub with a back-up energy supply is developed for customers to go to in emergencies

Groups

You as an individual customer

Endeavour Energy

Your local council

The NSW Government

Federal Government

A local community group

Q. Below are the same broad actions, and we now would like you to drag and drop each element into the 'bucket' to reflect who you think should be most responsible for managing that action.it. // Base: all participants (n=86)

Actions Endeavour Energy could take prioritisation activity

After receiving information on the impact of major weather events on the network, participants were asked to rate possible actions Endeavour Energy could take for each of the following weather events in order of priority.

Priorities

Yesterday we talked about the impact of major weather events on the electricity network in general terms. But just as different types of customers use electricity in different ways, there are different parts of our distribution area that are more at risk from major weather events than others.

Endeavour Energy has identified areas of the network exposed to climate extremes and come up with five ways in which it could proactively work with the community to identify tailored solutions.

Please 'drag and drop' the following five actions into the box below to show which you feel is the highest priority through to the lowest priority.

- **Hawkesbury flooding:** Upgrading electricity infrastructure in the area or finding alternative technologies, such as microgrids, to increase reliability for communities cut off from the grid by flooding
- **Bushfires:** Replacing bare overhead wires with covered wires less likely to cause sparks that start bushfires, or improving technologies such as protection systems to reduce the likelihood of them starting bushfires
- **South Coast storm path:** Increasingly using network automation to allow parts of the network to "self-heal" or "self-respond" to storm and flash flooding impacts
- **Western Sydney heat waves:** Upgrading key assets to protect against extreme heat events
- **Identifying local critical infrastructure:** Identify facilities used during emergencies (such as local community centres, petrol stations, telecommunications towers, water facilities) and providing alternative solutions such as batteries to ensure supply to them is maintained

 Drag or add exactly **5 cards** into any group

Cards



Hawkesbury flooding



Bushfires



South Coast storm path



Western Sydney heat waves



Identifying local critical infrastructure

Groups

Importance

Highest priority



Lowest priority

Future energy actions activity

Participants were provided with a list of ways people might generate, use and share electricity in the next ten years. They were then asked to sort these into four different buckets.

Your Future Energy Actions

Endeavour Energy is keen to understand how you use electricity and access the grid **now**, and how you think you might want to be able to use it in the **future**.

Listed below are some examples of the types of ways people might generate, use and share electricity in the next 10 years. We would like you to read each description listed in the dot points below - the bolded words are included on the cards below for you to sort. Once you have read each description listed, drag and drop each card into one of the four buckets provided according to whether you think you...

- Are **already doing this**
- Are **very likely** to do this in the future
- **Might consider** doing in the future
- Are **unlikely** to do this in the future

Future energy actions:

- **Closely monitoring my energy consumption** to save money **using data from my smart meter** that I access through an app or portal
- **Generating electricity for use in my home or business, from a rooftop solar system**
- **Exporting electricity from my rooftop solar system** to the grid when it is producing more than I need so I can receive a financial payment or to **offset my electricity bills**
- **Storing any electricity from my rooftop solar system that can't be used immediately in a home battery** so I can use it later when the sun isn't shining
- **Maximising the financial benefit of the electricity from my solar system by storing it in a battery** and exporting it to the grid when the price I get for it is highest (likely in peak demand periods between 4-8pm)
- **Allowing my retailer or another energy business to manage my energy use** by adjusting the timing of pool pumps and/or the temperatures of air-conditioning to maximise efficiency and save me money without me having to think about it
- **Combining** electricity generated from rooftop solar system (and stored in a home battery or electric vehicle) **with neighbours in a Virtual Power Plant to earn money** for keeping the grid secure.
- **Charging my electric vehicle at home overnight**
- **Charging my electric vehicle in the middle of the day** using my solar or when electricity prices from the grid are cheapest
- **Using my electric vehicle as a battery** to store electricity generated by my rooftop solar system during the day, and using that energy at peak times in the night
- **Using home automation such as home 'hubs' to manage my energy consumption** to reduce bills and emissions by controlling the timing of air-conditioning, pool pumps, lights and other electrical devices.
- **Using the delay function on smart appliances** such as dishwashers and washing machines **so they can be used at times of day when electricity is cheapest**
- **Only purchasing appliances with high energy efficiency ratings**
- **Monitoring my energy consumption and/or generation to identify ways to maximise efficiency**
- **Opting into an energy demand incentive scheme by reducing demand at peak times** (such as raising the temperature of air-conditioning a degree or two in summer) when requested in return for discounts on electricity bills or shopping vouchers
- **Connecting to a local microgrid in place of the main network** (Note this is likely to only be a viable option for those living near the edge of the network)
- **Accessing a community battery** that I can share with others to reduce the cost and **to store my excess solar energy** for later in the evening.
- **Purchasing access to a local community solar plant** if I don't have the access or ability to install solar on my own rooftop.

Move a card into a group by clicking the card and selecting the desired group from a list. You can also drag cards directly into groups.

Drag or add exactly 18 cards into any group

Cards

- Closely monitoring my energy consumption using data from my smart meter
- Generating electricity for use in my home or business, from a rooftop solar system
- Exporting electricity from my rooftop solar system to offset my electricity bills
- Storing any electricity from my rooftop solar system that can't be used immediately in a home battery
- Maximising the financial benefit of the electricity from my solar system by storing it in a battery
- Allowing my retailer or another energy business to manage my energy use
- Combining with neighbours in a Virtual Power Plant to earn money
- Charging my electric vehicle at home overnight
- Charging my electric vehicle in the middle of the day when electricity prices are cheapest
- Using my electric vehicle as a battery
- Using home automation such as home 'hubs' to manage my energy consumption
- Using the delay function on smart appliances so they can be used when electricity is cheapest
- Only purchasing appliances with high energy efficiency ratings
- Monitoring my energy consumption and/or generation to identify ways to maximise efficiency
- Opting into an energy demand incentive scheme by reducing demand at peak times
- Connecting to a local microgrid in place of the main network
- Accessing a community battery to store my excess solar energy
- Purchasing access to a local community solar plant

Groups

- I'm already doing this
- I'm very likely to do this in the future
- I might consider this in the future
- I'm unlikely to do this in the future

Q. Endeavour Energy is keen to understand how you use electricity and access the grid now, and how you think you might want to be able to use it in the future. Listed below are some examples of the types of ways people might generate, use and share electricity in the next 10 years. We would like you to read each description listed in the dot points below. Once you have read each description listed, drag and drop each card into one of the four buckets provided according to whether you think you...Are already doing this, Are very likely to do this in the future, Might consider doing in the future, are unlikely to do this in the future ...// Base: all participants (n=88).

Ranking overall importance of initiatives

Participants were shown a list of proposed initiatives Endeavour Energy could implement and asked to rank these based on overall importance to address the long-term interests of customers. Participants were asked this twice in Wave 2, with the below screenshots taken from when participants were initially asked.

If money were no barrier

If costs were no barrier, how would you rank the overall importance of Endeavour Energy taking action to address the following in the long-term interests of customers?

