



# Endeavour Energy Stakeholder Deep Dives

'Your Power, Your Future, Your Say'  
2024-2029 Revenue Reset Project  
Final Report

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# Introduction

# Executive summary

The stakeholder Deep Dives were designed to deliver a key pillar of evidence underpinning Endeavour Energy's investment plans for the upcoming 2024-2029 regulatory period. Across two events, the Deep Dives engaged a broad range of stakeholders in deep discussion about the main 'negotiables' in Endeavour Energy's developing Draft Proposal. Voting on key trade-offs saw informed stakeholders broadly align with end-customers across seven core questions, with some key areas of divergence particularly in the areas of safety, affordability and reliability, and future energy choices. A summary of the key themes from the discussions is captured below.

## Safety, affordability and reliability

- Stakeholders are acutely aware of cost-of-living pressures and want to know how broader contextual challenges are being factored into Endeavour Energy's plans.
- They are also very keen to understand how Endeavour Energy intends to strike the right balance between affordability, safety and reliability.
- Some participants expressed the view that Endeavour Energy can do some things better or work smarter to deliver improvements for customers. In this context, stakeholders want to know what efficiencies Endeavour Energy is considering and if existing budgets can be re-prioritised.
- Stakeholders share a firm view that Endeavour Energy must invest at the right time, and everyone should benefit.
- Additionally, they want Endeavour Energy to focus on long-term service improvements for customers who are already experiencing reliability issues at the edge of grid.

## Resilience

- There is a shared view that the community is facing increased natural disasters as the climate changes and there is strong support for investment in resilience.
- Recognising the strong community desire for action to improve resilience, stakeholders want to know how Endeavour Energy will respond to this feedback.
- When talking about resilience, there was widespread interest in understanding how Endeavour Energy plans to support its most vulnerable customers to manage possible future impacts. Deep Dive participants wanted to make sure these groups benefit from any investment and are not "locked out" of possible changes or solutions due to their lack of control over their environment or lack of personal financial resources.
- Some stakeholders noted they would like more information about Endeavour Energy's resilience modelling.

## Growth

- There was a lot of interest in Endeavour Energy's approach to collaborating with developers and other stakeholders to respond to the sustained growth of Western Sydney.
- Deep Dive participants were interested in the opportunities that new technology could present and shared Endeavour Energy's sentiment that the network could be better utilised.
- Stakeholders noted that the pandemic and uptake of the work from home model had spotlighted the potential pitfalls of the 'just in advance' approach, as electricity infrastructure has faced significant pressure to keep up with unexpected demand. Just in advance can be almost too late.
- They queried how Endeavour Energy is building optionality into the way it designs the network to keep costs down and cater for future growth.
- Stakeholders expressed an interest in understanding why Endeavour Energy's current approach to connections differs from its peers and were keen to understand what kinds of changes might be possible (i.e. could a different cost model be considered) – beyond what had been presented to customers and stakeholders to date.

# Executive summary (cont.)

## Future energy choices

- Almost all stakeholders see the energy transition as inevitable, and strongly supported moves to rapidly modernise the grid so it isn't a barrier to the take up of new technologies and the growth of new services.
- But, while they recognise the need to accommodate change, there were different views among stakeholders about what services would be needed at what time, the best ways to accommodate them, and the assumptions underpinning Endeavour Energy's proposals.
- For many, accommodating new technologies was more about tariff structures than infrastructure. They also wanted to see Endeavour Energy focus on smart, innovative solutions rather than rely on infrastructure and technology alone.
- Some felt that the lack of certainty about the future highlighted the importance of data-driven insights and dynamic approaches that can respond to the unpredictable nature of the accelerating change.
- One stakeholder cautioned against relying on averages to plan for future demand when the more likely scenario will be considerably different demand patterns for different types of consumers.

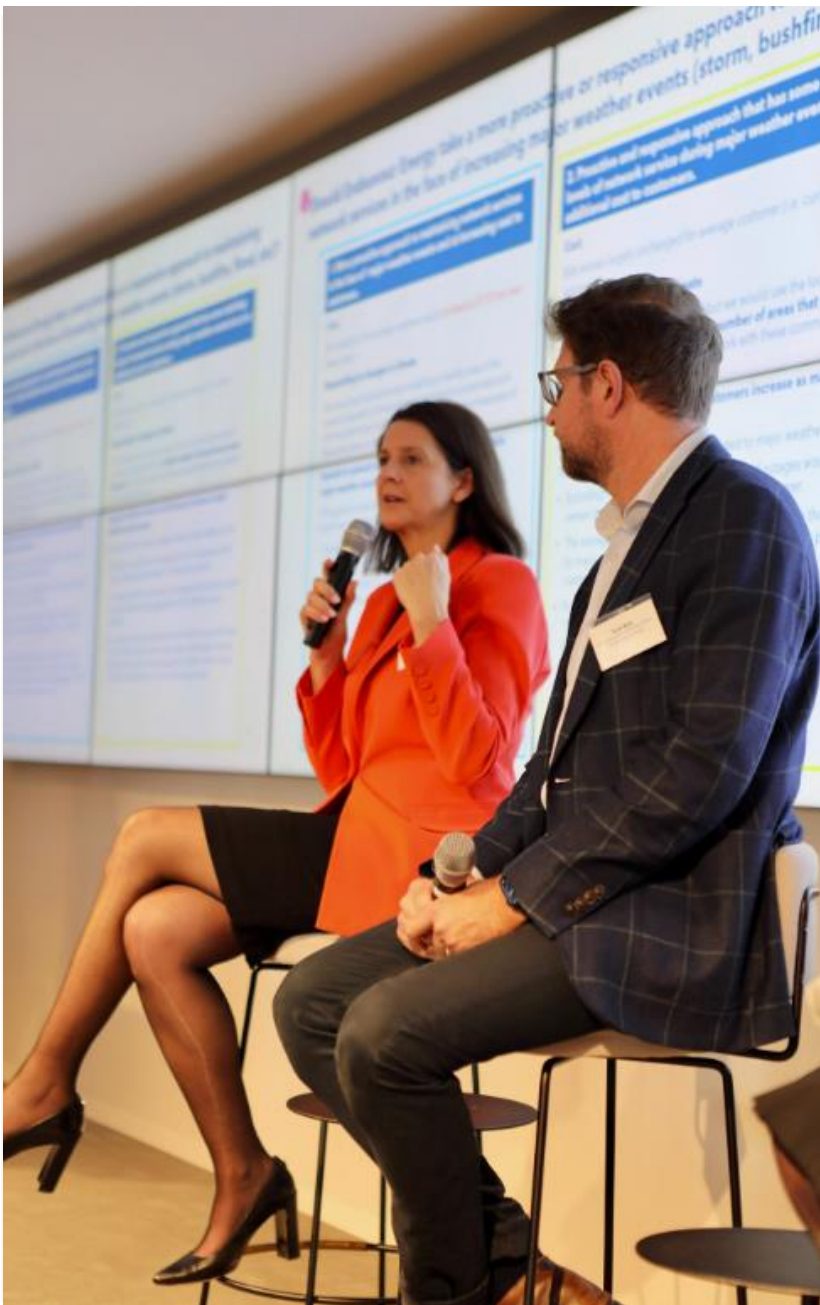
## Cost-reflective tariffs

- There was a strong interest in tariffs among Deep Dive 2 participants, both as a driver of behaviour change and a way to ensure customers pay for the demands they make of the network.
- Almost two-thirds of participant stakeholders wanted cost-reflective tariffs to be mandated for either all customers with smart meters or for only new and upgrading customers.
- While cost-reflective tariffs were seen by most as necessary to address emerging demand issues associated with new technologies (especially electric car loads), a minority were concerned about those customers (both residential and commercial/industrial) that might not be able to shift their loads.
- There were differing views about whether these tariffs would or must be passed on to customers by retailers, and how Endeavour Energy could overcome low levels of smart meter penetration to enable such tariffs to be widely used.
- Some participants felt that the examples given in terms of potential future tariff impacts were too focused on residential customers and would have liked to see more detail about how larger energy users might be impacted by different types of tariffs.

## Solar export tariff

- While a third supported mandated solar export tariffs to reflect both the positive and negative impacts solar customers have on the grid, most Deep Dive participants preferred the 'opt-in' approach as it would avoid disadvantaging consumers who were unable to invest in batteries and/or shift behaviour.
- Similar to the Customer Panel, there was interest in the role Endeavour Energy might play in rolling-out community batteries so more customers would be able to maximise the benefits and reduce the risks to the network.
- There was some confusion about how a solar export tariff would interplay with retailer feed-in-tariffs. Some stakeholders also wanted more clarity on the cost/benefit outcomes for different types of consumers before they could support a mandated approach, and reassurance that customers who opted-out would not be constrained from the grid. One wanted Endeavour Energy to undertake cost-benefit analysis on solar to provide clearer insight into the value of solar to inform customer investment decisions.
- There was little support for deferring export tariffs until the next regulatory period from 2030.
- Overall, several stakeholders felt that any discussion of tariffs in isolation from the tariff impacts of other parts of the electricity supply chain made it difficult to understand the total bill impacts but recognised the challenges in addressing areas where Endeavour Energy has no control.
- Some participants also raised concerns about the potential for environmental costs to be added to future tariffs.





