Deep and Narrow Engagement: Energy Transition Summit

Produced for: CitiPower, Powercor and United Energy

January 2024

Forethought® Outcomes

Image above: Energy Transition Summit, participating stakeholders.

Introduction

Regulatory Reset Proposal Program

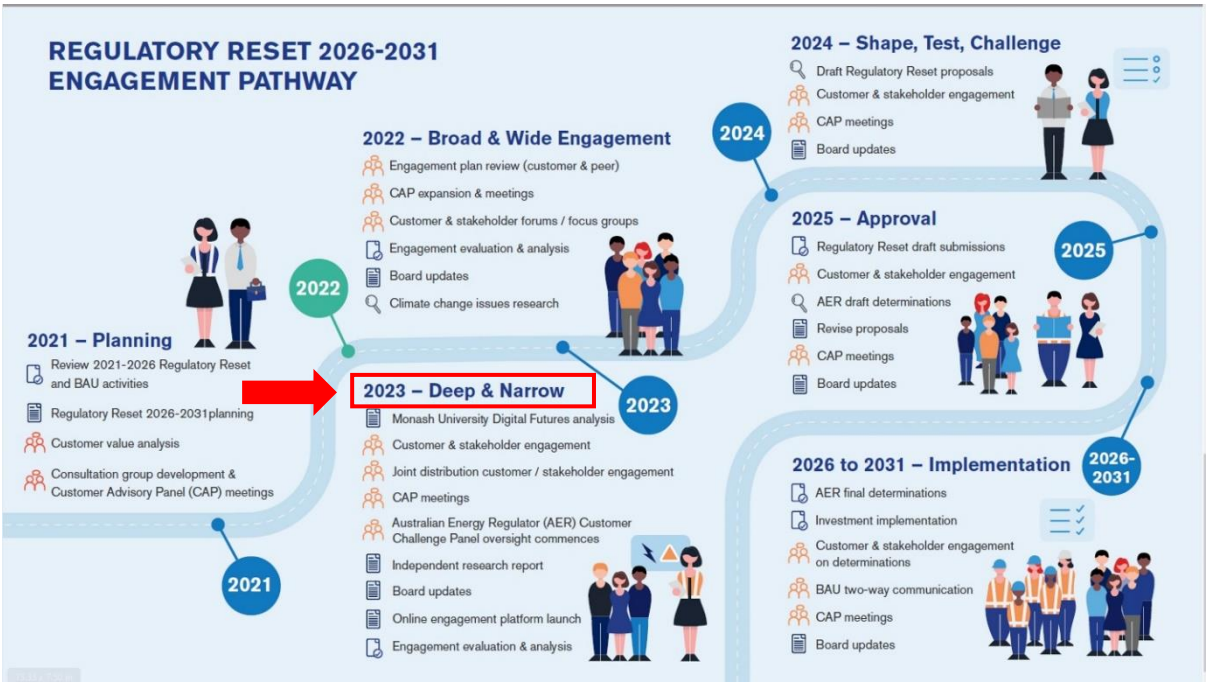
To support the development of the regulatory reset proposal, a foundational program of community engagement was conducted in 2022 and the early part of 2023. This broad and wide engagement program identified the key needs and preferences of regional and rural customers and identified four themes:

1. Affordability and equity
2. Reliability and resilience
3. Energy transformation
4. Customer experience

The deep and narrow engagement builds on this broad and exploratory research. It adopts a more targeted approach; exploring, testing, and understanding customer preferences and priorities. To achieve this outcome, service level options were developed by the CitiPower, Powercor and United Energy team to allow participating stakeholders to discuss and share their preferences in depth within the November Energy Transition Summit.

The below graphic explains the full Regulatory Reset Engagement Pathway.

Following a detailed examination of these customer outcomes, the insights will feed into the subsequent phases of the 2026-2031 regulatory reset proposal development. This process will involve the formulation and evaluation of business cases that align with the identified customer outcomes.



Forethought's Involvement

Forethought is an independent Marketing, Analytics and Strategy organisation with teams that specialise in research and engagement within multiple industries, including utilities.

Forethought's experience in the energy industry involves conducting customer and stakeholder research and engagement with organisations across the full value chain including electricity generation, distribution, transmission and retail services. They partner with clients to provide an independent customer voice, ensuring that the customer is always at the forefront of organisational decision making.

Forethought was selected for this program based on their expertise across both utilities, research and engagement capability to independently design and facilitate engagement forums and objectively report back on the needs and preferences of customers across the network.

Image above: Energy Transition Summit, participating stakeholders.

Image above: Energy Transition Summit, participating stakeholders and Forethought facilitator.

Objectives and Methodology

Objectives and Methodology

The deep and narrow summits build on foundational and exploratory research conducted in the broad and wide engagement phase. This reflects CitiPower, Powercor and United Energy's genuine commitment to develop a regulatory proposal that is anchored in customer needs and preferences for the immediate and longer-term future of the network.

The Energy Transition Summit was hosted at Collins Square Business and Events Centre, Melbourne on the 28th November 2023 from 9.00am – 5.00pm. There were 38 attendees.

This deep and narrow, Energy Transition Summit sought to achieve the objectives set out below.

2026-2031 Regulatory Reset Objective
Develop a regulatory reset proposal for the 2026-2031 period that aligns with the needs and preferences of the CitiPower, Powercor and United Energy customer base.

Engagement Objectives

Engagement with a range of CitiPower, Powercor, and United Energy special interest stakeholders and customer advocates to:

- Explore and comprehend the priorities and needs of customers and stakeholders, including those they represent (such as vulnerable customer communities), in the utilisation and management of emerging energy technologies, including rooftop solar and electric vehicles (EVs).
- Discuss, debate and prioritise preferred customer outcomes/service levels in the context of presented solutions for rooftop solar and EVs.
- Share additional solution ideas and considerations for inclusion in business solution development.

Approach

Forums were attended by CitiPower, Powercor and United Energy senior executives and supporting team to listen and help answer questions of customers without biasing or leading the conversation. The following staff attended the Energy Transition Summit:

1. Renate Vogt – General Manager, Regulation
2. Adam Gellie – General Manager, Network Services
3. Jeff Anderson - Head of Regulatory Strategy
4. Andrew Dinning – Head of Network Planning
5. Rosh Sivanathan - Head of Network Operational Planning
6. Dan Bye - Head of Customer Connections and Requests
7. Brent Cleeve - Head of Regulatory Policy and Compliance
8. Chris Gilbert – Regulatory Manager
9. Kaitlin Pisani – Project Coordinator

Additionally, these forums were attended by interested members of the Customer Advisory Panel (CAP), the Australian Energy Regulator (AER) and Consumer Challenge Panel (CCP) who were invited to attend the forums in a viewing-only capacity.

Consideration was given to recruit participants with a strong interest in future energy technology and solutions across the three networks.

Recruitment

There were two main channels used to recruit participants. These were chosen to ensure that every possible avenue was utilised to attract a diverse group of highly relevant stakeholders to participate. The recruitment process included:

1. An invitation was extended to engaged individuals, including council members and community organisations. Recipients were encouraged to extend the invitation to other interested parties if they desired. As a result, participants were primarily composed of council representatives, established sustainability and energy groups, EV councils, Greenhouse Gas alliances, emergency services (such as the Fire Authority and SES), and other related business representatives.
2. Social media was also used to share the consultation details and provide access to a link to sign up for this consultation.
    - CitiPower, Powercor and United Energy used social media to further promote the consultations to the general public across the network.

In addition to the recruitment efforts for the Summit, CitiPower, Powercor, and United Energy released the Future Energy Service paper to the public domain, inviting written response submissions. Participants who attended the event were encouraged to read the paper, and those unable to attend the session were also given the opportunity to access the paper and provide feedback. This process allowed for a broader range of perspectives and ensured that input from both event attendees and others interested in the paper was considered. The consultation close date was 5th January 2024.

To socialise the opportunity for submission the following was undertaken:

- An email was sent to existing contacts the networks held a relationship with.
- Social media posts were shared to support everyone having the opportunity to provide feedback.

Compensation and Local Charity Donation

As consultations were held over a lengthy timeframe (8 hours), CitiPower, Powercor and United Energy donated $2,000 to a nominated charity chosen by participating stakeholders.

- $2,000 was donated to the Peter Mac Cancer Institute.

Session Methodology

The session commenced with an introduction conducted by Forethought and a scene setting undertaken by Renate Vogt and Jeff Anderson from Powercor to inform customers about the context of the session and areas for discussion.

The themes for discussion were anchored in an Energy Futures Service Paper developed by CitiPower, Powercor and United Energy and topics included:

- Solar exports
- Electric vehicles (EVs)
- Vulnerable customers
- Regional and rural customers

A copy of this paper can be found via the following links:

- Link to CitiPower paper
- Link to Powercor paper

- Link to United Energy paper

Participants were provided with pre-reading prior to the summit. This information was carefully selected to educate participants without introducing bias and encompassed general knowledge about the key issues explored at the summit.

Attention was given to presenting the information in a clear and accessible language and format, ensuring it did not influence stakeholders' perspectives. Information packs were also provided to support stakeholders with notetaking and referencing when sharing considered feedback.

To start each area of discussion a presentation was shared by Jeff Anderson to share more detail on the service level options proposed for solar exports and EVs respectively. There was an opportunity for stakeholders to ask questions prior to sharing their feedback.