Listed below are the different topic areas we've covered and examples in brackets:

- **Meeting customer expectations for a safe, affordable and reliable electricity supply through timing of investment** (eg. maintaining or improving reliability now, deferring investment to increase affordability).
- **Its approach to the provision of network services in the face of increased changing weather events eg storm, bushfire, flood** (eg. spending more on a proactive approach such as reducing bushfire risk by covering conductors, or taking a more responsive approach at no additional cost)
- **Timing the delivery of electricity infrastructure required for the economic development of Greater Western Sydney and other areas** (eg. well in advance, just in time to meet demand, or only when it is 100% needed)
- **Its approach in recovering the costs of new infrastructure required to service new development** (eg. new customers covering all costs, spreading the costs across both new and existing customers, or only existing customers pay)
- **Its approach to modernising the network to meet emerging and future customer service expectations as technology evolves** (eg. Invest in leading the way so the network capacity is ready for future customer choices, spending less and limiting customer choices such as solar exports, or somewhere in between)
- **Timing the introduction of cost reflective tariffs** (eg. requiring customers to switch from flat to time of use pricing so they are charged less for the electricity they use when demand for the network is low and more when demand is high, mandating it only for customers with solar and batteries, or maintaining the current tariff structure)

Now that you've had the opportunity to consider and discuss these aspects of your electricity service, we would like you to sort them in order of importance from most important to you to least important to you by dragging and dropping each card.

Move a card into your desired ranking or 'group' by clicking the card and selecting the desired rank from #1 through to #6.

Drag or add exactly 6 cards into any group

Cards

Its approach in recovering the costs of new infrastructure required to service new development

Timing delivery of electricity infrastructure required for the economic development of Greater Western Sydney & other areas

Meeting customer expectations for a safe, affordable and reliable electricity supply through timing of investment

Timing the introduction of cost reflective tariffs

Its approach to modernising the network to meet emerging and future customer service expectations as technology evolves

Its approach to the provision of network services in the face of increased changing weather events eg storm, bushfire, flood

Groups

#1
+
Add 1 more

#2
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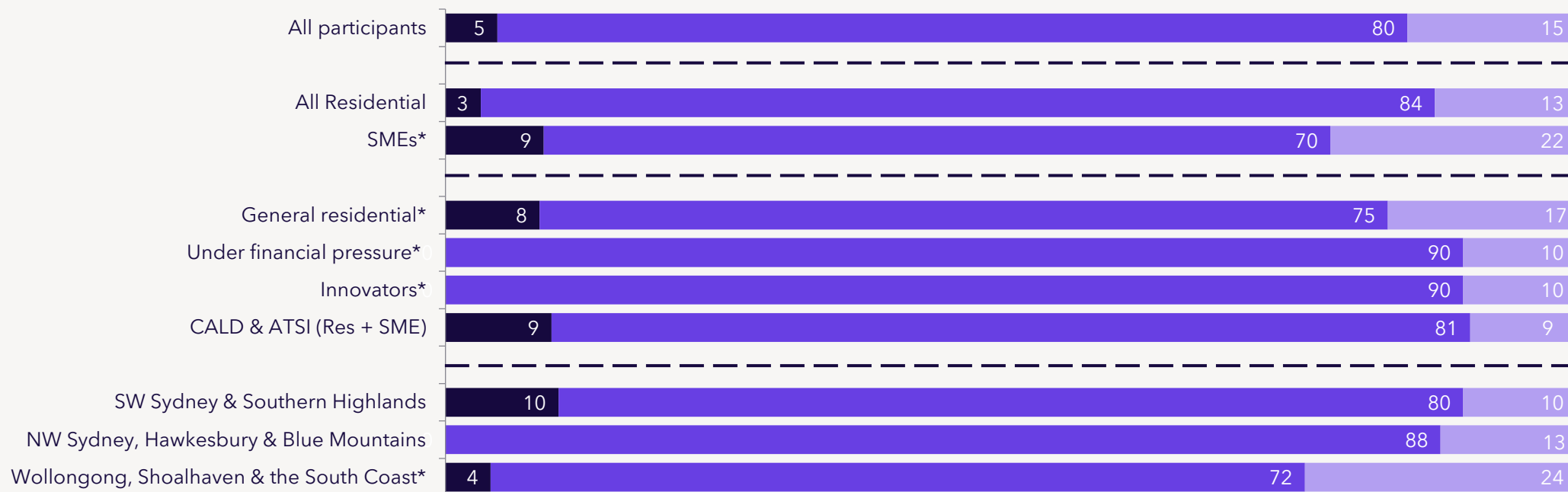
#5
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#6
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'In principle' customer expectations on reliability

'In principle' most customers would prefer the same level of reliability as they have now at a similar cost, but one in four who live in Wollongong, Shoalhaven or the South Coast would prefer a higher level of reliability at a higher cost.

Customer expectations on reliability (Wave 1 %)



- I would prefer a lower level of reliability (with more unplanned outages) than I have now if this means a decrease in EE's part of my electricity bill
- I would prefer roughly the same level of reliability as I have now at a roughly similar cost on EE's part of my electricity bill
- I would prefer a higher level of reliability (with fewer unplanned outages) than I have now and understand it would mean an increase in EE's part of my electricity bill

'In principle'.... Preferences for reliability across the grid

Most participants, especially in North-West Sydney, Hawkesbury and the Blue Mountains, felt it was fairer that everyone had the same level of reliability. But around one-third of those living in South-West Sydney and the Southern Highlands felt that lower reliability was part of the choice people make when deciding where to live.

Customer preference for Endeavour Energy to take action to improve reliability (Wave 1 %)



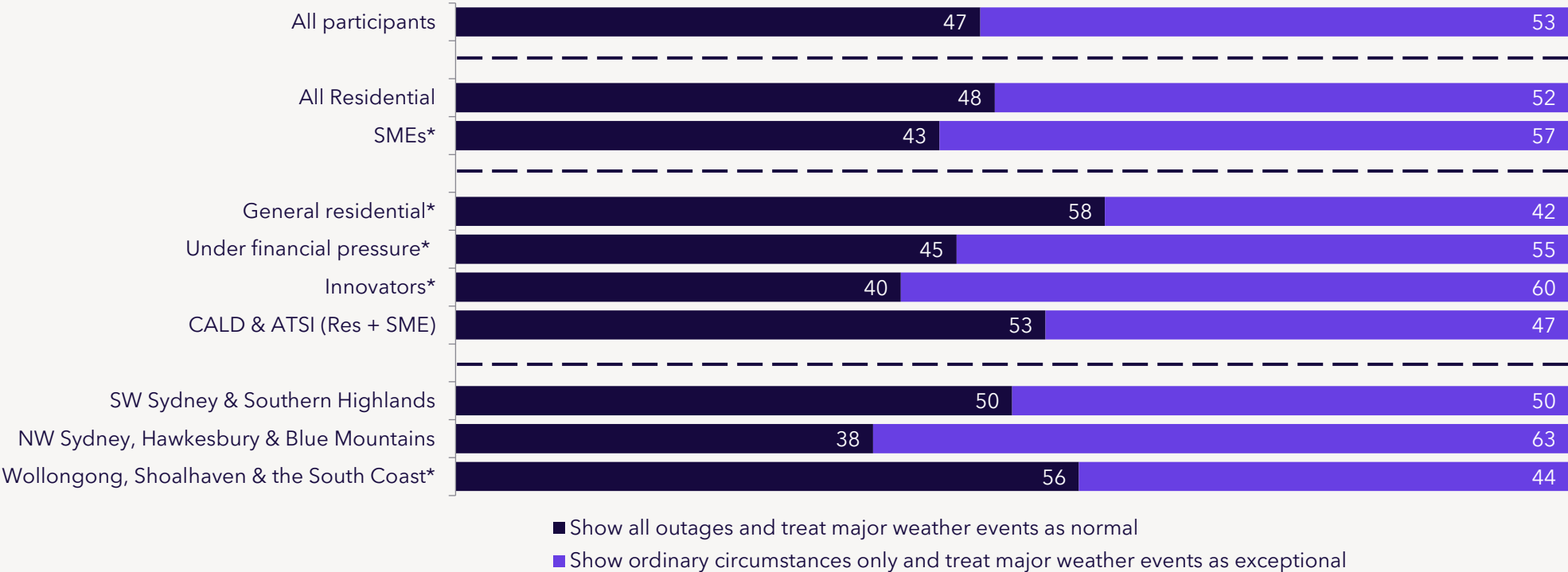
- Endeavour Energy should take actions to improve the level of reliability of those living at the edge of the grid
- Endeavour Energy should take limited actions to maintain the level of reliability of those living at the edge of the grid
- Endeavour Energy should take no action to maintain or improve the level of reliability of those living at the edge of the grid

