

COMMUNITY AND CUSTOMER VALUES IN COMMUNITY BATTERIES

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EXECUTIVE SUMMARY

This report presents the findings from online focus groups to understand what values community and customers associate with and place on community batteries. Seven focus groups, with 52 participants in total. This qualitative social research project compared the views and values of three ‘types’ of customer:

- ‘Engaged’ – participating in an Ausgrid Community Battery Trial, homeowners with solar systems
- ‘Informed’ – registered interest to participate in an Ausgrid Community Battery Trial, homeowners with solar systems
- ‘Less aware’ – individuals living within the Ausgrid network area, including renters and homeowners with/without solar systems installed, recruited through random selection.

Each focus group session was about 90 minutes and explored why participants’ views about the importance of, benefits attributed and value of community batteries through a series of questions and exercises. Focus groups were held in December 2022 and participants were incentivised with a stipend.

The objectives of this research were to:

- Build on previous customer research conducted by Ausgrid
- Consider data and feedback from current Ausgrid Community Battery Trial Program
- Explore similar projects and relevant industry research
- Review communications collateral from similar projects
- Understand customer drivers and values related to community batteries
- Provide insights to shape Ausgrid’s decision making about design of community battery program

Methodology overview

A qualitative methodology was designed to provide a deeper understanding of values and expectations of community batteries, using social research methods. A rapid research review provided context and insights from previous studies and informed the discussion guide for a series of focus groups.

Seven focus groups, with a total of 52 participants across three targeted consumer segments were held in December 2022. Focus group discussions used a series of question prompts and exercises to understand customer and community attitudes and perceptions of community batteries, exploring ‘why’ participants held views and why those views/factors were important to them – to surface ‘values’.



Key findings

- Most people value **financial benefits more than environmental** or social outcomes (but not exclusively or singularly) - and they assume that others care most about financial benefits too. Community batteries were valued for a combination of closely intertwined, perceived benefits.
- **Environmental factors are still important** – but are more likely to be highly valued and prioritised by people who already have solar systems installed.
 - This group of people, those with solar systems, also value **community batteries to share financial and environmental benefits** of their solar power with everyone – they want the benefits of solar systems to be shared with people without solar power.
- Broadly, people are very interested in community batteries and **want more information** about them, in general. In particular they want to know how the batteries work, in terms of how much energy is stored and how much energy is used locally.

1 INTRODUCTION

‘Community batteries’ are an emerging technology to support the transition to net zero. In late 2022, the Commonwealth Government announced \$224.2M to support the delivery of 400 community batteries across Australia. Ausgrid have been trialling community batteries with their residential customers.

Since the early research into community batteries, customer knowledge and awareness has rapidly increased. Ausgrid’s customer and stakeholder engagement, as part of its Regulatory Reset, identified customer and community desire for community-based energy solutions, including community batteries. This engagement program found that communities value initiatives that support net zero transition and sustainability – community batteries were considered one such initiative. In particular, there was investment support, even if the value of the investment is weighted towards community outcomes, and the network benefit is small.

What are community values?

With more community battery programs on the horizon, it is timely to better understand how communities and customers articulate the values, perceived benefits, and importance of this technology, but also how these values may be weighted and prioritised.

‘Values’ are inherent and subjective; abstract yet clearly defined; and contested – all simultaneously. When one speaks of ‘environmental’ values, we inherently understand what is generally ‘of value’, but not the nuance of what is important, preferred, or prioritised. Values are influenced by cultural and socio-economic factors, life experience, societal norms, and expectations. It is a composite of attitudes, beliefs and judgement about behaviour, priorities, and expectations. Some values are broadly shared – across groups (families, communities, workplaces, regions, and nations) – while there may be stark difference in what is valued, or valued more or less, between different groups.

Research to better understand ‘values’ needs to unpack the motivations, preferences, and attitudes below the surface. Identifying ‘perceived benefits’, ‘perceived outcomes’, ‘winners and losers’, ‘concerns’ and ‘perceived costs’ of proposals are value-laden discussions, that indicate what is valued by various groups or individuals.

Social research to understand and unpack values

RPS was engaged in November 2022 to deliver social research to examine some of the views surfaced through community engagement, including Ausgrid’s Voice of Community engagement as part of their next Regulatory Proposal and research from ANU (ANU BISGIP 2020). A qualitative research study, using focus groups, was completed in December 2022 to better understand how communities, and customers, value community batteries and why these values are important. The focus groups also aimed to compare the values of three ‘types’ of customer: Engaged, Informed and Less aware. This report summarises a rapid review of existing literature, outlines the methodology and documents the findings of this social research.

2 METHODOLOGY

2.1 Social research approach

This study took place during December 2022, using quantitative methods to develop a better understanding of customer values and drivers associated with community batteries. A rapid research review scanned relevant literature to understand outcomes from previous studies and reports, focusing on (where possible) quantitative studies, such as surveys. This informed the question guide for a series of focus groups, composed of three target audiences: Engaged, Informed and Less aware customers and community members. Participants responded to questions, exercises, and hypothetical scenarios, designed to explore their perceptions of the benefits, outcomes and limitations of community batteries, reflecting how community batteries are valued and the attitudes and beliefs that underly these values.

2.1.1 Rapid research review

A rapid research review scanned available literature to examine previous studies and gather current examples of community battery projects to inform the focus groups discussion guides. As an emerging technology, previous studies are limited. This review included:

- Three surveys about community views on community batteries, including one statistically representative study
- Outcomes from six surveys that formed part of feasibility studies and community consultation to support project positioning and approval processes for community battery schemes
- One broader evidence review, considering barriers and enablers for consumers to participate in a range of distributed energy schemes and technology
- Two international studies about consumer preferences for community energy storage schemes

To supplement these studies, we also reviewed the collateral associated with two existing community battery schemes in Australia for implied values in key messaging.

2.1.2 Focus groups

Focus groups consist of a targeted consumer audience engaging in discussion guided by an Informed facilitator. Focus groups are an important means of learning public opinion, clarifying assumptions and concerns surrounding a project or issue and gathering qualitative data that can be used to influence a project. Importantly, focus groups do not prescribe ways of thinking, instead encouraging diverse conversation.

Seven focus groups were delivered, recruiting participants across three target consumer segments:

- Two for 'Engaged' segment – those participating in an Ausgrid Community Battery Trial, homeowners with solar systems, with a total of six participants
- Three for 'Informed' – those who have registered interest to participate in an Ausgrid Community Battery Trial, homeowners with solar systems, with a total of 26 participants
- Two for 'Less aware' – individuals living within the Ausgrid network area, including renters and homeowners with/without solar systems installed, recruited through random selection. There was a total of 20 participants in this segment.

There was a total of 52 participants across all focus groups. All participants were provided with a cash incentive of \$100 (in the form of a digital gift card).