# Background and objectives

**Two stakeholder Deep Dives were held on 4 July and 8 August 2022 with a cross-section of informed stakeholders as part of Endeavour Energy's broad customer and stakeholder engagement program to inform the 2024-2029 Revenue Reset Proposal.**

This engagement activity formed part of the 'Prioritise Phase', providing another pillar of evidence which will be used to underpin a Draft Proposal for submission to the AER in October 2022.

Endeavour Energy worked closely with the Regulatory Reference Group (RRG) to develop a very broad target list of stakeholders from a variety of sectors. More than 170 stakeholders were invited representing 13 stakeholder segments. The aim was to bring together a variety of different perspectives to share customer insights obtained through the Customer Panel and other exploratory research for deeper analysis and interrogation.

More specifically, Endeavour Energy's objectives were to:

- Bring together a wide range of informed stakeholders who may have different views to what we have heard to date
- Focus deep discussion on issues of most interest to customers and stakeholders
- Use the positions set out in the Preliminary Proposal as the starting point for informed discussions
- Share relevant feedback from the Customer Panel to ensure a strong customer perspective is shared during the session
- Utilise a format that involves short focused presentations with plenty of time for questions and listening
- Capture feedback and ensure it is carefully considered, with subsequent feedback loops to explain what has and has not been taken on board and why

It is worth noting that the first event took place against the backdrop of a rapidly unfolding flood disaster - the fourth to impact Endeavour Energy's customers across parts of its catchment area in 15 months. The second event was held within a week of a fourth consecutive interest rate rise by the Reserve Bank of Australia, with political and social commentary focused on cost-of-living concerns.

# Approach

Almost 200 individual stakeholders were invited to attend the two full-day Deep Dive events, either in-person in Parramatta or via a Teams link.

Attendees included highly informed energy stakeholders and advocates and included representatives from:

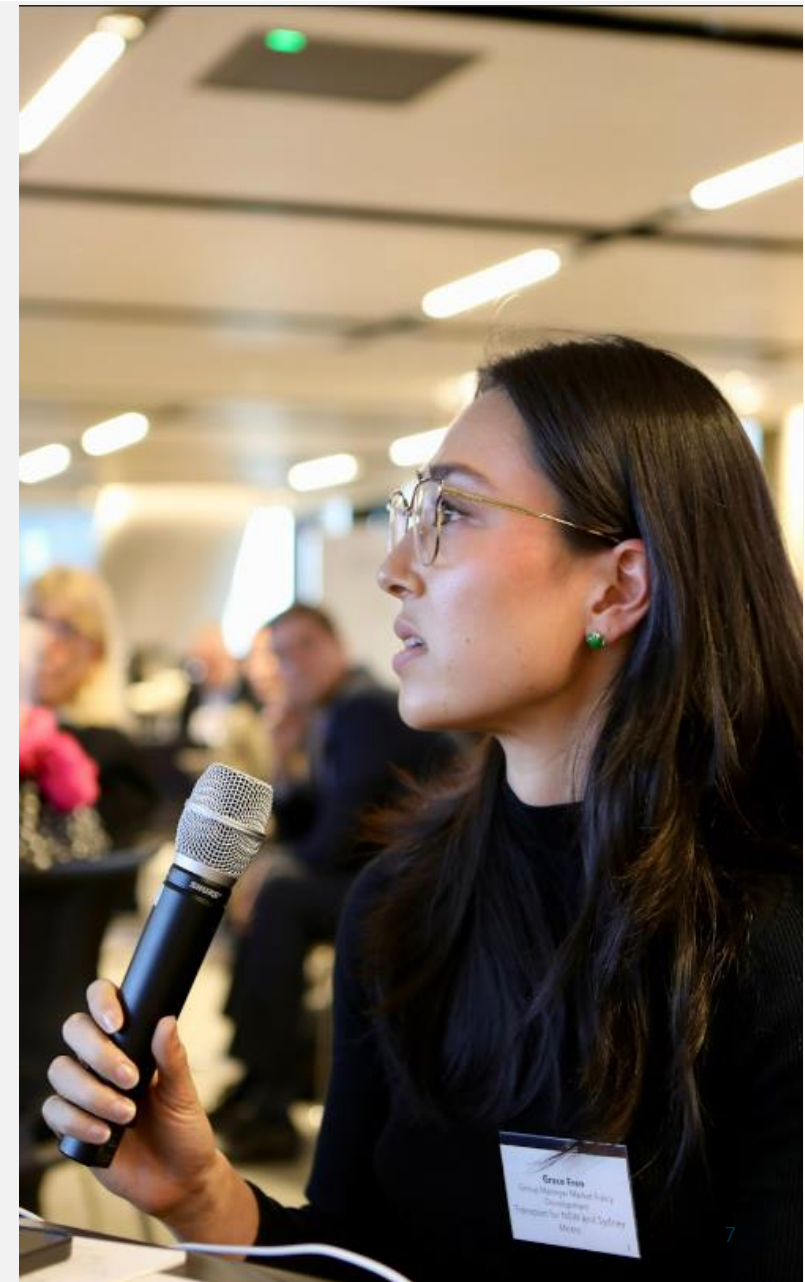
- Business Western Sydney
- Western Sydney Regional Organisation of Councils
- Transport for NSW and Sydney Metro
- IPART
- Essential Energy
- Landcom
- Sydney Community Alliance
- Public Interest Advocacy Centre
- Western Sydney Leadership Dialogue
- Firm Power
- Edgewater Connections
- AA Power Engineering
- Cumberland City Council
- Transgrid
- Fairfield City Council
- Country Women's Association

Eight members of Endeavour Energy's Regulatory Reference Group (RRG) attended the workshops. The Australian Energy Regulator (AER), other NSW distribution networks (Essential Energy and Ausgrid) and retailers (Alinta Energy and AGL) attended as observers. Each event was independently facilitated by SEC Newgate.

Deep Dive 1 covered the core areas of safety, affordability and reliability, resilience and growth. Deep Dive 2 covered tariffs and issues relating to future energy choices.

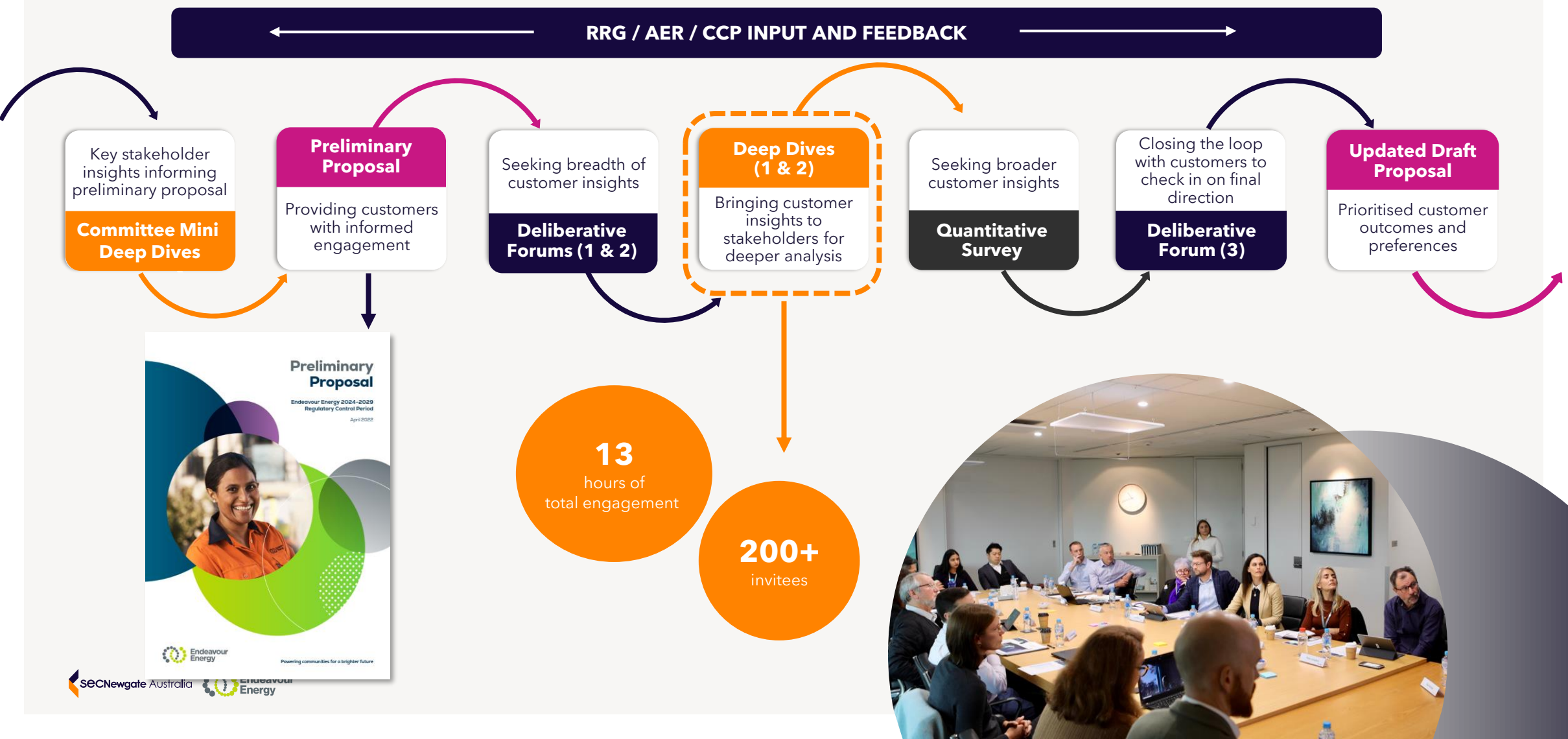
Over the course of the workshops, attendees deliberated on Endeavour Energy's preliminary investment plans for the 2024-2029 period and tested the alignment of their preferences against customers' choices and Endeavour Energy's preliminary position. The format involved presentations from Endeavour Energy's executive team, followed by Q&A and live voting on key trade-off questions via the interactive tool Slido.