To gain a deeper understanding of customer preferences, ideas and considerations regarding service levels across solar exports and EVs, the topics outlined above were thoroughly examined in smaller working groups. All participants were broken into tables comprising approximately 8-12 stakeholders. These focused sessions were carefully facilitated to ensure that all participants had an equal opportunity to express their perspectives and provide feedback—a level of engagement that would have been challenging to achieve in a larger forum.

Within each discussion, customers were asked to share ideas, missing solutions and considerations against the initial service levels presented. Stakeholders were probed to consider and discuss the impacts of varying options and the impacts on vulnerable customers, as well as regional and rural communities.

Facilitators played a crucial role in moderating these discussions, allowing for the dissemination of information, whilst ensuring that the primary focus remained on customers sharing their feedback, considerations, ideas, and preferences.

Customers were encouraged to suggest and record any outcomes beyond those proposed by the networks. All suggestions were recorded for consideration.

Following this discussion, participants were then actively engaged in a voting process to express their preferences on the service level they wished CitiPower, Powercor, and United Energy to advance. Stakeholders were primarily grouped at network-specific tables, while two tables allowed stakeholders to provide input across all networks.

The intentional nature of the voting process aimed to prompt participants into prioritisation, challenging them to make decisions that, while demanding at times, ultimately facilitated the generation of a quantitative output. This approach ensured a structured and measurable outcome reflecting the collective preferences and priorities of the diverse stakeholder groups involved.

Each table addressed a range of six service level options, spanning various spectrums outlined below. Solar exports option considerations:

- Level of reservation capacity for future customers vs. first in first serve
- Maintaining and adding capacity
- Amount of network investment
- Variation in solar customer equity

EV option considerations:

- Level of charging management
- Level of capacity improvements
- Amount of network investment
- Access to fast charging

Following the consultations, Forethought undertook various reporting workshops and internal quality checks to align on the customer themes and preferences that are reported on within this document.

All written responses to the Future Energy Options paper were collected and reviewed, noting both responses that aligned with those given in the engagement session and responses that were unique. These are included at the end of this report.

IAP2 Spectrum

The level of customer participation in this program was intentional and is highlighted in our depiction of the IAP2 Spectrum shown below. Within this consultation, customers were involved in shaping the direction of focus for the networks by discussing a wide range of issues, and then voting on the area they thought was most important.

IAP2 Spectrum of Public Participation[1]

	Inform	**Consult**	**Involve**	**Collaborate**	**Empower**
Public Participation Goal	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives, and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.

[1] IAP2, 2018, IAP2 Spectrum of Public Participation, accessed 22 November 2022, https://iap2.org.au/wp-content/uploads/2020/01/2018_IAP2_Spectrum.pdf

Engagement Context

During the consultation period, several events took place in both the lives of customers and within the wider electricity sector. We hypothesise these events impacted customers' needs and perceptions.

At the time of engagement, the following events occurred. Some customers referenced several of these events throughout the discussions at the summit:

- Continued cost of living rises for Victorians announced July 2023, "more than one million Victorian households will be hit with power bill increases of up to $361 a year."[2]
- The State Electricity Commission (SEC) was reinstated in October 2023 and set to lead Vicotria's renewable energy transition across the next ten years.[3]
- War in the Ukraine with the Russian invasion impacting Australian energy prices[4]
- Optus network outage caused a nationwide blackout of services, preventing landlines, mobile phones, home internet, small businesses and enterprises from accessing usual telecommunication services; alongside being unable to connect to the 000 emergency service.[5]
- One-hundred and seventeen councils around Australia have declared their regions in states of climate emergency in response to global climate change impacts and commitments to restore a safe climate by transforming the economy to net zero emissions[6][7]
- EV novated lease fringe benefit tax (FBT) exemption was introduced in late 2022 by the federal government and means there is $0 payable FBT on eligible electric vehicles and plug-in hybrid electric vehicles (PHEVs).[8]
- Starting January 1 2024, planning changes will prohibit new dwellings, apartments, and residential subdivisions requiring permits from connecting to the gas network[9]
- Gas prices are expected to increase considerably as the updated Gas Substitution Road Map forecasts decreasing production and pressure to switch to electricity.[10]

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[2] Herald Sun, June 2023, *Power blow: Energy bills set to rise,* accessed 15 July, 2023, https://www.heraldsun.com.au/news/victoria/how-much-more-youll-pay-for-power-from-august-revealed/news-story/17187aa2411f753cab740ce1fdf86eaf.

[3] Premier of Vicotria, October 2023, *The SEC Is Back: Accelerating Victoria's Renewable Future*, accessed on 19 January 2024, https://www.premier.vic.gov.au/sec-back-accelerating-victorias-renewable-future.

[4] Mercer. D, 26 February 2022, *Russian invasion of Ukraine drives up energy costs and Australians will feel the pain,' ABC News,* accessed 8 November 2022, https://www.abc.net.au/news/2022-02-26/russia-invasion-of-ukraine-to-drive-up-energy-costs-for-all/100861246.

[5] The conversation, November 14, 2023, *Optus has revealed the cause of the major outage. Could it happen again?*, accessed 19 December, 2023, https://theconversation.com/optus-has-revealed-the-cause-of-the-major-outage-could-it-happen-again-217564

[6] Cedamia, last updated April 14 2023, *CED regions in Australia*, accessed 19 December, 2023, https://www.cedamia.org/ced-regions-in-australia/#:~:text=19%20February%202019%2C%20Maribyrnong%20City,to%20declare%20a%20Climate%20Emergency.

[7] DEECA, July 2023, *Submitted council pledges*, accessed 19 December, 2023, https://www.climatechange.vic.gov.au/local-government/council-pledges/submitted-council-pledges.

[8] Money.com.au, date unknown, *Huge savings on EV's due to Government Legislation*, accessed 20 December 2023, https://www.money.com.au/car-loans/novated-lease/electric-cars#:~:text=EV%20novated%20lease%20FBT%20exemption%20explained,-The%20FBT%20exemptionandtext=The%20exemption%20was%20introduced%20in,for%20FY%202023%2F24).

[9] Victoria State Government, September 2023, *Victoria's Gas Substitution Roadmap*, accessed 20 December 2023, https://www.planning.vic.gov.au/guides-and-resources/strategies-and-initiatives/victorias-gas-substitution-roadmap#:~:text=Starting%20January%201%202024%2C%20planning,and%20infill%20sites%20across%20Victoria.

[10] The Age, December 2023, Bills to soar as Victoria moves away from gas, accessed 19 January 2024, https://www.theage.com.au/politics/victoria/bills-to-soar-as-victoria-moves-away-from-gas-20231214-p5erjv.html.

- Victoria enters the next phase in establishing Australia's first offshore wind generation industry – "which will be key in delivery the state's renewable energy transition". [11]
- Australia's Contracts for Difference tenders and expanded Capacity Investment Scheme signify a major shift in energy policy, underwriting 32GW of electricity production with taxpayer support.[12]
- In November 2023, the Australian Government announced an expansion of the Capacity Investment Scheme representing a $52 billion investment.[13]

[11] Premier of Victoria, December 2023, *Emerging Offshore Wind Energy Sector Enters Next phase*, accessed 19 January 2024, https://www.premier.vic.gov.au/emerging-offshore-wind-energy-sector-enters-next-phase.
[12] Energy Storage news, November 2023*, 'Biggest energy Policy change': 32GW CfDs could put Australia on track for 2023 climate targets*, accessed 19 January 2024, https://www.energy-storage.news/biggest-energy-policy-change-32gw-cfds-could-put-australia-on-track-for-2030-climate-targets/.
[13] DCCEEW, December 2023, *About the Capacity Investment Scheme*, accessed 19 January 2024, https://www.dcceew.gov.au/energy/renewable/capacity-investment-scheme.

Evaluation

At the conclusion of the consultation, customers were asked to complete a feedback survey to support refinement of the engagement process. The results for the CitiPower, Powercor and United Energy consultations are below.

Location/ customer group	Overall satisfaction (Out of 5)	Customer comments
Energy Transition Summit	4.5	"Keen to see how our input is utilised in the reset plan" "Facilitator was really good at making sure that our views were heard." "Excellent to have the DNSP proactively engaging. Keep up the great work." "Was a great mix of people and good discussion. Techniques for gathering and documenting attendees' views was great." "An excellent day consisting of engagement and education."