2.2 Focus group discussion guide

The focus groups' discussions were guided by a series of questions that were broadly consistent across each group, with some tailoring to the specific consumer segment. It is important to note that focus groups are a means of conversation, to explore ideas and 'unpack' or interrogate the contributions of participants.

The focus group facilitator aims to steer conversation and encourage participation from all. Question prompts used in these focus groups are listed below:

- Why are you participating in a community battery trial?
- Why do you think community batteries are valuable or important?
- What outcomes and benefits do you think can come from community batteries?
- What drawbacks do you think can come from community batteries?
- How did you hear about this trial?
- What information did you gather or receive?
- Who did you speak to when deciding to participate in a community battery trial – family, friends, work colleagues?
- What did you consider before deciding to participate in a community battery trial?
- What values did you take into account at each point in your customer journey?
- Are the initial reasons that you signed up different to the reasons you value the community battery now? If so, how? If not, why?

To further explore and test participant responses, a hypothetical scenario and prioritisation exercise were posed. In the hypothetical scenarios, participants were asked to consider how they would explain or respond to a conversation about community batteries with friends or family:

- Imagine you're at a family barbecue, and someone mentions that they have heard about a proposed community battery in their neighbourhood.
- Someone else joins the conversation. The proposed community battery scheme in their neighbourhood doesn't include a rebate – in fact, households pay a small subscription to participate.

In the prioritisation exercise, each participant asked to 'rank' environmental, social and financial values associated with community batteries, by allocating \$100 and then \$50 against a range of options (e.g., access to renewable energy for all, cost savings, climate change action). The allocation process and decision-making process was then discussed with participants about how they made choices and if there was a change from their earlier responses about their attitudes and values towards community batteries.

2.3 Data capture

2.3.1 MURAL board

Data from the focus groups was captured through MURAL, an online collaborative learning tool that allows participants to write virtual post-it notes and place them on a categorised board. The focus groups were facilitated by the project lead while the project support took notes of the participants' discussion directly on the MURAL board. This allowed the participants to see what was being captured and clarify their meaning if they felt it was being recorded incorrectly. It also avoided the confusion and time loss that can be created when participants must learn to use a new tool. Focus groups were held online and recorded, with a transcript automatically generated. Data analysis has focused on the outputs on the MURAL boards for each group.

3 LITERATURE SCAN

A rapid research review, or literature scan, was completed to quickly collate data and findings from previous research and studies about customer and community values and perceived benefits of community batteries. This review was limited and is not intended as a comprehensive survey. It included:

- Recent research about views on community batteries from Australian customers, community and stakeholders. This includes some studies with quantitative, statistically representative methods and others with smaller sample sizes.
- Outcomes reports (on project delivery and consultations) and literature reviews that consider consumer motivation and priorities for sustainable products and behaviours.
- Analysis of existing community battery programs' communications collateral was used to identify 'values' based on project positioning and narrative. All programs are Australian.

3.1 Quantitative surveys: what do the numbers say?

In 2021, a survey of customers' perceptions about community batteries found that while there was low awareness of community batteries, about half of the participants felt they were likely to participate in a community battery scheme, if it was affordable (Hoye et. al., 2021). It was interesting that the perceived benefits of community batteries (and why they may be *valued*) were like reasons for investing in residential solar power – a combination of financial savings, network stability, increased renewable energy access and reduced carbon footprint.

This survey was a robust sample size (n= 956), although not statistically representative of the broader community. The sample was predominantly male and over 55 years, and more than 60% of respondents having already installed solar power at home, indicating home ownership and affluence.

More recently, a 2022 survey of current community battery trial participants identified 'environment' as the most common motivation for joining a trial (Ausgrid, 2022). However, 27% of respondents indicated 'environment' only as their motivation, 39% indicated 'environment' *in combination* with other factors (financial and social). This indicates that environment is not necessarily the primary factor, but that there may be more complex value considerations at play.

With only 26 respondents, this was a very small sample size (n= 26), and respondents have solar power – again indicating homeownership and affluence. Noting this effect on the sample, it is interesting that environment continues to be one of the factors in decision making, and so one of the perceived values of community batteries.

Similar qualitative surveys have been conducted, as part of feasibility studies and community consultation to give input to early planning for community batteries schemes (Engage Victoria, 2022; Geelong Sustainability, 2022; Gormley-O'Brien, 2022; Australian Energy Foundation, 2022). Sample sizes of these survey ranged from large (n= 746, Geelong Sustainability 2022) to smaller (n= 76, Australian Energy Foundation 2022) and in all cases, respondents were self-selected, not randomly selected. Self-selected participation still provides relevant information; however, these participants are rarely representative of their respective communities, with a keen interest and background knowledge often motivating their participation, their responses can be slightly skewed.

These surveys had common findings around general support for community batteries and interest in potential for reducing carbon footprints, supporting net zero transition and capacity for more solar in the grid, energy self-sufficiency and financial benefits. Other findings in the surveys and studies suggested the respondents had high levels of energy literacy and may already have solar power at home.

It is worth noting that *qualitative* research conducted in 2020 by ANU (Ransan-Cooper 2020) identified a range of benefits, including predominantly environmental outcomes (supporting renewable energy, greater solar power penetration) and some indirect financial outcomes (deferred network upgrades, load shifting).

3.2 What motivates 'sustainable' consumer choices?

The ACIL Allen (2022) literature review drew together a wide range of studies and existing literature about consumer decision making. Importantly, it observed that motivational factors differ depending on participants' socio-economic backgrounds and concluded that different strategies are needed to target different consumer

segments. Broadly, consumers with low motivation and/or low ability (which may include financial capacity) do not participate in trials or consumer research – potentially skewing the results of any findings. A large proportion of participants in trials are early adopters, and early adopters’ experiences may not translate to other types of consumers. (This is consistent with the findings and observations in Hoye et al 2021, with a large proportion of respondents with similar characteristics to ‘early adopters’.) ACIL Allen (2022) focused on motivators, and for the purpose of this study, we considered this to be a proxy for ‘value’. Relevant findings to this research included:

- Financial benefits were the strongest motivator across all consumer ‘types’, however the nature of the financial benefits may differ, e.g., cost savings, or a ‘smart investment’ and ‘good value’ (ARENA 2020, in ACIL Allen 2022)
- Almost all households are motivated to some degree by pro-environmental attitudes, particularly the need for climate action. However, the knowledge of and motivation to support the energy transition (that is *how* to support climate action) is a significant factor in participation (Temby et al 2021 in ACIL Allen 2022)
- Evaluation of the Bruny Island Battery Trial found that financial factors were important for nearly all participants, but only six participants were motivated by financial considerations alone (Watson et al 2019 in ACIL Allen 2022)

Challenges to participation are the opposite to a motivating factor and should also be considered for the insights they provide on community values. Financial factors were the most common reason given for not buying a household battery, due to high cost, long payback period and lack of access to capital. This implies that while customers are sensitive to financial benefits and costs of participation, if community batteries can overcome these factors or position as alternative to these financial costs, then they may be supported.

