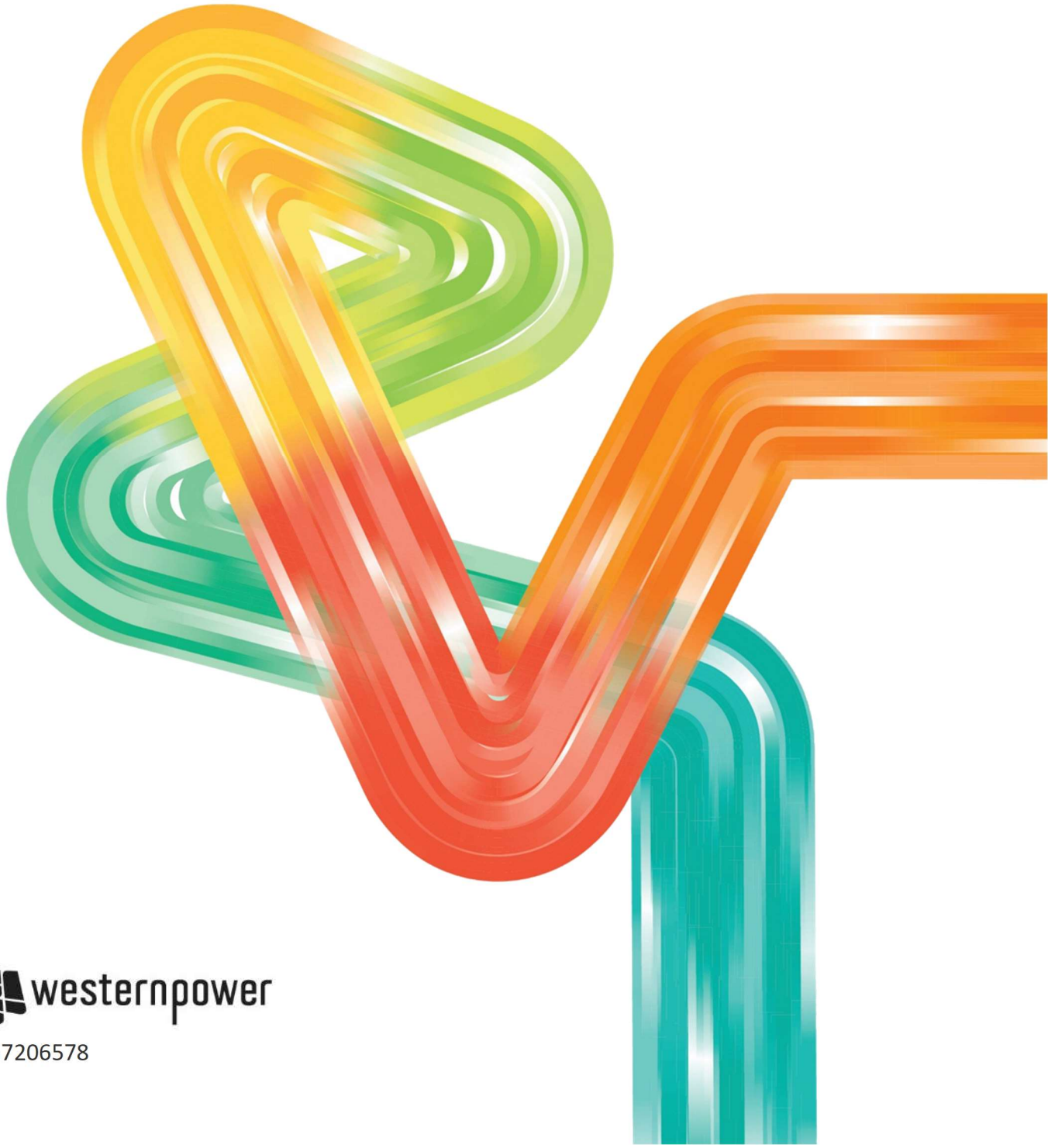
Attachment 4.1

Community & Customer Engagement Program Report

Access Arrangement Information

1 February 2022



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EDM 57206578

AA5 Customer and Community Engagement Program

July 2021

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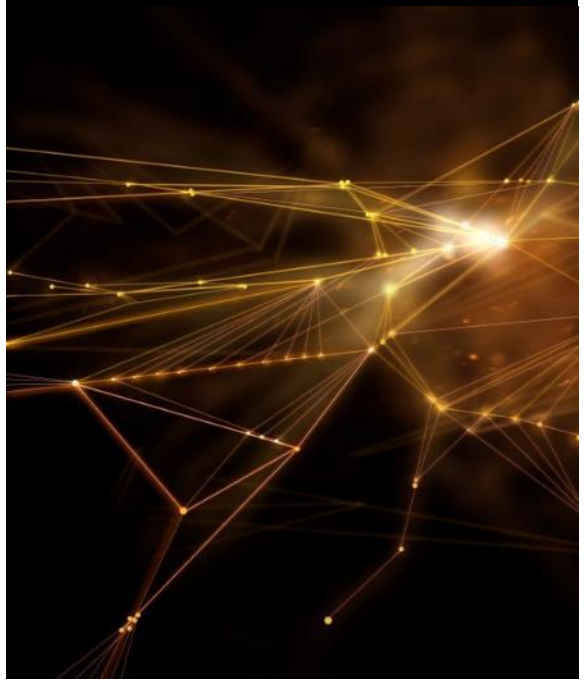

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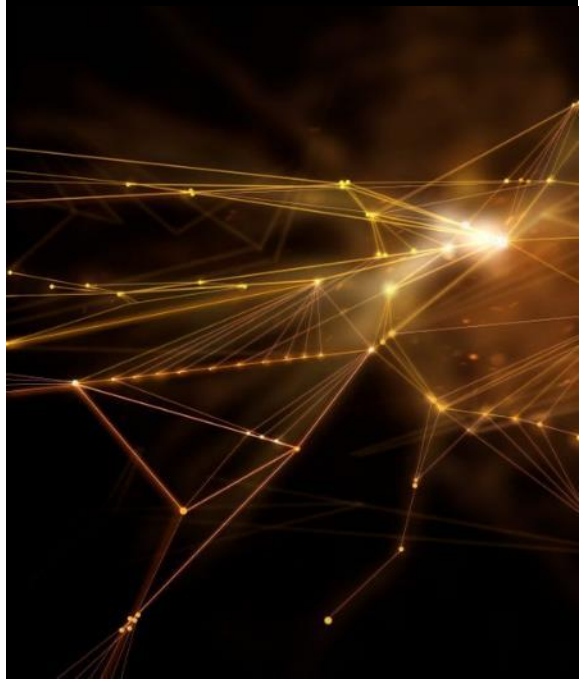

1 Executive Summary

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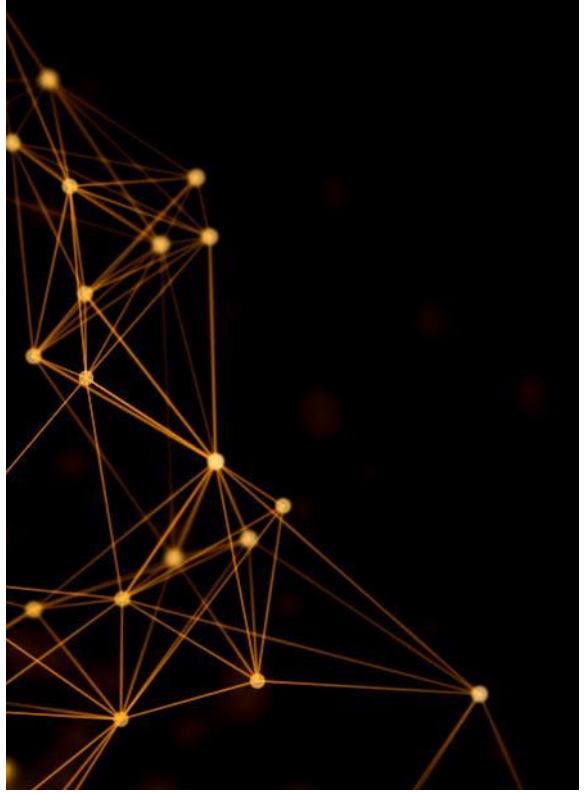
Broad AA5 Implications

Combined research elements



Service reliability is critical to all customers.

- There are vastly different service experiences across the network. The frequency and duration of outages is considerably longer amongst Rural Long customers in comparison with Urban customers. Both residential and SME Rural Long customers are, as expected, most open to future investment options that may deliver them improved reliability.
- Any erosion of reliability would have a significant negative impact on customer perceptions, irrespective of customer type.

Affordability is critical to residential customers.

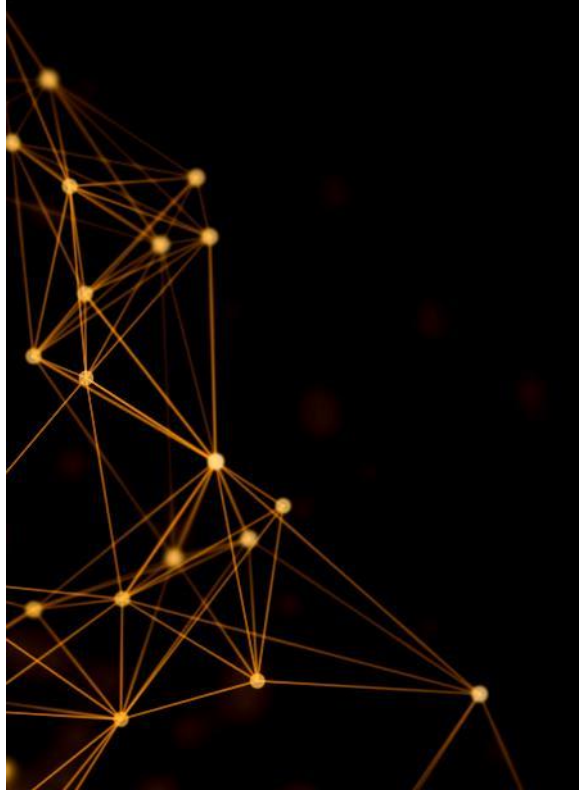
- Residential customers are sensitive to price increases. However, when discussed further there is willingness to pay for increased reliability, renewables and potentially a combination of elements, provided they range between 1-5% of the current bill for residential customers and 1-9% of the current bill for SMEs, and are future focused investments.

SME and residential customers prioritise sustainability, investing in new technologies and building new infrastructure to cope with future demand.

- Customers consider it important that Western Power is planning and building for the future of the network.
- They are open to increased investment in community batteries, SPS and microgrids but remain cautious as to how much additional cost they are willing to absorb.
- Modelling clearly shows that customers are willing to pay more to enable these investments, however they need to understand the impact on their bill.
- Customers support specific investment options, provided bill increases are minimal (e.g. <$5/annum). However, customers need to clearly understand the bill impact of multiple investments (with each attracting their own additional investment).

Broad AA5 Implications

Combined research elements



At an overall level, less priority was given to vegetation management, undergrounding and communication.

- Customers aren't seeking greater investment in vegetation management, communication methods/customer service or undergrounding powerlines compared to other attributes. However, decreased investment below current levels of each has a negative impact on customer preference.
- Most customers are willing to trade a small amount of time in response times to queries (30s) to service customer enquiries or issues via other channels (e.g. online chat) with the intent of not putting upward pressure on customer bills.

There was strong support for Western Power to proactively lead the way and plan for the future.

- Given the desire for Western Power to take more of a leadership role, there is broad support across stakeholders for Western Power communicating its long term strategy.
- While a 5 year plan is important, some stakeholders (Land Developers, Large Businesses/Government Agencies etc) plan for the next 10-20 years. They would value insight into Western Power's long term strategy for better alignment.

Customers believe there is already substantial importance given to safety and do not prioritise additional investment in this area.

- However, there is no willingness to trade-off safety for cheaper bills or greater reliability or increased sustainability.

Residential customers are open to paying more for specific investment options (i.e. renewables), however vulnerable customers and those who are experiencing financial hardship are apprehensive to any price increase.

- When tested with set amounts ($5/annum), willingness to pay was greater.

2 Introduction, Objectives and Methodology

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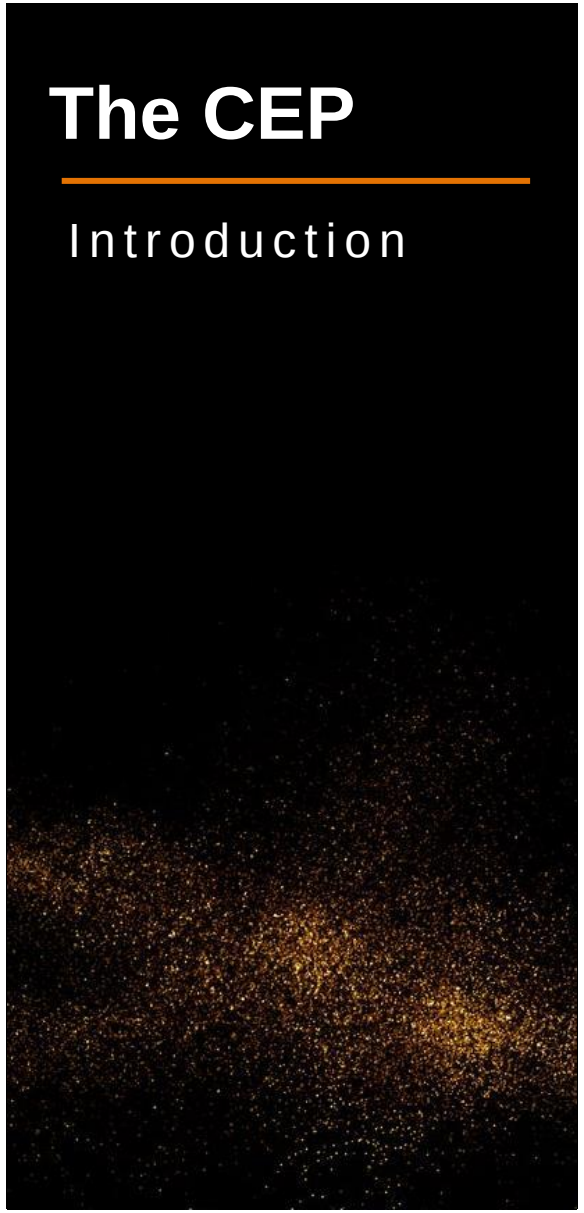
The CEP

Introduction



The purpose of Western Power's Community and Customer Engagement Program (CEP) was to gain an understanding of what Western Power's customers and the community prioritise/value in relation to the services offered, delivered, and potential future services. The program was designed to provide insights and feedback from Western Power customers that can be meaningfully incorporated into the Development of Western Power's fifth Access Arrangement submission (AA5).

For the purpose of the CEP, engagement was selected to represent customers and community within the area of the South-West Interconnected System (SWIS), and included representation across all 9 Western Power customer segments within the community.

These include:

- Generators
- Local Government
- Land development & industry
- Small and medium enterprise
- Large business and Government agencies
- Retailers
- Residents
- Electrical consultants
- Electrician and service providers

This report follows the principles of the Australian Energy Regulator's guidelines for Consumer Engagement for Network Service Providers and was prepared by independent research agency Kantar in conjunction with Synergies Economic Consulting to support the economic regulatory viewpoint. The content within collates the insights developed during the CEP (research for which was conducted during February and June of 2021) and is an independent, evidence-based report that documents the engagement, research and activities undertaken as part of the CEP.

The following report has been designed as a comprehensive document, detailing; the research purpose & methodology, implications for AA5 and insights from the research.

Research Objectives

The overall objective of this research was to:

Gain an understanding of what Western Power's customers and the community prioritise/value in relation to the services offered, delivered, and potential future services

By exploring 4 key topics with Western Powers' 9 customer segments

1. **Electricity knowledge and attitudes**
2. **Western Power's services**
3. **Future expectations**
4. **Trade-offs**

In order to inform the Fifth Access Arrangement (AA5) submission

Why?

Understand

Customer and community priorities and values with regards to Western Power services – current, offered and future

Provide

Feedback and insights from customers to assist in developing a meaningful Fifth Access Arrangement submission

Representative

Of the southwest interconnected system and 9 relevant Western Power customer segments

Independent

Follows Economic Regulation Authority's guidelines for Consumer Engagement for Network Service Providers and is independent

(conducted by research agency Kantar in conjunction with Synergies Economic Consulting)

Purpose

This is a summary presentation of top key insights.

There are various other deliverables available depending on level of details required.

The four research modules

The research plan comprised of 4 modules designed to explore the 4 key topics with all 9 customer segments.

Module 1: Alignment

Clarified and Set Expectations for all.

- Reviewed the background to the study and past research including a review of the robustness of methodologies.
- Reached agreement on core aspects of the engagement strategy including qualitative and quantitative approaches, sampling, target markets, discussion guide content, Community and Customer reference Group (CCRG) and Community Regional Forum (CRF) approaches.
- Assessed information in relation to regulatory requirements and environment.
- Designed program to enable learnings from each stage to inform future stages of engagement/research undertaken

Module 2: Explore

Explored key hypothesis points and information gaps found in Module 1: Alignment. Explored electricity knowledge and attitudes, perceptions of Western Powers' services, future expectations and trade-offs.
Conducted qualitative research with metropolitan, regional and remote residents & key stakeholders (generators, retailers, etc.), via mixed mode methodology for the greatest depth and coverage. This research included:

- 1 X Deliberative Forum - Perth n=29 participants.
- 8 X Regional online mini focus groups covering Bunbury, Albany, Geraldton and Kalgoorlie areas n=3-4 participants in each group.
- 34 X In-depth interview (IDI) online interviews with regional & rural customers.
- 10 X IDI online interviews with life support & vulnerable customers.
- 52 X IDIs with stakeholders (generators; retailers; other segments including sensitive load customers etc.).
- 2 X Face to face (f2f) focus groups with Small to Medium Sized Enterprises (SME) in Perth n=6-8 per group.
- 4 X Paired online IDIs with Culturally and Linguistically Diverse (CALD) members of the community.
- 1 X f2f mini group with Aboriginal and Torres Strait Islanders (ATSI) to ensure whole community representation. Run by culturally appropriate moderator (n=4 participants).