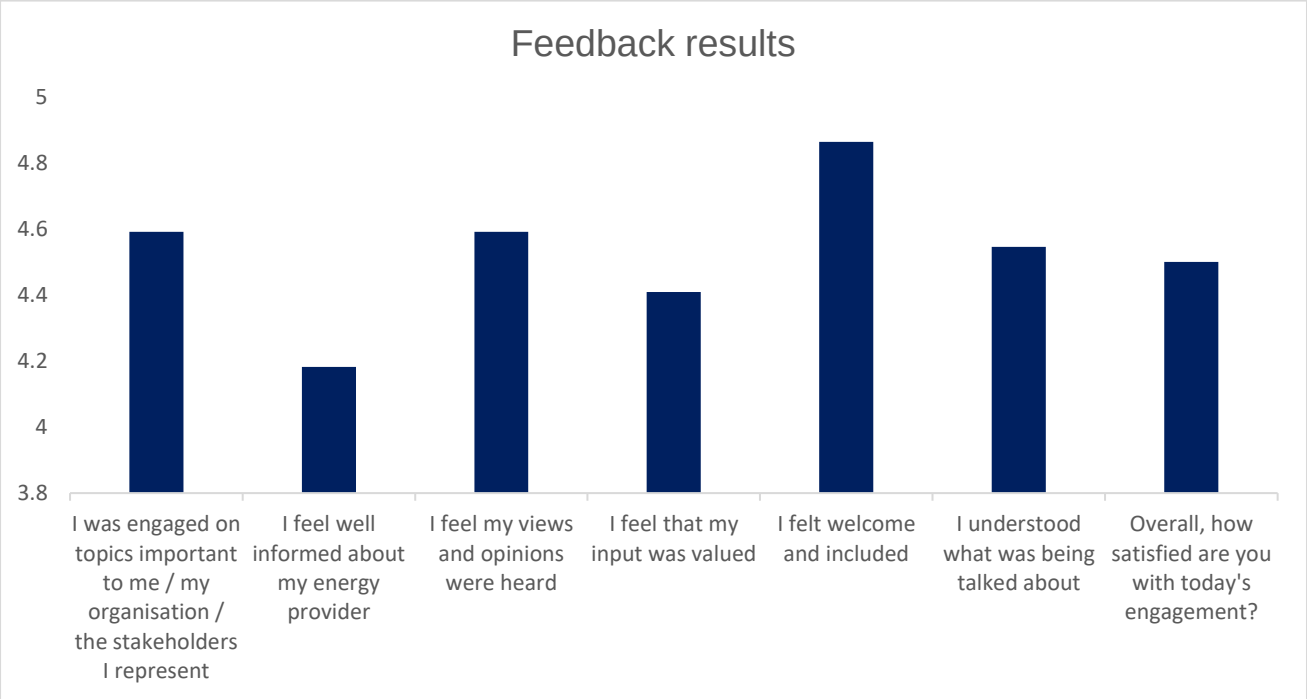


Image above: Energy Transition Summit, participating stakeholders.

Customer Perspectives on Engagement Themes

Executive Summary

The exploration of solar exports and electric vehicles in collaborative stakeholder discussions brought forth an array of perspectives and considerations. These conversations not only shed light on service level preferences but also uncovered nuanced similarities and differences across the networks involved – CitiPower, Powercor, and United Energy.

Solar Exports

Stakeholders expressed a collective belief in the benefits of flexible solar exports. This belief stemmed from economic considerations and the desire to support ongoing generations. Stakeholders highlighted the prudence of investments that not only make economic sense, but also contribute to a sustainable future beyond the immediate reset period (2026 – 2031). This aligned with findings from recent consultations suggesting that in general, stakeholders prefer to take a longer-term view of issues, rather than the immediate reset period.

The discussions emphasised the importance of preventing the “wastage” of renewable energy and ensuring that customers benefit from the increased utilisation of solar energy. A key focus was on enabling fairness in the energy transition, extending benefits to non-solar customers, and ultimately reducing customer bills. Stakeholders sought to avoid the upward pressure of tariffs as a result of these investments.

Powercor

Within the Powercor network, stakeholders placed a significant emphasis on fairness and equity in the solar export transition. The discussions revolved around the challenge of determining who should bear the costs of capacity upgrades needed for flexible solar exports. Some stakeholders expressed concerns about inequity, with non-solar customers potentially bearing the costs for upgrades benefiting solar customers. However, others saw the advantage of the “Solar abundance” service level (refer to table 1.1) that was being proposed by the networks, which could ensure equal opportunities for everyone to contribute to the grid and reduce electricity costs. Two proposed options for compensating those without solar included financially compensating those without solar and providing access to local mid-scale solar generation which would enable vulnerable customers to participate in the transition.

Mid-scale generation, described as smaller community wind or solar projects, emerged as a key solution within the Powercor network. This solution was seen as beneficial for those unable to install rooftop solar, such as apartment owners, shared dwellings, and renters. However, stakeholders acknowledged the expense associated with mid-scale generation projects, posing a barrier to what was considered a promising solution.

Stakeholders insist on targeted strategies for tapping into the abundant solar resource potential in regional areas, emphasising their suitability for network investments. The need for equitable access to rural renewable energy production was emphasised.

Reviewing the AER’s investment criteria, stakeholders called for a holistic approach that considers environmental, social, equity, and community outcomes that reach beyond the immediate five-year regulatory reset period, and strive for an energy system that supports future economic growth and attracts new business.

CitiPower and United Energy stakeholders echoed a commitment to equity, emphasising the need to ensure that the costs of running the network were also not unfairly shifted to non-solar customers. The urgency to respond to the climate emergency guided their service level preferences for the next regulatory reset period. Stakeholders highlighted the importance of capacity increases to support high flexible export and intrinsic hosting capacity.

Electric Vehicles

When discussing electric vehicles (EVs) service level options for the next regulatory period, stakeholders underscored the necessity of a clear and equitable transition. Various considerations, including EV uptake and charging profiles, technology accessibility, and the potential for trickle charging as opposed to fast chargers were highlighted.

Across all networks, stakeholders expressed uncertainty about the future of EV uptake and charging behaviours due to inconsistent third-party information available and a lack of government policy. The availability of EV technology, including Vehicle to Grid (V2G) and Vehicle to Home (V2H), raised questions about timelines and customer scepticism. Stakeholders recognised the significance of varying technology and accessibility to instil confidence in potential EV purchasers.

A consensus emerged that future EV customers might prefer trickle charging over fast chargers due to cost considerations, dwelling connection types, and the convenience of regular “top-ups” at public locations. Stakeholders pointed out the nuanced approach needed for regions with key tourism destinations, where seasonality and long weekends could impact electricity demand related to EVs.

Investing in material capacity increases to support EVs was seen as potentially over-investing in infrastructure, with stakeholders anticipating that trickle charging and the unknown implications of public transport electrification could alleviate the need for significant capacity increases.

Within the Powercor network, stakeholders advocated for a measured approach to EV infrastructure investment. They emphasised the need to challenge assumptions about fast chargers and proposed a phased approach aligned with customer behaviours.

In the service level preferences for EVs, stakeholders across all networks favoured Shared charging, Heavy touch, and Light touch options (refer to table 2.1). The rationale for Powercor and CitiPower stakeholders leaned towards a gradual approach, ensuring that investments were not obsolete. Whereas United Energy stakeholders were more concerned with demand management, as uncontrolled charging would lead to a “dead network”.

Common considerations across all networks for EVs included the essential role of demand management, anticipation of V2G implementation, and the influence of modem connection locations on EV charging. Network-specific considerations involved addressing EV requirements for heavy vehicles.

In conclusion

Stakeholders demonstrated a collective commitment to an equitable and sustainable energy transition, navigating challenges in solar exports and EV integration. The nuanced insights gathered from these discussions provide a robust foundation for strategic planning and decision-making in the next regulatory reset period.

Solar exports
Customer perspective on service level options

The exploration of solar exports brought forth an array of perspectives and considerations. These conversations not only shed light on service level preferences but also uncovered nuanced similarities and differences across the networks involved – Powercor, CitiPower, and United Energy.

Each network's unique emphasis on fairness, equity, and a balanced transition shaped their distinct perspectives on navigating the evolving landscape of solar exports.

The following themes were underlying to the preference level feedback:

- Emphasis on fairness and equity
- Mixed views on who should pay to support flexible solar export services
- Mid-scale generation: A key solution for inclusive participation in the energy transition

Powercor

Below outlines the detail behind feedback shared by Powercor stakeholder representatives.

<u>Emphasis on fairness and equity</u>

When stakeholders considered Powercor customers' needs, a significant emphasis was placed on fairness and equity throughout the solar export transition. The discussions delved into formulating a strategy that not only ensures an equitable energy transition but also minimises the economic impact on diverse customers across the network. Within this context, nuanced definitions of equity surfaced, contributing to a multifaceted understanding.

The two preferred service options of 'Solar abundance' and 'Fast transition' need for capacity upgrades to facilitate more flexible solar exports was acknowledged, but concerns were raised about potential inequities. Stakeholders grappled with the idea that those without solar might bear the costs disproportionately, especially given the prevalence of customers with lower socioeconomic status within the Powercor network.

On the other end of the spectrum, some stakeholders saw the 'Solar abundance' option as advantageous. This approach was perceived to facilitate equity by ensuring that everyone, regardless of their solar setup, had the opportunity to contribute to the grid, potentially bringing down electricity costs for all.

The discussions also highlighted the importance of considering vulnerable customers who might face challenges participating in the energy transition. Additionally, the unique challenges of rural and regional areas were acknowledged, particularly concerning basic

reliability needs and the necessity to keep up with more sophisticated energy needs compared to other networks.

Stakeholders saw an opportunity for the government and retailers to play a pivotal role, especially in supporting vulnerable customers. The prevailing sentiment was that the solution should not only support the majority but also be fair and just, acknowledging the varying circumstances of different customer groups within the Powercor network.

Mixed views on who should pay to support flexible solar export services

Powercor's stakeholders presented mixed views on who should bear the financial responsibility for flexible solar exports. The debate revolved around whether those benefitting directly from increased flexible exports (solar customers) should cover the costs or if the burden should be distributed across the entire network for the collective benefit. Two distinct approaches emerged:

1. Some stakeholders argued that those reaping the benefits, specifically solar customers with increased flexibility, should bear the costs of necessary upgrades. This perspective leaned towards a more individualised approach, aligning responsibility with the direct beneficiaries of the enhanced export services.

2. Contrastingly, others advocated for a more collective sharing of costs, emphasising the broader advantages that the entire network and all customers could gain from the implementation of flexible export services. Two alternative compensation models were suggested: recognising additional costs for non-solar customers and incentivising battery investments as a means to share the benefits across the spectrum.