Internationally, financial benefits were found to influence consumer participation in community batteries in the form of upfront savings (Kalkbrenner, 2019) or capacity tariffs that rewarded limitation of export and import (Barbour et. al., 2018). Both studies were theoretical, though many participants in Germany were participating in a community battery program already.

3.3 Key messaging and values in other community battery programs

Existing community battery schemes across Australia were reviewed to analyse their key messaging and communications collateral. Key themes and implied values are summarised below.

Community battery scheme	Examples of collateral	Key themes/implied values
‘PowerBank’, Synergy and Western Power, Western Australia	<ul style="list-style-type: none"> • Synergy - About us - News and announcements - Media releases - New archives article page Latest battery storage trial to benefit hundreds of WA homes • PowerBank community battery storage - an Australian-first (westernpower.com.au) • Community batteries Western Power 	<ul style="list-style-type: none"> • Access to storage for excess energy for a fraction of upfront cost • Opportunity to offset their peak energy use • Broader access to renewable energy for all customers • Network stability
‘Electric Avenue’, United Energy, Victoria	<ul style="list-style-type: none"> • Electric Avenue - United Energy • CHED0289 UE-Electric-Ave FactSheet v2 DIGI.pdf (unitedenergy.com.au) 	<ul style="list-style-type: none"> • Use of renewable energy • Improved power/network reliability and capacity • Environmental footprints • Participating in energy transformation • Avoid network upgrades and reduced charges, as a result

3.4 How are ‘values’ described?

As shown above, community batteries are ‘valued’ in terms of their benefits and outcomes across three vectors: ‘environmental’, ‘financial’ and ‘social’. However, the nuance of what these broad terms can mean is described in a range of ways. The below table categorises the range of ‘values’ identified in this literature scan:

Environmental	Financial	Social
<ul style="list-style-type: none">• Mitigate climate change impacts• Supporting renewable energy transition• Lower community’s carbon footprint• Enable more solar on the network	<ul style="list-style-type: none">• Avoid upfront cost of home battery• Self-sufficiency• Avoid costs for network upgrades• Stabilise the grid	<ul style="list-style-type: none">• Supply in an outage for all• Network reliability for all• Access to renewable energy for all• Energy resilience for the community• Community ownership• Community-based solution for more sustainable future

4 RESEARCH OUTCOMES AND INSIGHTS

Focus groups targeted three different ‘types’ of customer: Engaged, Informed and Less aware. The findings related to the values of each group are discussed first. Next, we present the insights from comparing each group and finally, we comment on the similarities and differences with previous quantitative surveys and other literature.

4.1 ‘Engaged’ values

These focus groups comprised of participants in existing Ausgrid community battery schemes, who have solar power installed. They described a range of reasons for valuing community batteries within primarily financial and environmental perceived benefits and factors:

- As an alternative to a home battery
- Cost savings through the rebate, lower network costs, and lower energy bills
- As a reward for the high upfront cost of solar panels
- Opportunity to share benefits with people without solar
- Climate change mitigation and approaching carbon neutrality
- Maximising the use of their excess solar

4.1.1 Alternative to home batteries

Many of the participants from the Engaged group considered the community battery to be a good alternative to investing in their own home battery. Most noted that while they had considered a home battery to maximise the use of their solar energy, it was currently cost prohibitive for them. They saw the community battery as a way for them to attain some of the benefits of a home battery, without the upfront cost. Current home battery prices are close to \$10,000, which most participants either could not afford or decided was not worth the benefits it would provide. This included cost savings, with participants noting that it would be several years before the home battery had paid for itself.

Another perceived advantage of the community battery, over a home battery, was the low level of management involved. Many participants appreciated Ausgrid’s management of the community battery, removing the pressure of being responsible for one’s own energy systems. They seemed assured by Ausgrid’s expertise in the area and were confident in their competence in delivering energy services. This external management makes a community battery a much more convenient alternative to a home battery, which would require significant time and responsibility to install and manage.

4.1.2 Cost savings

Potential financial incentives were largely the primary factor in the participants’ interest in community batteries, followed closely by the perceived environmental benefits. The cost savings of community batteries were considered by the participants to come through three different avenues: the rebate on exporting solar energy to the battery, lower energy bills, and lower network costs.

For the Engaged group, who were participating in the Ausgrid’s trials, the rebate is the primary way they save costs through the trial. All participants were glad of the rebate and appreciated that it was higher than the rebate to export to the grid. Without this rebate, and the other perceived financial benefits, most of the Engaged group expressed that they would be less willing to take part in the trial. They also assumed that most people would also make this choice, especially people currently without solar panels. Several participants posited that though people may care about large scale factors such as perceived environmental outcomes, evidence of a clear benefit to the individual is vital to encourage new battery participants.

Though in the minority, some participants were happy to leave behind the financial incentives in favour of perceived environmental and social benefits. Several noted that money was not a huge pressure in their lives, and they would be glad to invest in technology purely to contribute to a sustainable future and equitable society.

4.1.3 A reward for the high upfront cost of solar panels

Many of the participants in this group specifically noted that they appreciated the rebate from the community battery, as it felt like an appropriate reward for the money and time they had invested into solar panels. A few participants noted that they would not want to pay a subscription for the community battery as they felt like they were already making their contribution through their exported, renewable energy to the battery.

4.1.4 Opportunity to share benefits with people without solar

Most of these participants valued community batteries to share the perceived financial and environmental benefits of solar power with everyone in their community. Many were very passionate about the potential for people without solar panels to receive benefits from the community battery, as well as themselves. Many are embracing the perception that the community battery is an opportunity to give back to people in their own community, particularly those who are more vulnerable. The idea that the benefits of their excess power would be felt by people within their own community, rather than a wider group of people drawing from the grid, was very important to many of the participants. It was implied that having a close-knit community is clearly a motivator to share resources.

4.1.5 Climate change mitigation and approaching carbon neutrality

The environmental factors were a major consideration for most in this group. Those who prioritised perceived financial benefits generally still considered the environment a close second in terms of significance. Several participants named environmental factors as their *only* consideration when it came to community batteries. Though people had different focuses within the environmental lens – for example, mitigating climate change factors vs achieving complete carbon neutrality – overall the group agreed that the community battery was valuable in part because of its perceived benefits on the environment.

Several reasons were given for participants' passion for environmental factors. Many considered the environment to be inherently valuable, and therefore worth protecting to preserve this intrinsic importance. Several others mentioned that their love for their children and grandchildren has influenced their desire to ensure a safe and bountiful natural environment for future generations. This concept of intergenerational equity is centred on the resources the environment can provide for humans, present and future, rather than its innate value.

Similarly, a few participants also drew upon *intragenerational* equity as a motivator for sustainability. As people from a wealthy country, they held that we carry a responsibility to manage greenhouse gases and promote environmental preservation where we can, to protect environmentally vulnerable people and countries. A common example of this from the participants was the duty we owe to our Asia-Pacific neighbours, who are more vulnerable to the effects of natural disaster, to mitigate climate change impacts so they can appreciate the same benefits as Australia from their environment.