Module 3: Measure

Measured perceptions & opinions amongst Residential and SME customers across the catchment and customer groups. This module was designed to assist in gaining an understanding of the choices customers make related to usage, demand management, new technologies etc.

Conducted via quantitative research consisting of:

- A 20-minute online survey for residents n=1500.
- A 15-minute online survey for business customers n=300.

The above questionnaires included a choice model design (with Max Diff. modelling) that measured price/product trade-offs that customers were wiling to make.

Module 4: Moderate

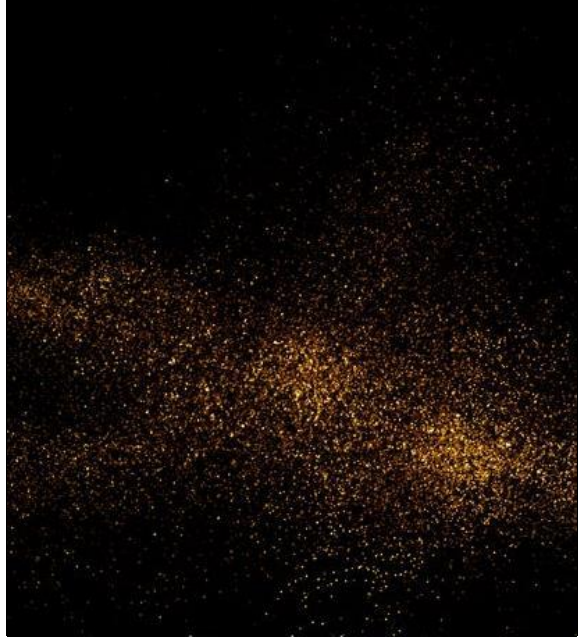
Established a CCRG and a Stakeholder and Community Association Reference Group. Conducted CRF.

Kantar Public conducted qualitative research over several months, which included:

- 3 x sessions with n=20 Perth residents, meeting on a monthly basis.
- Community Regional Forums in Katanning (n=30), Bickley (n=27) and Wongan Hills (n=26).
- 2 x sessions in Perth with stakeholders and community associations (n=10).
- Findings, insights or queries identified from each stage of the program could be included for deeper exploration.

Design

Align
Explore
Measure
Moderate
Extend



The modules were designed as a step-by-step process to engage customers and assist in providing an iterative process to develop, explore and re-test the various investment and service offerings for all customer segments.

Module 1, or the **Alignment** phase, provided a base for best project outcomes, and allowed both parties to gain an understanding of previous research, team member's roles and ensuring everyone was on the same page. This in turn ensured we built on sound research learnings. Following the initial stages, a detailed *Engagement Strategy* document outlining agreed research and customer engagement methodology/approach, risk management, expected stage outcomes, timelines, key events and an outline of the transitioning process for the CCRG/CEF to Western Power's control was delivered to maintain consistency of understanding.

Module 2, or the **Explore** stage is where the research came to life and allowed us to test key hypothesis points and information gaps found in **Alignment** and exploration of electricity knowledge and attitudes, perceptions of Western Power services, future expectations and trade-offs from all Western Power's customer segments. Commencing with qualitative research aided in obtaining verification and ideation on hypothesised points from residents and business and provided deeper insights and context for the quantitative stage.

Module 3, provided a **Measure** of perceptions & opinions amongst customers across the customer types, and based on the insights gained in the **Explore** section, re-test and provide an understanding of the choices customers make related to usage, demand management, new technologies etc. The measure stage assisted in understanding the community's energy priorities, support for different options and the value of different aspects of the product/price offering, and solidified the Module 2 insights, whilst the choice model simulator provided deeper insights with the 'what if' scenarios.

Module 4, **Moderate** established CCRG's and CRF's which provided the opportunity to test reactions and perceptions of potential future Western Power initiatives. They also operated as feedback forums for the AA5 submission. The forums provided opportunities for further retesting of the insights gained in the **Explore** and the **Measure** processes. The CCRG's **Extend** beyond the Module phases as a valuable community resource and provide insights for Western Power.

Module 2 & 4 Qualitative – How we included all customers

Residents

- Deliberative Forum Perth Metro Residents n=29
- Community Regional Forums n=30 Katanning residents; n=27 Bickley residents; n=26 Wongan Hills residents

In-depth Interviews/Focus Groups

- Regional and rural residents n=60 (n=26 in focus groups, n=34 in-depth interviews)
  - n=10 Goldfields, n=6 Wheatbelt, n=13 Great Southern, n=17 South West, n=14 Mid West
- Culturally and Linguistically Diverse n=8 Perth Metro (paired IDI's)
  - N=2 Cantonese, n=2 Russian, n=2 Hindi, n=2 Hindi/Punjabi
- Life support n=5 (IDI's with respondent and/or carer)
  - n=1 Great Southern, n=3 Perth Metro, n=1 South West
- Economically vulnerable/hardship customers n=3
  - n=2 South West, n=1 Perth Metro
- Living with a disability n=2
  - n=1 Mid West, n=1 Wheatbelt
- Aboriginal and Torres Strait Island respondents n=4
- Community and Customer reference Group n=20 (across three sessions)

Small & Medium Enterprises (SME)

- n=13 Perth Metro

Stakeholders - Business Stakeholders n=52 Perth Metro

- n=4 Electrical Consultants, n=9 Energy Retailers, n=8 Generators, n=7 Government Agencies, n=1 Land Developer, n=9 Large Industrial/Commercial Business, n=11 Local Government, n=2 Small Business, n=1 Electrician and Service Providers
- Community Associations and Stakeholder Reference Group n=10 (across two sessions)

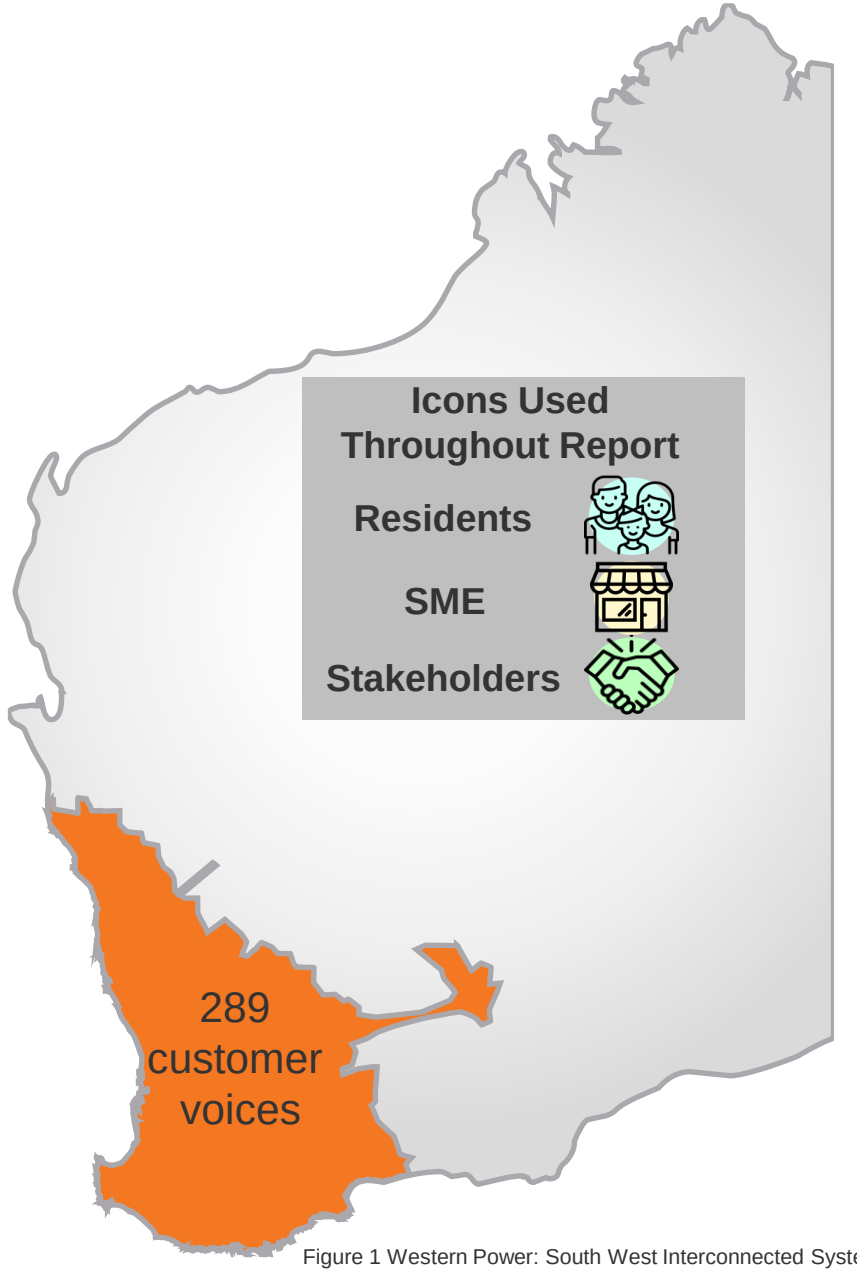
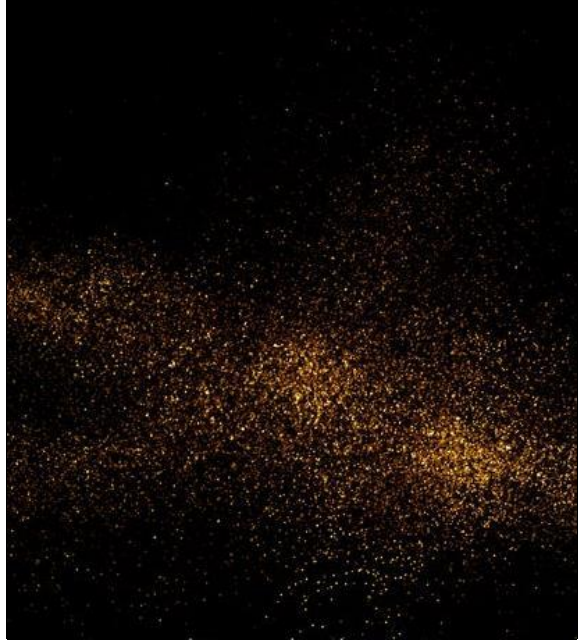


Figure 1 Western Power: South West Interconnected System

Discussion Guides

Specifically designed



Each element of the qualitative research (Module 2 and Module 4) involved collaboration, design, checking and resubmission of discussion guides with Western Power prior to interviews or forums taking place. This allowed the guides to be modified and adjusted as part of an ongoing process ensuring the discussion was relevant to different stakeholder groups. With particular reference to the Module 3 questionnaire, the CCRG interrogated and provided critical insight into the topics, logic and flow to ensure maximum understanding amongst all Western Power customers.

All involved components as outlined in the objective topic focus, and varying levels of detail were discussed depending on the format.

Module 2:

- The initial Deliberative Forum was conducted at the Western Power office and ran for 4 hours during the evening.
- The IDI's were conducted over the phone for a duration of between 30-45 minutes.
- The SME focus groups were conducted face to face in the Kantar Public Offices for a duration of 90 minutes.
- The online mini groups were conducted over Teams VC and were held for 90 minutes.
- The CALD paired IDI's were held over Teams and were for a duration of 45-60 minutes.
- The ATSI group was held in Perth and conducted by Cultural Partners, for a duration of 90 minutes.

Module 4:

- The Community Regional Forums (CRFs) were held monthly from March to May and ran for 3 hours, ranging from Katanning to Bickley to Wongan Hills. All were held in the evening.
- The CCRG's were held in the evenings, monthly across 3 sessions and in the Western Power office, for a time of 1.5 hours.
- The Stakeholder and Community Association CCRG's were held 6 weeks apart, during the day, for a period of 2 hours.

Quantitative – Who we spoke to

Residents Sample n=1538

Residents over 18 years who are solely or jointly responsible for the payment of their household's electricity bill. 20 minute survey conducted online.

Method: Sample collected through Lightspeed Research's online panel, with a CATI boost (n=96) conducted by National Field Services. Additional sample (n=26) was also collected via Western Power's website survey link.

Fieldwork dates: 28th April 2021 – 12th May 2021.

Average interview length: 17 minutes

Data has been **weighted** to reflect age and gender within operational area (from ABS) and then regional distribution of customers (from WP)

Margin of error: Urban - n=934 (+/-3.0%)
Rural Short - n=431 (+/-5.0%)
Rural Long - n=173 (+/-5.0%)

Location	Total
Urban	934
Rural Short	431
Rural Long	173
	1538

Business Sample n=301

SME representative who is solely or jointly responsible for the payment of the business's electricity bill of a business that has spent less than $75000 on electricity in the last 12 months. 20 minute survey conducted online

Method: Phone to online recruit via National Field Services

Fieldwork dates: April 28th 2021 – May 21st 2021

Average interview length: 21.4 minutes

Data has been **weighted** to reflect the regional distribution and energy usage by network (based on data from EQL).

Margin of error: **Urban** - n=200 (+/-6.9 %)
Rural Short - n=62 (+/-12.4 %)
Rural Long - n=39 (+/-15.7 %)

Location	Total
Urban	200
Rural Short	62
Rural Long	39
	301

N.B: An online survey was also made available on the Western Power website – This provided an opportunity for customers not directly recruited as per the above, to have the opportunity to provide their input into the CEP.

The context as presented to survey respondents…

Western Power is responsible for maintaining the electricity network in Perth and large parts of the south west of Western Australia. Below is a diagram of the electricity supply chain in WA. Western Power is responsible for the distribution and transmission components and represents approximately 40-45% of your electricity bill.

Attitudes, perceptions and opinions, along with customer choices were explored, some further explanation of techniques used to do this are outlined in the following page.

To ensure we obtained relevant information, a small amount of upfront education was provided to respondents to clarify Western Power's role in the value chain.

Maximum Difference Analysis

What is it?

What is Maximum Difference Analysis?

- Maximum Difference Analysis (i.e. Max Diff) is a ranking exercise which is applied when there is a need to understand the relativity between a large number of items.
- Max Diff is commonly used when other forms of ranking exercises (e.g. rating scales, ranking questions, point allocation questions) become untenable due to the large number of items that need ranking.
- In a Max Diff, respondents are shown a number of cards; where on each card a respondent is shown a subset of items and are asked to select the “best” and “worst” items.
- Items can be ranked in different ways – such as “best-to-worst” or “most important-to-least important”.
- An experimental design underpins the Max Diff, ensuring all items are evaluated by respondents and that each item is seen an equal number of times by a respondent.

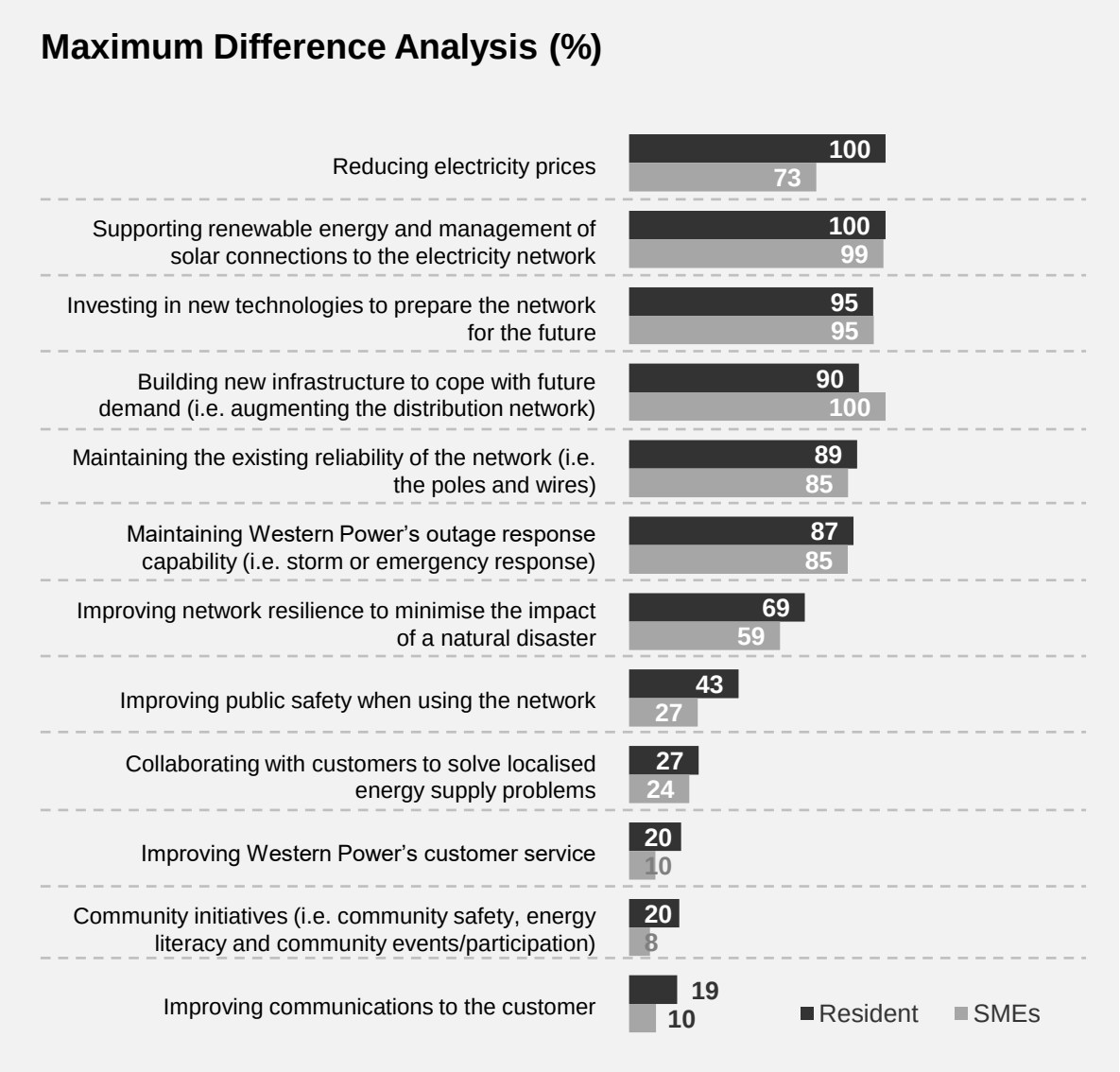
How is a Max Diff implemented?