Mid-scale generation: A key solution for inclusive participation in the energy transition

Introducing mid-scale generation as a more holistic solution to support the energy transition was a key solution to address certain challenges and broaden the scope of participation in the energy transition.

Described as a smaller community wind or solar project, mid-scale generation emerged as a pathway for individuals unable to install rooftop solar, including apartment owners, those in shared dwellings, and renters. The inclusive nature of this solution was particularly highlighted, as participants acknowledged that a significant proportion of Powercor customers were renters.

Despite its perceived benefits, stakeholders recognised a significant barrier in the form of high application costs associated with implementing mid-scale generation. This acknowledgment underscored the importance of considering not just the advantages but also the practical challenges associated with such community-centric projects.

Moreover, mid-scale generation was seen as a more holistic avenue to encourage community engagement, ensuring that regional and rural customers had an opportunity to actively participate in the broader energy transition.

Resource availability

Stakeholders recognised the better resource potential in regional and rural areas, advocating for strategies to harness this potential effectively. They believe that greater access to raw

land and more homes applicable for solar adoption makes them ideal locations for network investment in the aforementioned alternative solutions that would better increase the uptake of solar exports. Furthermore, their frustration with regional and metro inequity is emphasised by the considerably larger production of renewable energy in rural areas that they don't have access to. This sentiment was also prevalent in Powercor customers who attended a prior engagement session, *The Rural and Regional Summit*, in June 2023. Customers at this engagement event believed an "inability to access and use the renewable energy generated by their communities compounded the perception of inequity across rural/regional and metro"[14].

Stakeholders were critical of the criteria for assessing investment

A holistic view was urged for assessing investments, considering influences like mid-scale generation and batteries. Stakeholders raised concerns about network upgrades being prohibitively expensive, emphasising the need for a more inclusive assessment criterion, incorporating environmental, social, equity, and community outcomes. Additionally, stakeholder discussion urged any consideration from the AER and the network to consider future economic growth in the area, as it requires a sound and evolving system that will attract new business. Hence, aligning with other surrounding discussions that AER assessment and network investment should be considerate of a time frame beyond the immediate 5-year regulatory reset period. Furthermore, stakeholders sought a more inclusive assessment criterion that also considers the interplay between new resources and technologies, e.g. how solar export scenarios were inherently linked to battery technology, the use and uptake of EVs, and electrification of households.

CitiPower and United Energy

The following feedback was key sentiment and feedback shared that was underlying to the preference level feedback and included:

- Ensuring inequity did not fall on non-solar customers.
- Equitable and rapid grounds for uptake.
- Motivated to respond to the climate emergency.

Below outlines the detail behind feedback shared by CitiPower and United Energy stakeholder representatives.

Ensuring inequity does not fall on non-solar customers

A concern for stakeholders within CitiPower and United Energy was the need for an equitable approach that safeguarded the interests of both solar and non-solar customers, similar to the concern shared when discussing the Powercor network. As solar adoption increased, there was a collective call to prevent the burden of costs from disproportionately affecting non-solar customers and subsequently leading to increased electricity prices for this segment.

"There is a real equity issue we need to worry about" (CitiPower stakeholder, 2023).

[14] Forethought, June 2023, *Powercor Rural and Regional Summit*, https://engage.powercor.com.au/deep-and-narrow-powercor.

Recognising the complexity of the energy transition, stakeholders emphasised the role of the state government in actively supporting vulnerable customers and those who could not contribute to the energy transition. The challenge was viewed as not solely the responsibility of the networks but rather a collaborative effort requiring government involvement to ensure fairness and equity.

Equitable and rapid grounds for uptake

CitiPower and United Energy stakeholders' concerns for equity also extended to ensuring non-solar customers are properly incentivised to participate in the energy transition and access the full advantages of solar exports. Stakeholder discussion heavily revolved around aligning on an option they believed would be best to encourage a fast uptake of solar, which they also believed as coinciding with the option that was the most fair and equitable. Stakeholders wished to avoid a future in which later adopters of solar would not be able to access the same benefits as early adopters. They sought to find a solution that would maximise benefits for current solar owners and hopeful future solar owners. As such, the service level options of Fast transition and Solar abundance were the most attractive options in discussions.

"We are looking at how much solar we can distribute in the community; how can we do this in the most economic and rapid way" (United Energy Stakeholder, 2023).

Additionally, tied to their discussion of an equitable space for a rapid uptake was communication and education. Stakeholders recognised the necessity for clear and precise messaging, that would encourage solar uptake and help people see the value of solar exports. Consequently, they sought a service level option that would have the most fair and equitable details so it could be communicated easily to communities. Stakeholders discussed that the average consumers have minimal understanding of what the network distributor does and are unaware of what options there are available to them. Hence, education is paramount for any solution. Full support was offered by all participants of the three networks for education and communication, particularly going into the future as the network and technology develops.

Motivated response to the climate emergency

When contemplating the service levels required for the upcoming regulatory reset period, stakeholders in CitiPower and United Energy were motivated by a sense of urgency to respond to the climate emergency. The feedback emphasised the need for strategic investments to augment grid capacity, allowing for high flexible exports.

Stakeholders expressed a commitment to ensuring that new customers could access and utilise the solar they capture, embodying the concept of intrinsic hosting capacity. However, concerns were raised about the potential costs associated with the service level option of 'Solar abundance.' While stakeholders recognised the necessity of this option for decarbonisation, there was a pragmatic acknowledgment that the associated costs might pose challenges if presented to the public.

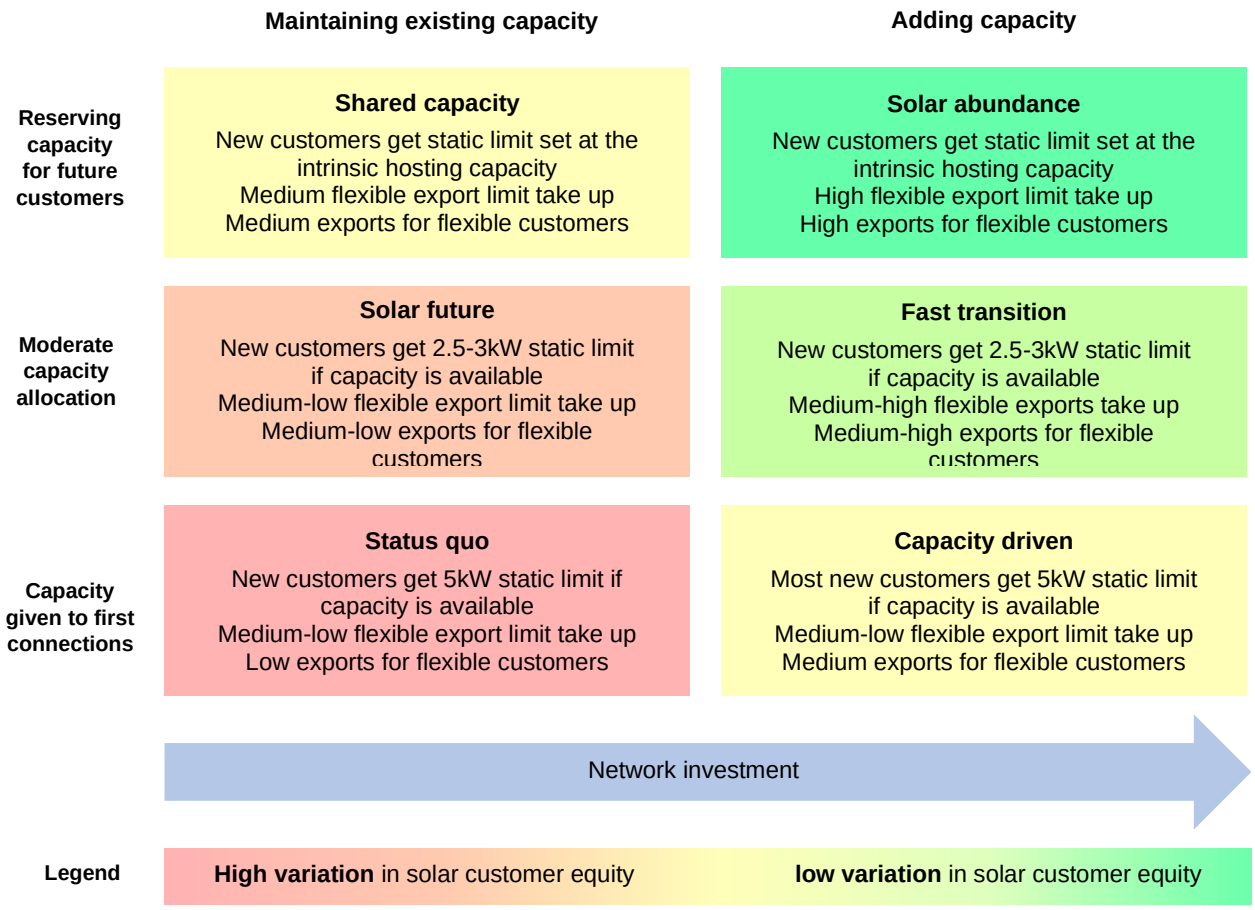
As more customers were anticipated to adopt solar, stakeholders underscored the imperative of fully utilising and planning for the excess electricity generated. Education on resourceful solar usage and load management emerged as crucial components, with stakeholders expressing a desire for the networks to take a more proactive role in customer education.