The workshops were attended by Endeavour Energy's Board Chairman the Hon Robert Webster and Board Directors David Bartholomew and Trevor Danos AM, Chief Executive Officer Chalkley, Chief Customer and Strategy Officer Leanne Pickering, Chief Asset and Operating Officer Scott Ryan, Chief Financial Officer Francoise Merit and other members of Endeavour Energy's leadership team.





# How the deep dives fit into the engagement process for the Prioritise Phase



# Deep Dive process

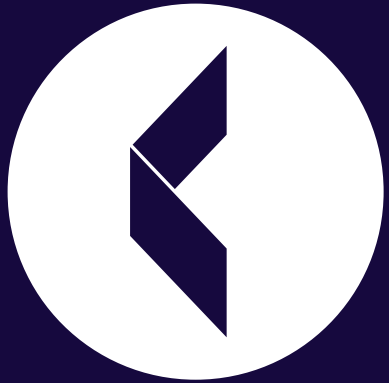
The Deep Dive process involved exploration of the core issues and questions outlined in Endeavour Energy's Preliminary Proposal and with Endeavour Energy's Customer Panel. The topics explore and the key questions they relate to in the Preliminary Proposal are outlined below.

Deep Dive 1 (July)	Key Questions
<b>Topic 1: Customer Value Framework</b> This session focused on Endeavour Energy's journey to drive a consumer-centric approach and the key feedback that has informed its strategy.	<b>Q9.</b> What are the outcomes that matter most to you or the customers you represent?  <b>Q10.</b> Does this Preliminary Proposal reflect priorities and outcomes that are in customers' long-term interests, while suitably balancing reliability, affordability, and safety?
<b>Topic 2: Getting the Balance Right - Safety, Affordability and Reliability</b> This session explored Endeavour Energy's approach to balance risks and costs to meet customers' expectations for its core services.	<b>Q13.</b> Does our capital expenditure proposal address our customers' priorities?  <b>Q14.</b> Are there specific aspects of our proposed capital expenditure that you support, oppose or want more information about?
<b>Topic 3: Customer and Community Resilience</b> This session explored how customers' expectations in the face of floods, bushfires, drought and pandemic are shaping asset decisions for existing and future assets.	<b>Q15.</b> How do you feel about current resilience and reliability service levels and what is required in the years ahead from networks?
<b>Topic 4: Customer Growth and Connections</b> This session considered the unprecedented growth in Endeavour Energy's regions and ways to achieve the appropriate balance of delivering timely infrastructure for its communities.	<b>Q16.</b> What feedback do you have in relation to our approach to servicing growth across our network? Who should fund the costs of new connections?

Deep Dive 2 (August)	Key Questions
<b>Topic 1: Future Energy Choices</b> This session aims to provide context to Endeavour Energy's approach to enabling increasing customer choice, innovation and sustainability objectives and the implications of customer engagement so far.	<b>Q17.</b> How do you feel about our approach to supporting the types of energy choices customers may want now and in the future?  <b>Q18.</b> How proactive should Endeavour Energy be in trialling and adopting new technologies and solutions?  <b>Q19.</b> How should customers contribute to upgrading the network to support solar exports?
<b>Topic 2: Customer Modern Tariffs - Part 1</b> This session aims to provide insights from customer engagement and tariff reform that Endeavour Energy proposes as part of the Tariff Structure Statement (TSS) and investment plans.	<b>Q24.</b> To what extent should tariffs reflect the costs different customers impose on the network?  <b>Q25.</b> Are there specific aspects of our proposed tariff structure that you support, oppose or want more information about?
<b>Topic 3: Customer Modern Tariffs - Part 2</b> This session will explore the structure of Endeavour Energy's price signals to support customers' efficient energy choices and what's new in future energy choice.	



# **Key findings**

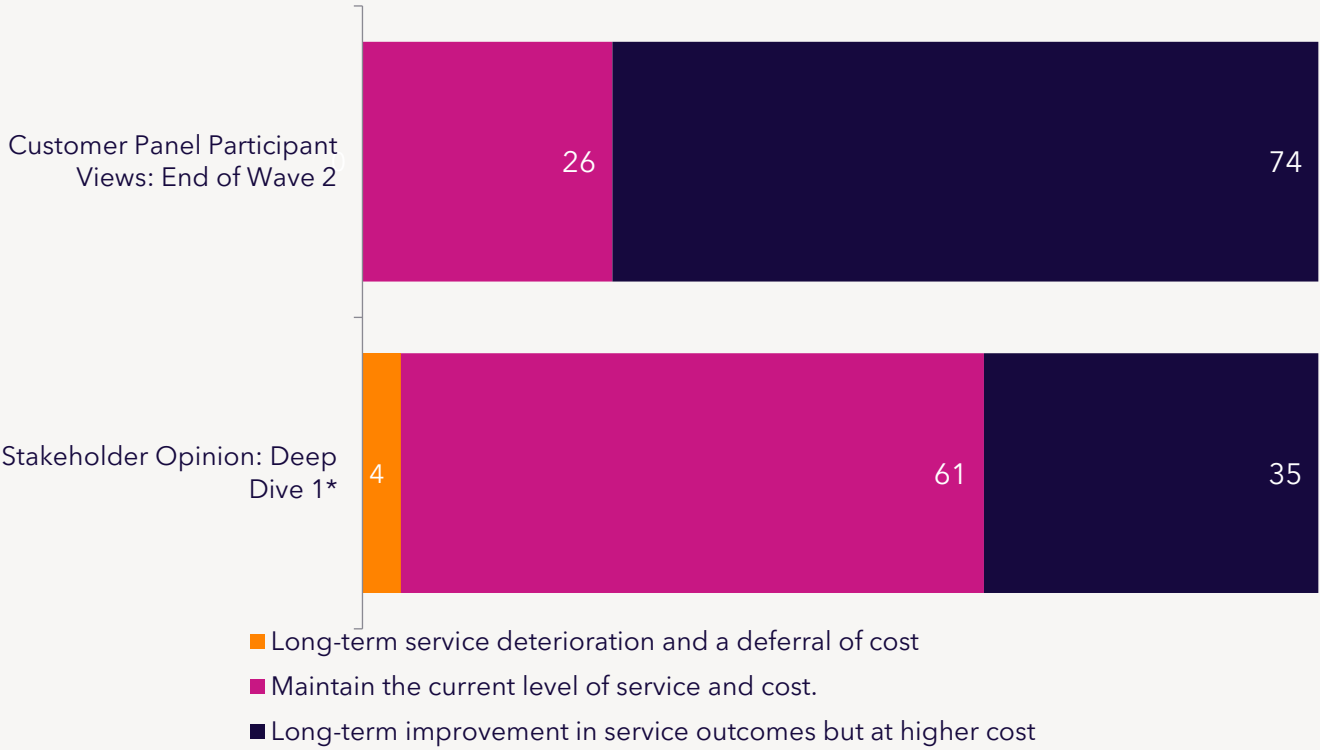


**#1 Affordability,  
reliability and safety**

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

Stakeholders were more likely than Customer Panel participants to prefer Endeavour Energy maintain its current level of service and cost. Stakeholders' preferences were aligned with Endeavour Energy's Preliminary Proposal.