- Depending on the number of items that need to be tested (can vary from 8 to 48 items) respondents are shown between 12-30 cards.
- On each card, respondents are shown between 3-5 items (again depending on the number of items that need to be tested) and are asked to select which item is the “best” and which item is the “worst”.

Maximum Difference Analysis

What is the output of a Max Diff?

- A Hierarchical Bayes estimation is used to estimate utility scores for each respondent on each of the items tested.
- For ease of interpretation, the utilities scores are rescaled so that the sum of all items equals 100.
- Utility scores provide a relative measure of the ranking (or importance, depending on question wording) of the items. The higher the utility score of an item, the higher the rank (or importance) of that item to respondents.
- The example chart to the right shows how the utility scores can be plotted to give an understanding as to the relative importance of the items tested.
- Since the utility scores are estimated at the individual level, the results of the Max Diff can be analysed by different sample groups of interest (pending on sample available) such as age, gender, location, etc.

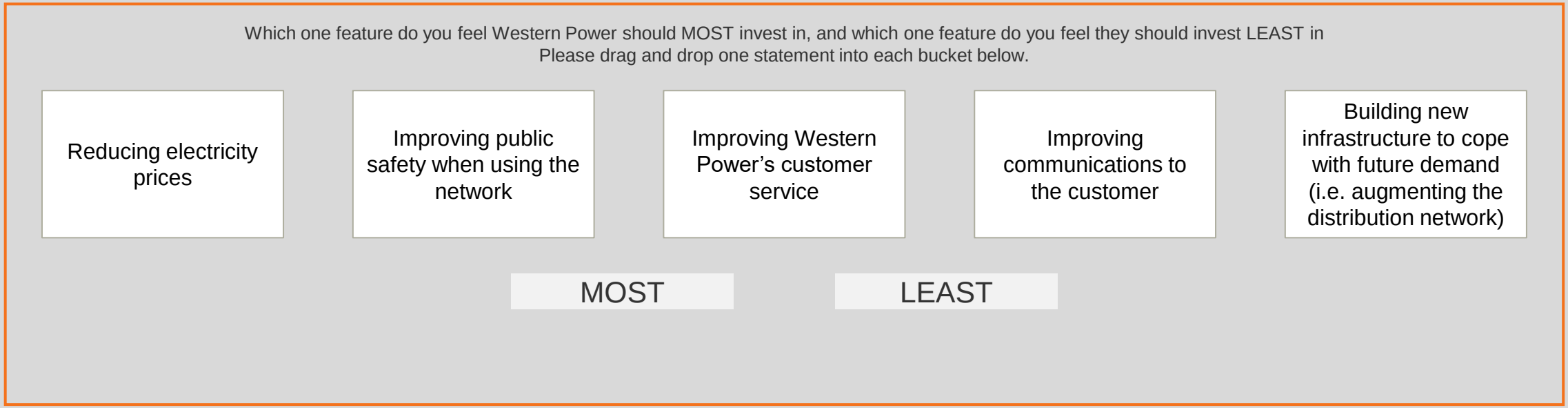


Maximum Difference Analysis

Example from Survey

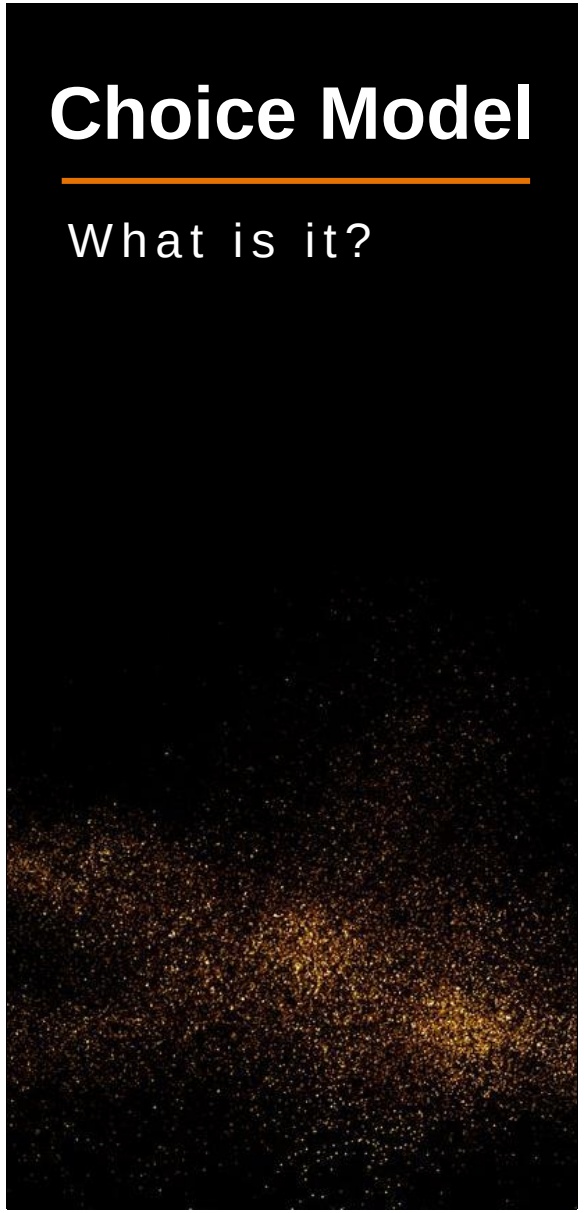
Customers were presented with 12 different potential priority areas to secure the community's electricity future. Through Maximum Difference (Max Diff) analysis a priority rank order is revealed.

The analysis shows broad consistency amongst customers across the network. Results also show consistency by age and gender.



Choice Model

What is it?



- Choice experiments are used to be able to determine the latent (underlying) preference structures and decision rules used by a person to choose, and if a price attribute is considered willingness to pay (WTP) or willingness to accept (WTA) for concepts, outcomes and product/service attributes.
- Choice experiments are designed so an individual has to trade off various features against one and other to maximise their perceived value. That is they choose the option which given all the competing options is best for them.
- To this end choice modelling is based on the Lancastrian economic axiom that people choose a product/service/outcome based on the value they place on the sum of its parts, not the product/service/outcome in and of itself.
- Through choice model analysis, customers' preferences regarding supply reliability, new technologies etc and the trade-offs they make for cost savings or increases in different situations were tested. Within the survey, respondents were provided a series of 12 hypothetical scenarios. Each scenario consisted of 3 packages of 7 attributes with a random combination of features of that service or a 'none of these' option. Having reviewed the features of each package, the respondent was asked to select their preferred. In order to provide realistic scenarios to customers, prohibitions were also set so particular scenarios were not shown to customers if that option was substantially outside the current reliability standards.
- Analysis was conducted to determine the relative importance of each attribute and service option in driving preference. An interactive simulation tool was also provided so that Western Power can explore the impact of different service options and levels, both overall and for a range of customer segments.
- The following page outlines and provides an example of the broad choice options, attributes and levels and a task example. Further examples are included in the Choice Model Section of the report.

An Overview of our Design

Choice model example

An example of choice options appears below:

Below are 3 possible ways Western Power can manage investment into the electricity network over the next 10 years. Change to the investment can results in changes to safety, reliability and your bill size.
Given the level of investment and outcomes shown, please indicate which ***one*** you would most prefer.

Attribute	Offer 1	Offer 2	Offer 3	None
Change on your electricity bill	$21 price decrease	$21 price increase	$21 price decrease	I would not choose any of these
Average number of unplanned outages (blackouts) per customer	1 outage every 3 years	1 outage every 3 months	1 outage every 3 months	
Average outage (blackout) length	24 hours	24 hours	60 minutes	
New Technologies (incl. Solar, Stand Alone Power Systems etc.)	No change to investment in enabling renewable energy or new technologies on the network	Increasing investment in enabling renewable energy or new technologies on the network	No change to investment in enabling renewable energy or new technologies on the network	
Communications & Customer	Increasing investment in improved outage notifications and customer service	Decreasing investment in outage notifications and customers service	Increasing investment in improved outage notifications and customer service	
Underground power	No change to underground power protocols	No change to underground power protocols	No change to underground power protocols	
Tree trimming / vegetation management	No change to tree trimming protocols	Increasing investment in tree trimming	Increasing investment in tree trimming	
	○	○	○	○

** Price increase and decreases were converted to $ terms when the respondent was able to estimate their average household bill size.*

3 Research Insights

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3.1 Key Insights

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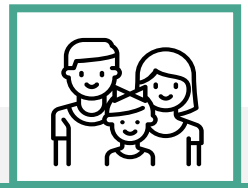
Insights were gathered from the three key groups described below



RESIDENTIAL CUSTOMERS

- Rely on electricity
- Struggle without power
- Impacts daily life
- Emotional connection
- Fundamental

Although the everyday salience of electricity amongst residential customers is quite low, its impacts on people's lives from survival (food, shelter), enjoyment (entertainment) and connection (connect with others through technology) perspectives are profound. Without power, many struggle to get by for more than a few hours. Based on this, residential customers speak emotionally about power as a fundamental part of daily life and survival.

SME CUSTOMERS

- Important component of business
- Impacts operations, products & services
- High expectations
- Government support
- Unrealistic benchmark re service delivery and performance

For SME customers, power has a fundamental impact on operations, products & services and is therefore a key part of their supply chain. As business operators themselves, SMEs hold extremely high expectations for Western Power. SMEs see Western Power as having unlimited access to resources, as Western Power enjoys Government support with a commercial focus. They therefore hold them to a standard almost above a commercial organisation. These inflated expectations set an unrealistic benchmark for Western Power to meet in terms of service delivery and performance.

STAKEHOLDERS

- Motivated by progress
- Innovative solutions

Stakeholder feedback represents the findings from retailers, generators, Local Government, land developers, electricians, electrical consultants & service providers, Government agencies and representatives from industry associations. Stakeholders are motivated by an interest in progress across the industry. Although they may represent different constituents across a range of sectors, they come to work everyday to find innovative solutions to help people live a better life through access to power.

Hygiene factors are fundamental to maintain

The following are critical in that any decline would be detrimental.

‘HYGIENE’ FACTORS

Keeping it cost effective for all.

Maintain high safety and network maintenance standards.

Future proof for population growth and diverse sources of energy.

Consistent power – now and into the future. Improve where possible.

Affordability – stated as a priority

- Customers are more sensitive to price increases than decreases.
- Willingness to pay for improvements if clear and transparent.
- Increase for short term “point in time”.

Safety – CRITICAL

- A decline would be destructive to current positive perceptions. Customers see this as being a core value of profound importance. Aligns with your core values.

Expectation on consistent power supply

- At least is expected to remain as is, but improvement is sought in Rural Long.

1. Reliability

These insights were identified through qualitative and quantitative research.

– All groups largely agree that the reliability of the network is generally quite good. Evidence of this typically comes from very few outages, and any previous outages lasting for only a short period time. Most agree that when they turn on a switch, they have power.

– Generally, **residential** customers believe that outages are caused by weather or storms more so than infrastructure faults or age, however other stakeholders acknowledge the age & maintenance needs of infrastructure as other potential causes.

Reliability of supply is critical to customers – particularly those in Rural Long areas.

– Customer tolerance of outage length varies by feeder. Given Rural Long customers are currently experiencing one outage every 3 months, it is not surprising that they are the most sensitive to maintaining this current standard.

– Therefore, minimising outages is critical. An increase in frequency / duration of outages for all customers would result in a greater sensitivity to this issue.

– At a network level SME and residential tolerance to outages and their length are similar.

There is support for improvement to reliability across the network – again particularly amongst Rural Long customers.

– Urban and Rural Short customer preference would be heavily affected if they were averaging the same outage duration as Rural Long customers.

– Amongst Rural Long customers there is a strong preference for reduced outage duration.

– A decrease in reliability for all would be detrimental.

– Therefore, there is strong support towards improvements that would increase reliability of the power system against outages. Such improvements would reassure customers that Western Power will be able to meet their future needs.

2. Resilience

These insights were primarily gathered through qualitative research.

– Most believe that Western Power should already be doing everything they can from a safety perspective.

– The network is seen as reasonably resilient, though there is support for activities that would increase network resilience in response to major events such as bushfire and cyclones.

– The community felt that the network was resilient, but that there are some potential steps that Western Power could take to increase resilience.

– There is in principle support for further investments in undergrounding, constructing power poles out of materials other than timber in areas vulnerable to extreme weather, and having ample staff on the ground to work on restoring access as soon as possible in the event of an outage.

3. The Future

These insights were primarily gathered through qualitative research.

– All groups identified the following as network challenges of the future:

  - Ensuring everyone can afford power and that power is supplied continuously to all.
  - Population growth and increase in ‘tree changers’ increase grid pressure in regional areas, and there is a perception that the current network may not be able to cope with this.

– There’s a view that modular / self-sufficient grids are potentially the way of the future. Both residential and SME customers suggested these as being beneficial for the following reasons:

  - Fewer customers would be affected when there are outages
  - A smaller area is affected by outages
  - Less pressure on the grid

– **Stakeholders** largely agree that microgrids have a role to play, particularly in poor access areas, and that a smaller grid system should be a credible option as part of Western Power’s scenario planning.

4. Renewables

These insights were primarily gathered through qualitative research.

– There is in principle community support for further investments that increase renewable energy. Although not specifically discussed as part of the research, all groups assume that Western Power is taking steps to prepare for and mitigate against climate change, however they know very little about what Western Power has specifically done.

– Rooftop solar is aspirational for many, but residents who are left behind have concerns for future affordability. Those with rooftop solar have concerns for equity in returns for early adopters vs later uptake.

– Overall, there is strong community support for further investment that increases reliance on renewable energy, with **stakeholders** suggesting that renewables are essential to the future of the grid.

5. Affordability

These insights were primarily gathered through quantitative research.

Affordability is critical to residential customers, but not so important to SMEs (relative to other priorities).

– Residential customers care most about affordability (followed by reliability and sustainability).

– For Urban / Rural Short customers, reducing electricity prices is the most important investment priority across demographic groups.

– While bill size amongst Rural Long customers was the most important attribute in customer preference decisions, it was a middle level attribute in terms of future investment priorities.

– This was also the case amongst SME customers – i.e., of importance to customer preference but of a middling significance to investment priority.

Customers are more sensitive to bill increases than decreases.

– Customer sensitivity to bill increases are greater than bill reductions (that is, the perceived welfare gain to customers from a bill decrease is less than the perceived welfare loss from a bill increase, all else being constant).

– This is supported by economic literature which frequently finds that willingness to accept (WTA) compensation for a unit loss in service is greater than willingness to pay (WTP) to restore service to the current level.

– Rural Long customers were also less sensitive to bill changes than Urban / Rural Short customers given their issues with reliability and a willingness to pay more to secure improved servicing.

6. Willingness to Pay

These insights were primarily gathered through qualitative research.

- Residential customers are open to paying more for further investment in renewables (without a clear indication of cost), particularly when it comes to further research into the best options for Western Australia, active investment in renewables and community batteries, and rolling out more Stand-Alone Power Systems (SPS's) where indicated.
- However, for those experiencing financial hardship, there was concern / apprehension for an increase to prices even though they understood the importance of having a reliable, resilient network and investing in renewables to support and help future generations. A clear indication of the investment amount and timeframe will contribute to increased customer acceptance of increases in their bill.
- **Stakeholders** who aren't bill payers themselves generally expressed a low belief that the community should have increased costs associated with reliable power or future proofing network. Reliability was largely seen as a "basic" issue, tied to ethical and equality concerns.
- **Large businesses** in particular were reluctant to bear increased costs in relation to upgrades or service levels. They feel that they already pay a high amount for electricity and that this in itself is already prohibitive to business growth**.**

7. Investment Priorities

These insights were primarily gathered through quantitative research.

After reducing electricity prices the **next most important investment areas are:**

- Building new infrastructure to cope with future demand;
- Supporting renewable energy and management of solar connections to the electricity network; and
- Investing in new technologies to prepare the network for the future.

– Amongst SME customers these are prioritised ahead of affordability.

– While not as impactful as reducing prices or ensuring network reliability, there is some willingness to accept small bill increases to increase future investment in new technologies, renewables, and the thought that this would increase network reliability.

– Modelling suggests businesses are willing to pay at least double the % increase on their bills compared to residential customers for investment in new technologies.

Customers support network investment up to a point.

– Whilst there is support for greater network investment, this is somewhat limited by it's impact on the bill and the customer's perceived benefit..

– Residential and SME customers are unwilling to pay more than an additional 1% to increase vegetation management or improve communication / customer service individually. Amongst both SME and residential customers modelling suggests there is willingness to pay between 2-5% more to reduce the frequency and duration of unplanned outages.

– Modelling also suggests residents would be willing to pay between 7-14% more for increased investment in each attribute – reduced outage frequency / duration, new technology, undergrounding, vegetation management etc.

Unsurprisingly customers will support any investment where it is cost neutral but are less committed when there maybe a cost impact to them.

– While this was explored within the research, it is human nature to support something you think is important if it comes without cost.

Our experience from recent forums suggest strong support for specific investment options if the cost to the consumer is limited (e.g. <$5 / annum).

– The approximate cost to the customer of specific investment proposals was not available for the survey itself. We know from modelling there is some openness to investment in new technologies that provide reliability / sustainability benefits.

– Forum member reactions to the approximate cost to the customer for new technologies (e.g. digital substations) were generally positive.

– However, the impact of the cumulative cost of multiple investment areas on the household/business bill remains unclear.

7. Investment Priorities cont.

Customers aren't seeking greater investment in vegetation management, communication methods / customer service or undergrounding powerlines.

- Increasing investment in tree trimming has limited appeal to customers. However, decreased investment below current levels has a negative impact on customer preference.
- Increasing communications and customer service are also relatively unimportant to customers compared to the other attributers. However lower levels of communication or service levels would cause issues.
- SMEs showed more willingness to pay for these attributes.
- Most (75%) customers are willing to trade a small amount of time response times to queries (30s) to service customer enquiries or issues via other channels (e.g. online chat) with the intent of not putting upward pressure on customer bills.

8. Communication

These insights were primarily gathered through quantitative research.