Solar service level preferencing

At the end of an in-depth discussion regarding solar export needs, considerations and related service levels, stakeholders were asked to vote on their recommendation to CitiPower, Powercor and United Energy for their next regulatory reset period. Below outlines service level preferences by network.

Table 1.1

Solar Export Service Levels (presented to customers in the Energy Transition Summit)



Powercor service level preference summary

Across groups with a Powercor focus, Solar abundance was the first preference and Fast transition was the second preferred service level. Additionally, it should be highlighted that Shared capacity was the first priority for the First Nations representative in the Powercor group.

The rationale that supported these preferences included:

- Emphasising fairness to non-solar customers.
- Consideration given to vulnerable customers.
- Support for regional and rural customers with better resources.
- Emphasis on intrinsic hosting capacity and flexible export options.

- Supporting First Nations communities to participate in the energy transition.

Rationale for the Solar abundance service level, preferences included:

- Facilitates fairness because it ensures everyone has the opportunity moving into the future to feed back their excess solar production into the grid and bring down the cost of energy for everyone.
- Solar abundance offered the greatest opportunity for strong price signal engagement that would support demand management initiatives.

Rationale for the Fast transition service level, preferences included:

- A balanced investment, although other strategies were seen as more fair and quicker to reap the benefits for businesses where export capacity availability would be available sooner.
- A representative from First Nations suggested this option could be led by the community easier, as the details were simple and consistent; hence, an easier message to carry.

Rationale for the Shared capacity service level option included:

- Encourages more storage in rural areas including customers with SWER lines including those who cannot afford solar PV installation.
  A representative from First Nations advocated for 'shared capacity', believing that it presents the optimal chance for Indigenous communities to actively participate in the energy transition. By promoting the utilisation of abundant community resources, such as land, the establishment of co-owned micro-grids and solar farms, would empower First Nations people with oversight. The stakeholder also underscores the importance of education, emphasising that 'shared capacity' facilitates clear communication. This, in turn, mitigates the risk of treaty negotiations over network investment on First Nations land being impeded by a lack of understanding.

CitiPower service level preference summary

Solar abundance was the preference, with Fast Transition and Shared Capacity following. The reasons to support these preferences included:

Solar abundance service level option

- As this option increased the options for customers intrinsic hosting capacity and flexible exports, it was felt to support the climate emergency the most out of all other options provided.
- There was a strong value placed on self-consumption as it was felt that this would increase overtime with greater electrification (compared to exporting) as this would provide the largest benefit to the individual. “Exports will be less valuable than self-consumption” (CitiPower Stakeholder, 2023).
- Customers without solar can get access to renewable generation with demand.
- When comparing to the status quo option it is expensive however this allows equity compared to a “first in, first serve” approach.
- Stakeholders felt this option was where the future needs to be eventually, hence, the journey may as well begin now.
- A “no regrets” long term solution, despite the high cost.

- There was some perspective that unless the maximum export option that this solution provided was not strived for, then customers would face the same issues in ten years as they do today.

Fast transition service level option

- Fast pace to support decarbonisation ambition.
- This option was felt to allow for more exports and increase solar sharing.
- This option was felt to be the most pragmatic.
- There was a perception this would be a more affordable option before committing to solar abundance.

Shared capacity service level option

- This option was seen to minimise the impacts on non-solar customers.
- It was felt that the network could delay its investment in this area until the next regulatory reset, and this would not prevent solar installation and consumption.
- Stakeholders felt that this solution offered a very clear and tangible household benefit.
- This option was seen to offer the best value in terms of social equity.

United Energy service level preference summary

Fast transition was the first preference and Solar abundance was the second preference.

The reasons to support these preferences included:

Fast transition service level option

- This service level option was believed to enable the highest amount of solar in the community.
- Feel that the universal static export limit within this option is simpler and therefore easier to communicate message to customers who are generally more unaware or uninterested in the energy transition. A simple message was felt to be key in increasing uptake (and even put more control in the hands of the customer to support the energy transition).
- Increased education could lead to more equitable outcomes for more customers considering uptake of solar PV.
- Clear feedback was provided on the state government's role to be involved in increased service levels for solar PV, and that it was not just the responsibility of the distributors to solve for.
- Stakeholders preferred having known outcomes for the option chosen, rather than relying on a flexible static limit which may not be an equitable option.
- This option was also seen to encourage incentivising battery uptake; a perceived necessary technology for future network grid stability.

Solar Abundance service level option

- Similarly with this service option, it was felt that the state government would have to play a significant role in developing for this solution.
- Would encourage a rapid uptake of solar PV and participation in the energy transition.

- Felt that this option would encourage people to be community minded, hence, works towards an equitable energy system.
- Acknowledgement that the general public would find this the most ideal option, however, they also recognise that immense cost would be associated with the proposed option.

"The problem is community understanding. People don't know what options are out there. Ordinary people want to be persuaded to do something simple. They need a simple message that gives them confidence" (United Energy stakeholder, 2023).

Solar exports
Amendments and additional ideas in solar exports

In the realm of solar exports, stakeholders from Powercor, CitiPower, and United Energy provided a spectrum of perspectives, amendments, and additional ideas, shaping their individual stances within the broader context of the solar energy transition.

Common consideration across all networks

A holistic approach considered
Across all networks, stakeholders advocated for a comprehensive strategy, incorporating community batteries, mid-scale generation, and existing solar PV customers as essential resources for navigating future service levels in solar exports.

Inclusion of industrial, commercial and small/medium-sized organisations
The discussion, initially residential-focused, highlighted the need for broader inclusivity. Stakeholders stressed the importance of considering the energy needs of industrial, commercial, and small to medium-sized enterprises alongside residential considerations.

Powercor considerations

Measured investment to avoid excessive CAPEX
Powercor stakeholders underscored the importance of a balanced strategy, avoiding large CAPEX spending. This measured approach aims to ensure an equitable energy transition, delivering benefits across a diverse customer base.

CitiPower and Untied Energy considerations

Value of clear and transparent strategies
Stakeholders within CitiPower emphasised the necessity of clear communication. They stressed the need for straightforward communication and education on solar PV, aligning with the imperative of addressing the climate emergency and encouraging customer participation in decarbonisation.

Considered approach for urban areas
A nuanced approach for urban solar integration was advocated. Stakeholders emphasised the unique challenges and opportunities posed by urban areas, including considerations for apartment dwellers and renters. Clear education and communication were deemed essential, with calls for trusted entities to lead customer education efforts. Several stakeholders suggested that education should focus on the simple benefits for customers, rather than overtly complicated and technical details that the average consumer would find uninteresting.

Equitable solution, with minimal impact on vulnerable and non-solar customers
Stakeholders were hesitant to support any solution that would not ensure equitable benefits for all customers, wary to avoid any unfair impacts on vulnerable and non-solar customers.

Robust connectivity and management
Stakeholders noted that flexible exports would require robust connectivity and management. They believed a network with solar abundance would falter if solar export was not curtailed when reaching network limits and there was not a robust infrastructure in place to handle the increased load.

All network considerations

Pricing strategies and transparent signals
Setting clear price signals: Stakeholders recommended setting transparent pricing signals to incentivise customer behaviour aligned with grid peak usage times. Clarity on pricing was deemed crucial to offset significant investments in grid capacity.

Battery related solutions
Batteries as contributing solutions: The role of batteries, including behind-the-meter, mobile, and community batteries, was highlighted. Anticipating lower costs for electric vehicles in the coming years, stakeholders emphasised the potential of smaller batteries to support regional and rural areas.

Incentivising batteries and wealth-based tariffs: Stakeholders suggested incentivising battery adoption and exploring wealth-based tariff structures to support diverse customer segments. These solutions aimed at making storage solutions more affordable for self-consumption and addressing issues of inequity related to the current relative high cost of battery solutions.

Exploration of batteries in various forms: The exploration of batteries in diverse forms was recommended, indicating a broader consideration for energy storage solutions.

Long-term planning for flexible export upgrades
Long term planning: A call for a longer timeframe for planning flexible export upgrades was raised a current lack in technology and regulation advancements, but the expectation that these would come out of necessity in the near future, emphasising the need for a strategic 5-year plan and its alignment with a 10-year vision.

Solution Stacking: participants recognised the dynamic nature of the energy transition, in which customers and networks would have to evolve as technology and the network developed, hence, they saw that the solutions could be stacked. Initially beginning with one solution and then bridged to the most ideal solution when all parties were ready.

Mechanism to increase performance of networks
Coordination between transmission and distribution networks: Improved coordination between transmission and distribution networks was proposed to enhance support for the energy transition.

Incentive performance scheme/ service level agreement: Stakeholders recommended exploring incentive performance schemes or service level agreements to share the risk and motivate high network performance.

Storage solutions and load management
Diverse storage solutions: Consideration for different types of storage, including hot water and thermal storage, was suggested to cater to diverse customer needs.

Behavioural mechanisms for load management: Several stakeholders from each of the distributors advocated for behavioural mechanisms, such as pre-cooling houses during the day, to efficiently manage loads and leverage solar energy.

Education and understanding
Visibility of grid opportunities and constraints: Improved visibility of grid opportunities and constraints was requested to involve customers facing constraints in solution development.

Education: Stakeholders stressed the need for comprehensive education on solar exports, the role of networks in the energy transition, and understanding feed-in tariffs, aiming to empower customers for informed decision-making.

Relationship with solar exports analogous to water (leveraging analogies to support understanding): A metaphorical approach comparing solar energy to water, emphasising the variability of both, was suggested to enhance public understanding.