Q. In principle, which of the following statements best reflects your opinion on whether Endeavour Energy should take action to improve the level of reliability for those living at the edge of the grid? Please note that because of 'postage-stamp pricing', the costs or savings of any option would be shared equally among all customers.// Base: all participants (n=87), All Residential (n=64), SME (n=23), General residential (n=24), Under financial pressure (n=20), Innovators (n=20), CALD & ATSI (n=26), SW Sydney & Southern Highlands (n=30), NW Sydney, Hawkesbury & Blue Mountains (n=32), Wollongong, Shoalhaven & the South Coast (n=25) *Note, low sample size (n<30) results to be interpreted with caution.

Measuring reliability

There are mixed views on the most meaningful ways for Endeavour Energy to measure and report on reliability.

Most meaningful way for Endeavour Energy to measure and report reliability (Wave 1 %)

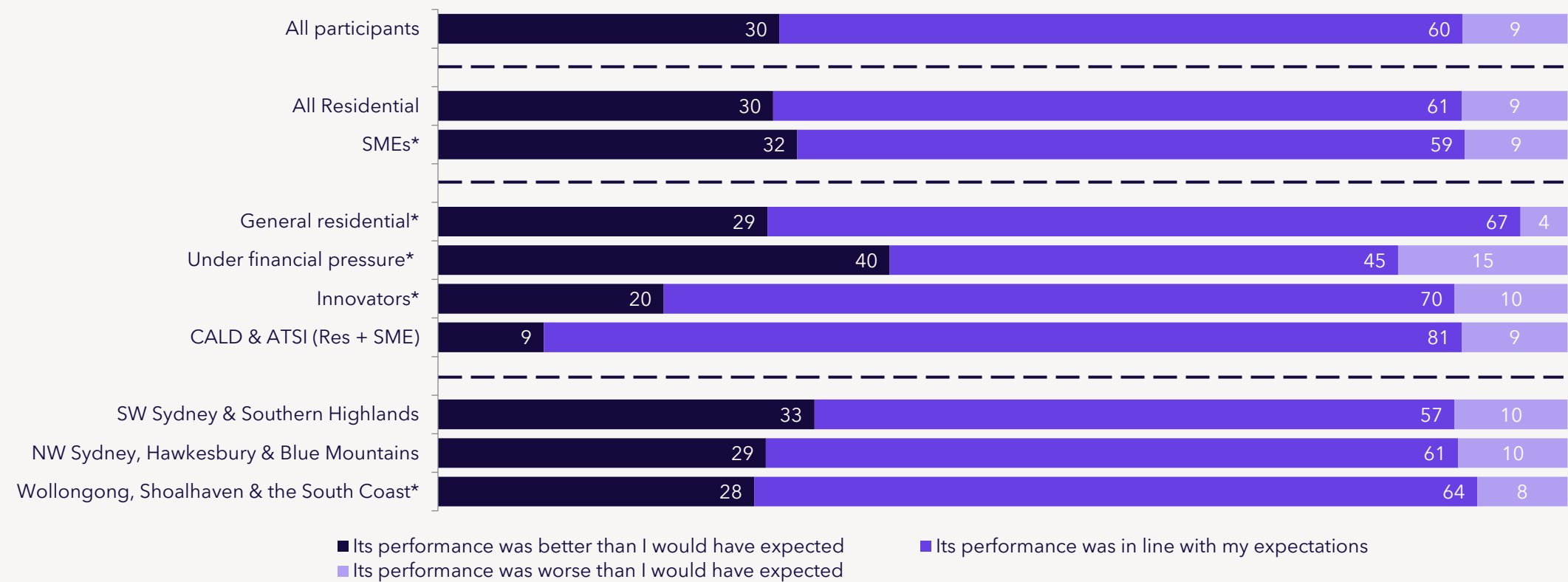


Q. Which do you see as the most meaningful way for Endeavour Energy to measure and report reliability? Can you explain your thinking? // Base: all participants (n=87), All Residential (n=64), SME (n=23), General residential (n=24), Under financial pressure (n=20), Innovators (n=20), CALD & ATSI (n=32), SW Sydney & Southern Highlands (n=30), NW Sydney, Hawkesbury & Blue Mountains (n=32), Wollongong, Shoalhaven & the South Coast (n=25) *Note, low sample size (n<30) results to be interpreted with caution.

Customer expectations on resilience

Based on their own experiences or those of people they know, 90% felt that Endeavour Energy responded in line with or better than their expectations, in dealing with disruptive events.

Customer expectations on reliability (Wave 1 %)



Q. If you have a particular major disruptive event in mind, please indicate which statement you feel best reflects your opinion on how Endeavour Energy responded. Then tell us what event you were referring to and explain the reason for your opinion. Please be as specific as possible. // Base: all participants (n=86), All Residential (n=64), SME (n=22), General residential (n=24), Under financial pressure (n=20), Innovators (n=20), CALD & ATSI (n=32), SW Sydney & Southern Highlands (n=30), NW Sydney, Hawkesbury & Blue Mountains (n=31), Wollongong, Shoalhaven & the South Coast (n=25) *Note, low sample size (n<30) results to be interpreted with caution

'In principle' customer preference for solar access

In principle, customer choice to access the grid and export solar at any time is paramount for two-thirds of customers.