Customers most want to hear from Western Power about the things that affect them.

- Residents preference information about planned outages, unplanned outages (in terms of resolution), storm / cyclone warnings and how to reduce their energy usage.
- Amongst SMEs it was planned and unplanned outages followed by battery storage, information on solar panels and energy, and storm/cyclone warnings.
- Both residents and SMEs preferred method of communication from Western Power is via SMS and email, while the majority prefer to call or email when they need to communicate with Western Power themselves.

9. Variance

These insights were primarily gathered through quantitative research.

Customer needs / preferences vary due to their individual circumstances.

- While there are many similarities between SME and residential customers in investment priorities as well as reactions to potential future investments, there are differences between and within the two stakeholder groups.
- Notably, Rural Long are more supportive and willing to pay for renewables, decreasing in outage frequency / duration as well as new technologies, as they are affected the most by these issues.
- Vulnerable customers amongst both SME and residential customers also have different reactions / considerations based on their own circumstance. There is no one size fits all in the market.

3.2 Stakeholder Summary

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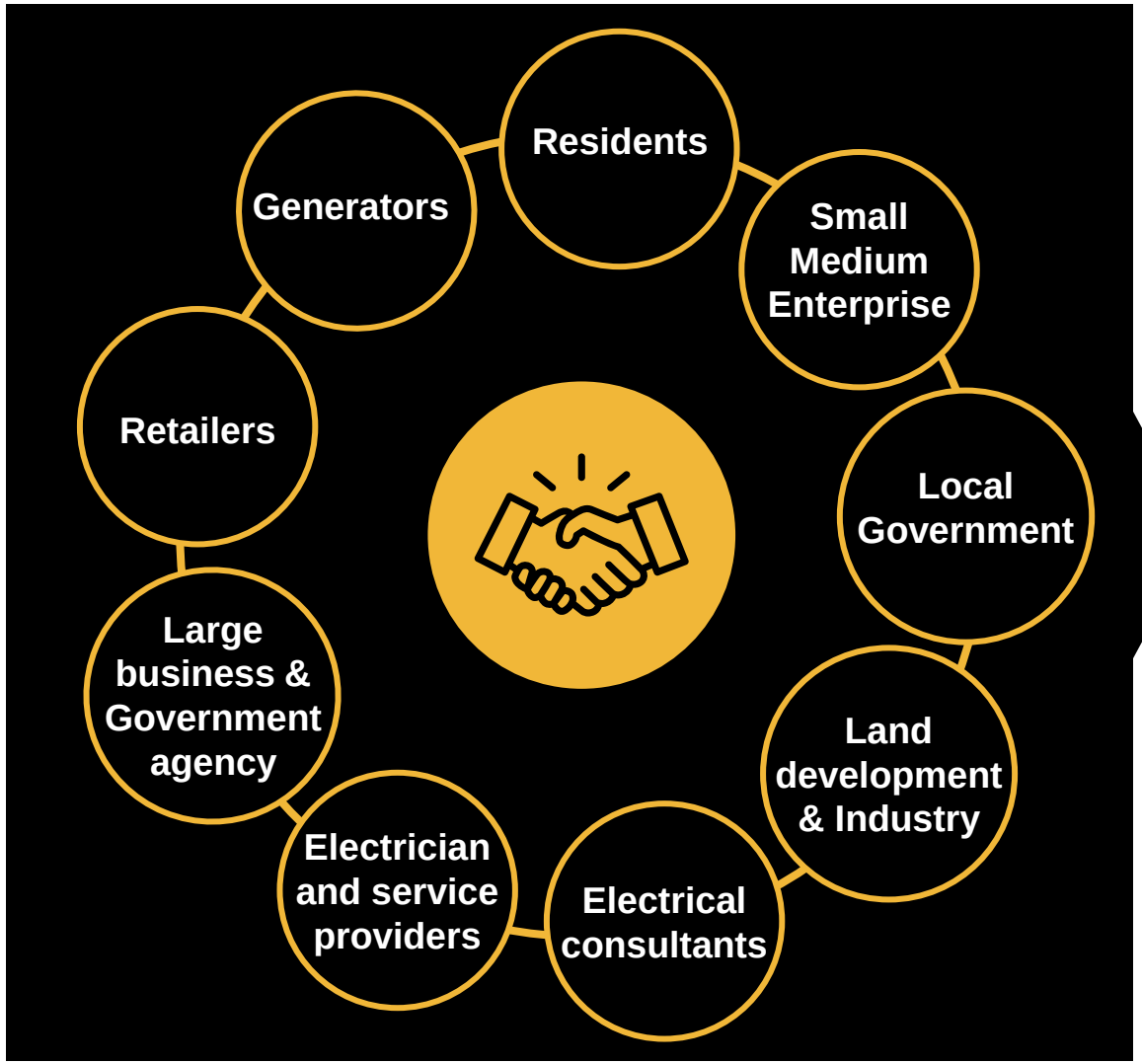
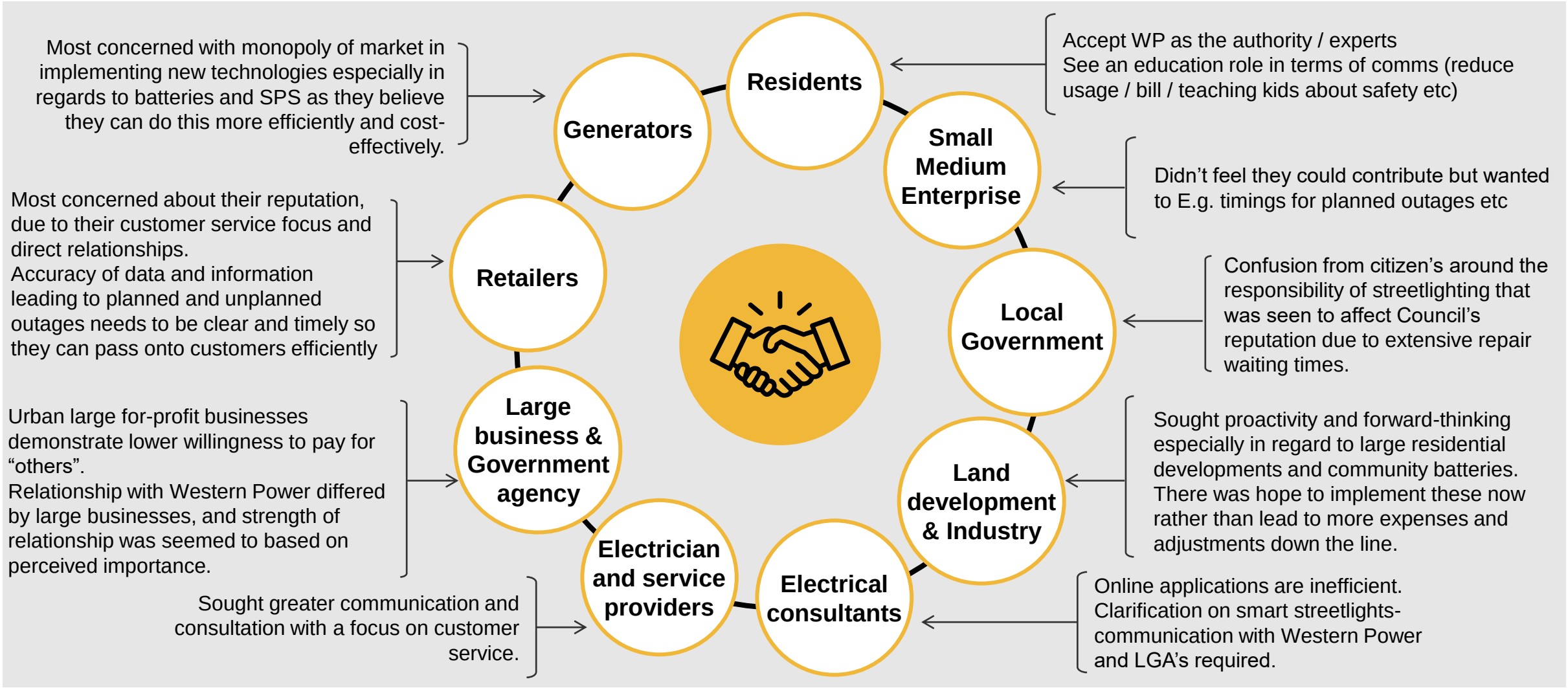
Summary of commonalities between Stakeholders



- Safety standards of Western Power are seen to be very high and response times to emergencies are quick and efficient, acceptance that some problems will and do occur – they're "unavoidable".
- Renewables were considered important. There should be a focus on implementing infrastructure to cater for a renewable network into the future. There's a common agreement that resources are limited and therefore it must happen.
- There is agreement that the current infrastructure is visibly old and in need of upgrades, the current network is not keeping pace with demands of energy needs and consumption. All believed it was important to act on upgrading the network sooner rather than later.
- All agreed that some element of a two way communication system where they feel involved and part of the decision making process was integral for ongoing relationships by increasing that transparency.
- There is a perception that Western Power has the capacity to be more proactive and innovative.

Note: The above does not include analysis on SMB's or residents and will focus on direct stakeholders of Western Power.

Summary of key differences



In summary, across all customers there is strong support for…

‘HYGIENE’ FACTORS

Keep community front of mind - keeping it cost effective, while supporting those who can’t do so themselves, perhaps by offering support financially.

Maintain high safety and network maintenance standards. Future proof for population growth and diverse sources of generation.

Consistent power – expected today but customers also want this to continue regardless of future needs or changes and improved where possible.

FUTURE FOCUS

Green energy – keep doing more with renewables and increased investment in renewables.

Adopt new technologies - SPS’s benefit seen as decreasing reliability issues for residents at the edge of the grid, shrinking the grid to minimise the number of homes affected by outages, and speeding up the restoration time.

Decrease size of grid/micro-grids – more reliability, less people affected, utilise other grids, increase safety, less time in maintenance.

Undergrounding wires as customers see the safety benefits and contribution to network resilience. However, there is low WTP when ranked among competing investment priorities.

More discussions around batteries - some see community batteries as an attractive option and most believe the future will have more batteries.

4 Qualitative Insights

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4.1 Customer motivations, priorities and needs

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4.1.1 Residential customers

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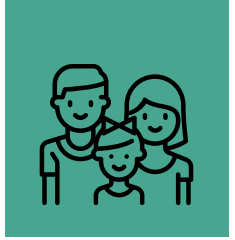
Residential customers



Residential customers' connection to power is incredibly strong. It's impact on people's lives from a survival (food, shelter), enjoyment (entertainment) and connection (connect with others through technology) perspective means that without power, many struggle to get by for more than a few hours. Based on this, they speak emotionally about power, because it's a fundamental part of daily life and survival.

Residential customer views on renewables:

The idea of renewable energy is a considerable point of interest for residential customers. Not only do they acknowledge the infinite source of energy that sun, wind or waves could produce, they see it as the right thing to do for our planet, and their opportunity and responsibility to leave the next generation in a better situation in relation to sustainable energy.

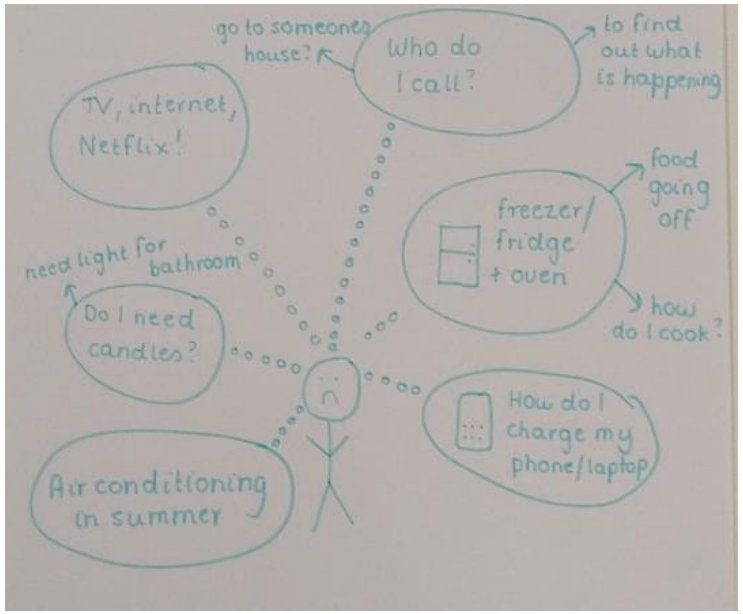
Most residential customers know extremely little when it comes to the detail surrounding renewable energy, instead understanding at a surface level that it's almost the cure for everything. This means their reactions and opinions around renewables are incredibly strong (as they're driven by values), but largely uninformed.

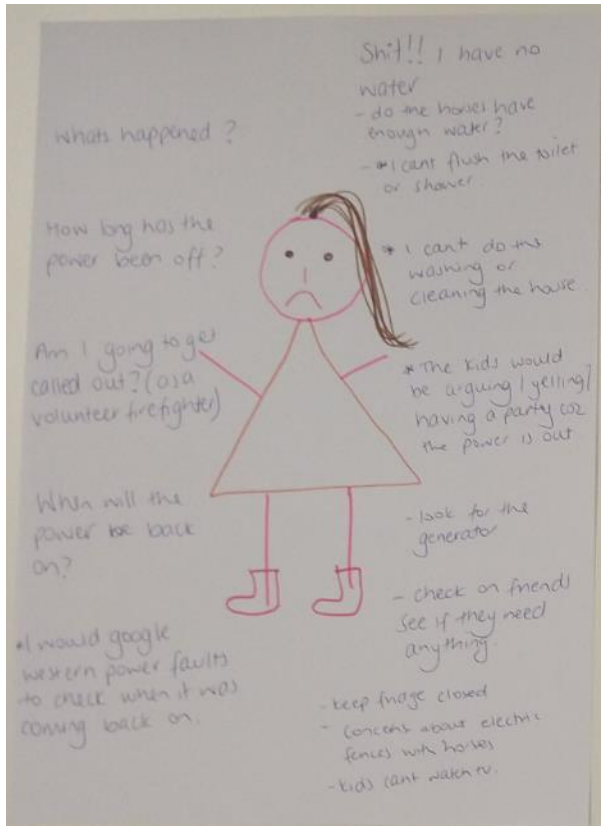
What investments do residential customers support?

- Increased focus on and investment into renewables. Particularly when it comes to further exploration into the best options for WA, active investment in renewables and community batteries, and rolling out more SPS's where it makes sense to do so.
- Preparation and proactive steps to ensure we have a grid that is ready for the future. Particularly when it comes to undergrounding infrastructure, decreasing the size of the grid, exploring back-up energy supplies in times of outages or interruptions, and ensuring the network is ready for a growing population and increased reliance on the network.

Residential customers react to an outage

Residential customers rely on power for many needs linked to basic survival. Power provides the architecture of their lives, such as charging mobile phones, household appliances, lighting or services such as the internet, TV, and Netflix. It's integrated at every touch point in the modern world and without power, food and finances (the fridge = food and financial implications) and the ability to stay safe and comfortable (access to heating and cooling) can be impacted. Below is a pictorial representation of how respondents' lives are impacted during an outage.





Awareness and perceptions of Western Power

A summary of residential customer views.

Awareness and sentiment

– Awareness of Western Power is high, though there's some confusion over the differences in roles and responsibilities of Western Power versus Synergy, and a desire to know the difference.

– Recognise Western Power as delivering a generally good service overall, driven predominantly by perceived reliability of supply, and speedy restoration of outages.

– Most feel reasonably positive towards Western Power and the service they provide, generally driven by perceived reliability.

– Many were surprised by the extent of the network as most assumed Western Power covered the entire state of WA.

Perceptions of pricing and willingness to pay for increases or decreases to service levels

– Prices seem justified in return for the service received. The network is considered reliable, and residents typically feel that power is always there when you need it… "you flick on a switch and it's there". Outages are so infrequent, short or rare that residents rarely think about their power supply.

– Most receptive to increases in service levels and therefore increases to bills when it comes to renewables, safety and future-proofing the network. Less likely to support investment to improve reliability as it's generally seen as quite good as it is.

Awareness and perceptions of Western Power

A summary of residential customer views.

Primary concerns and challenges for Western Power to tackle

- Population growth, particularly in the regions and the network's ability to keep up. Western Power should be proactive not reactive to population growth.
- Impact of rooftop solar on the network, and affordability for those remaining on-grid.
- Increasing involvement in renewable energy production and transport.

Differences across sub-groups

- Reliability perception and expectations differ depending on where you are – Metro Perth residents are generally very happy with reliability, whereas regional and rural customers are more affected by outages, for longer, leading to a decreased sense of network reliability.
- There are cultural differences in willingness to pay and expectation provided on reliability of power. Whilst for ATSI customers, the biggest concern was undergrounding and the impact this may have on the close environment.
- There is disparity in willingness to pay, hinged largely on disposable income but also perception of reliable electricity as a minimum expectation (regardless of location).

4.1.2

Small and Medium-sized Enterprise customers

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Small and medium-sized enterprise customers

For SME customers, power is an important component of their business as it can have a fundamental impact on their operations, products, services and is therefore a key part of their supply chain. As business operators themselves, SMEs hold extremely high expectations for Western Power. They see them as a large organisation with almost unlimited access to resources. They hold Western Power to a standard almost above a commercial organisation (as they have the commercial focus, with Government support) and this sets an unrealistic expectation for Western Power to meet in terms of service delivery and performance.

SME customer views on renewables:

- SMEs see renewables as an efficient longer term solution, and see this as imperative to their own businesses. Given this, they believe that Western Power should also be focused in this direction, as it is how society is viewing the future.
- Don't want to have to pay more for increased reliability or increased investment for the future, including in relation to renewables, they feel as if this is Western Power's role and responsibility.

What investments do SME customers support?

- SMEs expect that the service and supply should be consistent and reliable without the increase of any fees, and believe that the amount they already pay is a large element of their business expense.
- Currently they believe that Western Power should be able to facilitate any additional investments through efficiencies gained internally rather than looking to customers to support this.
- More likely to consider trade-offs for reduction in price.

Awareness and perceptions of Western Power

Awareness and sentiment

- SMEs are feeling extremely neglected and quite negative towards Western Power, primarily driven by their outage experiences due to inaccurate restoration communications.