4.1.6 Maximising the use of their excess solar

Community batteries were seen by this group to maximise the benefit of their existing solar panels by storing their excess energy for use. Without a battery, energy generated by solar panels that is not used in the moment, was perceived as 'unutilised'. The participants saw this as a grave waste and valued the community battery to ensure its use. This factor was both environmental and financial in nature: it is a way to decrease the use of fossil fuels without even having to invest any further into solar, and ensures the financial investment is as beneficial as possible.

4.1.7 Measuring values

As one of the focus group activities, participants were asked to prioritise a range of 'values' (perceived outcomes or benefits of community batteries identified from the literature) using a weighted choices model. The participants were told they had \$100 to allocate to the outcomes they considered the most valuable from a list of 14. The options included a range environmental, financial, and social benefits that are purported to come from community batteries.

This group largely favoured financial values, closely followed by environmental. Avoiding the upfront cost of a home battery and receiving a financial rebate were among the primary values of the group. Mitigating

climate change and contributing to a more sustainable future were also valued highly. When the available money was reduced to \$50, these priorities remained mostly consistent.

The success of this activity with this group was limited in comparison to the other groups. As these focus groups were the first completed, the activity had not yet been refined and we found it difficult to spark conversation with these questions.

4.1.8 Concerns and information gaps

In addition to surfacing values, discussions in these focus groups identified some concerns and information gaps for the Engaged group.

Greater education on and transparency of the community battery trial

There was broad support across this group for more education on community batteries from Ausgrid. Many of the engaged participants noted a lack of understanding even while participating in the trial and thought more people would be likely to sign up if they had a better grasp of how the battery works and the potential benefits of the scheme. The information most of them were able to find through their own online research was too vague to be considered particularly helpful, and while they were able to acquire more thorough information by contacting Ausgrid directly, they worried that people with less motivation for the potential environmental benefits may be discouraged from participating.

Throughout the sessions, it became clear that many of the participants had some misunderstandings about community batteries and the Ausgrid trial, further indicating the need for a more thorough education on them. Many of the participants in this group particularly misunderstood how a community battery works and expressed disappointment once they realised it did not act as they expected; that is, like a home battery. Many had assumed that the energy they personally exported to the battery would be available for them alone to draw upon, with no rebate for exporting or cost for importing. Once in the trial they realised how the system would work, to varying levels of disappointment. A few participants were unsure how, with this system, the community battery was any different to the existing feed-in-tariff systems. Better education on the nature of the batteries and the benefits they can provide was wholeheartedly supported. The recommended avenues for education included: more detailed videos, online information and flyers, and online or in-person workshops for people considering joining a community battery.

Many of the participants were also passionate about transparency of the battery's data, that is, the input and output of energy over the course of a day. This, for some, was simply out of interest, and others to ensure through numerical data that the battery is delivering as promised and is beneficial. A few participants expressed concerns that the community battery trials will do more to promote Ausgrid's image of sustainability than it will contribute to actual sustainability. At present there is no way for consumers to see how much use the batteries are getting or how much solar power is being contributed to the community's overall energy use. Greater transparency was perceived to allow participants to see the benefits to the environment and encourage non-participants to take part.

“For now, we don't even know what is in the ‘big green box’.”

– Participant from Engaged cohort

4.2 ‘Informed’ values

These focus groups comprised of participants who have registered interest to participate in Ausgrid community battery schemes. Generally, they valued community batteries for a range of financial, environmental, and social perceived benefits and factors, including:

- As an alternative to a home battery
- As a reward for the high upfront cost of solar panels
- Cost savings through the rebate, lower network costs and lower energy bills
- Opportunity to share benefits with people without solar
- Climate change mitigation and approaching carbon neutrality
- Protecting the community from outages

4.2.1 Alternative to home batteries

Like the Engaged group, many of the participants from the Informed group considered the community battery a good alternative to investing in their own home battery. Most of these participants had solar panels and had considered a home battery to maximise their use. However, only one participant from the group had installed a home battery, as most had deemed it too cost prohibitive. The Informed participants were, similarly to the Engaged group, attracted to the external management of a community battery by Ausgrid. Most had solar systems at home to manage already and were not interested in increasing the amount of time and energy they would have to invest into a new energy product.

4.2.2 Financial gains and cost savings

Like the Engaged group, the Informed participants were primarily motivated by the perceived financial elements of community batteries, but still highly valued the perceived environmental benefits. The rebate on solar exports was considered very attractive to most of the participants. Several noted that they knew and appreciated that it was significantly higher than their current feed-in-tariffs. The rising price of energy was a significant concern for this group, and they hoped that a community battery would help them lower their energy bills. Additionally, several noted that they assumed the community batteries would support the network and expected that this would help delay network upgrades, lowering the network charges that flow on to individual costs.

In discussion, the participants agreed that even if the community battery required some subscription to use in the future, they imagined it would still minimise the cost to the individual and be more cost effective than a home battery.

Though most Informed participants stated that they cared deeply about environmental factors, there were several who favoured of cost savings more. One noted that for them, cost saving is the key reason to participate, and as an older person they are not considering the future in their decision making for they will not be here to see it – they care about the impacts on them now.

This Informed group assumed that most other people would prioritise the factors similarly to themselves, and value the perceived financial incentives the most. Many noted that, in their opinion, to encourage people to take environmental or social action, they need to know they will be individually benefitted. Having an individual incentive, such as cost savings or protection from outages, was considered likely to make large scale changes more attractive.

4.2.3 Opportunity to share benefits with people without solar

Many of the participants were very passionate about the potential for perceived benefits for a community battery to be shared across the community, including people without solar panels. From some participants, there were concerns that the perceived benefits would be significantly skewed towards people who own their own solar panels. Others expressed excitement for the opportunity to share the energy generated by their solar panels with their wider community. Broadly, Informed participants were invested in a wide range of perceived benefits, be it through cost savings or a more reliable network.

4.2.4 Climate change mitigation and approaching carbon neutrality

The Informed group's approach to perceived environmental factors was very similar to that of the Engaged group. For most participants the perceived environmental factors were ranked only slightly behind the perceived financial, and for many, they were the most important. Most agreed that community batteries were a great way to promote environmental sustainability on a community level.

Lithium ion and its impacts on society came up several times with this group. Several were concerned with the end-of-life disposal of the community batteries and the potential impact this may have on the environment. Others suggested that, in their opinion, the investment in effective community batteries may minimise the lithium ion needed for home batteries, and therefore may be the preferable option.