In summary, the recommendations and solutions underscore the complexity of solar exports, demanding a multifaceted and inclusive approach. The nuanced perspectives from each network contribute to a holistic understanding of the challenges and opportunities in transitioning towards solar energy.

Electric Vehicles

Customer perspective on service level options

Similar to the decision making considerations stakeholders reflected regarding solar exports service level preferences, there was clarity that the EV service level transition required a clear vision and that it was equitable. The engagement sessions provided a nuanced understanding of the complexities associated with EV integration across the networks contributing unique insights and recommendations for CitiPower, Powercor and United Energy.

All networks

When considering the service level options preferences, there were several considerations reflected across all networks and included:

- Confidence in EV uptake and charging profiles.
- EV technology and availability access.
- Trickle charge would be more likely compared to fast chargers.
- As Powercor and United Energy have key tourism destinations, a nuanced approach was required.
- Preventing the risk of stranded assets.
- Demand management was essential.

The below outlines these preferences in detail.

Confidence in EV uptake and charging profiles

There were some stakeholders who were assured in their understanding of the future of EVs, where others were eager to learn about the sources of feedback to support their points of consideration. Some stakeholders raised that external information on the future of EV uptake and charging profiles were conflicting and mostly surrounded the following areas:

- EV uptake.
- Lack of policy and direction from the government.
- Lack of infrastructure in the public to support charging of EVs.
- Not understanding how customers are likely to charge in the future.
- A consistent and clear vision across Australia or by states to plan for.

With various levels of confidence in the future of EVs, this was one factor that led to some stakeholders learning towards not investing significantly in infrastructure/ network capacity resulting in stranded assets if their assumptions were wrong.

EV technology and availability access

Varying technology and accessibility was required to support customer confidence in making an EV purchase. Some stakeholders challenged the timeline of these being “closer than we think” for the following technologies:

- Vehicle-to-Grid (V2G) and Vehicle-to-Home (V2H) technologies, enabling electric vehicles to interact with the electrical grid and home energy systems, have been projected for availability within the next three to five years. However, some stakeholders expressed scepticism regarding these timelines. The concerns primarily revolved around the intricate challenges associated with technological

advancements, infrastructure readiness, and regulatory frameworks. Notably, stakeholders who were sceptical emphasised the need for a more nuanced approach, asserting that the true benefits of V2G and V2H can only be realised if end-users are adequately educated. This education would empower consumers to optimise the payback potential, such as making informed decisions on purchasing electricity during off-peak hours, strategically utilising stored energy during peak load periods, and even selling surplus electricity back to the grid during peak demand at more favourable rates. Until these aspects are thoroughly addressed, scepticism persists for some stakeholders about the practicality and widespread adoption of V2G and V2H technologies in the specified timeframe.

- Conductors were seen to be a main and a legacy challenge for the network to support this technology being more widespread; especially if the dwelling's voltage did not support the two-way flow of energy
- According to several sources, the potential challenges facing Vehicle-to-Grid (V2G) technology in Australia stem from its evolving nature, awaiting broader approvals and infrastructure readiness. While V2G's future looks promising, its deployment remains confined to pilot projects due to high costs, bespoke requirements, and limited regulatory approvals, currently only established in South Australia. Manufacturers haven't specified release dates for V2G-compatible vehicles. Regulatory delays, safety certifications, and evolving industry standards further hinder widespread adoption. As the market matures, the transition to more sustainable energy use requires concerted efforts in regulatory frameworks, infrastructure development, and market demand to propel bidirectional charging capabilities into mainstream usage.[15],[16]

"We need bi-directional charging for utilisation of [EVs, solar, batteries]" (CitiPower Stakeholder, 2023).

"We can't be selfish about our stored power in our EVs…people can't hold power in their EV, so it goes back in the grid when it is needed." (United Energy Stakeholders, 2023).

- EVs were said to be significantly more affordable in the next 10-12 months (i.e. from 2024). In 2023, we saw three EVs under $40,000 – the BYD Dolphin; the MG4; and, the GWM Ora[17] – however, consideration was given to the size of these cars being similar to that of a Suzuki Alto which may only attract some of the EV interested market.
- The Intellihub Street Power Pole EV Charger with Grid Integration project, funded by ARENA with a total cost of $2.04 million, aims to install 50 electric vehicle (EV) chargers on existing power poles in Alexandria, New South Wales. The project, led by Intellihub Australia and partnered with Withywindle Nominees, Origin Energy Electricity, and Schneider Electric, seeks to develop a blueprint for national on-street

[15] Elite Power Group, 30 August 2023, *Vehicle to Grid in Australia? V2G & V2H Explained*, accessed on 19 December 2023, https://www.elitepowergroup.com.au/about-us/news/what-is-vehicle-to-grid/.
[16] Jetcharge, date unknown, *Vehicle to Grid*, accessed on 19 December 2023, https://jetcharge.com.au/solutions/vehicle-to-grid/.
[17] Zecar, 7 November 2023, *5 Cheapest Electric Cars in Australia (2023): Three Models below $40,000*, accessed on 20 December 2023, https://zecar.com/resources/5-cheapest-electric-cars-in-australia#4.%20MG%20ZS%20EV.

EV charging, addressing low EV uptake in Australia. The initiative aims to accelerate EV charge management, deployment, and commercialisation, providing a detailed blueprint for implementing on-street EV charging. This approach supports 1.9 million households without off-street parking, reduces the initial cost of EV chargers, enhances safety, and promotes the decarbonisation of Australia's vehicle fleet. The project runs from December 23, 2021, to November 15, 2024, contributing to the digitalisation and decentralisation of the energy market.[18]

- As a part of the new requirements under the National Construction Code 2022 (commencing in Victoria 1 May 2024) according to the energy efficiency standards, there must be space for switchboard and EV charging infrastructure in new builds for.[19]
    - 100% of parking car spaces in apartment buildings
    - 10% of spaces in offices and retail
    - 20% of spaces in other commercial buildings
- These new standards have been set in an effort to support greater charging options for those living in densely populated areas in new developments. This will encourage other apartment blocks to upgrade their facilities to remain competitive and increase confidence in charging capability.[20] Furthermore, for older developments that fail to keep up with, or simply cannot install the necessary infrastructure, a value gap between new builds and older developments will only increase.

<u>Trickle charge would be more likely compared to fast chargers</u>

Future EV customers were believed to want to use a trickle charge (2KW per hour) compared to a fast charger, due to a number of factors. These include those listed below:

- The cost of a fast charger that delivers 7kW to 22Kw was between $1000 to $3000, and the cost of a rapid/ultra-rapid DC charger that delivers 50Kw up to 350Kw was $25,000. Installation of the slow or fast charger would be an additional $500-$1000.[21] A rapid/ultra-rapid DC charger would have a significantly higher cost of installation.
    - Customers were thought to consider their car average trip length which was estimated to be 15km in urban areas and therefore not necessarily requiring a fast charger.
    - It was noted that Powercor customers' average trip length may be greater which would pose a challenge, however there had been a focus on in installing charging stations in regional townships to prevent range anxiety and therefore customers may still not need a fast charger in their homes.
- Dwellings with a single-phase switch will be limited to slow trickle charging whereas houses with a switchboard that is equipped with a three-phase connection will have the capacity for faster charging.[22]
- Telsa owners who were first adopters may have bought batteries, however these customers were thought to have more capital available which supported this

[18] Australian Renewable Energy Agency, last updated 22 March 2023, *Intellihub Street Power Pole EV Charger with Grid Integration*, accessed on 19 December 2023, https://arena.gov.au/projects/intellihub-street-power-pole-ev-charger-with-grid-integration//

[19] DEECA, 5 October 2023, *EV-ready buildings*, accessed 19 December, 2023, https://www.energy.vic.gov.au/renewableenergy/zero-emission-vehicles/ev-ready-buildings.

[20] Financial Review, 4 January 2023, *The hidden threat of EVs to older apartment*, accessed 19 December 2023, https://www.afr.com/property/commercial/the-hidden-threat-of-evs-to-older-apartments-20221215-p5c6hk.

[21] Solar choice, 15 September 2023, *EV Charger Guide: Home Electric Vehicle Charger Comparison & Costs*, accessed 19 December, 2023, https://www.solarchoice.net.au/ev/charging/home-charger-costs/#:~:text=At%20home%2C%20these%20chargers%20can,%243%2C000%20for%20purchase%20and%20installation.

[22] RACV, 6 October 2023, *What to consider to install an electric car charger at home*, accessed 19 December, 2023, https://www.racv.com.au/royalauto/transport/prepare-home-for-ev.html

additional purchase. As we are now following the adoption curve with a newer demographic of customers buying EVs, they may see the ease in the trickle charger that the car comes with and not want to outlay the additional cost.

- The number of renters who may purchase an EV will not have the option to install a fast charger as they do not have a garage or shared charging station for the apartment block.
- Stakeholders agreed with the network perspective that everyone should have the right to charge at their convenience and this would be achievable via a trickle charge.
- With new access of charging accessed across public locations for example at schools, car parks, shopping centres, or at work; customers may regularly 'top up' their charge as they use the car i.e. similar to charging your phone at the end of the night despite the phone not being close to 0% charged.

Aligned with these assumptions was another factor that bolstered the argument for some stakeholders who deemed significant investments in capacity upgrades unnecessary for facilitating EV charging. Instead, they advocated directing attention towards demand management during the next regulatory reset period.