- SME customers also have limited understanding regarding Western Power's remit versus Synergy.

- These customers require a greater level of accuracy around outages and have expressed strong frustration with inaccurate restoration estimates leading to sending home staff, and the power being restored sooner than predicted (by hours).

- They don't need, want or expect any communication from Western Power aside from around faults and outages and were happy to see communications decrease if it meant quicker restoration when outages are experienced. Although SMEs don't currently believe there is too much information shared, they're willing to forgo some communication in exchange for increased accuracy in information in key moments e.g., outages.

Perceptions of pricing and willingness to pay for increases or decreases to service levels

- Less likely to accept payment increases than other customer types. Don't want to have to pay more for increased reliability or increased investment for the future. The least likely to be willing to pay more for anything.

- This is likely driven by a few factors

  - Belief that Western Power should be run similarly to how SMEs operate their own business i.e., efficient, planning and investing in their own future, putting money aside.

  - Overarching feeling of invisibility, they believe they are not considered by Western Power i.e., outages do not align with SMEs commercial requirements and majority of planned outages occurring during trading hours, leading to an undervalued feeling.

Awareness and perceptions of Western Power

A summary of SME customer views.

Primary concerns and challenges for WP to tackle

- Accurate provision of information
- Transparency around pricing and how Western Power spend their money

Differences across sub-groups

- The number of staff plays a role – if a sole operator then the impact isn't felt as strongly as SMEs employing multiple staff
- Industry also makes a difference i.e., if in a high power dependency industry such as, hospitality or retail, the impact of an outage is felt much more strongly and can lead to the temporary closure of business, for example:
  - Point of sale systems
  - Fridge and food storage
  - Lighting and customer safety, security systems
  - Information server systems

"Just do your job – don't worry about the rest of it, just make sure the lights turn on when we need them."
SME customer

(to do with current cost)"You've just got to live with it, ideally it would be a lower cost. We've never seen a reduction in electricity cost, it just continues to go up, I can never fathom why."
SME customer

4.1.3 Stakeholders

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Stakeholders

Ultimately, stakeholders are motivated by an interest in progress across the industry. Although they may represent different constituents across a range of sectors, they come to work everyday to find innovative solutions to help people live a better life through access to power. Through innovation, alternative sources, engagement with their communities and a professional interest, it's about doing the best they can to leave their mark on the future of the power industry. There's an element of personal responsibility along with a responsibility to advocate for those they represent.

Stakeholder views on renewables:

- Extremely supportive of a focus on these – feel it is expected that Western Power should also focus on these for the future of the grid.
- Renewables, particularly in a place like WA, are essential to the future of the grid.
- WA is preparing for a dramatic increase in solar input but is not currently prepared for it. Solar will change the demand profile.
- Western Power are trying to be prepared for the changes to come – but are not there yet.
- Belief that there are too many road-blocks to connect new generation assets (such as solar, wind, other small generators).

What investments do stakeholders support?

- Sought investment in data and analytics to provide stakeholders with more accurate and reliable data in a more timely manner which would improve efficiencies and decision making in their own operations.
- Smart metering was seen to be cost effective and more accurate.
- Underpinning this was a belief that any investments must make economic sense and provide a clear cost benefit.
- Whilst the above are where investments are sought, this does not necessarily equate to a willingness to pay.

Awareness and perceptions of Western Power

A summary of Stakeholder views.

Awareness and sentiment

- Stakeholders talk about improvements having been made in recent years in the way that Western Power engages and communicates with stakeholders. This improvement typically comes from the relationship management approach that has been adopted in recent years.
- Despite this, many feel that there is still room to improve, with queries that are beyond the remit of Relationship Managers taking a long time to resolve and perceived as being bounced around the siloes of Western Power with no one taking responsibility for the issue.
- Belief that Western Power has favourites when it comes to major customers, and is happy to act as a siloed corporation rather than an organisation that maintains relationships, leading some stakeholders to feel unimportant relative to others. Belief that Water Corp and Development WA are doing this better.
- Many talk about frustrations with 330kv lines, and a desire to see this happen sooner.

Primary concerns and challenges for Western Power to tackle

- Increased engagement and proactive collaboration with stakeholders by finding efficiencies in coordinating infrastructure planning
- Renewables
- Preparing the network for the future
- Long term scenario planning for the entire network

"Trying to keep all systems and communications open with all parties. Trying to speed up the process and get things done, keeping the customers happy" ***Retailer***

"Whenever we develop a new site we go through a process obviously in WA as opposed to other parts, it's more of a monopoly situation. The system in the eastern states is much more open, we manage the process. Whereas in WA, we're much more reliant on Western Power when building the infrastructure, we don't have the opportunity to manage that yourself. And that's one of the biggest frustrations for us, not being able to control that. The transparency of that can sometimes be limited as a client. We don't have many options. You got a single person that you're dealing with in terms of Western Power and as a client you got very little control over cost, timing and quality. We just have to take what Western Power provides" ***Large business***

"Influx of electric vehicles. Infrastructure, making sure that the network has the right capabilities. It's something that if it does go it's going to cause a lot of issues" ***Local government***

Awareness and perceptions of Western Power.

A summary of Stakeholder views.

Differences across sub-groups

- Local Government speak highly of Western Power's response to recent natural disasters i.e. cyclone. They credit Western Power as acting exceptionally well in times of emergency or need.
- Local Government conscious of streetlights and the cost for these. Very keen to speak more with Western Power about options for smart streetlights.
- Stakeholder representatives for regional business believed unplanned outages were frequent and outage times were too long.
- Large customers are extremely price sensitive, reluctant to pay more for power unless some saving will be returned longer term.
- Retailers and generators in particular were likely to express frustration around transparency and communication.

"The problem in time is going to be that we still need a grid, so we need a network, and yet there are more and more people coming off it and trying to have their power from their own things. So it leaves more people, or less people to pay for more of the grid. So I think that's the issue that's going to hit us and obviously local government, we still need to provide street lights and things like that, or we still need to pay for street lights – Western Power provide them but we pay for them. So, potentially, I guess, what we don't want is, we don't want to have to pay more for the overall grid to cover the cost for street lights and other things like that because more and more people are coming off" ***Local government***

[An increase in electricity cost] ""has to be justified and we have enough technical expertise and access to enough resources and enough market knowledge and network knowledge to be able to question that in a knowledgeable way. We wouldn't just accept it, we would challenge it" ***Large business***

'We deal with a lot of people on the edge of grid. We're trying to reduce their consumption from the grid sometimes upwards of 40% - 50%. That would take pressure off of Western Power's network. Yet, we pay $5,000 for a standard size application to Western Power and 6 months later without any communication, we get told it's been turned down. On top of that $5,000 we pay an extra $15,000 in engineering costs and auxiliaries which make it less attractive to the customer and on top of all those, all those costs are to make sure that we don't export too much to the Western Power Grid which is something we have absolutely no interest in doing because we want the customer to pay for everything. So there are a lot of customers where we could take a lot of pressure off of Western Power's network but the costs that Western Power puts in a prohibitive to us doing that and I feel it's just because it's a very expensive network that maybe it's not being cost controlled" ***Retailer***

4.2 The network now and into the future

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4.2.1 Network Reliability

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Network reliability

Network reliability is perceived as generally quite good.

All customer types largely agree that the reliability of the network is generally quite good. Evidence of this typically comes from very few outages, and any previous outages lasting for only a short period time. Most agree that when they turn on a switch, they have power.

Generally, **residential customers** believe that outages are caused by weather or storms more so than infrastructure faults or age, however other stakeholders acknowledge the age of the infrastructure, and maintenance as another potential cause.

Due to strong feelings that the network is already reliable, and that any outages are short and caused by uncontrollable weather events, customers do not support an increase in their bills to increase the reliability of the network.

Residential customers and **stakeholders** are generally quite pleased with how Western Power handles outages, believing that response times are usually quite good and often exceeded.

SME customers however disagree, and cited inaccurate restoration predictions, leading to closing down operations for a period of time, and then surprised when the power is restored in a considerably shorter window than estimated.

There were some differing perspectives when it comes to reliability:

- Some regional customers (Geraldton and Kalgoorlie in particular, and other Rural Long customers) were less likely to agree that the network is reliable, and felt that it took longer to restore when supply was interrupted.
- SMEs rely heavily on accurate restoration predictions and unlike residential customers who enjoy being ‘delighted’ by having power restored sooner than expected, this has a much stronger impact on business customers who may make the decision to close the doors for the rest of the business day.
- Causes of outages were somewhat different across customer types with residential customers usually blaming weather, dust or other events. Stakeholders attributed ageing infrastructure as a cause, suggesting that increased maintenance could improve this.
- Some regional/rural residents and rural stakeholders have the ability to use their own generators for short term use however, they cannot sustain for long periods (a stressor).
- Similarly, some Metro large businesses, particularly those in high stake or critical industries need to rely on short term, self-generated power during unplanned outages.
- Some regional and rural large businesses highlight how unplanned outages can cause major concern for their operations and this flows along their supply chain impacting multiple customers.

Network reliability

Network reliability, other comments specifically from stakeholders.

Stakeholders tend to agree with other segments that the current electricity reliability is good and meeting the standard expected, however, many think the network is operating at 'critical' levels.

They believe that Western Power's safety standards are very high and response times to emergencies are quick and efficient. Again, largely accepting that some problems will and do occur – they're "unavoidable"

Stakeholders have a perception that the current infrastructure is aging and not up to current standards. This affects:

- Lack of adaptability, don't believe the grid is set up as required
- Feeling that we need stability and reliability moving forward, but the current energy climate does not provide these assurances
- Many also don't believe that the grid is prepared for the increase in demand and switch to renewable energy, leading to issues with grid overload and waiting times for those who want to make a switch to solar and batteries. There was agreement also that the grid needs to increase its capacity to store the energy created by additional renewable sources
- There is a sense of corporate reputational risk involved when issues are present in infrastructure and reliability for industries and large businesses relying on energy
- Believe that Western Power have quick response times to emergencies, however these businesses then need to factor in their own response times on top of this
- Need for a greater level of redundancy in infrastructure to guarantee supply (generator)
- Network is constrained by the capacity of the network to deal with solar (generator)
- Western Power have not made it easy for us to determine where the best place is to connect our supply to the network (generator)
- Western Power deal with physical assets well – maintaining the grid (retailer)

4.2.2 Network safety and resilience

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Network safety

Most believe that Western Power should be and are, already doing everything they can be from a safety perspective.

From an employee safety perspective, most assume that Western Power has the most sophisticated systems in place to mitigate against workplace injuries or fatalities.

Customers see the perceived potential safety issues surrounding “poles” (i.e.; people driving in to them due to poor placement/visibility, pole top fires or poles falling over if not maintained correctly), as a primary area that Western Power has the ability to mitigate against and therefore control. Whilst these safety concerns are relatively small in comparison to other aspects, they were mentioned as an addressable aspect to assist in further improving safety.

Residents within regional areas are more likely to be aware that some poles are privately owned, amongst this group they cite proper maintenance as an area of concern. In particular, issues such as dust, which can lead to pole top fires, or rotting wood leading to falling poles and power loss. This is only a concern for a small group of customers.

Customers firmly believe that Western Power should own and take responsibility for the maintenance of all power poles, and those affected by this uncertainty of maintenance are willing to pay for this to happen.

However, others stated that they already see safety as sufficiently prioritised, and so rate alternative aspects higher in terms of willingness to pay to improve.

Alternatively, if Western Power doesn’t take responsibility, more information must be provided to people who are in this situation so they have the knowledge of who’s responsible for the maintenance and the ability to do this in a safe manner.

> *“That should be a part of what they already do”* ***Kalgoorlie Resident***
>
> *“Should never compromise safety”* ***Perth Resident***
>
> *“Why would you have a service that’s not reliable, and also safe? They’re the two factors that people are going to look at.”* ***Bunbury Resident***

> *“You can’t take any shortcuts when it comes to the safety of your people”* ***Generator***
>
> *“It would generally be assumed that maintenance activities are being undertaken according to plan without undue risk”* ***Generator***

Network resilience

Most see the network being reasonably resilient, though there is support for activities to increase network resilience in response to major events such as bushfire and cyclones.

The community forum held in Bickley with residential customers focussed specifically on the resilience of the network. Based on this feedback, the community felt that the network was largely quite resilient, but that there are some potential steps that Western Power could take to increase resilience.

In particular, there was support for further investments in:

- Undergrounding: seen to increase the resilience of the network through decreasing the vulnerability of the network to weather and other natural disasters.
- Constructing power poles in areas more vulnerable to extreme weather events or natural disasters out of materials other than timber.
- Having ample staff on the ground to work on restoring access as soon as possible.
- Having access to back up electricity reserves if required.
- There was some confusion around the process for undergrounding among residents, with some concerned about Western Power's role compared to the role of Local Government.

There is confusion around the roles and the undergrounding process including;

- If they're paying for it via council fees, why can't they get undergrounding? Is that really fair if they cant?
- If they know undergrounding is coming later, it's generally deemed ok, but there is perceived lack of transparency around timeframes.
- This leads to confusion surrounding whether or not this is the responsibility of Western Power or the local council. This could be a communication opportunity for Western Power to address.

Stakeholders also identified undergrounding as having potentially a very positive impact on the reliability and safety of the network.

"The more infrastructure that's underground, the more reliable the system is" ***Government agency***

"Underground power, you know, is a great thing. Where I used to live, there's places that had underground power, but most of the town had power poles and when we had a cyclone, the people who had underground power still had power, but the other places didn't. So underground power is definitely a big thing" ***Kalgoorlie resident***

4.2.3 The grid of the future

Network challenges into the future

All customer types involved in the research were asked to identify some of the key challenges the network will be facing in the future and propose solutions Western Power could consider to future-poof the network.

CHALLENGE: Population growth and increase in 'tree changers' increase grid pressure in regional areas, and perception that current network may not be able to cope with this.

SOLUTION: Increased SPS infrastructure in regional, rural and remote communities.

WILLINGNESS TO PAY?: Yes

> "*Question is "what is the percentage increase?" and then I suppose you have to weigh it up against how much money they're going to be saving by not having to put that infrastructure and also maintaining it. I think it'd be fine"* ***Regional resident***

CHALLENGE: Increased working from home places more pressure on the network in both metropolitan areas (especially where gentrification is occurring), and in growing regional areas (expanding through both residential and commercial/industrial growth).

SOLUTION: Expectation that Western Power should already be focusing on this due to population growth forecasting. Introduction of the NBN, and the general state of the world moving to "online" in virtually every aspect of their lives should have been considered.

WILLINGNESS TO PAY?: No

CHALLENGE: Ensuring that everyone can afford power and that power is supplied continuously to all.

SOLUTION: Discussions around those that have power feeding into a community battery and making this solution a cost efficient for all. Sharing of a resource as long as those that contribute also benefit in some form.

WILLINGNESS TO PAY?: Yes, but in the short term. There must be an end date to signify the end of the cost outlay and investment.

In particular, Bickley residents enjoyed the thought of utilising a community battery with the capacity to power their entire town. This was largely seen as providing greater resilience and also to serve as a risk mitigation strategy from outages elsewhere near their grid.

> *"I would be willing to pay more if it meant that costs over time would decrease but if the costs just went up, then I probably, I don't know"* ***Regional resident***
>
> *"If it was a case of, say there's one in the middle of my road and 6 of my neighbours feed into it, if we pay a certain amount of to maintain it, metred out, we should be able to access it, paying a maintenance fee… think would be reasonable"* ***Vulnerable resident***

The network into the future

Smaller/micro grids – the way of the future?

There's a view that smaller grids are potentially the way of the future, and among **residential** and **SME customers** they were suggested as being beneficial for the following reasons:

- Fewer customers are affected when there are outages;
- A smaller area is affected by outages, which customers believe would decrease restoration times; and
- Less pressure on the grid (fewer people trying to access one grid), therefore reduced likelihood of brownouts or rolling blackouts in extreme weather conditions in the future – a network that can cope with increased use.

Stakeholders largely agree, believing that microgrids have a role to play particularly in poor access areas (generator), and that a smaller grid system should be a credible option as part of Western Power's scenario planning.

Stand-alone Power Systems (SPS)

A credible option for regional, rural and remote customers.

A strong way to build connectivity to the network and ensure a more reliable supply to regional or remote area.

- Belief that Western Power could make faster progress in terms of upgrading and building capability of the grid, and wanted greater involvement from themselves (stakeholders and residents) in the development of these
  - This applies specifically to SPS (considered very important and beneficial to communities on the fringe of the network), adaptation for solar and undergrounding.

> *"SPS is a complement to a good network"* ***Stakeholder***
>
> *"Islanding (e.g. SPS) is something that customers may choose on the fringes of the network to maintain reliability of the network"* ***Retailer***
>
> *"The sooner that they can prove the system works to the communities. The confidence grows. The sooner you do it, the sooner you start saving money"* ***Stakeholder***

> *"My experience is where it's gone to, in particular remote mining areas, that they have been so pleased in getting it, being on their priority list of getting it. And secondly, the usage they've gotten out of it has a continuity of supply that it far outweighs the cost that is involved"* ***Regional resident***
>
> *"Well, it looks ideal. Rather utopian, I think. It would be wonderful… because you would be using natural resources and cutting down on fossil fuels, and what have you… You wouldn't do away with the grid completely."* ***Residential customer from Albany***

The network into the future

The grid of the future? According to stakeholders.