Preferences for reliability, affordability and safety (%)

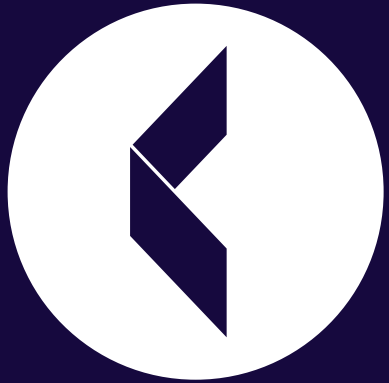


Comments from Deep Dive participants suggested they were looking for Endeavour Energy to balance short- and long-term objectives in order to keep costs low while also preparing adequately for the future.

They indicated they thought Endeavour Energy should “wear the cost” for improving the network (e.g., through efficiency gains) as much as possible.

Note that Customer Panel participants indicated they would consider a higher cost to ensure a reliable service.





## **#2 Resilience**

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)?

Stakeholder preferences were very similar to the Customer Panel, with stakeholders slightly more likely to prefer the more proactive approach to maintaining network services in the face of major weather events. Both stakeholders and the Customer Panel preferred a more proactive approach to resilience than the Preliminary Proposal.

### Preferences for Endeavour Energy to adopt a more proactive or responsive approach (%)



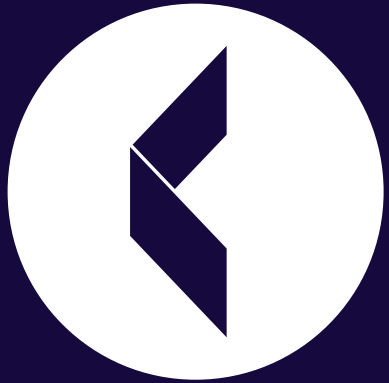
- More proactive approach to maintaining network services in the face of major weather events and at increasing cost to customers.
- Proactive and responsive approach that has some declining levels of network service during major weather events but at no additional cost to customers.

The preferences of Deep Dive participants and Customer Panel members were very closely aligned.

Deep Dive participants noted they were looking for Endeavour Energy to act quickly to ensure a more proactive approach to resilience, particularly for its most vulnerable customers.

They also noted they wanted Endeavour Energy to consider the extent to which recent experiences with floods and risk of outages had impacted Customer Panel views.

Q. 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)? // Base: all Wave 2 Customer Panel participants (n=88), all Deep Dive 1 participants who provided a response for this question (n=21). \*Note, low sample size (n<30) results to be interpreted with caution.

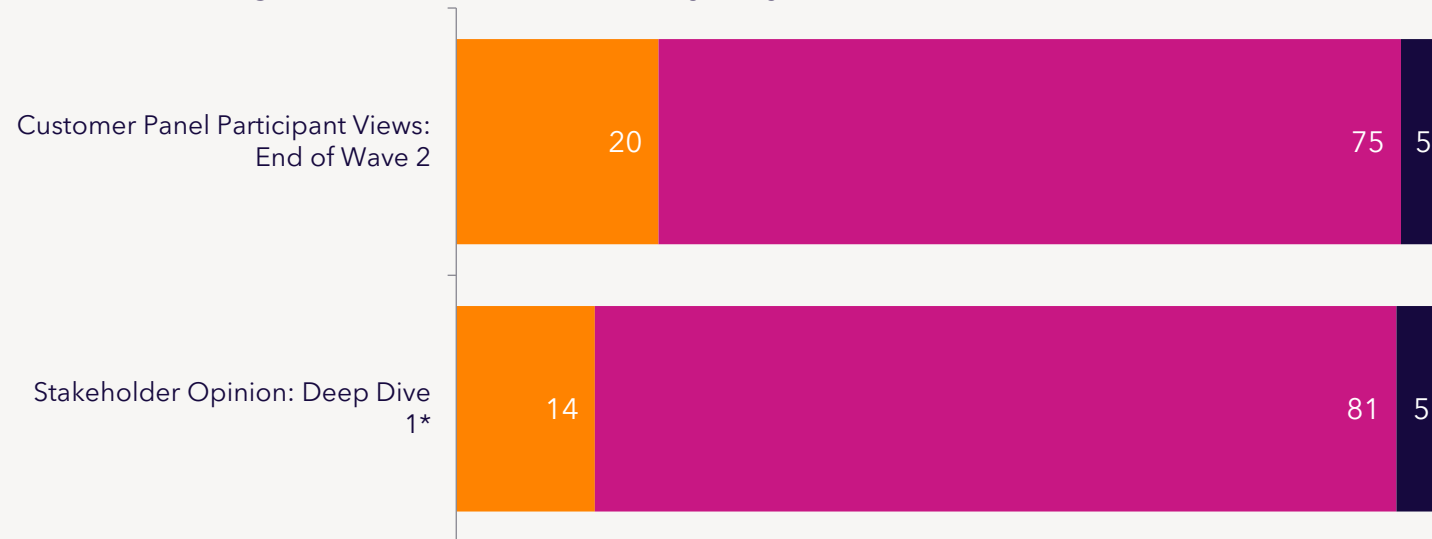


**Growth:**  
**#3 Timing of investment and**  
**#4 'Who pays' for connections**

## 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?

Stakeholder views closely aligned with the Customer Panel, with stakeholders slightly more likely to prefer Endeavour Energy build electricity infrastructure at the same as gas, water and roads, just in advance of growth. Both stakeholders and the Customer Panel were aligned with the Preliminary Proposal.

### Preferences for growth in Greater Western Sydney and other areas (%)



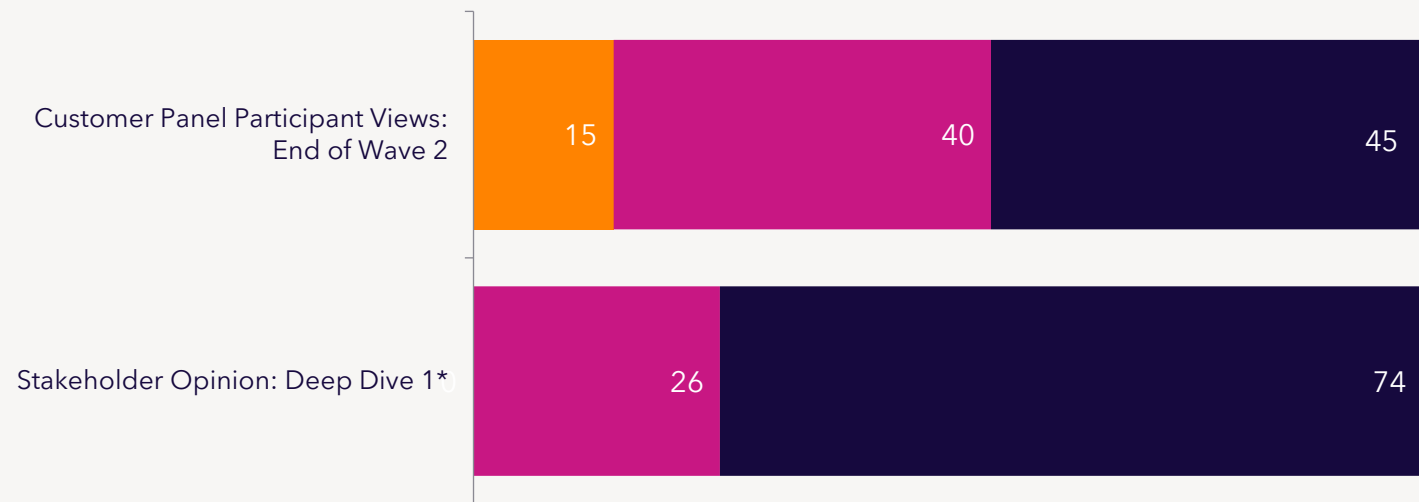
- Build electricity infrastructure in advance to boost economic growth of our regions. This could increase costs to current customers if that infrastructure is not fully utilised but it could help accelerate economic growth in our regions
- Build electricity infrastructure at the same time as gas, water 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

Similar to the Customer Panel, Deep Dive participants told us they preferred the 'just in advance' approach as it would ensure electricity supply is available when needed and infrastructure keeps pace with demand, while also keeping cost down.

## 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?

Stakeholders were more likely than Customer Panel participants to prefer Endeavour Energy take a “causer pays” approach. Stakeholders’ preferences (and a small majority of the Customer Panel) were aligned with Endeavour Energy’s Preliminary Proposal.