<u>As Powercor and United Energy have key tourism destinations, a nuanced approach was required</u>

Acknowledging the unique demands of tourism destinations within Powercor and United Energy, stakeholders called for a nuanced approach. Seasonality and long weekends in locations like Daylesford, Port Fairy, and Mornington Peninsula were recognised as key influencing factors in electricity demand related to EVs as demand would increase in these locations. A stakeholder suggested that certain Airbnb's had a compelling value proposition when leasing a home or room that came with a garage equipped with an EV charger. Consequently, they recommended additional promotion and encouragement for customers with electric vehicles through this channel.

<u>Preventing the risk of stranded assets</u>

Stakeholders expressed concerns about potential overinvestment in material capacity increases to support EVs, characterising it as a risk of stranded assets. The expected charging behaviours, reliance on trickle charges, and uncertainties surrounding the electrification of public transport and the car-share economy led to a consensus that networks could effectively manage demands without substantial investments.

<u>Demand management was essential</u>

Stakeholders across all networks held a consensus that demand management would be key to manage the grid load. As this was seen to be a new behaviour customers would uptake, setting the charging requirements upfront could support the grid in leveraging non-network solutions to support EV uptake.

Concerningly for stakeholders was the recognition that the distributors have no visibility of what customers own EVs and most importantly what they are doing at home with their charging installations. As such they believe the government will have significant role to play with legislation and laws that will require customers to register their EVs on a database and inform their distributor on the type of charging station they use. "Anyone can get a sparky to install a fast charger and distributors won't know" (United Energy Stakeholder, 2023).

Tensions surrounding demand management and grid load were emphasised by the expectation that EVs will be exponential by 2026, and electricity usage will increase 2-3

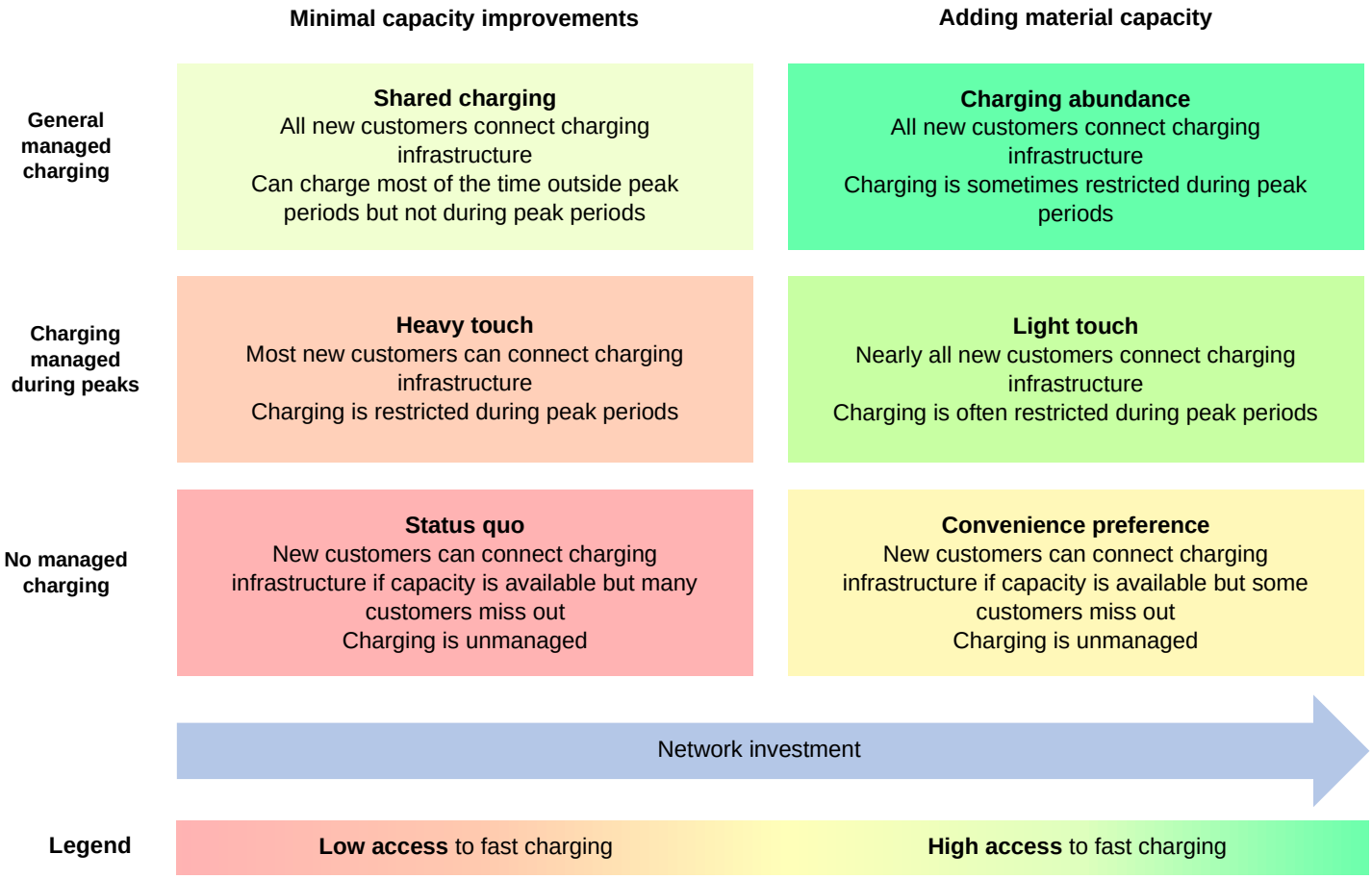
times its current usage. Accordingly, stakeholders are looking to distributors to play a proactive role alongside government to manage the energy transition. “We don’t want just a reactive response from a distributor, we want a proactive response as well” (United Energy stakeholder, 2023).

EV service level preferencing

At the end of an in-depth discussion regarding EV needs, considerations and related service levels, stakeholders were asked to vote on their recommendation to CitiPower, Powercor and United Energy for their next reset period. Below outlines service level preferences by network.

Table 2.1

EV Service Level Options



In the decision-making process regarding EV infrastructure preferences, Powercor customers' votes were dispersed across Shared Charging, Heavy Touch, and Light Touch options. A comparable evaluation for CitiPower and United Energy unveiled a predilection for minimal capacity improvements and various degrees of managed charging, encompassing Shared Charging, Heavy Touch, and maintaining the Status Quo. However, United Energy customers wished to get to Charging abundance as soon as the technology and infrastructure developed to support this option, which they predicted would be in the following regulatory reset period. The following outlines the rationale and key considerations underlying stakeholders' preferences.

Powercor rationale

Light Touch service level option

Support for the Light Touch option was ground in several considerations:

Stakeholders favouring Light Touch for Powercor emphasised the gradual approach to investment, suggesting a preference for a measured transition rather than an urgent implementation. Additionally, there was a consensus on the need to ensure that any investment made remains relevant and adaptable to future advancements.

CitiPower rational

Heavy Touch service level option

Support for the Heavy Touch option was grounded in several considerations:

- Stakeholders highlighted that enabling access for most new customers, as opposed to a select few, would encourage load shifting and alterations in EV charging behaviour, contributing to grid stabilisation.
- This approach was seen as supportive of holiday towns during seasonal peaks, ensuring that no connections would be turned away.
- The minimal investment required by customers further bolstered the appeal of the Heavy Touch strategy.
- Public EV charging was suggested as a critical component of this solution
- Education in rolling out this solution should highlight the distinction between “managing” versus “curtailing” charging.

Status Quo service level option

Support for the Status quo option was grounded in several considerations:

- Stakeholders felt that fast charging was not necessary at home, particularly in metro regions where the average trip was only ~18km.

- Rather, effort should be swayed towards education strategies that encouraged behaviour change, where people do not feel obliged to charge to 100% and own a fast charger, prior to considerable network investment.

- Status quo was viewed as the lowest cost option, and therefore favoured for those with concerns about customers not able to pay more. Additionally, this addressed inequity for non-EV owners, via not creating additional costs that would only benefit those with access to EVs.

- A general view that the technology for ‘managed charging’ would not be feasible in the next two years (based on the current lack of registered fast chargers).

All Network rationale

Shared charging service level option

The Shared Charging option was supported based on several compelling factors:

- Stakeholders appreciated the opportunity to optimise existing infrastructure, promoting a more equal distribution of resources. Additionally, stakeholders expressed a reluctance for customers to have substantial increase in costs throughout the entire process of EV uptake.
- The appeal also was seen in its potential to minimise investment risks while providing accessibility to new tools.
- Managed charging during peak times was identified as a means to support the grid efficiently.
- Coordination with retailers was deemed essential for clear price signalling, aligning with the stabilisation of the grid.
- This approach was perceived as more equitable, as it did not differentiate between load types.
- Stakeholders held the strong opinion that in the mid-term unmanaged charging is not possible, as unmanaged charging would lead to a dead market.
- CitiPower and United Energy specific rationale included a belief that the technology required for abundance was not currently available but could be realistic for the next reset period.

Charging Abundance service level option

Support for the Charging Abundance option was grounded in several considerations:

- Stakeholders believe the most fitting solutions should maximise customers convenience. Since most people will be concerned about charging accessibility and running out of power. This will influence their behaviour as well, as EV owners may not drive to certain places because of a fear of running out of “fuel”.
- Accordingly, Charging Abundance offered the most opt solution for maximising charging infrastructure on the network to support the inevitable EV uptake.