Like discussions raised by the Engaged groups, intergenerational and intragenerational equity were major motivators of this Informed group's passion for the environment. Many mentioned their children and grandchildren when explaining their concern for the future, and several referred to a "responsibility" or "duty" to protect the environment for both vulnerable people today and all people in the future. In a departure from

the Engaged group, several participants discussed how their financial privilege impacts how they think about the environment. For some, they expressed that for parents in vulnerable financial positions, concerns for their children's near future is likely to take priority, over their distant future, and they must forego environmental concerns to focus on immediate problems, such as paying for necessities.

“People who don't have this [financial] security may not be in the position to think about the far future. They must focus their energy on the immediate future like ‘can I put food on the table tonight?’. For people with these concerns, signing up to a trial like this may not be worth the energy.”

– Participant from Informed cohort

4.2.5 Protecting the community from outages

When the perceived benefit of protecting the community from grid outages was raised, other participants were excited by this perceived benefit and considered this their primary social value. Several in this Informed group shared that they have experienced many outages in recent years, due to flooding and other weather-related events. These participants were enthusiastic about the for assurance of an additional avenue to access energy. This was particularly important to two participants whose medical conditions meant they need medical machinery always operating.

It is worth noting that this perceived benefit is not technically possible as community batteries are not ‘islandable’. The purpose of this research was to explore how people valued community batteries. While technically not a benefit of community batteries, the interest in a benefit that maintains supply implies some level of valuing social outcomes, particularly those that may reduce impacts to vulnerable people.

4.2.6 Measuring values

Participants were asked to prioritise a range of ‘values’ (perceived outcomes or benefits of community batteries identified from the literature) using a weighted choices model. The participants were told they had \$100 to allocate to the outcomes they considered the most valuable from a list of 14. The options included a range environmental, financial, and social benefits that were purported to come from community batteries.

The Informed group placed similar value or weightings on the perceived environmental and financial factors. Avoiding the upfront cost of a home battery and mitigating climate change impacts were the most common highest priorities, and access to renewable energy for all was also valued highly. When the available money was reduced to \$50, most people invested more in the environmental factors, which is different to the other groups.

4.2.7 Concerns and information gaps

In addition to surfacing values, discussions in these focus groups identified some concerns and information gaps for the Informed groups’ participants.

Greater education and transparency

Like the Engaged group, there was a clear desire from the Informed group for more education on community batteries from Ausgrid. Many of the participants reported to have found it difficult to find clear and detailed information about the batteries and the trial. With a better understanding of how the community battery works and how the trial may be beneficial, they believed more people (including themselves) would be likely to participate.

Throughout the Informed focus groups, there were several moments where it was clear that participants had made assumptions about community batteries that were not actually true. For example, one participant believed that the community battery would have a better dispatch and response time than the grid and therefore distribute energy more quickly. Another was convinced that the amount of energy one person would be able to draw from the community battery would be exactly comparable to the amount they contributed. Clearer and more detailed information on how the battery works may facilitate people to enter the trial and reduce the likelihood of disappointment or confusion.

A similar concern raised by this Informed group was the prevalence of misinformation around sustainable energy processes, including community batteries. Many participants stressed the importance of creating and spreading clear and detailed information about community batteries with a particular focus on the benefits (financial, environmental and social) they may provide.

Many of the participants, like the Engaged group, were also passionate about the transparency of the battery's data and thought it would help them analyse the effectiveness of the battery, helping them and others decide if they would participate.

Safety concerns

This group also raised several perceived safety concerns they either had or thought others may have, without adequate education on the batteries. The concerns were:

- The battery being a fire risk
- The risk if a car were to crash into the battery
- The risk in the case of flooding, particularly in flood prone areas
- Radiation from the battery

Though few of the participants would personally be swayed away from the community battery trial because of these concerns, they were concerned that other community members may be deterred due to of them.

Visibility of the infrastructure

The visibility of the infrastructure evoked different reactions between the participants. Some were concerned about the potential for battery to be an 'eyesore' and reflected that this may impact some people's acceptance of a battery in their community. Others disagreed with this, however, and thought the visibility of the battery was a good way to make people more aware of community batteries in general. With appropriate signage, passers-by would recognise the structure as a community battery and may be encouraged to do some research on it, increasing awareness of sustainable energy in the process.

Complexity of the sign-up process

Several participants were worried that the complexity of the sign-up process may discourage some people from participating in a community battery trial. People who are, considered by the participants, to be less passionate about environmental progress, the process may be too time consuming and complicated to encourage registration. Similarly, the participants noted that some people are averse to change in general and may be reluctant to take part in something seemingly too different or too difficult. It was considered that this may be mitigated by making it clear that the battery won't require huge changes for the individual (including that they will be able to stay with the same energy provider) and making the sign-up process quick and seamless. An easy sign-up process, it was suggested, may also encourage involvement from people who may have passion for sustainable energy but may not have the luxury of time or energy to invest in the trial.

4.3 'Less aware' values

These focus groups comprised of participants who were randomly selected from the Newcastle, Hunter, and Central Coast regions, and included a combination of homeowners, renters and homeowners with solar systems. Generally, they valued community batteries for a range of perceived benefits:

- Cost savings
- The sharing of solar benefits with people without solar panels
- Climate change mitigation and approaching carbon neutrality
- Protecting the community from outages

4.3.1 Cost savings

Like the Engaged and Informed groups, the Less aware group were primarily attracted to the perceived financial benefits that may come from a community battery. Very few participants in this group owned solar panels, so they were mostly interested in the potential for lower network costs that may come from community batteries offsetting aging network infrastructure, and the potential for lower energy bills.

The significant theme of cost savings is unsurprising in the context of increasing costs of living and rising energy prices. These focus groups were held only weeks after the Federal Budget forecast a 50% rise in electricity prices over the following two years¹. ABS figures show the fastest rise in the cost of goods and services in 50 years². In addition to this, rental prices in Australian capital cities are reported to be at an all-time high. For many people environmental and social outcomes cannot be a priority, when considering new energy systems. Perceived financial benefits will be a significant, if not the only, way of valuing a community battery.

When posed with a hypothetical 'willingness to pay' scenario, almost all the Less aware participants in this group would only be willing to pay a subscription to take part in the community battery, if their participation would ensure long-term financial benefits. If the savings on their energy bills and network costs were higher than the subscription, they would consider taking part. Several participants said they would not pay a subscription at all as they are not willing to risk any financial burden to participate in a community battery. One participant felt that, in their opinion the community battery would have long-term benefits for the energy network, and so the cost should be borne by suppliers, not consumers. Only one person in the Less aware group was willing to pay a subscription, for the perceived environmental and social benefits.

4.3.2 The sharing of solar benefits with people without solar panels

There were concerns across the Less aware group that the community battery may provide significant perceived benefits only to people with solar panels. Most of Less aware these participants did not own solar panels themselves, though many thought of them favourably and were interested in the prospect of being able to benefit from solar energy, without having to make the investment themselves. Overall, the group was unenthusiastic about taking part in a community battery trial if it did not provide them with benefits directly, regardless of whether they had solar panels.