### Preferences for connections (%)

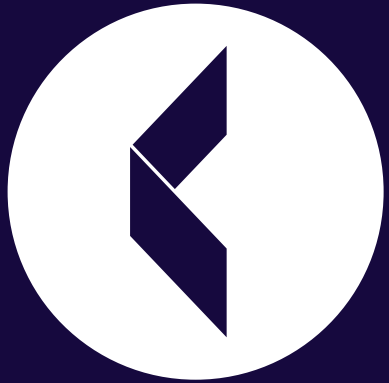


- "Everyone pays". Existing customers subsidise connection costs for new customers, regardless of where they live.
- "The beneficiary pays". There is no cross subsidy between new customers and existing customers and both benefit
- "The causer pays". New customers pay more compared to existing and future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

Deep Dive participants who preferred a 'causer pays' approach felt this would encourage the most efficient use of the network and the best outcome for customers.

Customer Panel opinion was more mixed, with slightly more supporting a 'causer pays' approach on the basis that those who pay should be those who can most afford it (i.e., developers not customers).



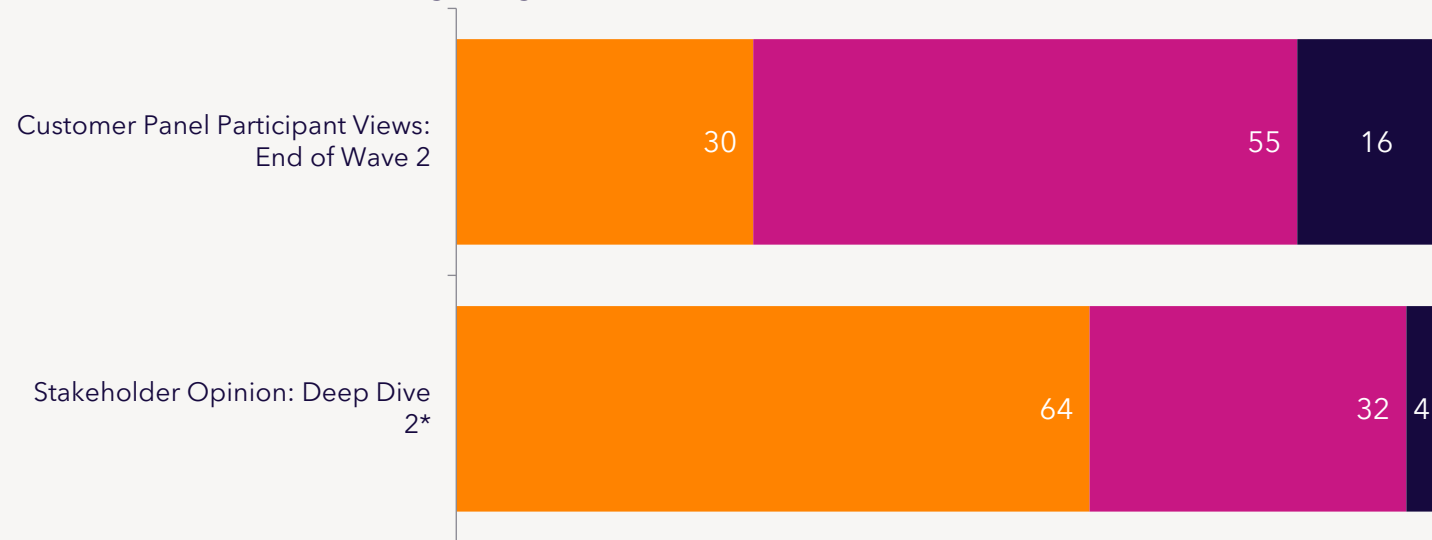


## **#5 Future energy choices**

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

Stakeholders were more likely than Customer Panel participants to prefer Endeavour Energy's plan for a rapid energy transition, the fastest and most ambitious of the four options presented. The Customer Panel preferred the slightly less ambitious and cheaper option to plan for an accelerated transition, while Endeavour Energy's Preliminary Proposal position was to plan for a no-cost gradual transition.

### Preferences for modernising the grid (%)

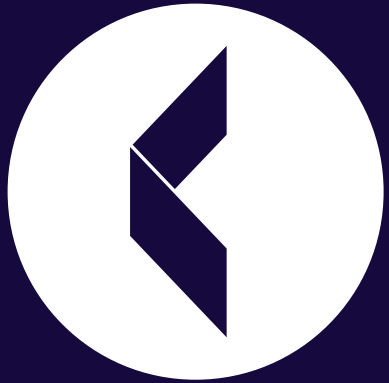


- Plan for a rapid energy transition by undertaking extensive trials of innovative technology that is ahead of need, further increasing network capacity to support customer technology choices
- Plan for an accelerated energy transition by supporting trials that respond to evident trends and have high 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

Comments from Deep Dive participants suggested they see a rapid energy transition as inevitable and, similarly to the Customer Panel, they do not want the grid to act as a barrier to the take up of new technologies.

There was broad discussion across a range of possible scenarios for the roll-out and adoption of various technologies and questioning of the reliability of assumptions made against the backdrop of rapid and unpredictable change. The lack of certainty about the future highlighted the importance of data-driven insights and innovative and dynamic approaches to planning.

*Q. How do we modernise the network to meet emerging and future customer service expectations as technology and markets evolve?/// Base: all Wave 2 Customer Panel participants (n=88), all Deep Dive 2 participants who provided a response for this question (n=47). \*Note, there was zero support for a 4<sup>th</sup> option "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."*



# **Future tariffs:**

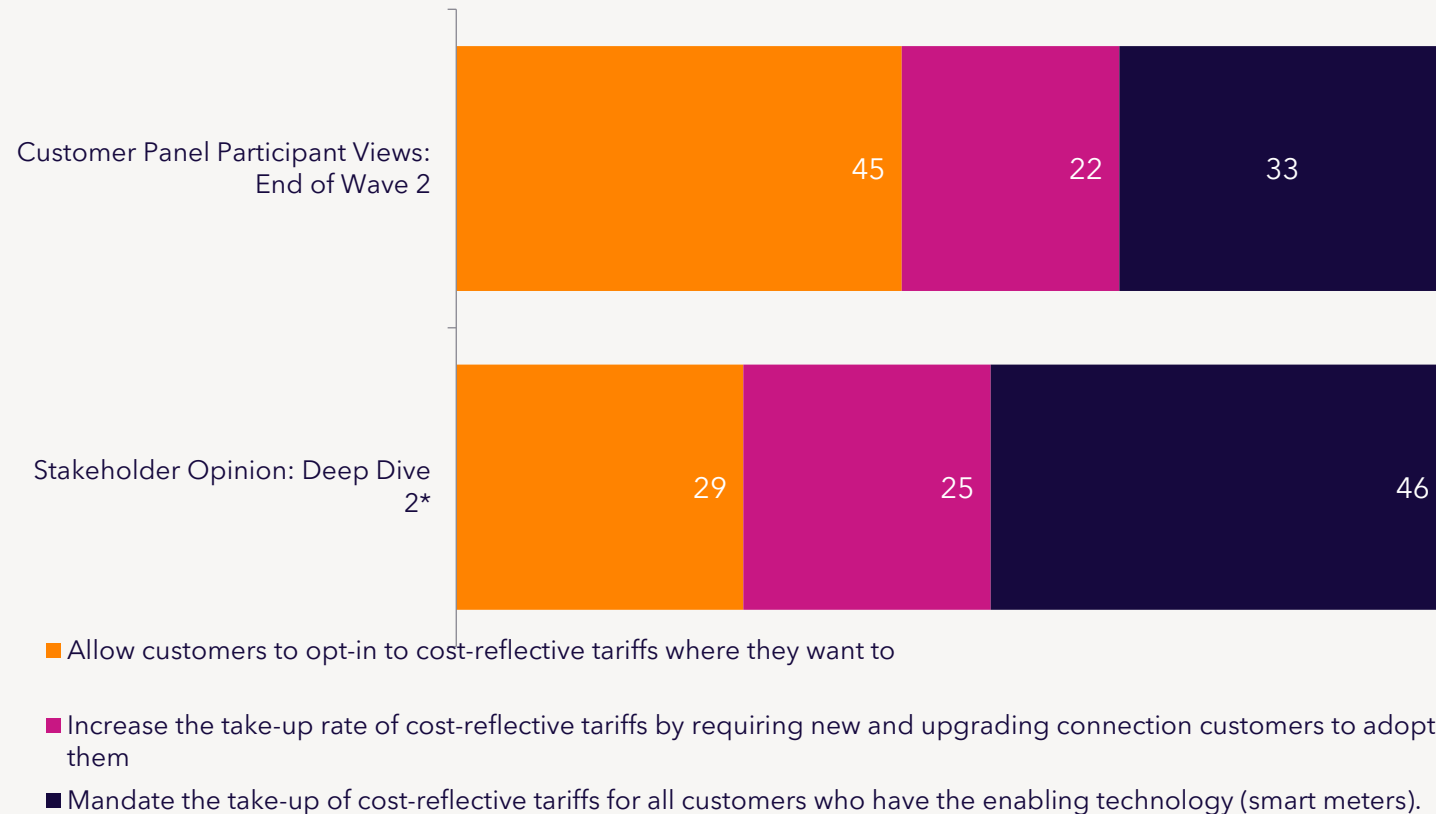
## **#6a Cost-reflective tariffs and**

## **#6b Solar energy tariffs**

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

Three-quarters of Deep Dive participant stakeholders were supportive of a mandated approach to cost-reflective tariffs for either all or new and upgrading customers, compared to just over half of the Customer Panel. Less than one-third of Deep Dive stakeholders preferred to allow customers to opt-in compared to almost half of the Customer Panel.