Customer preferences for solar access (Wave 2 %)



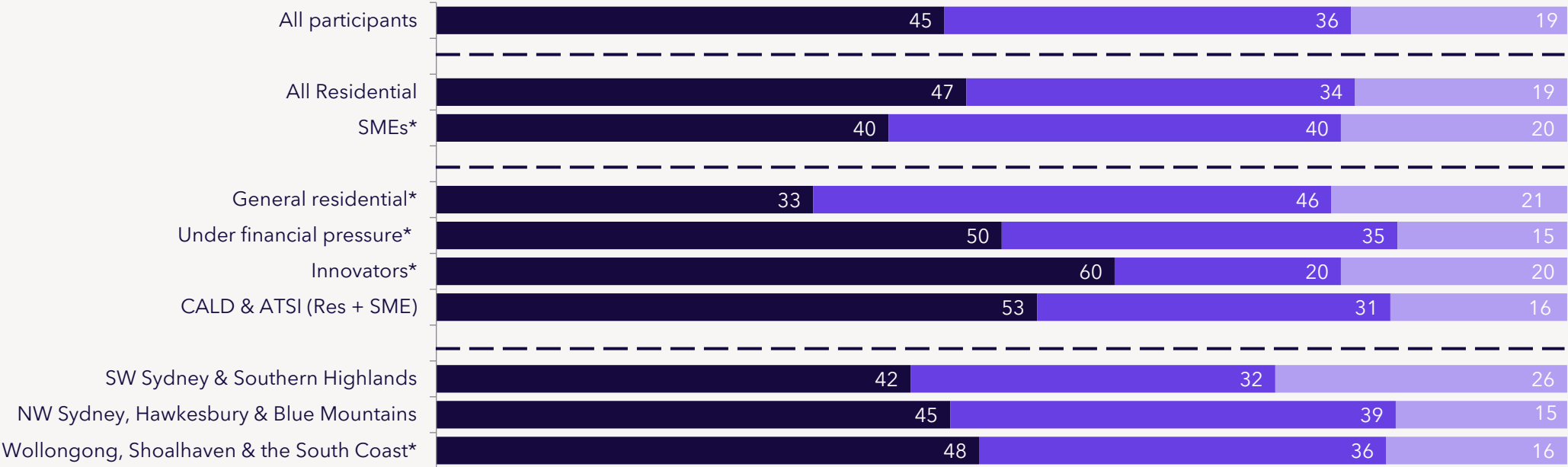
- I would prefer that anyone who wants to install rooftop solar should be able to connect to the network and export their excess energy to the grid at any time.
- I would prefer that customers who are already exporting excess solar to the grid are able to continue doing so at any time, but customers installing solar in the future are constrained to limit the amount of network investment required.
- I would prefer that anyone with solar now or in the future faces the same constraints so that the total amount of solar exported does not require substantial investment in the network.

*Q. In last night's Zoom forum there was quite a bit of discussion about customers connecting to solar panels and exporting excess electricity to the grid. We talked about the pressure this will put on the network as more customers connect to solar. In principle, putting aside individual costs or benefits for the moment, which of the following would you prefer? // Base: all participants (n=89), All Residential (n=64), SME (n=25), General residential (n=24), Under financial pressure (n=20), Innovators (n=20), CALD & ATSI (n=32), SW Sydney & Southern Highlands (n=31), NW Sydney, Hawkesbury & Blue Mountains (n=33), Wollongong, Shoalhaven & the South Coast (n=25) *Note, low sample size (n<30) results to be interpreted with caution*

'In principle' customer preference for EVs

Participants feel it is important that owners of electric vehicles be able to charge them at any time, but there are mixed views about whether you should be able to export at any time or just when demand exceeds supply.

Customer preferences for electric vehicles (Wave 2 %)



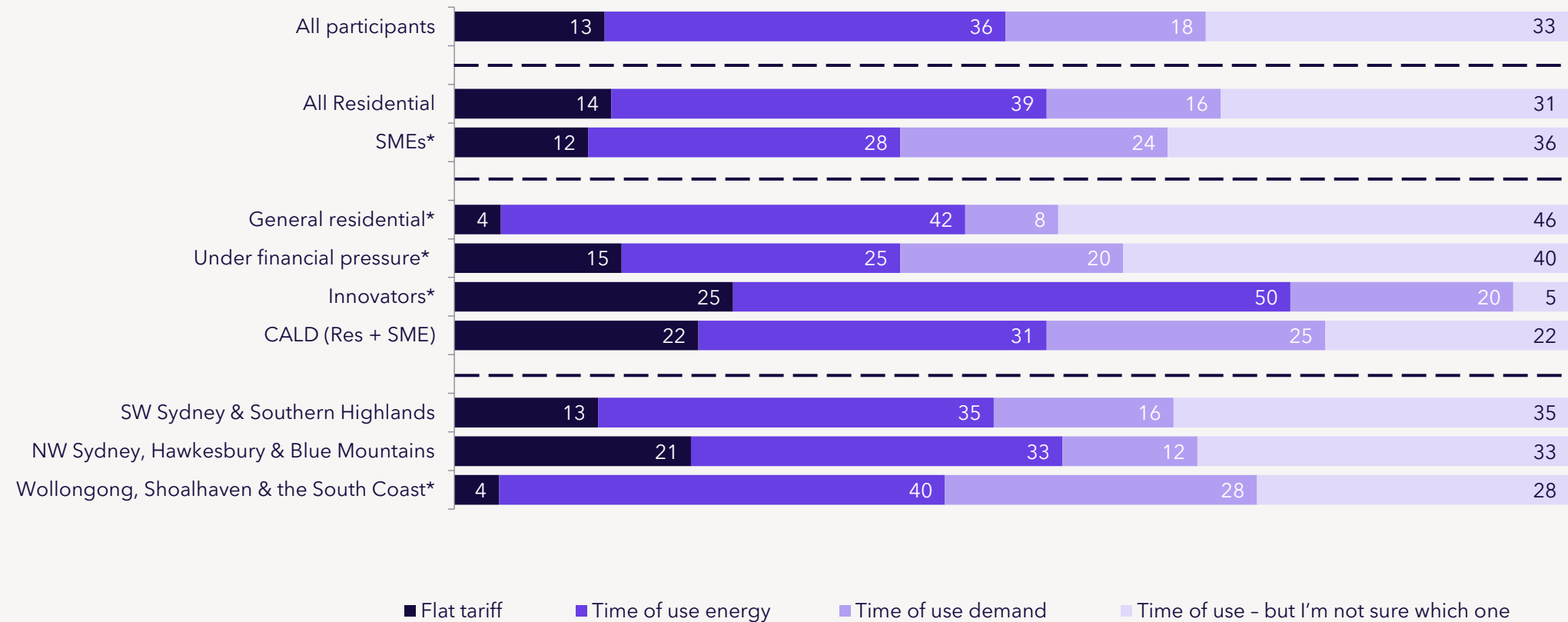
- I would prefer that people with electric vehicles are able to charge their vehicles and export excess energy unused by the vehicle at any time when it is convenient for them.
- I would prefer that while electric vehicle charging could happen at any time, exporting excess energy back to the grid would be limited to times when the demand for electricity is greater than the supply.
- I would prefer that electric vehicles could only be charged when solar generation is highest (in the middle of the day) or during low demand (overnight) and the unused energy stored in the vehicle energy could only be exported to the grid at times of peak

Q. The NSW Government Electric Vehicle Strategy aims to increase EV sales to over 50% of new car purchases by 2030. Endeavour Energy also expects pressure on the grid as more customers buy electric vehicles. In principle, putting aside individual costs or benefits for the moment, which of the following would you prefer? // Base: all participants (n=89), All Residential (n=64), SME (n=25), General residential (n=24), Under financial pressure (n=20), Innovators (n=20), CALD & ATSI (n=32), SW Sydney & Southern Highlands (n=31), NW Sydney, Hawkesbury & Blue Mountains (n=33), Wollongong, Shoalhaven & the South Coast (n=25) *Note, low sample size (n<30) results to be interpreted with caution.