4.3.3 Climate change mitigation and approaching carbon neutrality

This group were the most divided when it came to the environmental impacts of community batteries. Many of the participants indicated that they were very passionate about mitigating climate change, and yet others considered it to be, personally, a low priority. Overall, most participants considered environmental factors to be important, but not at the expense of people's living standards. It seemed that a community battery should be equitable across the community for participation to be considered the best option for this group.

The innate value of the environment was acknowledged by several of the participants as their reason for prioritising sustainable systems in their everyday life. Many reported already taking small actions in their life to lower their carbon footprint (such as composting, taking public transport, and being vegetarian) and were very excited to have a potential energy option, other than fossil fuels.

Others invoked intergenerational equity principles and mentioned their children and grandchildren as a driver for their concern for the future of the environment. One participant noted that as a grandparent she feels a significant responsibility to ensure that the future generations have the same access and enjoyment of the environment as they have had. For others, however, their dependents are their reason for prioritising other factors, over environmental sustainability. One participant noted that their children's living expenses have increased, and they do not want to deprive the children of opportunities in the present, to invest in their future.

¹ <https://www.sbs.com.au/news/article/what-the-government-can-do-to-bring-down-electricity-prices/63fi0gg6>

² <https://www.theage.com.au/money/planning-and-budgeting/what-the-rising-cost-of-living-means-for-the-next-six-months-20221011-p5bowt.html>

Others described being unconvinced in the effectiveness of community batteries and therefore were unwilling to invest in one without knowing it would make a change. Several participants were keen to see the data from the existing Ausgrid community battery trials to judge for themselves their effectiveness.

The Engaged and Informed groups generally believed that people without solar panels were less likely to care about environmental factors than those with solar panels. From the analysis of this group, it appears this is mostly accurate. There are several possible reasons for this trend. People with solar panels installed have already demonstrated some investment in environmental technology and are likely to be interested in community batteries for the same reasons. As solar panels are an expensive investment, it is also likely that most people with solar panels are more financially secure and therefore less concerned with cost savings. Several of the Less aware participants noted that it is difficult to prioritise concerns for the long term over concerns for the immediate future (such as affording basic needs), so, they felt, people who are financially secure should be investing more time and money to environmental technologies.

4.3.4 Protecting the community from outages

Like the Informed group, many of the Less aware participants were interested in the perceived potential of community batteries protecting their community from grid outages. The past few years have been characterised by ongoing natural disasters across Australia, and the participants described wanting to feel confident in their energy's reliability, particularly as everyday lives become increasingly dependent on it. One participant's partner has a medical condition that requires the constant use of medical machinery, so this factor was particularly important to them.

4.3.5 Measuring values

Participants were asked to prioritise a range of 'values' (perceived outcomes or benefits of community batteries identified from the literature) using a weighted choices model. The participants were told they had \$100 to allocate to the outcomes they considered the most valuable from a list of 14. The options included a range environmental, financial, and social benefits that are purported to come from community batteries.

Interestingly, despite the discussion centring around cost-of-living pressures and importance of financial benefits, this group's placed the most value on mitigating climate change impacts and supply in an outage for all. When the available money was reduced to \$50, this result remained relatively consistent.

4.3.6 Concerns and information gaps

In addition to surfacing values, discussions in these focus groups identified some concerns and information gaps for the Less aware group.

Greater education and transparency

Like the other groups, more education on community batteries was wanted by the Less aware group. The participants who reported doing research on community batteries described it as difficult to find clear and detailed information. They suggested that they would be more likely to participate if they had a better understanding of how the community battery will work, how it will be beneficial, and how much it will cost.

Many of the participants, like the other groups, were also interested in the transparency of the battery's data. Several wanted to know the exact input and output of the battery and an analysis of how this would impact the community's carbon footprint. Transparency on the individual cost savings was also important to the participants.

Safety concerns

This group raised similar perceived safety concerns to the Informed group including:

- The battery being a fire risk
- The risk if a car were to crash into the battery
- The risk in the case of flooding, particularly in flood prone areas
- Radiation from the battery
- Other harmful 'waves' from the battery

Lock-in contracts

Several participants expressed concern about the possibility of a 'lock-in' contract. Many participants explained that they did not have a clear understanding of the trial and were concerned with the lack of detailed information available. As such, they did not feel that they wanted to commit to a community battery in the long term. Having flexibility was considered important and the option of a short-term contract was considered something that may help participants feel more comfortable to participate, as they know they would be able to leave if they found it had insufficient cost savings or other perceived benefits.

4.4 Willingness to pay – a test of values

As a method of encouraging further testing of stated values and deeper discussion, each focus group was posed a scenario about a hypothetical community battery scheme, that required participants to pay for the service and asked their views and likelihood to sign up.

Many of the participants in the Engaged group noted that they would not want to pay a subscription for the community battery as they felt like they were already making their contribution through their exports to the battery. Several others indicated they would be willing to pay a subscription and forego the rebate, if they would still receive a financial benefit by the way of lower energy bills.

Most of the Informed participants agreed that even if the community battery required some subscription to use in the future, they imagined it would still minimise the cost to the individual and be more cost effective than a home battery. For this reason, several of the participants were entirely willing to pay a subscription.

Almost all the Less aware participants would only be willing to pay a subscription to take part in the community battery if their participation would ensure long-term financial benefits. If the savings on their energy bills and network costs were higher than the subscription, they would consider taking part. Several participants said they would not pay a subscription at all as they are not willing to risk any financial burden to participate in the community battery. One participant noted that since the community battery would have long-term benefits for the energy network it should cost the suppliers rather than the consumers. Only one person in the Less aware group said they would pay a subscription purely for the environmental and social benefits.

Across the groups there is a shared preoccupation with perceived financial benefits. Though many were willing to pay a subscription for a community battery, there would still need to be cost savings involved.

This exercise was not designed to test community support or customer acceptance for a pay for service scheme. It was intended to challenge the espoused values of participants and surface the relative importance of their personal values. It showed the complexity of values. While many participants, across the whole study, placed more emphasis on perceived financial benefits, very few described being motivated by financial reasons alone. This indicates that community batteries are valued for their potential financial, environmental and social outcomes, with the relative weighting and prioritisation of those three broad categories highly dependent upon personal circumstances and personal values systems.

4.5 Relative values across all three groups

4.5.1 Key similarities

- Perceived financial benefits and cost savings were important to all three groups.
- Perceived environmental benefit was important to all three groups, with the main reasons given for this being the environment's innate value and the need for conservation for future generations (intergenerational equity).
- All three groups wanted more accessible and detailed information about community batteries. This included transparency on the energy input and output.
- Groups that are not currently participating in a trial had safety concerns, especially the Less aware group.
- All three groups valued equity, although described it differently, and wanted the benefits to be shared around the community.