Stakeholders believed that for this solution to be effective, it requires government support and legislation aimed at enhancing the availability of chargers, insisting that the responsibility cannot rest solely on distributors.

Electric Vehicles

Amendments and additional ideas in electric vehicles

Stakeholders were asked to share amendments and additional ideas specific to each network, Powercor, CitiPower, and United Energy to support a considered solution to enabling EV charging in the next regulatory reset period. This section highlights these additional ideas.

Across all networks

Amendments and additional ideas that were raised across all networks included:

- Optimising EV battery use.
- EV investment and incentives.
- Modem connection location influences the ability to charge.
- Rollout of public EV and transport.
- Smart chargers can support demand management.
- The interrelationship to the future of electrification.

The below outlines these considerations in detail.

Optimising EV battery use
Anticipation of V2G implementation in 2-5 years and the availability of V2X integration would support customers desire of self-consumption. Customers could charge their car at a cheap rate throughout the day and use this energy to charge their home in peak demand time, ultimately reducing their bill.

EV investment and incentives
The cost of purchasing an EV currently holds barriers for customers who are not early adopters, however as the availability and cost reduce to purchase the EV upfront, combined with demand tariffs, and upcoming regulations mandating EV charging capacity this will impact what the network needs to plan for in their next reset period.

Modem connection location influences the ability to use smart-chargers
When charging an EV at home, owners in Australia currently have the option of using either a smart charger (allows user to manage and monitor charging; but requires internet or mobile connectivity) or a “dumb” charger (simply plug in a charge). As it stands then, EV owners who wish to install a smart charger will require a set-up that has access to network connectivity, which may become necessary if Australia follows suit with countries like Britain that have banned “dumb” chargers under Electric Vehicle Smart Charging Regulations.[23]

Rollout of public EV and transport

Consideration was wanted to other types of transport charging options for example, as public transport such as buses become electrified, this will further influence decisions that the network are required to make.

Smart chargers can support demand management

The ability for customers to program their charging time aligned to off-peak times is available and can support customers manage their charging behaviour aligned to strong price signals.

[23] wepoweryourcar, date unknown, *Do home EV chargers need Wi-Fi?*, accessed on 20 December 2023, https://wepoweryourcar.com/do-home-ev-chargers-need-wi-fi/#:~:text=So%2C%20yes%2C%20EV%20home%20chargers,on%20sale%20in%20the%20past.

This technology is available and able to use via a mobile application. Additionally, educating customers that slow charging is not only suitable but desirable for at-home-charging.

The interrelationship to the future of electrification

There are many other appliances and equipment coming on the electricity network that will draw load, and a holistic approach needs to be considered to solve for demand on the network this included electrification of gas. Some customers felt that it was challenging to solve for this topic in isolation. For example, including solutions across solar and batteries.

Powercor
Stakeholders from the Powercor network identified one additional area for consideration, specific for regional and rural communities:

EV requirements for heavy vehicles

There was a different type of demand that would be required for headers, harvesters and trucks that may need to be electrified in the future. As the options discussed in the summit were unique to residential light cars, different charging behaviour would be required for consideration.

Service Level Options Paper online feedback survey

Alongside the Energy Transition Summit recruitment initiatives, CitiPower, Powercor, and United Energy published the Future Energy Service paper for public review, inviting written responses. Attendees of the event were prompted to go through the document, and those unable to join were also granted access to the paper for feedback submission. This approach aimed to incorporate diverse perspectives, considering input from both event participants and others interested in the paper. The consultation period began on November 22, 2023, and concluded on January 5, 2024.

This section highlights the additional responses to the Service Level Options paper.

CitiPower

Seven CitiPower customers provided contributions to the paper.

- 85.7% (6) respondents said they have (or intend to have) a rooftop solar PV unit.
- 50% (3) of respondents said their motivation for having rooftop solar was for both self-consumption and export of energy and 33% (2) said it was just for self-consumption.
- 83.3% (5) of respondents said they would not be willing to pay a higher tariff to export more energy from their rooftop solar.
- There was a balanced distribution of responses among the three options of, being willing, unwilling and unsure of flexible export offers to manage their rooftop solar.
- 71.4% (5) of respondents said they own (or intend to own) an electric vehicle (EV)
- There was a balanced distribution of respondents who were either unsure or positive that they would install a fast charger for their EV.
- There was a balanced distribution of respondents who were either comfortable or not comfortable with the network managing their fast charger.

CitiPower respondents were asked how access to new consumer energy resources could be made more available to customers experiencing vulnerability. Several solutions were offered:

- Proposals were made for mobile Community Energy Resources (CER) and mandates on landlords.
- Information sessions were conducted for clear education on new energy resources.
- Advocacy was expressed for government support for solar panels and batteries on public housing.

Powercor

Fifteen Powercor customers provided contributions to the paper.

- 53.3% (8) respondents said they have (or intend to have) a rooftop solar PV unit and 40% (6) said they would not.
- 55.6% (5) of respondents said their motivation for having rooftop solar was for both self-consumption and export of energy and 33.3% (3) said it was just for self-consumption.

- 55.6% (5) of respondents said they would not be willing to pay a higher tariff to export more energy from their rooftop solar and another 33.3% (3) were unsure.
- 66.7% (6) respondents were willing to consider a flexible export offer for managing their rooftop solar export, while the remaining respondents were not willing or unsure.
- 53.3% (8) of respondents said they *do not* own (or intend to own) an electric vehicle (EV). 20% (3) said they do own (or intend to own) are electric vehicle, while 26.7% (4) are unsure.
- 57.1% (4) of respondents said they would install a fast charger for their EV, while 42.9% (3) of respondents were unsure.
- 57.1% of respondents said they would be comfortable with the network managing their fast charger, while 28.6% (2) said not comfortable and 14.3% (1) were unsure.
- 60% (9) of respondents would support further network investment to support greater participation of regional and rural customers in the energy transition.

Powercor respondents were asked how access to new consumer energy resources could be made more available to customers experiencing vulnerability. Several solutions were offered:

- Support was expressed for community battery facilities to store locally generated solar energy.
- There was opposition to the ban on cheap, environmentally friendly natural gas, believing that the "energy life-cycle of the average solar panel and EV does far greater harm to the environment" (Powercor customer, 2023).
- Emphasis was placed on maintaining existing coal and gas power for energy security. Calls were made for clear information, financial assistance programs, and opposition to the power to decide power availability.

Additional Feedback:

- Encouragement was given for Powercor to enable customers to export and generate more electricity.
- Advocacy was expressed for clean coal, gas, and nuclear energy as environmentally friendly resources.
- Calls for the future to include nuclear energy as a viable and sustainable option.

United Energy

Nine United Energy customers provided contributions to the paper.

- 66.7% (6) of respondents said they have (or intend to have) a rooftop solar PV unit.
- 75% (6) of respondents said their motivation for having a rooftop solar is for both self-consumption and export of energy, while only 25% (2) said that it was only for self-consumption.
- There was a balanced distribution of responses among the three options of either being willing to, unwilling to, or unsure of, paying a higher tariff to export more energy from your rooftop solar
- 75% (6) of respondents said they would consider a flexible export offer for managing your rooftop solar, while the remaining 25% (2) were unsure.
- 55.6% (5) of respondents said they own (or intend to own) an electric vehicle, while 33.3% (3) said they do not intend, and another 11.1% (1) were unsure.

- 50% (3) of respondents said they would be comfortable with the network managing their fast charger, and the remaining 50% said they were unsure. No respondent gave a no response.
- 50% (3) of respondents said they would install a fast charger, while 33.3% (2) were unsure. Only 16.7% (1), said they would not.
- 88.9% (8) of respondents said they would support further network investment to support greater participation of regional and rural customers in the energy transition. Only 11.1% (1), said they would not.

United Energy respondents were asked how could access to new consumer energy resources be made more available to customers experiencing vulnerability. Several solutions were offered:

- Localised energy storage for excess solar was proposed to encourage uptake.
- Solar and batteries were supplied for free electricity generation.
- Neighbourhood batteries were suggested for community energy resilience.
- Early identification of vulnerable customers was recommended for improved outcomes.

Additional Feedback:

- There were concerns about technological barriers and the need for heavy subsidies for solar installations.
- Customers expressed uncertainty about how these solutions could be achieved.

Across all networks

- Emphasis on community-centric solutions like community batteries.
- Requests for government support and financial assistance for vulnerable customers.
- Concerns about the ban on certain energy sources and the need for clear, accessible information.
- Calls for the future to include nuclear energy as a viable and sustainable option.
- Provide for opt-out from kVA/kW base charges for connections drawing <160MWh/annum, in line with the state government order in council on this topic.[24]
    - This is a measure to support regional high capacity / low utilisation public charging sites, and to bring the TSSs in Victoria in line with NSW, ACT, Tasmania, WA on this matter.
- Support second lines of supply to commercial premises.
- Publish network capacity data at a more granular level (down to the pole and pad mount transformer, not just zone substation), in line with the AER's network visibility work currently underway.
- Design residential tariffs that will reward export at peak time (e.g. 3pm to 9pm). This will support VPPs from stationary batteries, and the uptake of V2G within the next regulatory period.

[24]Vicotria Government Gazette, 16 June 2021, *Advanced metering infrastructure (retail and network tariffs) order*, GG2021S295.pdf (gazette.vic.gov.au), accessed on 18 December 2023.

Image above: Energy Transition Summit, participating General Managers (Renate Vogt, Adam Gellie, Andrew Dinning.

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