### Preferences for cost-reflective tariffs (%)



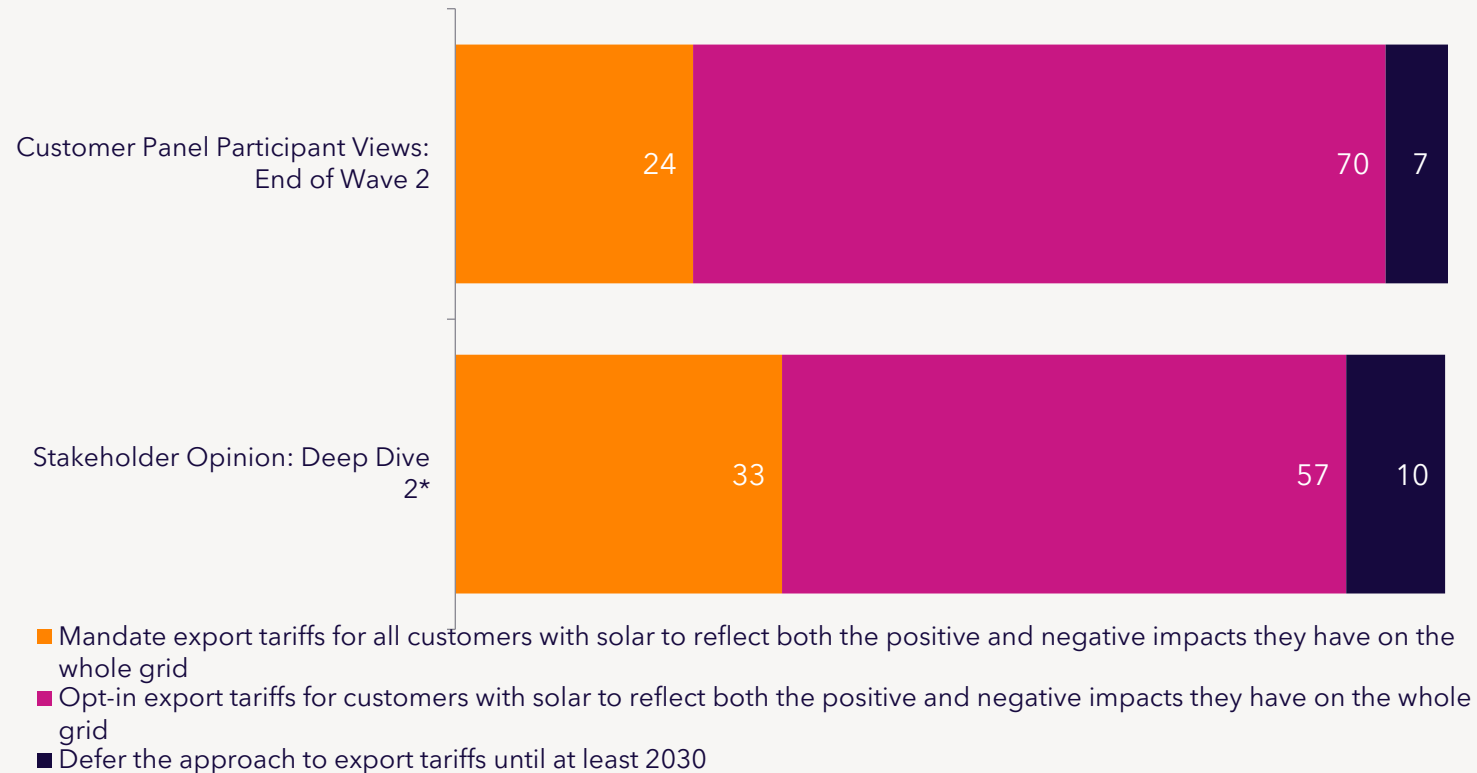
Consistent across both stakeholders and the Customer Panel, the principal reason given for supporting a mandate for all customers, or new or upgrading customers, to adopt cost-reflective tariffs was to drive behaviour change and in turn more efficient use of the network. The main reason to support the opt-in approach was concern about both residential and business customers being unable to change their energy use profile.

But there was some debate among stakeholders about whether these tariffs would or must be passed on to customers by retailers, how Endeavour Energy could overcome low levels of smart meter penetration to enable such tariffs to be widely used, and how tariffs could best be structured to accommodate electric vehicles in an equitable way.

## 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.)

Stakeholder views were consistent with the Customer Panel, with both preferring an opt-in approach to solar export tariffs, though one-third preferred mandated export tariffs compared to a quarter of Customer Panel members. Support for an opt-in approach aligns with Endeavour Energy's position in the Preliminary Proposal.

### Preferences for solar export tariffs (%)



Similar to the Customer Panel, Deep Dive participants told us they preferred the 'opt-in' approach as it would avoid disadvantaging consumers who were unable to invest in batteries and/or shift behaviour.

Some stakeholders wanted more clarity on the cost/benefit outcomes for different types of consumers before they could support a mandated approach, and reassurance that customers who opted-out would not be constrained from the grid and unable to access retailer feed-in-tariffs.

Q. 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. ? // Base: all Wave 2 Customer Panel participants (n=88), all Deep Dive 2 participants who provided a response for this question (n=42).



# Appendix

- **Appendix 1: In their words**
  - **Appendix 2: Invite list**
- **Appendix 3: Post-engagement evaluation survey results**
- **Appendix 4: What was done well / what could be improved**
  - **Appendix 5: Trade-off questions**

# Appendix 1: In their words...

The below represent a sample of verbatim quotes from participants during Deep Dive 1.

"Multi-utility solutions have been a major challenge in pursuing integrated smarter networks."

"Many of your customers are from migrant backgrounds and don't have a strong grasp of English, particularly in Western Sydney. There is a lot of mythology surrounding these people."

"We have had a positive experience at our Council. The investment in streetlights has been really welcomed. Retailers are the pain point. We haven't got resources to understand their bills. I wonder if your piece of the pie is being reputationally damaged because of this."

"Developers spend hundreds of thousands to help meet demand and supply"

"What is Endeavour's 50% in improving reliability? Why should it just be up to customers? What are you putting on the table in terms of asset efficiency and optimisation?"

"The most important thing is affordability. I know there is a bill impact for me personally. These sorts of things need to be put in context. Whether you like or not, there is going to be a bill impact."

"The company can always do things better or smarter at no cost to customers."

"We are blown away by how much customers want to spend in the resilience area."

"Developers can own and maintain assets for many years. Look at the scale of projects. The 13% needs to be contextualised."

"When does customer mean 'developer' and when does it mean 'end-user'?"

"Are we better off with the network being privatised?"

"Some of these topics you are going to consult on are probably going to cover off reliability. It's more tangible to see resilience in other ways, but it's hard to conceptualise reliability."

"People that are below medium income or renters who often have multiple family configurations are at risk of death by heat. They will carry the cost too, but where are the benefits? They're locked out of control of their environment."

"In better networks, we're seeing a lot of developments in the embedded network system."

"If you substitute the word 'causer' for 'developer', would we get a better result?"

"Are cost of living pressures risking the best possible outcome for our future grid?"

"There is big difference between Metro and Transport versus developers. A lot of the big growth in greater Western Sydney was caused by big users. In those cases, it would be hard to have a business case where everyone pays."

"It's all about balance."

"You need to be careful that recent events don't cause an undue bias on the results."

# In their words... (cont.)

The below represent a sample of verbatim quotes from participants during Deep Dive 2.

"You're going to have a lot of variability with solar and EV. Having a dynamic approach to daytime charging makes a lot of sense. There is a huge risk of creating huge peaks and troughs if they are based on averages rather than real sensitivities."