Customer preference for cost reflective tariffs

Time of use tariffs are favoured by most participants, with over a third (36%) preferring time of use energy.

Customer preferences for cost reflective tariffs (Wave 2 %)

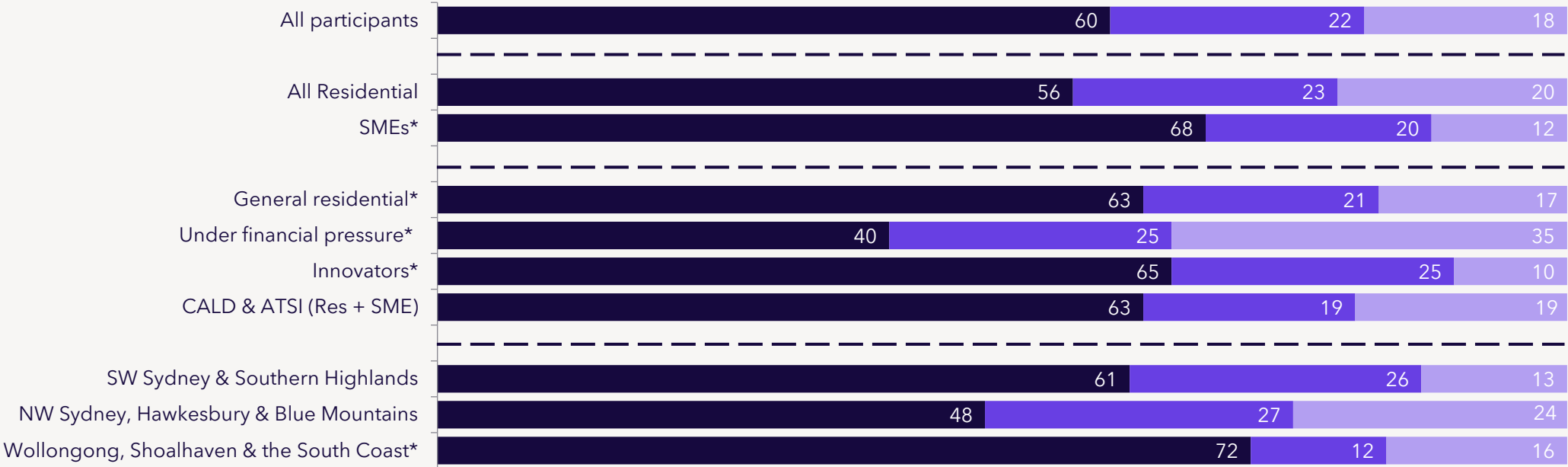


Q. If you had the choice, which of the following tariffs would you choose for your household/business? // Base: all participants (n=89), All Residential (n=64), SME (n=25), General residential (n=24), Under financial pressure (n=20), Innovators (n=20), CALD & ATSI (n=32), SW Sydney & Southern Highlands (n=31), NW Sydney, Hawkesbury & Blue Mountains (n=33), Wollongong, Shoalhaven & the South Coast (n=25) *Note, low sample size (n<30) results to be interpreted with caution.

Customer preference for cost reflective tariffs in their bill

Three in five participants feel that retailers should pass on the network cost-reflective tariffs in full so that customers receive the full financial incentives to change their behaviour; the rest are split between a partial cost-reflective price and the status quo.

Customer preferences for cost reflective tariffs (Wave 2 %)



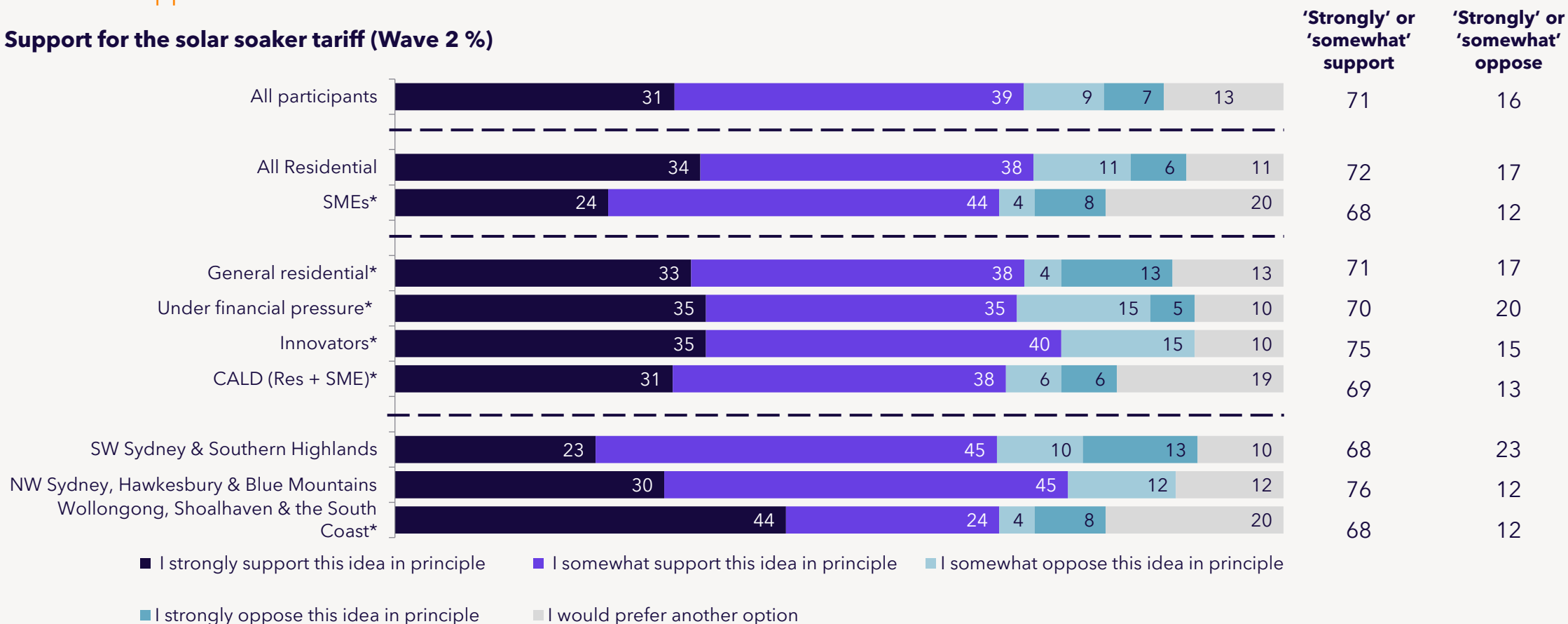
- Retailers should pass on the network cost-reflective tariff in full so that customers receive the full financial incentive to change their behaviour.
- Retailers should provide customers with an option of paying a partial cost reflective price so customers do have a financial incentive to change their behaviour
- Retailers should be able to make their own decisions on your behalf and package up the different components of electricity costs however they want to, on the basis that it's a free market, so customers can choose the retailer and retail plan

Q. Which of the following best reflects your views on whether or not Retailers should pass on Endeavour's price signals to customers? // Base: all participants (n=89), All Residential (n=64), SME (n=25), General residential (n=24), Under financial pressure (n=20), Innovators (n=20), CALD & ATSI (n=32), SW Sydney & Southern Highlands (n=31), NW Sydney, Hawkesbury & Blue Mountains (n=33), Wollongong, Shoalhaven & the South Coast (n=25) *Note, low sample size (n<30) results to be interpreted with caution.