4.5.2 Key differences

- The Less aware group prioritised the financial benefits *slightly* more than the other groups.
- The Less aware group was *slightly* less concerned with the environmental factors.
- The Informed and Less aware groups were much more concerned than the Engaged group with protecting their community from outages.
- The Informed and Less aware groups both stressed the importance of making the sign-up process as easy as possible, while this was not a concern at all for the Engaged group.

Financial benefits

Perceived financial benefits and cost savings were important to all three groups. The Less aware group prioritised financial over the environmental factors *slightly* more than the other groups. The other groups had participants with solar panels installed (so presumably, homeowners). The ability to invest in solar panels indicates a high level of financial security; therefore, the Less aware group may have relatively less capacity to prioritise anything above potential costs. They were the only group with any renters present, also indicating a lower level of financial security. Several of the participants mentioned that the financial benefits were the priority for them because of the rise in cost of living and particularly the rise in energy prices.

Environmental benefits

The perceived environmental benefits of community batteries were highly valued by all three groups. The primary reasons given for this were the innate value of the environment and the desire to conserve the environment for future generations. The Less aware group was slightly less concerned with potential environmental factors. One reason for this given by the participants was their focus on the immediate future over the longer term: they prioritised supporting their children and grandchildren now over investing in their future. Like the financial factors, this could be explained by a lower amount of disposable income in this group.

All three groups expressed some concern that the community battery may not be as beneficial to the environment as expected. Several participants from across the groups brought up the limited recycling options for lithium-ion batteries at their end of life, and others suggested that the project may be more beneficial the network, than the environment. An investment in more detailed and accessible information on community batteries may improve confidence in community batteries as a viable part of a sustainable energy future.

Education and transparency

Accessible, detailed, and transparent information on Ausgrid's community batteries was wanted by the participants across the board. The Less aware group called for easily accessible education on how community batteries work in general and were interested to understand more about how community batteries operate. The Informed group was more educated on the batteries themselves but felt that they did not have a thorough understanding of Ausgrid's trial or the rebate. The Engaged group were most concerned with the transparency of the battery's performance data: they wanted to be able to see the energy input and output so they would be able to assess for themselves the effectiveness of the battery.

The Less aware group had the most safety concerns about the batteries, possibly because they were the least Informed on how they work. They suggested Ausgrid invest in clear education on the batteries and address any misinformation about them, to ease their concerns of perceived fire and radiation risks.

Outages

The Informed and Less aware groups were more concerned than the Engaged group about outages. As the Less aware group were from a larger variety of locations, this may have meant that more of them lived in areas prone to outages. The Informed and Less aware themselves also seemed to, by coincidence, have multiple participants who need round the clock medical machinery, while the Engaged group did not raise this as a personal concern.

Uncomplicated sign-up process

Both the Informed and Less aware groups expressed the desire for an easy sign-up process. Several participants in the Less aware group said that they would be dissuaded from signing up if it were a long process, and the Informed group agreed that a community battery may be considered by more people if it were as easy as possible to join. This was less of a concern for the Engaged group, potentially because they had already signed up and therefore clearly did not consider it too strenuous a task.

Equity

All three groups stressed the importance of the battery being equitable. Some people in the Engaged group had a different view, and instead wanted to be assured they were getting the maximum benefit from the battery, as the households with solar panels contributing to the battery. However, many participants discussed wanting the benefits to be shared around the community, including with households without solar panels. The Less aware group were very clear that without significant financial benefits to people without solar, they would not be interested in taking part.

5 CONCLUSION

This research aimed to examine how communities and customers value community batteries, and why these values are important. By using social research methodology, and a focus group technique in particular, this study was able to take a deeper dive into espoused values and perceived benefits and unpack some of the reasoning and assumptions behind a stated 'value'.

The concept of a 'value' is abstract, subjective and contested – and a yet, 'value' can be clearly articulated simultaneously. When the focus group participants spoke of 'environmental', 'financial' or 'social' values, we (other participants, research team) inherently understood what was generally of value. But the nuance of what is specifically important, preferred or prioritised, its limitations or scope, was harder to pin down, even with interrogation. Values are influenced by cultural and socio-economic factors, life experience, societal norms and expectations. And this is clearly demonstrated by the research findings discussed here.

Broadly, across all the groups, most people valued **financial benefits more than environmental** or social outcomes. However, **financial benefits were rarely valued singularly**. Participants overwhelmingly valued community batteries for a combination of perceived financial, environmental and social benefits.

Interestingly, most participants assumed that other people would care most about financial benefits too. Noting that this study took place during a period of rising interest rates, the first increases in many years in Australia, and shortly after a Federal Budget that predicted continued cost of living pressures, it is unsurprising that many discussed impacts on household budgets as a consideration, indicating the importance of financial values. Because values are complex – it may be inferred that the assumption from participants that others prioritise financial factors reveals both that people understand financial viability (cost should not outweigh the benefits) and that they value others' social welfare too. That is, if there are potential financial benefits then others would find that to be of potential value for their situations. Further exploration and testing of participants' knowledge and understanding of direct and indirect financial benefits was out of scope of this research. Further investigation in this space would provide more nuance about financial values. However, the key finding remains, and is consistent with previous research: that community batteries (and sustainable behaviour or products) are valued for a combination of financial, environmental and social factors, however more value is attributed to perceived or potential financial benefits.

In unpacking the combination of values, it was clear that **environmental factors are still important**. Valuing the environment took many forms – from its intrinsic value, to 'sustainability', to transitioning to net zero and mitigating climate change impacts. Many participants referenced a need to do more or do their part. Several identified intergenerational equity or intragenerational equity when explaining why the environment, and perceived environmental benefits of community batteries, is of value to them. Intergenerational equity concepts are also underpinned by social values – the belief that all people, living today and in the future, have a right to the same or better living conditions and environmental resources. Participants who already have solar systems installed were more likely to place more emphasis on environmental values. (However, having solar systems, as an indicator of affluence, was not a pre-requisite for valuing environmental outcomes. This is also consistent with the literature.) This group of participants, who placed relatively more value on environmental outcomes, also viewed community batteries as a way to share the perceived financial and environmental benefits of their solar power with everyone, particularly those without solar in their community.

Equity and opportunities for 'sharing' the perceived benefits of solar power with their community was raised by participants, in the context of environmental values. However, this notion is strongly underpinned by attitudes and beliefs around civic mindedness, fairness and equitable action, that is those that can afford to or have the most capacity should take actions that others cannot. The perceived social values of community batteries were the most challenging to explore within the focus group. This is due to the assumptions and perceptions around potential benefits that participants held. Energy systems are highly technical and explaining how they work, and community batteries within the system, needs carefully considered, clear communication for effective education. Providing explanations or correcting assumptions during the focus group was out of scope of the research. Firstly, because those conducting this research are not community battery or energy experts and would risk spreading misinformation when trying to quickly provide information that may be an overly simplistic representation of a complex system. And secondly, because **there is great interest and appetite for a deeper and better understanding of community batteries**. The focus group session risked becoming information sessions very quickly, losing the opportunity to hear from participants. And finally, because even assumptions and perceptions of benefits and costs reveal values held by individuals and reflect what they desire as outcomes. So, while some of the perceived benefits (social, financial and environmental) may not technically be able to be delivered by community batteries, it does indicate interest and support for technology that may achieve these desired benefits. In particular, social

outcomes like improving network reliability, preventing supply outages, making renewable energy accessible for all and community-based solutions, were valued. However, not as highly valued as potential financial or environmental benefits. This finding is very interesting, given Ausgrid's recent community engagement as part of the next Regulatory Reset proposal, which found support for initiatives that facilitate net zero transition, community outcomes and network benefits. Similar to the results of this study, the outcomes of this community engagement continue to show that financial, social and environmental values are intertwined and solutions should create value reflecting the quadruple bottom line that is fast become a societal expectation of projects and policy.