Stakeholders believe that a core factor for Western Power to focus on for the future is about ensuring the stability of the grid, specifically:

- Ensuring power quality for the future
- Ensuring reliability in the future
- Stable and secure, adapt to intermittency

Stakeholders believe that Western Power needs a plan for the future of the power network, that considers the following:

- They need a strategy that is a lot more dynamic and a network that is more resilient (generator)
- While Western Power may have a future view they may actually need 4 or 5 views for different scenarios. In some respects they are trying to manage an outcome beyond their capacity (generator)
- Adapting grid and changes to generation of power seen as a necessity, understanding resources are limited therefore it must happen

- Uncertainty of the changing energy market and policy
  - E.g. Unrestricted to restricted market, what does this mean for generators, how can they be best prepared?
  - Lack of transparency – how are Western Power planning for the future?
  - Affects the ability to make business decisions

"Concern that Western Power may not be future proofing the network" ***Generator***

"Need to establish smaller generators in different areas as part of the future grid" ***Generator***

"Potential for huge uptake of electric vehicles. The network is not currently prepared for this and may not be in the near future" ***Generator***

"*There will be a lot more distributed energy provided, a lot more household batteries"* ***Retailer***

"*Solar may need to be controlled remotely to manage load on the network"* ***Retailer***

4.2.4 Renewables

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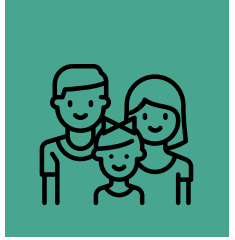
Renewables are the way of the future



There is strong community support for further investment to support an increased reliance on renewable energy.

Residents on climate change

- Support for more action with many believing the network is not as prepared as it could be
- More needs to be done in terms of renewables, to future proof supply (currently using a finite resource whereas renewables are infinite) and minimise our impact on the environment.
- Desire to act now to look after future generations

*"It's probably important because, obviously, in the long term, fossil fuels – eventually there won't be any. It won't be in my lifetime or yours, but eventually there won't be any fossil fuels. So they've got to prepare for that and that's fine, but they can't just say, 'In five years' time we're not burning any more fossil fuels; we're going to be on renewables,' because that simply will not work. I'm all for a gradual increase in renewables and a gradual tapering of, let's say, coal. That makes sense to me. But not over 5 years; give it over a 50 or 60 year plan that's achievable… Myself, I'm a fan of *nuclear, but you're not allowed to use that word in Australia, so."*

Residential customer from Albany

**NB: while mentioned a few times, nuclear sentiment is very low, and was an uncommon talking point for many*

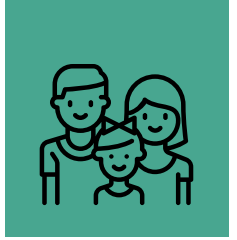
Renewables are the way of the future

Stakeholders suggested that:

- Renewables, particularly in a place like WA, are essential to the future of the grid (generator)
- WA is expecting dramatic increase in solar input but it is not currently prepared for it. Solar will change the demand profile (retailer).
- Western Power are trying to be prepared for the changes to come – but are not there yet (Government)

"More renewable energy. I know they're doing some work, I've spoken to them about it, few conversations with them and I know and doing a lot in that space. Western Australia have the longest days and the maximum amount of sun in the world, so solar power is one of the sources we should be tapping into, which we are implementing in our assets too – we are solarising our electrical assets. Internally we have electrical teams doing that work and maintaining it. Western Power should have this as a priority too" ***Stakeholder***

Renewables: Rooftop Solar



If the majority of homes have off-grid rooftop solar, what will this mean for those left on the grid, who cannot afford solar?

This causes great concern as many see solar as aspirational, they'll do it when they can afford it, and don't want the poor to be penalized for simply not being able to afford it.

Strong demand among those experiencing financial hardship for support for rooftop solar to be installed on community and Government housing.

Rooftop solar is somewhat contentious… people are aware that others are getting higher rebate rates than they are. If continuing with buy backs etc, then there is a need to make more equitable, where possible.

"I think that that's a major short sightedness on their part, because there's so many other places around Australia now where the government is putting solar onto their government owned homes, because they can then use that power as a buffer for when power outages happen." ***Vulnerable customer***

"I would like them to upgrade their infrastructure so that they can cope with whatever the solar input is from rooftop solar. I would probably just turn my solar system off and go back to being on the grid full-time. They just need to upgrade and figure it out for themselves, without putting their hand in my pocket for it."
Residential customer from Albany

Renewables: Rooftop Solar

Feedback from generators was that the sheer volume of renewables limits the need for traditional energy sources.

They also felt Western Power are fairly prepared for the future, although believe it is facing a big change in the market as increased solar penetration on roof tops creates many problems for Western Power.

Retailers agreed, suggesting that a likely future scenario is seeing very little demand on the grid during the day, as roof top solar operates, with a massive uptick in demand at night, which risks 'breaking' the network.

"It's good for customers, but I think it needs to be a balance. If there are too much rooftop solar out in the market, it won't be good for the market balance" ***Retailer***

"I don't see it [the grid] ready if rooftop solar continues to advance at the pace it currently has. Of course, that's hard for Western Power as well because some of the incentives for rooftop solar were meant to have stopped already but they haven't, so how is anyone to know how much rooftop solar will come in, but definitely the amount of installers we're talking to, a lot more is going to come in and it's already under pressure because of that" ***Generator***

Technology investments

Stakeholders also want Western Power to…

- Do more “active upgrades” and more proactive maintenance e.g. providing a definite date on replacing old infrastructure instead of waiting until it collapses to replace.
- Speed up the rate of new innovation… The need to maintain large regulated assets restricts their ability to try new things.
- Speed up the currently very long contracting time and number of road-blocks to connect new generation assets (solar, wind, small generators).
- Streetlights seen as a secondary concern for Western Power, with slower response times and maintenance sometimes creating hazards within the community (e.g. unlighted major roads).
- There is a perception that, due to a lack of innovation, small steps are taken at a time and there is a preference for “tried and tested” methods, however they don’t believe this helps prepare the grid get ready for future challenges.
- Ensure that innovations (batteries, SPS etc) should be open tender to allow generators in particular to provide these assets and believe this should be an open and competitive market.
  - Some stakeholders hold a lack of policy knowledge around batteries, many are under impressions that private business can install, operate and manage batteries more effectively – calls for collaboration and sharing knowledge.
- Be aware that some stakeholders have their own sustainability or emission targets to meet and believe the current grid is a barrier to achieving these targets.
- Prepare for an increase in electric vehicles and plan for how the demand will be met with current and future infrastructure or initiatives; what are Western Power thinking policy wise (e.g., peak time reduced costs).

4.2.5 Communications and engagement

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Communications and engagement

Information needs for residential and SME customers.

Overall, all groups involved in the research had a desire for more information, typically in response to a lack of understanding about the network and how it works. Although the desire for information exists, they're unlikely to seek it out, and importantly, customers don't want to pay more for an increase in communications service levels.

Customers have a firm belief that access to information and communications is a right and that Western Power's current service levels around communications are adequate.

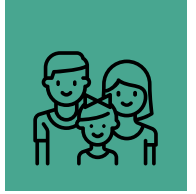
Customers are open to hearing from Western Power through a range of channels both online and offline for both urgent and non-urgent communications.

Although there is a desire for more non-urgent communications from Western Power, there was a strong reluctance to accept an increase in their bills to see this happen.

	Urgent communications channels	Non-urgent communications channels
When Western Power needs to contact a customer	SMS Email	Email On bills In writing (letter) Social media
When a customer needs to contact Western Power	Phone	Website Email Social media Chat bot/webchat In writing (letter)

Communications and engagement

Key considerations from a residential customer and SME perspective.



There is some confusion over Western Power's role

Many expressed confusion over Western Power's role, and confusion about the difference between Western Power and Synergy.

It was suggested that more clarity around Western Power's specific role and remit, and what they are focused on now and into the future would be good.

Many trusted Western Power to be a source of information on issues such as solar, renewables and power pricing.

People want Western Power to provide information that is accessible for all

Allowing all West Australians to interact with Western Power in a way that is accessible for them was found to be important to residential customers. More specifically this included:

- Language options at all touchpoints (particularly online) including in urgent outages communications.
- Many felt that this not only included other languages, but more accessible languages for those living with disability, such as easy read or Auslan.

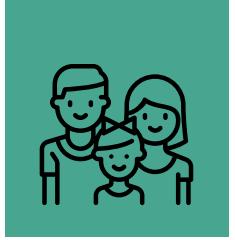
The relationship with SMEs requires some investment

Conversations with SMEs have revealed a negative sentiment and a scepticism over Western Power's operations and therefore a strong reluctance in terms of willingness to pay for an increased service level.

SMEs are highly bill conscious and require greater accuracy from Western Power in relation to outages that can affect their businesses in a more consequential way than it would a residential customer.

Communications and engagement

Specific non-urgent information needs raised by residential customers included...



Western Power in general

- What does Western Power do?
- What is Western Power's 20 year plan?
- What is Western Power doing to keep my bill as low as possible?
- What is Western Power doing in relation to indigenous traineeships?
- What are Western Power's future plans for WA?
- What innovation is Western Power planning for or investing in?
- What is Western Power doing in my suburb over the next few years?
- Greater transparency on connection costs and policy changes.

Renewables

- What is Western Power doing to reduce their carbon footprint?
- What is Western Power doing when it comes to renewable energy?
- Technology that is improving the way Western Power work and building a future renewable energy system
- What passive energy options are there for homeowners?
- What is Western Power doing in terms of the rollout of SPS's?

What individuals can do

- What appliances in my household use the most power?
- What projects can I have my say on?
- How can I reduce my power consumption?

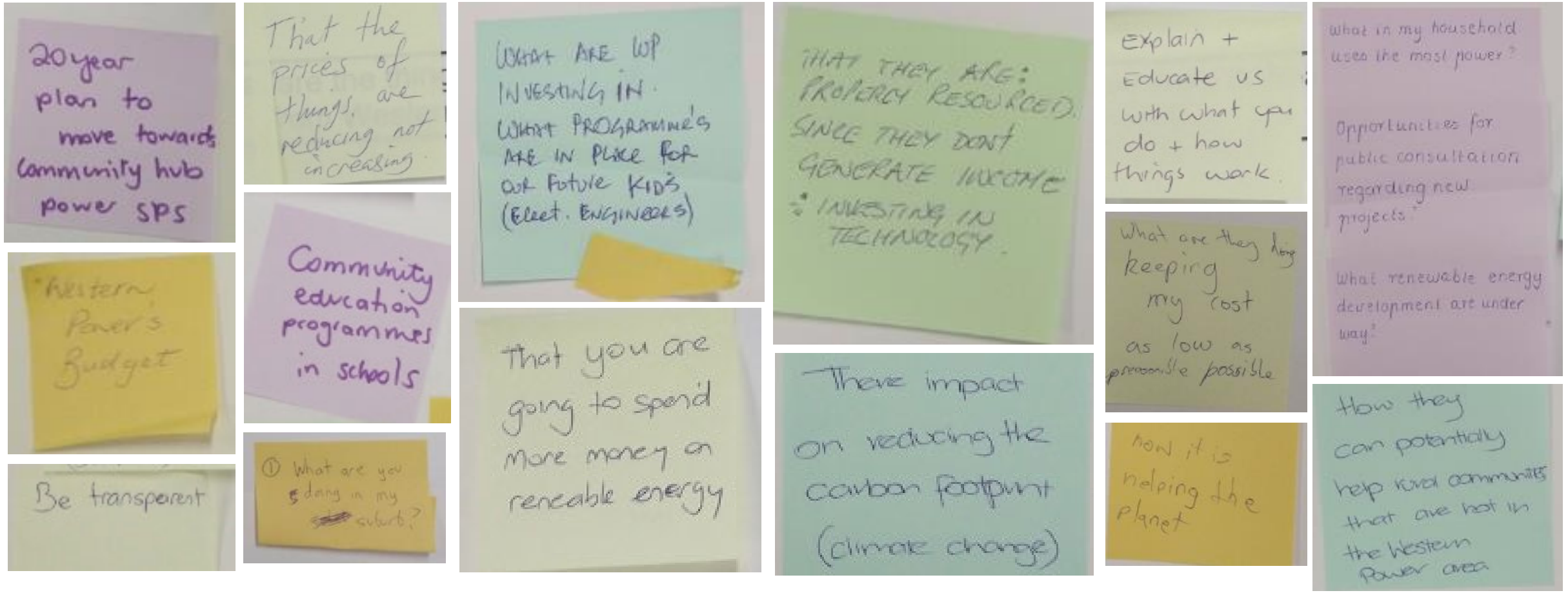
Potential channels for this information:

- Social Media (Facebook, Instagram, TikTok, YouTube)
- In power bills
- TV ads
- Physical signs around worksites or stations
- In schools

Important to note – although there is a desire for increased communication about these topics, customers are not willing to pay more for this to happen.

Residential customers information needs

What do you want to hear about from Western Power?



Communications and engagement

Specific needs in relation to outages for residential and SME customers.

Perhaps the most pertinent communications with customers are around the outages process. In these situations, customers expect Western Power to communicate using urgent channels (identified on the previous pages), as frequently as required, in order to provide confidence that the outage is being resolved and that power will be restored in a timely manner.

The most critical information needs throughout an outage includes:

- **If planned:** Date and time of the outage, estimated outage length
- **If unplanned:** Time of outage and estimated length/estimated restoration time
- Accuracy in estimated restoration time. This is especially true for SME customers, who place a higher value on accuracy (enabling forward planning) than being delighted by faster than expected restoration.

There was discussion about the need for information related to the cause of the outage, however it was agreed that ultimately the most critical information is the expected length of the outage and the estimated time of restoration.

PRE-OUTAGE

- **Preferred channel:** email or SMS, post for some if sufficient time
- **Information needs:** Date and time of outage, estimated restoration time

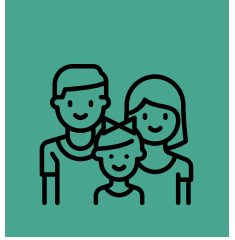
OUTAGE OCCURS/SERVICE INTERRUPTED

- **Preferred channel:** email or SMS, post for some if sufficient time
- **Information needs:** outage length, estimated restoration time

OUTAGE RESOLVED/SERVICE RESTORED

- **Preferred channel:** email or SMS
- **Information needs:** Date and time of outage, estimated restoration time

Communications and engagement



Key needs from residents when it comes to community and stakeholder engagement vary, most believing community engagement should take place when the decision will affect them personally or is about long-term strategic decisions.

There's no set rule about how people want to be engaged. It is highly dependent on the complexity of the issue or question and the extent of the potential impact on customers (service access or pricing in particular).

Customers are flexible in terms of how Western Power engages with them, suggesting the following engagement techniques could be appropriate, depending on the question:

- **Workshops**
- **Community meetings**
- **Surveys or feedback forms (online, phone, postal)**

The community also support a multi-modal approach to engagement into the future, and are willing to be involved multiple times in a conversation if it's highly complex or strategic, or if it will result in a drastic change for them, such as pricing, or if their access to power supply may change.

WHEN SHOULD WE ENGAGE WITH CUSTOMERS…?

… when we're **planning for the future** of Western Power's business (setting the strategy, making decisions about pricing).

… when **there may be a change to a power source** to a community, or changes to infrastructure (undergrounding or SPS's).

… if the decision will have a **substantial material impact** on people (cost, access).

… if the decision will **impact me** in some way.

… if there's **something more disruptive happening** in terms of the broader energy market.

Communications and engagement

Western Power has implemented a dedicated Relationship Management approach for key stakeholders, and large commercial customers despite this being seen as a great improvement, there's a desire for more streamlined decision making.

Overall, stakeholders believe the Relationship Manager model was a good move and that current ways for getting in contact are generally suitable to needs, however if the question, query or issue is beyond what the Relationship Manager can help a stakeholder with, and the query moves further into the Western Power 'Corporation', some pain points emerge:

- Once you go past a general administrative query, there is a sense of a lack of ownership on decisions and long waiting times;
- Stakeholders want access to technical people and decision makers when required, e.g. Engineers or Designers, who are seen as better able answer their questions; and
- Responsiveness varies by perception of 'importance' of client.

Stakeholders feel that when an issue ventures past their Relationship Manager and further into the organisation, this is when major delays and perceived inefficiencies can occur. Most stakeholders need a brief involvement with a key decision maker for the issue to be resolved.

*"**We've got good communications and relationships with Western Power.** They provide relationship managers [RELATIONSHIP MANAGER NAMES], they're the first ones to ring, and they're a good first response if you like. It's very difficult to get things further than them though. **Because it's such a massive department or organisation, it feels like a big very siloed organisation, it's very difficult to get to somebody who could make a decision.** What's ridiculous is that it's sometimes easier for us in Local Government to go to a Minister. We had a situation recently where we weren't getting any response from Western Power so we thought bugger it, we'll write to the Minister for Power. Our CEO wrote to the Minister, over 1 power pole. It was a waste of everyone's time, but it felt like the only way we'd get a response from Western Power." **Stakeholder***

Communications and engagement

Western Power has implemented a dedicated Relationship Management approach for key stakeholders, and large commercial customers despite this being seen as a great improvement, there's a desire for more streamlined decision making.

There's also a belief among stakeholders that **the relationship with Western Power as an organisation can feel directive and authoritative.**

Stakeholders are calling for Western Power to:

1. Be more customer focused, working with them and together, with the ability to negotiate solutions rather than being dictated to; and
2. Have a more coordinated approach with Western Power, however a lack of flexibility means that solutions for customers are not always rational or cost effective.

Communications and engagement

Western Power has implemented a dedicated Relationship Management approach for key stakeholders, and large commercial customers despite this being seen as a great improvement, there's a desire for more streamlined decision making.

Stakeholders are **seeking a much more collaborative relationship with Western Power and a genuine involvement in big decisions**.

There was a strong desire for industry forums, face to face meetings, and opportunities to come together to co-create win-win decisions and solutions.

In addition, stakeholders suggested that to increase the level of engagement Western Power has with them, Western Power could:

- Initiate and engage in more formal consultation and communication with stakeholders around policy changes (e.g. holding industry forums as working groups or publishing communications on website with Q&A)
- Offer more knowledge sharing, providing stakeholders with the opportunity to access perceived “best in class” knowledge via reports, data, thinking groups and engineers. Enabling stakeholders to benefit from shared learning and potentially implement process efficiencies for their business.
- Provide more opportunities to bring Stakeholders up to speed with Western Power’s future plans and priorities around renewables, innovation and other areas that may be relevant

Ultimately, rather than an at-arms-length approach, Stakeholders want to be more involved and collaborative with Western Power.