'In principle' customer support for solar soak tariff

There is majority support for the solar soaker tariff – 31% of participants strongly support the idea in principle, while 39% somewhat support it.

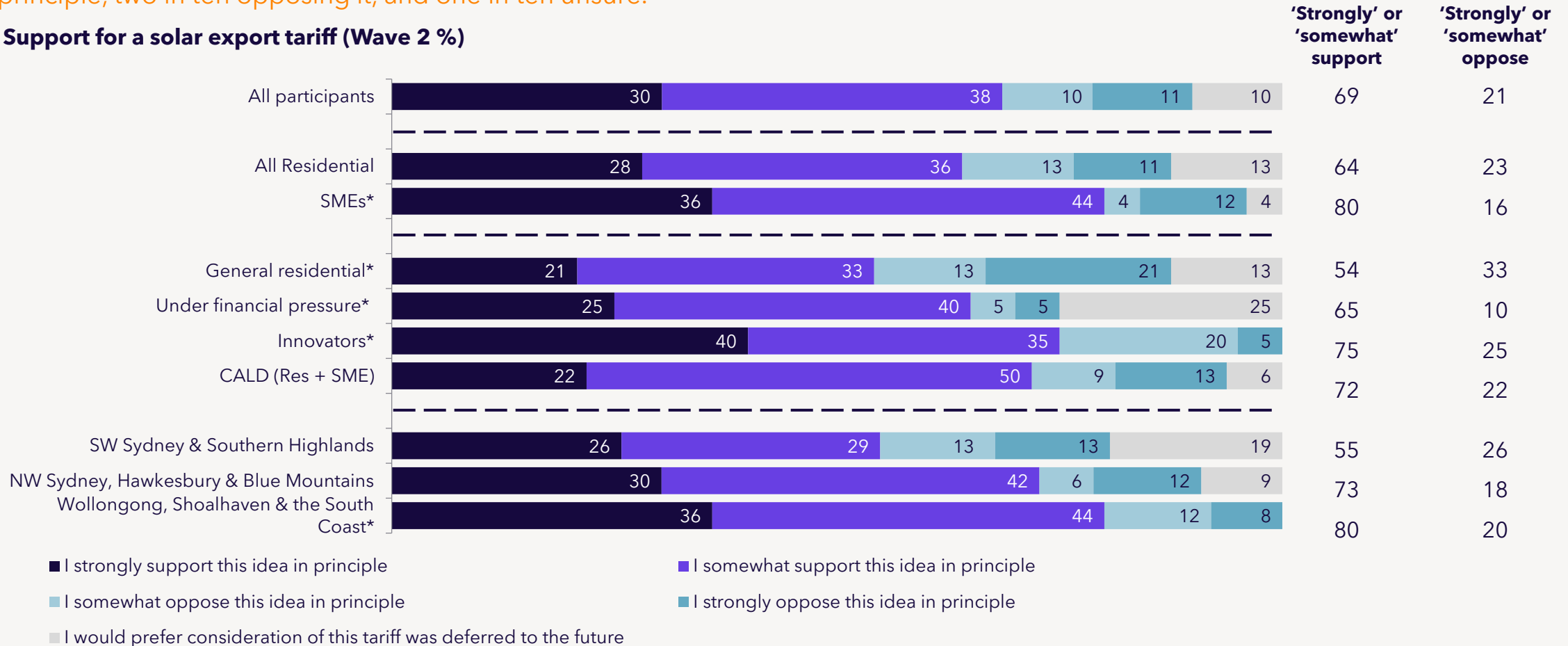
Support for the solar soaker tariff (Wave 2 %)



'In principle' customer support for a solar export tariff

There is majority support for introduction of a solar export tariff, with seven in ten participants (68%) supporting the idea in principle, two in ten opposing it, and one in ten unsure.

Support for a solar export tariff (Wave 2 %)



Top ranked overall importance of initiatives - by segment

Wave 3

Initiatives with no cost considerations	SW Sydney (%)	NW Sydney (%)	South Coast* (%)	SW Sydney (%)	NW Sydney (%)	South Coast* (%)
	Rank 1			Net Rank 1-3		
Meeting customer expectations for a safe, affordable and reliable electricity supply through timing of investment (eg. maintaining or improving reliability now, deferring investment to increase affordability).	45	58	64	77	94	88
Its approach to modernising the network to meet emerging and future customer service expectations as technology evolves (eg. Invest in leading the way so the network capacity is ready for future customer choices, spending less and limiting customer choices such as solar exports, or somewhere in between)	19	12	20	48	45	64
Its approach to the provision of network services in the face of increased changing weather events eg storm, bushfire flood (eg. spending more on a proactive approach such as reducing bushfire risk by covering conductors, or taking a more responsive approach at no additional cost)	16	15	12	58	85	88
Timing the delivery of electricity infrastructure required for the economic development of Greater Western Sydney and other areas (eg. well in advance, just in time to meet demand, or only when it is 100% needed)	13	6	4	52	39	24
Timing the introduction of cost reflective tariffs (eg. requiring customers to switch from flat to time of use pricing so they are charged less for the electricity they use when demand for the network is low and more when demand is high, mandating it only for customers with solar and batteries, or maintaining the current tariff structure)	6	9	0	42	27	24
Its approach in recovering the costs of new infrastructure required to service new development (eg. new customers covering all costs, spreading the costs across both new and existing customers, or only existing customers pay)	0	0	0	23	9	12

Reliability, affordability & safety: Customer preferences

Segment	Initial preference (Start Wave 1) %	On reflection preference (End Wave 1) %	Initial preference after considering in context of all potential investments (Start Wave 2) %	Preference after considering all potential investments (End Wave 2) %	Final preference (Wave 3) %
Long-term improvement in service outcomes but at higher cost: \$10.00					
All participants	67	66	69	74	66
All Residential	64	63	63	68	56
SMEs*	74	74	83	88	92
General residential*	58	50	52	58	46
Under financial pressure*	80	75	70	75	70
Innovators*	55	65	68	74	55
CALD + ATSI (Res + SME)	53	50	58	69	56
SW Sydney & Southern Highlands	57	60	63	61	61
NW Sydney, Hawkesbury & Blue Mountains	69	63	65	79	64
Wollongong, Shoalhaven & the South Coast*	76	76	80	83	76
Maintain the current level of service and cost: \$0.00					
All participants	31	30	31	26	30
All Residential	33	33	37	32	41
SMEs*	26	22	17	12	4
General residential*	33	46	48	42	50
Under financial pressure*	20	25	30	25	30
Innovators*	45	25	32	26	40
CALD + ATSI (Res + SME)	44	44	42	31	38
SW Sydney & Southern Highlands	37	33	37	39	35
NW Sydney, Hawkesbury & Blue Mountains	31	34	35	21	33
Wollongong, Shoalhaven & the South Coast*	24	20	20	17	20