"Guy's comment on working back from a future point makes good sense. Does Endeavour have an idea of what people are prepared to pay for future export capacity?"

"Endeavour Energy has heard a lot of diverse views from customers and stakeholders. How is it balancing all this feedback?"

"What's Endeavour's understanding of the distinction between beneficiaries and causer paying? My organisation thinks of this being more of a spectrum than binary distinction."

"[Is it right that] everybody has to pay? Can't we move forward with more beneficiary-pays approaches, supported by evolving tariffs and service classifications?"

"Are there concerns around customer trust/appetite to buy into behavioural/demand/community battery solutions?"

"A public charging network would ease the peaks and dips in the network across the day. Has this been considered as a solution?"

"When is residential solar no longer for residential support, but a generator for profit i.e. a business, and why should all customers pay for this business?"

"Other than EV, PV and batteries, what else do we 'forecast' might help drive CER / DER supply? And how do we help enable communities to reach Net Zero?"

"Instead of referring to 'further increasing network capacity' it should be 'replace by doing smarter things'. This isn't just about technology, it's about being smarter, wording the customers. Be smarter and let's get on to it quicker."

"This is confusing because we are only talking about 1/3 of the charge. This [tariffs discussion] would make a lot more sense if this was packaged in the context of the total costs. But I realise that's hard as you don't control the [other] costs."

"Re the innovation fund - in this space, where adapting to technology it is vital for success. It's not a question but a given that these funds need to be adopted."

"There's a big role for DNSPs in leading collaboration to deliver tariffs that customers want, and which will deliver good outcomes."

"It would be useful to hear more about what the network will do to support the significant growth of commercial and industrial activity coming to the area."

"For sustainability, no curtailment is preferable. The \$450 million investment is a lot but what other options are there?"

"This tariff still needs to be retailer driven into a product that's tangible to a customer will get the behavioural change that you want to see."

"\$53m for innovation initiatives for technology that avoids duplication of your network, potentially with billions seems like a minimum prudent amount. Is it enough?"

# Appendix 2: Attendee list

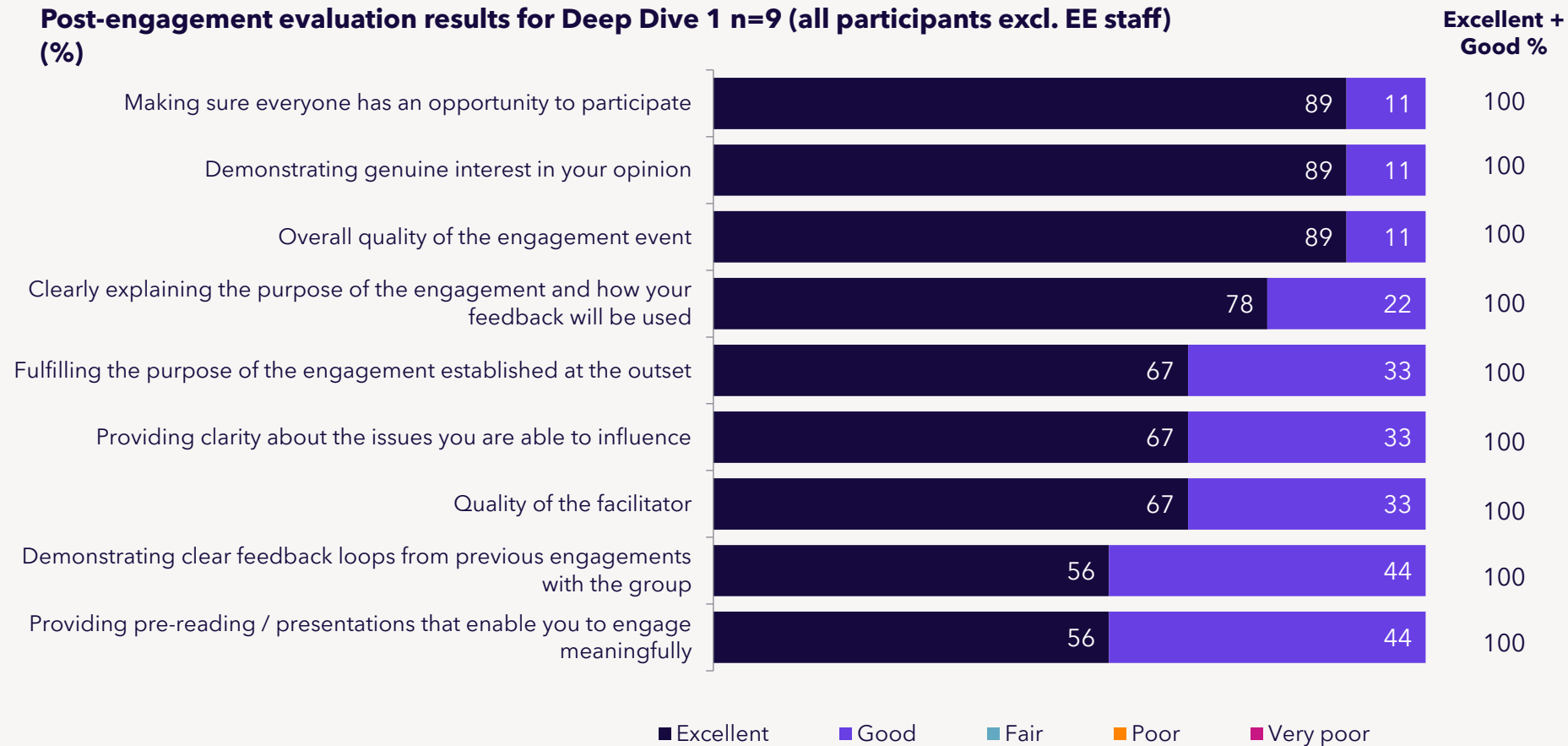
- Jude Adikari - Celestino
- Stephen Allen - Edgewater Connections
- Matthew Apolo - Shellharbour City Council
- Tom Bakker - Aurecon
- Mike Bourke, Western Sydney Airport
- Natalie Camilleri - Western Sydney Parkland Authority
- Lina Chen Pan - Sydney Community Alliance
- Natalie Clark Transgrid
- Peter Cole - IPART
- Nicole Collas - Cumberland City Council
- Simone Concha - Western Sydney Airport
- Gary Davies - Origin
- Ross De Rango, Electric Vehicle Council
- Aaron Dhanaraj - Jolt
- Fiona Doherty - Alinta Energy
- Grace Fren - Transport for NSW and Sydney Metro
- Tess Fitzgerald - KPMG
- Ben Grace - DPIE
- Mark Grenning - Energy Users Association of Australia
- Simon Heslop - UNSW
- Rod Howard - Rod Howard Advisory Services
- Karen Jones - Parramatta City Council
- Adrian Kemp - Houston Kemp
- Jan Kucic-Riker - Public Interest Advocacy Centre
- Justine Langdon - Essential Energy
- Robert Lo Giudice - Alinta Energy
- Katherine Lustig - Parramatta City Council
- Iain Maitland - Ethnic Communities Council of NSW
- Bruce McClelland - Business Western Sydney
- Doug McNamee - Jolt
- Craig Memery - Public Interest Advocacy Centre
- Alison Mortimer - Fairfield City Council
- Nesrin Nasoor - Sydney Community Alliance
- Bill Nixey - Ausgrid
- Darren O'Connell - Shoalhaven City Council
- Troy Olcorn - Energy Australia
- Bernadette Or - Energy and Water Ombudsman of NSW
- Nirjala Pandey - Sydney Community Alliance
- Joanne Page, Wollongong City Council
- Nic Pasternatsky - Western Sydney Regional Organisation of Councils
- Sam Peak - Essential Energy
- Lam Phan - Simply Energy
- Stella Qu - Liverpool City Council
- Nick Rose - Firm Power
- Robyn Robinson, AER Consumer Challenge Panel