Values are complex. While one 'type' of value may be considered more important, it is more commonly a combination of values at play. To suggest that it is either financial or environmental or social would be reductive for what is a complex concept – the sharing of renewable energy in communities that aspire to a more sustainable future, while managing the cost of living, and desiring equitable and fair outcomes.

With only one series of focus groups, the scope of this study was limited to unpacking values and their relative importance for communities and customers. While the discussions did not differentiate between participation in a community battery scheme or support for the installation of a community battery in a neighbourhood, inferences from this research can be drawn, particularly around perceived risks and benefits. Future research directions may include providing educational information about community batteries, and then exploring how this may influence community support and/or customers' willingness to participate in a scheme.

This research has surfaced how individuals value community batteries, and their explanations of their own values and beliefs underpinning these, contributing to a better understanding of customer and community values about sustainable energy systems. The key findings are broadly consistent with similar research into community batteries and consumer behaviour for more sustainable choices and technology.

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7 APPENDICES

7.1 Discussion guide

COMMUNITY BATTERIES –
CUSTOMER AND COMMUNITY
VALUES RESEARCH
FOCUS GROUP DISCUSSION GUIDE



OVERVIEW

- < RPS was engaged to deliver qualitative, social research to better understand customer and community drivers and values related to community batteries.
- < *Initial* research questions were proposed, based on rapid desktop review:
 - Does socio-economic context influence drivers and motivations? If so, how much?
 - Is environmental benefit sufficient? Or do financial and other benefits impact perceived values? How strong a driver is ‘environmental’ outcomes?
 - What are the values and attitudes behind ‘environmental’ motivators? (Is it about climate change, energy resilience, environmental legacies, more sustainable futures?)
 - Is there motivation to participate, with a financial disincentive? Does environmental and social benefit outweigh financial?
- < Focus groups were planned, targeting three different customer segments (engaged, informed and less aware).
- < With further consideration on how best to meet the research objectives, the research questions have been refined to prioritise:
 - Understanding the environmental, financial and social values – and their relative importance in decision-making
 - Understanding the role of values in enablers OR barriers to participation
- < Similar questions / discussion exercises are proposed across the three customer segments, to compare / contrast findings across the segments.
- < The following discussion guide indicates which questions / discussion exercises are the same (or similar) across all three customer segments and where there will be a slightly different focus, for particular customer segments.

What is a ‘value’?

For the purpose of this discussion, we will describe ‘values’ as:

- > Benefits that may be derived from community batteries
- > Outcomes that result from community batteries
- > Reasons community batteries are ‘important’

DISCUSSION GUIDE

ACTIVITIES, by TARGET AUDIENCE

Engaged

Informed

Less Aware

Understanding community awareness of community batteries

- > What do you know about community batteries?
- > What do you think some of the benefits of community batteries may be for:
 - > Local residents and businesses
 - > Customers (households and businesses) with roof-top solar
- > Why do you think some communities may not want a community battery in their neighbourhood?
- > Why do you think some customers may not participate in a community battery scheme?

DISCUSSION GUIDE

ACTIVITIES, by TARGET AUDIENCE

Engaged

Understanding customer and community values

- > Why are you participating in a community battery trial?
- > Why do you think community batteries are valuable / important?
- > What benefits do you think can come from community batteries?
- > What drawbacks do you think can come from community batteries?

Informed

Understanding customer and community values

- > Why were you interested in participating in a community battery trial?
- > Why do you think community batteries are valuable / important?
- > What benefits do you think can come from community batteries?
- > What drawbacks do you think can come from community batteries?

Less Aware

Understanding customer and community values

RPS provides participants with a brief explainer on community batteries

- > Reflecting on this explainer, do you think there are benefits of community batteries or reasons that they may be valuable for customers and communities?
- > Does this change your mind about any of the previous discussion?

DISCUSSION GUIDE

ACTIVITIES, by TARGET AUDIENCE

Engaged

Understanding the customer journey

- > Map out the steps taken to participate in the community battery trial.
- > How did you hear about the trial?
- > What information do you gather?
- > Who did you speak to and what did you tell them about why you were thinking about it?
- > What did you consider when deciding to participate?

Informed

Understanding the customer journey

- > Map out the steps taken to participate in the community battery trial.
- > How did you hear about the trial?
- > What information do you gather?
- > Who did you speak to and what did you tell them about why you were thinking about it?
- > What did you consider when deciding to participate?
- > Why did you not participate?

Less Aware

DISCUSSION GUIDE

ACTIVITIES, by TARGET AUDIENCE

Engaged

Informed

Less Aware

Understanding the (relative) importance of values

- > Each participant has \$100 in total to prioritise environmental, social and financial values associated with community batteries.
- > They may allocate any amount to any value, from \$0 to \$100.
- > Total amounts across all values must add up to \$100.
 - Why have you made these choices?
 - If you only had \$50, what would you keep? Why?
 - Are there any values that can be 'removed'? Why? Why not?

What do you value about community batteries?
What are your values worth?

Environmental

- Mitigate climate change impacts
- Lower community's carbon footprint
- Supporting renewable energy transition
- Enable more solar on the network

Social

- Access to renewable energy for all
- Network reliability for all
- Supply in an outage for all
- Energy resilience for community
- Community ownership
- Community-based solution for more sustainable future

Financial

- Avoid upfront cost of home battery
- Avoid costs for network upgrades
- Self-sufficiency
- Stabilise the grid

DISCUSSION GUIDE

ACTIVITIES, by TARGET AUDIENCE

Engaged

Informed

Less Aware

Understanding perceived motivations, benefits and expectations

- > Imagine you're at a family barbecue, and someone mentions that they have heard about a proposed community battery in their neighbourhood.
 - What benefits of a community battery do you think they will be interested in? Why?
 - What concerns do you think they might have?
 - What may stop them from signing up?

Optional

- > Someone else joins the conversation at the barbecue. The proposed community battery scheme in their neighbourhood doesn't include a rebate. In fact, customers pay a small subscription to participate.
 - Do you think the environmental and social values outweigh the financial cost to participate? Why? Why not?