Reliability, affordability & safety: Customer preferences

Segment	Initial preference (Start Wave 1) %	On reflection preference (End Wave 1) %	Initial preference after considering in context of all potential investments (Start Wave 2) %	Preference after considering all potential investments (End Wave 2) %	Final preference (Wave 3) %
	Long-term service deterioration and a deferral of cost: -\$17.00				
All participants	2	5	0	0	3
All Residential	3	5	0	0	3
SMEs*	0	4	0	0	4
General residential*	8	4	0	0	4
Under financial pressure*	0	0	0	0	0
Innovators*	0	10	0	0	5
CALD + ATSI (Res + SME)	3	6	0	0	6
SW Sydney & Southern Highlands	7	7	0	0	3
NW Sydney, Hawkesbury & Blue Mountains	0	3	0	0	3
Wollongong, Shoalhaven & the South Coast*	0	4	0	0	4

Resilience: Customer preferences

Segment	Initial preference (Start Wave 1) %	On reflection preference (End Wave 1) %	Initial preference after considering in context of all potential investments (Start Wave 2) %	Preference after considering all potential investments (End Wave 2) %	Final preference (Wave 3) %
More proactive approach to maintaining network services in the face of major weather events and at an increasing cost to customers: \$7.50					
All participants	84	77	80	77	75
All Residential	83	70	79	73	70
SMEs*	86	96	83	88	88
General residential*	74	63	65	71	75
Under financial pressure*	90	75	90	80	70
Innovators*	85	75	84	68	65
CALD + ATSI (Res + SME)	75	78	84	75	69
SW Sydney & Southern Highlands	70	73	73	77	77
NW Sydney, Hawkesbury & Blue Mountains	90	78	84	76	73
Wollongong, Shoalhaven & the South Coast*	92	80	84	79	76
Proactive and responsive approach that has some declining levels of network service during major weather events but at no additional cost to customers: \$0					
All participants	16	23	20	23	25
All Residential	17	30	21	27	30
SMEs*	14	4	17	12	12
General residential*	26	38	35	29	25
Under financial pressure*	10	25	10	20	30
Innovators*	15	25	16	32	35
CALD + ATSI (Res + SME)	25	22	16	25	31
SW Sydney & Southern Highlands	30	27	27	23	23
NW Sydney, Hawkesbury & Blue Mountains	10	22	16	24	27
Wollongong, Shoalhaven & the South Coast*	8	20	16	21	24

Timing of investment: Customer preferences

Segment	Initial preference (Start Wave 1) %	On reflection preference (End Wave 1) %	Initial preference after considering in context of all potential investments (Start Wave 2) %	Preference after considering all potential investments (End Wave 2) %	Final preference (Wave 3) %
Build electricity infrastructure at the same time as gas, water and roads are being built, just in advance of growth: \$0.00					
All participants	74	83	73	75	71
All Residential	74	84	81	81	75
SMEs*	73	78	54	60	60
General residential*	73	88	83	75	75
Under financial pressure*	80	90	80	95	85
Innovators*	70	75	79	74	65
CALD + ATSI (Res + SME)	74	84	71	72	69
SW Sydney & Southern Highlands	79	83	67	81	74
NW Sydney, Hawkesbury & Blue Mountains	74	78	77	70	67
Wollongong, Shoalhaven & the South Coast*	67	88	76	75	72
Build electricity infrastructure in advance to boost economic growth of our regions: \$6.00					
All participants	17	13	20	20	18
All Residential	16	11	13	16	14
SMEs*	18	17	38	32	28
General residential*	9	8	13	25	17
Under financial pressure*	15	5	10	5	5
Innovators*	25	20	16	16	20
CALD + ATSI (Res + SME)	13	13	23	25	19
SW Sydney & Southern Highlands	14	13	27	16	16
NW Sydney, Hawkesbury & Blue Mountains	23	16	13	24	21
Wollongong, Shoalhaven & the South Coast*	13	8	20	21	16

Timing of investment: Customer preferences

Segment	Initial preference (Start Wave 1) %	On reflection preference (End Wave 1) %	Initial preference after considering in context of all potential investments (Start Wave 2) %	Preference after considering all potential investments (End Wave 2) %	Final preference (Wave 3) %
	Build electricity infrastructure only when we are 100% certain it is needed: -\$4.00				
All participants	10	5	7	5	11
All Residential	10	5	6	3	11
SMEs*	9	4	8	8	12
General residential*	18	4	4	0	8
Under financial pressure*	5	5	10	0	10
Innovators*	5	5	5	11	15
CALD + ATSI (Res + SME)	13	3	6	3	13
SW Sydney & Southern Highlands	7	3	7	3	10
NW Sydney, Hawkesbury & Blue Mountains	3	6	10	6	12
Wollongong, Shoalhaven & the South Coast*	21	4	4	4	12

Who pays for connections: Customer preferences

Segment	Initial preference (Start Wave 1) %	On reflection preference (End Wave 1) %	Initial preference after considering in context of all potential investments (Start Wave 2) %	Preference after considering all potential investments (End Wave 2) %	Final preference (Wave 3) %
	"The causer pays". New customers pay more compared to existing and future customers: \$0.00				
All participants	46	57	45	45	52
All Residential	44	59	45	49	55
SMEs*	55	52	46	36	44
General residential*	59	63	57	58	63
Under financial pressure*	40	60	45	60	50
Innovators*	30	55	32	26	50
CALD + ATSI (Res + SME)	42	53	48	44	53
SW Sydney & Southern Highlands	52	63	57	55	65
NW Sydney, Hawkesbury & Blue Mountains	35	53	32	42	30
Wollongong, Shoalhaven & the South Coast*	54	56	48	38	64
	"The beneficiary pays". There is no cross subsidy between new customers and existing customers and both benefit: \$13.00				
All participants	43	31	41	40	39
All Residential	48	33	47	44	41
SMEs*	27	26	25	28	36
General residential*	32	29	39	38	38
Under financial pressure*	55	35	50	35	45
Innovators*	60	35	53	63	40
CALD + ATSI (Res + SME)	48	31	35	44	41
SW Sydney & Southern Highlands	41	23	30	39	29
NW Sydney, Hawkesbury & Blue Mountains	55	38	52	39	58
Wollongong, Shoalhaven & the South Coast*	29	32	40	42	28

Q. Should new customers be required to pay "upfront" for the new infrastructure required to service new development, or should the costs for this infrastructure be recovered over time from all customers through existing charges? // Base: all participants (n=89), All Residential (n=64), SME (n=25), General residential (n=24), Under financial pressure (n=20), Innovators (n=20), CALD & ATSI (n=32), SW Sydney & Southern Highlands (n=31), NW Sydney, Hawkesbury & Blue Mountains (n=33), Wollongong, Shoalhaven & the South Coast (n=25) *Note, low sample size (n<30) results to be interpreted with caution