# Attendee list (cont.)

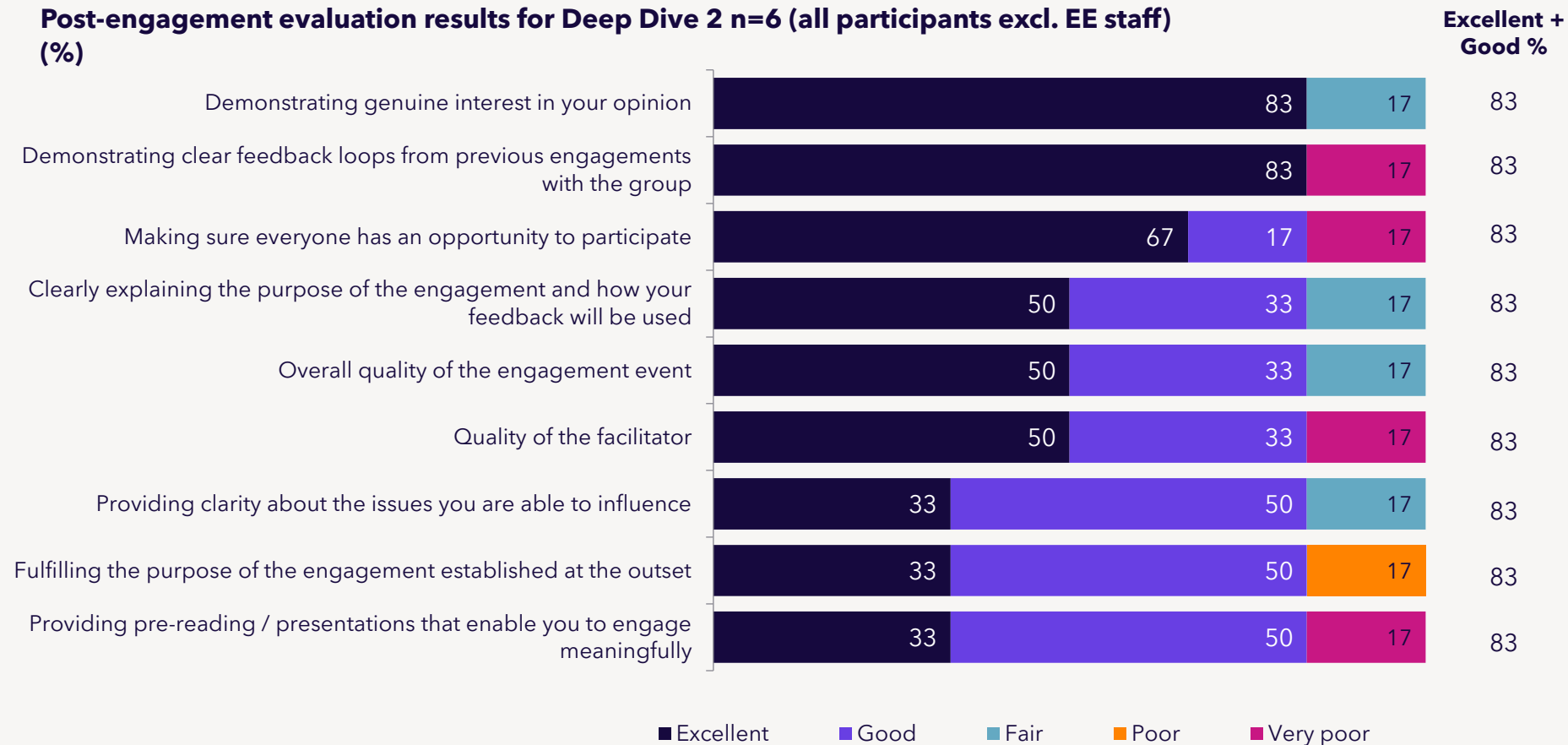
- Elisabeth Ross – Elisabeth Ross Consulting
- Aaron Russell – Project Engineering and Power Design
- Todd Scarfone – AA Power Engineering
- Josha Schmitz – Air Trunk
- Lisa Smoleniec – Lendlease
- Ben Stewart – Shellharbour City Council
- Mike Swanston – The Customer Advocate
- Christopher Stewart – Jemena
- Joe Sweet – AGL
- Albert Tong – Australian Energy Regulator
- Luke Turner – Western Sydney Leadership Dialogue
- Maureen Wade, Landcom
- Kristy Whiting, Essential Energy
- Nalin Wickramashinghe, Power Ledger
- Chris Wilson – Firm Power
- Dr Mike Wishart, EcoJoule Energy
- Meg Zerafa, Australian Energy Regulator
- The Hon. Robert Webster – Endeavour Energy Board Chair
- David Bartholomew – Endeavour Energy Board Member
- Trevor Danos AM – Endeavour Energy Board Member
- Guy Chalkley – Endeavour Energy CEO
- Francoise Merit – Endeavour Energy Executive Team
- Leanne Pickering – Endeavour Energy Executive Team
- Scott Ryan – Endeavour Energy Executive Team
- Sal Barone – Endeavour Energy
- Daniel Bubb – Endeavour Energy
- Anita Catalano – Endeavour Energy
- Vida Cheeseman – Endeavour Energy
- Colin Crisafulli – Endeavour Energy
- Jacqueline Crompton – Endeavour Energy
- Gavin De Hosson – Endeavour Energy
- Melissa Doueihy – Endeavour Energy
- Mark Dragar – Endeavour Energy
- Patrick Duffy – Endeavour Energy
- James Hazelton – Endeavour Energy
- Rebecca Hill – Endeavour Energy
- Peter Langdon – Endeavour Energy
- Danielle Manley – Endeavour Energy
- David Mate – Endeavour Energy
- Kate McCue – Endeavour Energy
- Samuel Morris – Endeavour Energy
- Rachel Potter – Endeavour Energy
- Ashwin Prasad – Endeavour Energy
- Stephen Sammut – Endeavour Energy
- Kieran Shanahan – Endeavour Energy
- Rebecca Yu – Endeavour Energy
- Sue Vercoe – SEC Newgate
- Sophie Travers – SEC Newgate
- Julie Sheather – SEC Newgate
- Sarah Lau – SEC Newgate
- Rachel Miller – SEC Newgate
- Kazvyn Yew – SEC Newgate



# Appendix 3: Post-engagement evaluation survey results for Deep Dive 1



# Appendix 3: Post-engagement evaluation survey results for Deep Dive 2



# Appendix 4: What was done well

*"The day was very insightful and allowed us all to hear both Endeavour's and our customers views. Opinions can be very divided on some aspects - this was great to observe."*  
(Steve Sammut, Endeavour Energy)

*"There was ample time allocated for Q&A."*  
(Sal Barone, Endeavour Energy)

*"Very well-run session, objectives were clear, facilitators provided the right level of detail."*  
(Other attendee)

*"The Q&A panel approach worked well -it was engaging. Having both the slido option and 'hands-up' options were good for facilitating engagement."*  
(RRG member)

*"The clear language used to explain complex issues and explore various potential solutions to challenges presented."*  
(RRG member)

*"I thought the day was very informative you have a very clear vision of your customers' needs and innovative avenues to problem solve."*  
(Other attendee)

*"The willingness of Endeavour to communicate, listen and interact with stakeholders. This has improved significantly over the recent year or two."*  
(Other attendee)

*"Good balance of presenting and Q&A and the time allowed for each topic was well considered. Loved the Exec panel discussions. Great representation from EE staff, Exec and Board. Board opening and conclusion showed genuine interest and listening. Timely invitations and detailed agenda shared in advance. Facilities were excellent. A great job -very well done!."*  
(Other attendee)

# Appendix 4: What could be improved



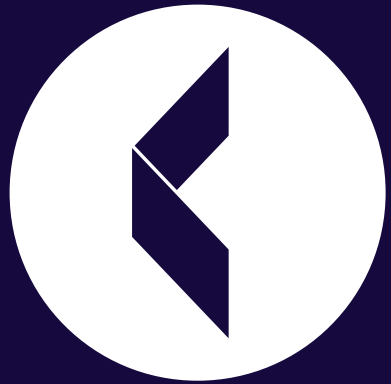
*"The only thing that wasn't clear to me before I came was exactly what was included in the preliminary proposal around all the different themes. Having attended the session and seeing the highlighted box that Endeavour has assumed within the options, I can see how engagement is being used to inform the proposal. It may have been helpful for readers of the Preliminary Proposal if the options and assumptions used to form the Preliminary Proposal were made clear within the document -but it is easy for me to say that as an observer. In reality, I know that it is just bloody hard to get everything for engagement ready in time so hats off to what you have achieved. It is very impressive!"*  
(Other attendee)

*"It may have been helpful for participants to receive the materials in advance since there was a lot to get through."*  
(RRG member)

*"I'm not sure that you can do much better. Simplification is paramount and keeping in mind that your customers are just ordinary people. Your ability to not speak down to them is appreciated."*  
(Other attendee)

*"Provide examples that show the total cost to consumers, by estimating and including in the examples, all other costs that contribute to the total cost of electricity."*  
(Other attendee)

*"I would have liked to hear from a wider range of people in the audience - less back and forth between the speaking panel and the small number of people with thoughts, and more opportunity for the audience to respond to what our peers were saying. Also, ask people to wear masks when not eating or drinking. It was supposedly a Covid-safe event, but I don't know how it was more safe than any other seminar I've attended."*  
(Other attendee)



## **Appendix 5: Trade-off questions**

# 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%.

## 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.



# 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.

## 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.

# 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

# 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.*

# 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.