“We’re working on our energy strategy at the moment. I’d love them to come in and tell us what our opportunities are. We have also just finished the draft of our community plan. Environmental stuff is what Council love and what they want to hear about. It’d be good to have someone from Western Power come in and tell us what the opportunities are – is there an innovation department? How do we work with them rather than just being a customer that pays a bill? We’re looking at electric vehicle suitability… fleet vehicles, new roof on the building, why cant we have smart cars and solar panels? I’d be interested to know more about their business model moving forward… Maybe on a semi regular basis or annually, if someone wanted to come and talk to us, talk to Council, they'd love that, because that’s easily then fed back out to community. At the council level they eat that stuff up, they love it. ” ***Stakeholder***

Communications and engagement

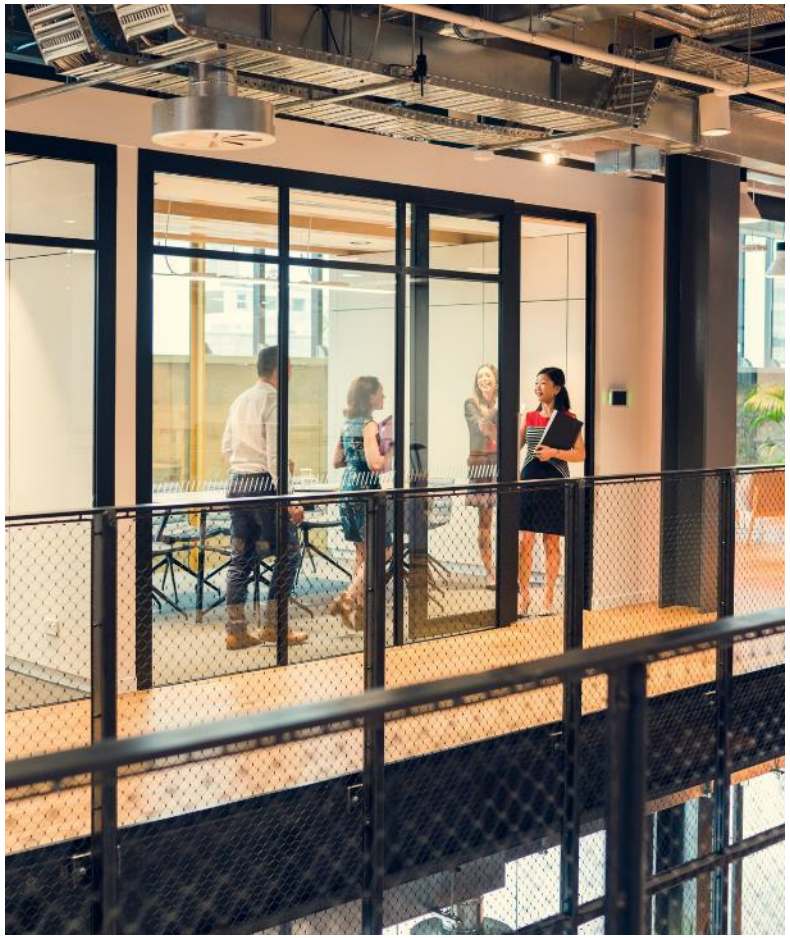
There’s also a strong demand for greater transparency among the stakeholder cohort.

Linked to this notion of being kept at-arms-length, and outside the building, Stakeholders have a desire for more, and ideally, full transparency from Western Power.

This is specifically in relation to the following:

- Quotes and large project management;
- Large customers would like to be provided a schedule of maintenance and provided with regular updates to assist planning if changes are made, and would like to be given notice when Western Power plans to attend site;
- Longer lead times on planned outages/maintenance to allow businesses to make required fore planning; and
- Western Power’s business plan and how it affects their business.

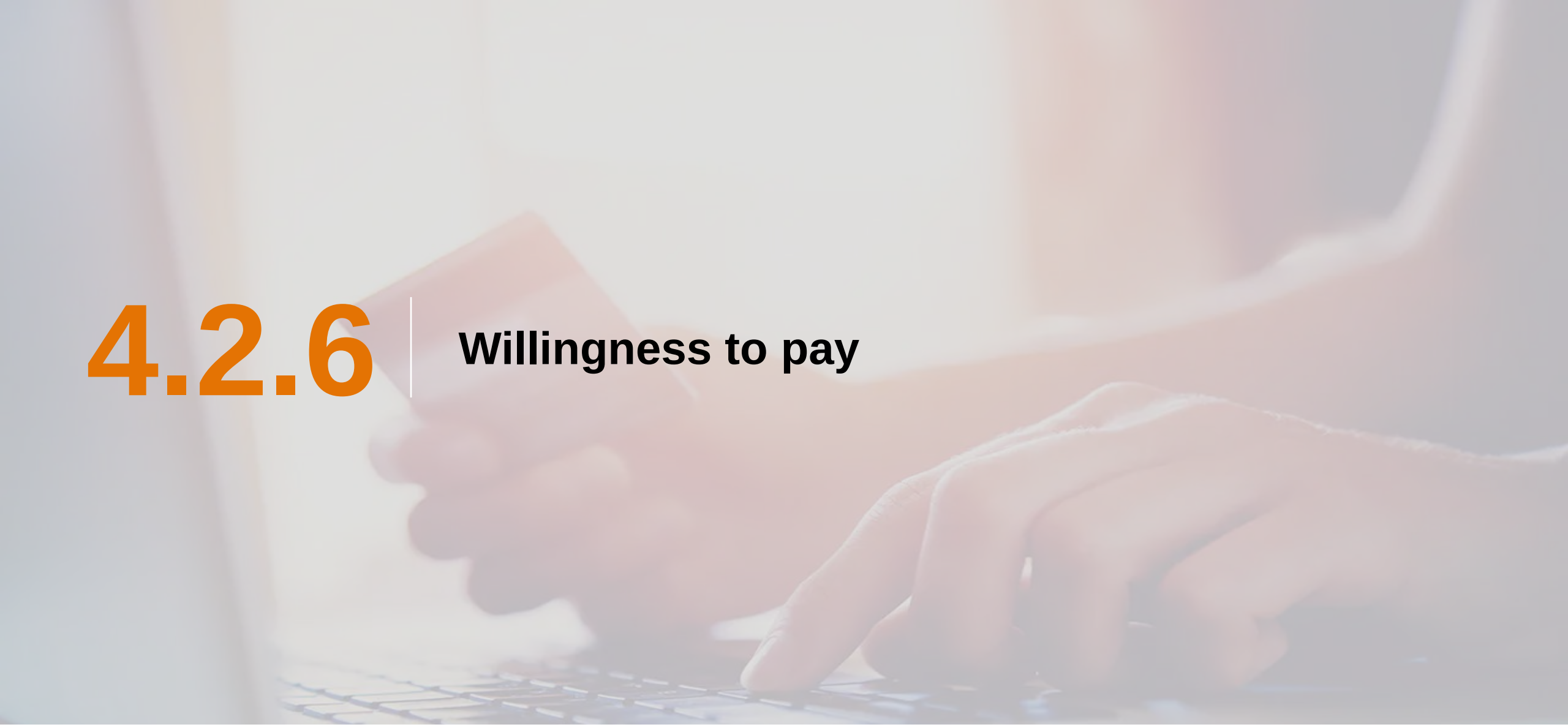
Stakeholders believe that through full transparency and a more collaborative approach, all parties will be able to come together and reach effective, and informed decisions.



Communications and engagement

Other suggestions from stakeholders about how to increase engagement.

- Need for greater partnership with industry players. Lack of clarity leads to confusion;
- Lack of openness and timeliness about planned tariffs. Western Power currently make announcements a week ahead of the planned implementation which leaves generators scrambling to comply;
- Has proven difficult in the past to find the right person in the business to talk to and response times can be a problem;
- In a deregulated market Western Power can struggle to recognise that retailers are also a customer;
- Western Power has a set of rules regarding COVID-19. Retailers feel as though these rules should be more transparent;
- Greater transparency around costs;
- Streamline the enquiry process. They operate a lot of channels, and in particular online forms were not seen to be effective by some groups. It could be made more efficient;
- While stakeholders have an account manager, that person is busy as well. Some aren't sure who to go to and who is responsible for what; and
- Where LGA contribution was necessary, it was felt there could be greater communication involving all parties throughout the process.



4.2.6 Willingness to pay

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Residential customers are willing to pay for further investment in renewables.

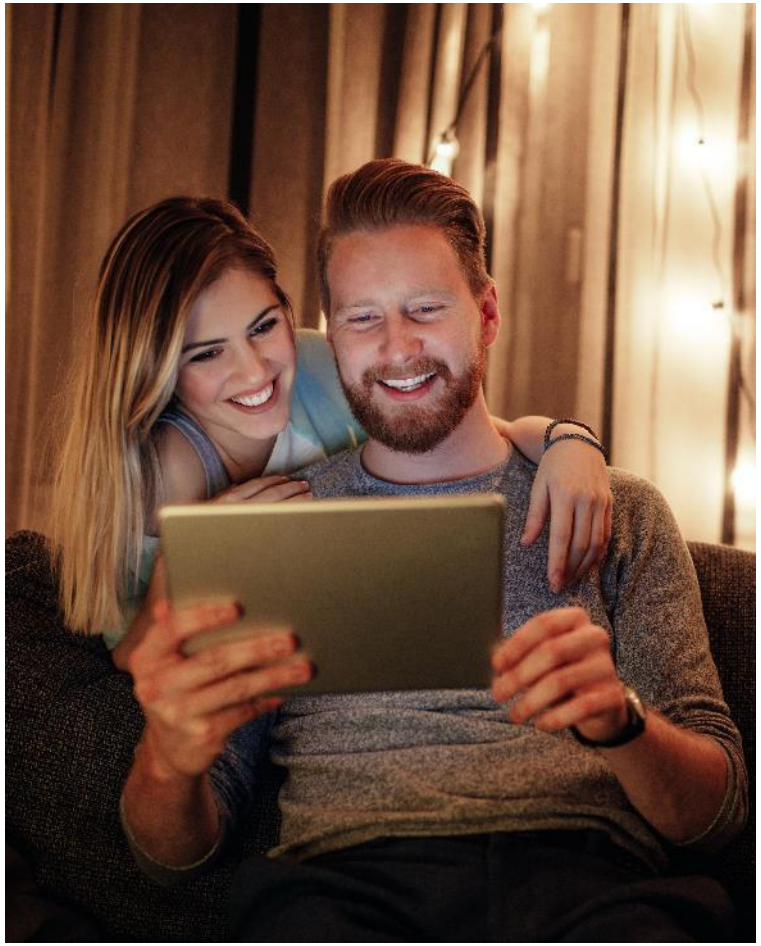
Particularly when it comes to further research into the best options for WA, active investment in renewables and community batteries, and rolling out more SPS's where it makes sense to do so.

Residential customers are also willing to pay for investments to prepare the grid for the future.

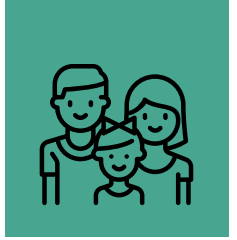
Particularly when it comes to undergrounding infrastructure, decreasing the size of the grid (to minimise the number and length of outages through micro-grids), exploring back-up energy supplies in times of outages or interruptions, and ensuring the network is ready for a growing population and increased reliance on the network.

Key areas that residential customers value, and want to see Western Power focus on, but many aren't willing to pay more to see happen.

Reliability was found to be incredibly important, but current service levels meet the needs of the community, suggesting willingness to pay for investment to improve reliability is not supported.



Regional differences in willingness to pay



Geraldton is highly price sensitive – this is likely driven by half the group being customers experiencing hardship.

Kalgoorlie is also highly price sensitive and aren't willing to pay for more increased service levels. There were similar findings for Albany and Bunbury in 45+ years old groups.

Some participants in the Perth Deliberative Forum were adamant they were not willing to pay an increase at all and felt that these investments should be covered by current price levels and not through increases.

We don't get a choice in it, do we? I mean, who is ever going to put their hand up and say, 'Oh yeah, I'm happy with a price increase,' on anything? We're just going to be lumbered with it and that's it; we've got no choice. I don't believe that the bills will ever go down. Ever since the electricity grid came into being, they have been improving technology… All the time, constantly improving the technology. But the power bills have never gone down. They've only ever gone up. So what is there to make you think that things are going to change?"

Residential customer from Albany

Consideration for customers experiencing financial hardship

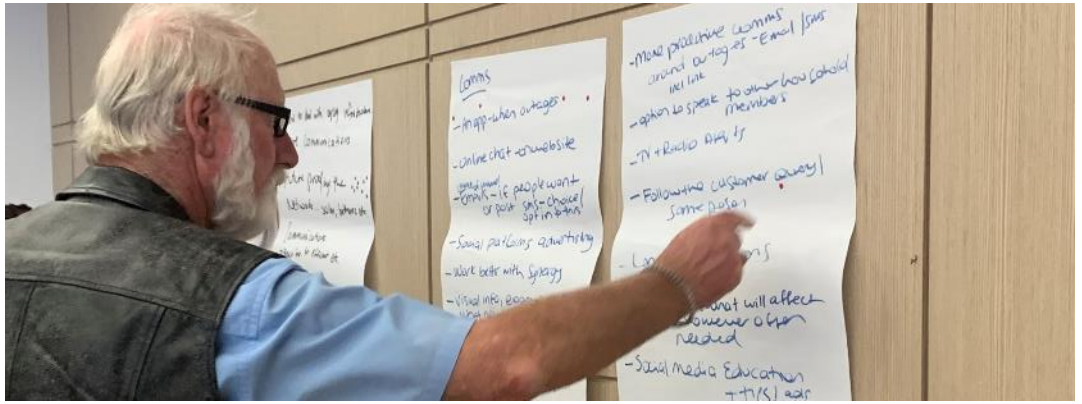
Finding the right balance between affordability and preparing for the future.

For those experiencing financial hardship, there was a strong level of concern or apprehension for an increase to prices. They were concerned about not having to make a choice between feeding their family and paying the power bill… though with this in mind, they still understood the importance of having a reliable, resilient network and investing in renewables to support and help future generations.

Among these people, they supported investment in some areas, provided that:

- They were agreeing to a set increase over a set period of time (e.g. an additional $10 per quarter for the next 5 years);
- After that period of time has passed, they see a reduction in their bills, or have the opportunity to allocate that additional amount to another project; and
- Clarity on what return and efficiencies each investment will provide.

> *"I realise that there's probably going to be a little bit of paying while they upgrade and get the new renewable energy online, but theoretically, once they have all the stuff in place, the price should drop."*
> ***Vulnerable customer***



Communicating pricing increases

A request from customers who look at their bills…

- People want to know what they are paying for in detail, like an itemised bill.
- Customers felt that increases in prices should be transparent - if there is an increase, and they understand how this is beneficial then there would be less disgruntled feelings about having to pay more.
- Providing customers with an explanation will assist in “easing the pain” of an increase for many.
- Examples provided were synonymous with Local Government rates – you can see where your money goes.

Willingness to pay

Stakeholders that aren't billpayers were challenged to identify what the community should bear the cost of in terms of increased investment or increases to service levels.

Stakeholders who aren't bill payers themselves generally expressed a low belief that the community should have increased costs associated with reliable power or future proofing network. Reliability was largely seen as a "basic" and an ethical and equality issue.

Large businesses in particular were extremely reluctant to bear increased costs in relation to upgrades or service levels. They feel that they already pay a large proportion of their business costs for electricity and this in itself is already prohibitive to business growth.

- See innovative technologies (SPS, rooftop solar and sensor) as ultimately saving customers (and Western Power in the long run) money, so therefore shouldn't need to pay
- Believe that there has been acceptance and knowledge of aging infrastructure for a while, therefore it's not a customer responsibility to pay for these now
- Large business demonstrate lower acceptance to pay for "others" e.g. rural/regional developments
- From LGA's experience, in some undergrounding exercises, they were cautious as to the more vulnerable people within their community, specifically the ability for older residents and those struggling financially who would not be able to afford any price increases
- While some retailers state that it makes sense to pay now for later return on investment, as a modern grid means less carbon and a better environment.

Willingness to pay (cost to business)

Other comments from stakeholders when it comes to potential changes to pricing.

Some stakeholders would like to see more investment in their data and analytics:

- Help predict demand and give stakeholders more reliable and accurate data
- Which in turn should help and lead to should lead to shorter turn around time for requesting data – and increase perception of accuracy of data
- Smart metering perceived to be cost efficient and more accurate

Belief that any investments in infrastructure (e.g. community batteries, SPS etc) need to make economic sense and provide clear cost benefits, not a knee-jerk reaction.

Transparency on costs for innovations and required updates to grid/services for businesses and local government to review, uncertainty as to whether or not they will be the most cost-effective solution and uncertainty if these assets will address reliability concerns.

"They should review tariffs for a more efficient solution to investment requirements." ***Generator***

"Western Power need to send the right signals to the market about investment intentions. They need to be a lot more dynamic in this area." ***Retailer***

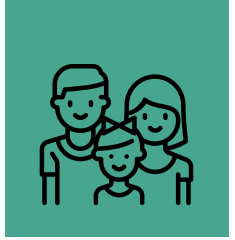
"The move to greater distributed energy can bring a lot of opportunities to businesses to sell back excess supply to the grid." ***Retailer***

"Western Power's goal should be network security and reliability at a reasonable price." ***Government***

"SPS and other measures should be considered where the long term cost of maintenance is greater than the cost of installation." ***Government***

4.2.7 Vulnerable customers

Customers living with disability summary



Reliability is incredibly important for customers living with disability, as is access to backup power and information in times of outages

Customers who live with disability often rely on equipment to keep them safe and maintain their health and wellbeing. In time of outages, the risk to their health increases and they require fast restoration times, and more information than other customer types in times of outages (estimated restoration, how or where to access back up support).

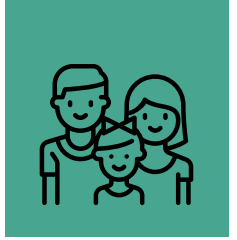
Microgrids, SPS and community batteries are appealing to maximise reliability for people living with disability or requiring power for live supporting equipment

Linked to the extreme stress and vulnerability in times of power outages, customers who live with disability or require life supporting equipment to keep them alive find the idea of microgrids and SPS very appealing. With smaller grids, they see the number and length of outages decreasing.