Who pays for connections: Customer preferences

Segment	Initial preference (Start Wave 1) %	On reflection preference (End Wave 1) %	Initial preference after considering in context of all potential investments (Start Wave 2) %	Preference after considering all potential investments (End Wave 2) %	Final preference (Wave 3) %
	"Everyone pays". Existing customers subsidise connection costs for new customers, regardless of where they live: \$32.00				
All participants	11	11	14	15	9
All Residential	8	8	8	6	5 ↓
SMEs*	18	22	29	36	20
General residential*	9	8	4	4	0 ↓
Under financial pressure*	5	5	5	5	5
Innovators*	10	10	16	11	10
CALD + ATSI (Res + SME)	10	16	16	13	6
SW Sydney & Southern Highlands	7	13	13	6	6
NW Sydney, Hawkesbury & Blue Mountains	10	9	16	18	12
Wollongong, Shoalhaven & the South Coast*	17	12	12	21	8

Energy choices: Customer preferences

Segment	Initial preference (Initially in Wave 2) %	Initial preference after considering in context of all potential investments (Start Wave 2) %	Preference after considering all potential investments (End Wave 2) %	Final preference (Wave 3) %
	Plan for an accelerated energy transition: \$3.00			
All participants	53	52	55	52
All Residential	55	53	56	53
SMEs*	48	50	52	48
General residential*	54	39	54	63
Under financial pressure*	60	70	55	50
Innovators*	50	53	58	45
CALD + ATSI (Res + SME)	50	52	63	53
SW Sydney & Southern Highlands	58	57	65	45
NW Sydney, Hawkesbury & Blue Mountains	55	55	48	52
Wollongong, Shoalhaven & the South Coast*	44	44	50	60
	Plan for a rapid energy transition: \$9.00			
All participants	30	31	30	21
All Residential	28	29	22	16
SMEs*	36	38	48	36
General residential*	25	30	25	13
Under financial pressure*	30	20	20	15
Innovators*	30	37	21	20
CALD + ATSI (Res + SME)	28	26	19	19
SW Sydney & Southern Highlands	23	27	23	19
NW Sydney, Hawkesbury & Blue Mountains	24	26	27	21
Wollongong, Shoalhaven & the South Coast*	48	44	42	24

Energy choices: Customer preferences

Segment	Initial preference (Initially in Wave 2) %	Initial preference after considering in context of all potential investments (Start Wave 2) %	Preference after considering all potential investments (End Wave 2) %	Final preference (Wave 3) %
	Plan for a gradual energy transition: \$0.00			
All participants	17	16	16	25
All Residential	17	18	22	28
SMEs*	16	13	0	16
General residential*	21	30	21	21
Under financial pressure*	10	10	25	35
Innovators*	20	11	21	30
CALD + ATSI (Res + SME)	22	23	19	22
SW Sydney & Southern Highlands	19	17	13	35
NW Sydney, Hawkesbury & Blue Mountains	21	19	24	24
Wollongong, Shoalhaven & the South Coast*	8	12	8	12
	Plan for a for a stalled energy transition: -\$1.00			
All participants	0	0	0	2
All Residential	0	0	0	3
SMEs*	0	0	0	0
General residential*	0	0	0	4
Under financial pressure*	0	0	0	0
Innovators*	0	0	0	5
CALD + ATSI (Res + SME)	0	0	0	6
SW Sydney & Southern Highlands	0	0	0	0
NW Sydney, Hawkesbury & Blue Mountains	0	0	0	3
Wollongong, Shoalhaven & the South Coast*	0	0	0	4

Cost-reflective tariffs: Customer preferences

Segment	Initial preference (Start Wave 2) %	On reflection preference (End Wave 2) %	Final preference (Wave 3) %
Allow customers to opt-in to cost-reflective tariffs where they want to.			
All participants	35	45	60
All Residential	36	45	61
SMEs*	32	44	56
General residential*	25	46	50
Under financial pressure*	45	50	80
Innovators*	40	40	55
CALD + ATSI (Res + SME)	41	59	59
SW Sydney & Southern Highlands	26	42	58
NW Sydney, Hawkesbury & Blue Mountains	42	48	64
Wollongong, Shoalhaven & the South Coast*	36	44	56
Increase the take-up rate of cost-reflective tariffs by requiring new and upgrading connection customers to adopt them			
All participants	27	22	24
All Residential	28	22	22
SMEs*	24	24	28
General residential*	33	8	25
Under financial pressure*	20	25	10
Innovators*	30	35	30
CALD + ATSI (Res + SME)	22	13	22
SW Sydney & Southern Highlands	35	26	29
NW Sydney, Hawkesbury & Blue Mountains	21	24	24
Wollongong, Shoalhaven & the South Coast*	24	16	16

Cost-reflective tariffs: Customer preferences

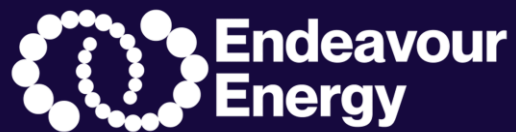
Segment	Initial preference (Start Wave 2) %	On reflection preference (End Wave 2) %	Final preference (Wave 3) %
Mandate the take-up of cost-reflective tariffs for all customers who have the enabling technology (smart meters).			
All participants	38	33	17
All Residential	36	33	17
SMEs*	44	32	16
General residential*	42	46	25
Under financial pressure*	35	25	10
Innovators*	30	25	15
CALD + ATSI (Res + SME)	38	28	19
SW Sydney & Southern Highlands	39	32	13
NW Sydney, Hawkesbury & Blue Mountains	36	27	12
Wollongong, Shoalhaven & the South Coast*	40	40	28

Solar-export tariffs: Customer preferences

Segment	Initial preference (Start Wave 2) %	On reflection preference (End Wave 2) %	Final preference (Wave 3) %
Opt-in export tariffs for customers with solar to reflect both the positive and negative impacts they have on the whole grid.			
All participants	60	70	53
All Residential	59	77	56
SMEs*	60	52	44
General residential*	63	88	71
Under financial pressure*	60	65	55
Innovators*	55	75	40
CALD + ATSI (Res + SME)	59	69	56
SW Sydney & Southern Highlands	71	71	58
NW Sydney, Hawkesbury & Blue Mountains	48	70	48
Wollongong, Shoalhaven & the South Coast*	60	68	52
Mandate export tariffs for all customers with solar to reflect both the positive and negative impacts they have on the whole grid.			
All participants	29	24	28
All Residential	30	19	27
SMEs*	28	36	32
General residential*	29	13	25
Under financial pressure*	30	30	25
Innovators*	30	15	30
CALD + ATSI (Res + SME)	28	22	28
SW Sydney & Southern Highlands	19	26	29
NW Sydney, Hawkesbury & Blue Mountains	36	24	27
Wollongong, Shoalhaven & the South Coast*	32	20	28

Solar-export tariffs: Customer preferences

Segment	Initial preference (Start Wave 2) %	On reflection preference (End Wave 2) %	Final preference (Wave 3) %
	Defer the approach to export tariffs until at least 2030		
All participants	11	7	19
All Residential	11	5	17
SMEs*	12	12	24
General residential*	8	0	4
Under financial pressure*	10	5	20
Innovators*	15	10	30
CALD + ATSI (Res + SME)	13	9	16
SW Sydney & Southern Highlands	10	3	13
NW Sydney, Hawkesbury & Blue Mountains	15	6	24
Wollongong, Shoalhaven & the South Coast*	8	12	20



Thank You