These customers, if not experiencing financial hardship, are willing to pay more to support specific investments (e.g. microgrid, SPS), and are willing to pay to support other vulnerable customer types.

These customers are incredibly community minded, and if they have the financial means to do so, are willing to pay more to provide others access to increased reliability.

Customers living with disability summary



These customers feel positively towards Western Power and praise Western Power's responsiveness, communications and reliability performance

These customers speak very positively about Western Power, and are grateful for advance outage notification (and multiple contacts), and the restoration speed in outages.

There is a desire from vulnerable customers to have more engagement with Western Power around Disability Access and inclusion

Vulnerable customers are very open to collaborating with organisations to advocate for the needs of their community. These customers likely have similar conversations with other organisations and utilities and are very open to ongoing engagement to improve services for people living with disability.

Communications is incredibly important to customers living with disability or who use life supporting equipment.

Particularly in times of planned and unplanned outages. These customers speak about Western Power adequately supporting them through different types of communications (written, phone etc), which instils confidence and trust.

Customers living with disability summary

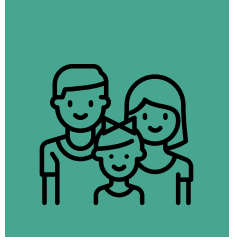
“Power is a life & death thing for me. If I get overheated I can’t cool down. I have a spinal injury and need to maintain my temperature. I didn’t realise electricity was as expensive as it was – that was the main reason we put the solar on.

I receive a thermo-regulatory rebate, based on my financial position. I don’t have a choice about how much I spend – I have a medical reasoning for keeping my house cool. I also have a battery that stimulates the nerves in my neck so that my right arm will function.

A battery system would be worth looking into, take people off the grid so it’s not so overloaded. That would help in devastating situations like that. Let people have some self-reliance in those emergency situations.

Knowing how it affects me & even though I’m scraping my money together, I’m happy to pay $50 a quarter if I knew it was closer to having subsidised batteries sunk at my house. I wouldn’t have to worry about the risk to my health & wellbeing” ***Vulnerable***

Aboriginal and Torres Strait Islander summary



ATSI customers believe in equitable access to power for all people

They see electricity as an essential service and that all people should have fair and equal access to electricity. Positively, they feel the network is quite reliable.

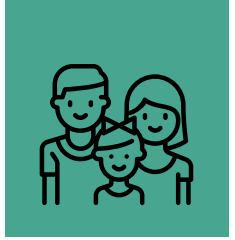
ATSI customers have high levels of support for investment in renewables

They believe that Western Power need to plan for and increase their electricity generation from renewables (solar and wind power were mentioned). Increased use of renewable energy was extremely important to ATSI customers and they highly supported investment in this area. Some questioned the environmental impacts of undergrounding wiring.

Despite a desire for further investment into renewables, there is a very low willingness to pay more for investment in specific investments, unless they can see the benefit to themselves or family. ATSI customers see power as very expensive already

They see electricity as very expensive already. There was very low levels of willingness to pay more to support investment in specific projects. The only way there would be support was if it directly benefitted the individual or their family.

Aboriginal and Torres Strait Islander summary



Person to person contact is important when engaging with ATSI customers

Although open to online communications (to minimise costs and pass on savings to customer bills), the consensus was that ATSI customers preferred to speak to a staff member. It was important to speak to an Australian based operator and not an overseas operator who did not understand the area or community.

ATSI customers would like to see Western power spend more time engaging with rural and remote customers

They felt it was important that Western Power consult with regional and remote communities involving Elders and community businesses and services. This was particularly important when explaining changes or upgrades to infrastructure. There was a desire for this communication to be ongoing, and through direct community engagement, to keep people aware and informed throughout the project/s.

5 Quantitative Insights

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5.1 Residential Customer Preferences

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5.1.1 Evaluation of future network management proposals

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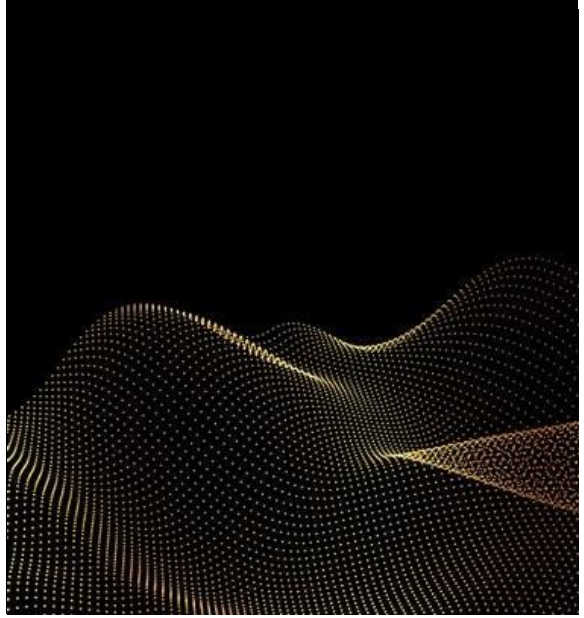
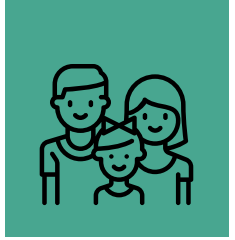
Evaluation of tariff proposals

SUMMARY





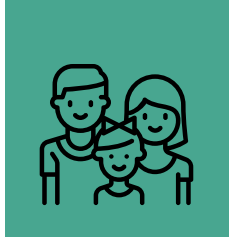
Overall when exploring customer focus areas via the Max Diff analysis the results show broad consistency amongst customers across the network and also by age and gender.

- In order to secure the community's electricity future, overall priority was given to reducing electricity prices.
- This was followed by supporting renewables and investing in technologies for the future as second and third greatest priorities.
- Rural Long customers think slightly differently to Urban and Rural Short customers about their electricity future and ranked reducing prices as 6th, with reliability – be that in maintaining the existing framework of poles and wires or via supporting renewable energy and management of solar connections – more important.

In terms of evaluating reactions to specific areas of future investment:

- While supporting renewable energy and solar uptake is also a top priority, only 37% were willing to pay more to do so. Rural Long and customers aged 18-34 were significantly more willing to pay to increase this.
- Community batteries follows a similar trend, with slightly more (40%) showing a willingness to pay more to increase the installation of these and more than two thirds stated that Western Power should own or fund these.
- Only a third (33%) are willing to pay more to improve reliability across the network. This again increases significantly for Rural Long and even more so for those currently experiencing an unplanned outage at least once a month (55% willing to pay to improve).
- Tariffs would be considered if they were to reduce the overall electricity bill.
- An overwhelming 79% support investment in SPS where it provides a more cost-effective alternative to traditional infrastructure to improve reliability.
- Overall, 65% of residents support investment in Microgrids, which was significantly stronger amongst Rural Long customers (74%). To the consultancy team this appeared to be a surprisingly high result, and there may be value in exploring the understanding of microgrids with residents further, to ensure a full understanding of what they are and potential cost implications.

Overall priority was given to reducing electricity prices, with supporting renewables and investing in technologies for the future 2nd and 3rd. Rural customers place a higher priority on maintaining outage response capabilities and for Rural Long the existing reliability of the network is equal top, with reducing prices only registering 6th.



Maximum Difference Analysis (Index)

Customers were presented with 12 different potential priority areas to secure the community's electricity future. Through Maximum Difference (Max Diff) Analysis, a priority rank order is revealed.

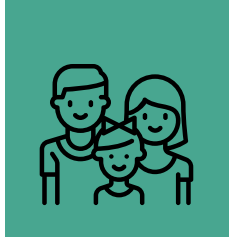
The analysis shows broad consistency amongst customers across the network.

The index reveals the relative importance of the 12 priority areas. A relatively low priority does not mean an area is unimportant. It is simply less of a priority than other areas tested via the Max Diff Analysis.

		Urban	Rural Short	Rural Long
Reducing electricity prices	100	100	100	87
Supporting renewable energy and management of solar connections to the electricity network	100	100	96	100
Investing in new technologies to prepare the network for the future	95	97	87	97
Building new infrastructure to cope with future demand (i.e. augmenting the distribution network)	90	89	86	97
Maintaining the existing reliability of the network (i.e. the poles and wires)	89	88	87	100
Maintaining Western Power's outage response capability (i.e. storm or emergency response)	87	85	90	99
Improving network resilience to minimise the impact of a natural disaster	69	66	70	81
Improving public safety when using the network	43	44	39	38
Collaborating with customers to solve localised energy supply problems	27	26	27	36
Improving Western Power's customer service	20	20	19	25
Community initiatives (i.e. community safety, energy literacy and community events/participation)	20	20	17	24
Improving communications to the customer	19	18	19	23

SOURCE: X1. In each of the next few questions you will see lists of different areas Western Power could prioritise to help secure the electricity network for the future. On each screen, you will be asked to select which one area you feel Western Power should MOST prioritise, and which one area you feel they should invest LEAST in.
BASE: Total Residents (n=1538)

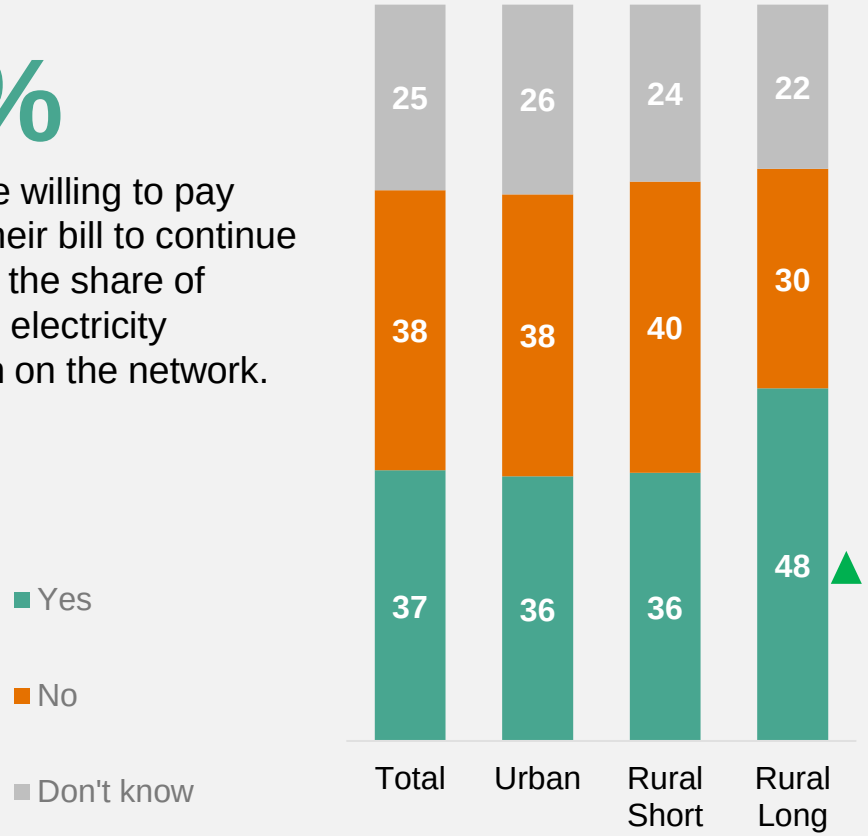
Given the previous priorities, it is therefore understandable that Rural Long customers were significantly more likely to be willing to pay for renewables seeing it as a way to ensure reliability for the future, as were younger customers.



Willingness to pay more to increase renewable electricity generation (%)

37%

Overall are willing to pay more on their bill to continue increasing the share of renewable electricity generation on the network.



Rural Long customers were significantly more likely to be willing to pay more on their bill to continue increasing the share of renewable electricity generation on the network.

Respondents aged 18-34 years were significantly more likely than those aged 34 years or more to be willing to pay more on their bill to increase renewables on the network (47% compared to 32%).

However, those living in financial hardship were less likely than others to be willing to pay more on their bill to increase the share of renewable electricity generation (22% compared to 39%).

Willingness to pay more on the bill appears to increase with pre-tax household income.

Willingness to pay more on bill to increase renewable electricity on the network by Household Income

	<$51K	$51K-$111K	$111K+
Yes	31%	38%	47%
No	38%	41%	34%
Don't know	31%	22%	18%

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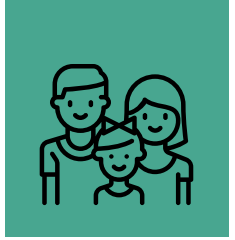
SOURCE: Western Power works with industry and Western Australian communities to help the state transition to a low-carbon energy future. Renewable energy, such as solar, can cause challenges for the electricity network in maintaining frequency and voltage across the network. Western Power may be required to invest significantly in upgrading the network to enable the increasing connection of renewables to the network and maintain its stability. Would you be willing to pay more on your bill for Western Power to continue increasing the share of renewable electricity generation on the network?
BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

▲ Significantly higher than total
▼ Significantly lower than total

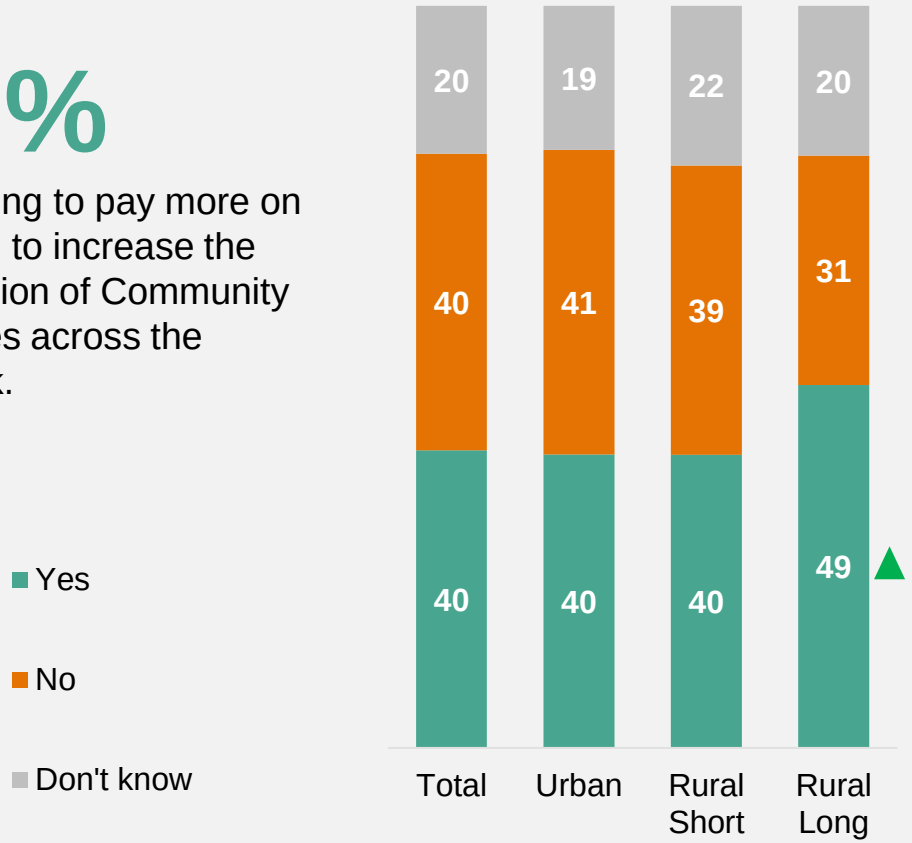
Slightly more, at 40%, are willing to pay more to increase the installation of community batteries across the network, with Rural Long and the younger demographic significantly more likely to support this.



Willingness to pay more to increase installation of Community Batteries (%)

40%

Are willing to pay more on their bill to increase the installation of Community Batteries across the network.



Rural Long customers were significantly more likely to be willing to pay more to increase the installation of Community Batteries across the network.

However, those living in financial hardship were less likely than others to be willing to pay more on their bill (32% compared to 41%).

Respondents aged 18-44 years were significantly more likely than other age groups to be willing to pay more on their bill to increase the installation of Community Batteries across the network.

Willingness to pay more on bill to increase installation of Community Batteries across the network by Age

	18-34 years	35-44 years	45 – 54 years	55 – 64 years	65+ years
Yes	46% ▲	45% ▲	39%	31%	29%
No	39%	36%	39%	47%	45%
Don't know	16%	19%	23%	22%	27%

SOURCE: X3. As more WA homeowners and businesses generate their own solar power, batteries and storage are fast becoming part of the network. Community batteries are connected to the grid and store excess solar energy from households in that area. Community batteries also unlock the potential for customers to virtually store their excess solar power in the battery and draw it back out again (to a limit) when needed. An added benefit for all customers is batteries also help to smooth the flow of power on the local network grid which can offset the need for local traditional network upgrades. Would you be willing to pay more on your bill for Western Power to increase the installation of Community Batteries, where possible, across the network?
BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

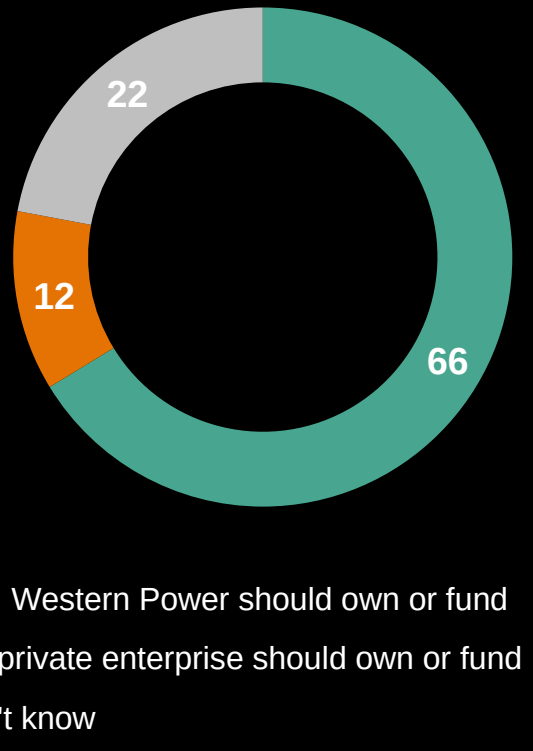
▲ Significantly higher than total
▼ Significantly lower than total

There is majority support for Western Power owning/funding community batteries

Ownership/Funding of Community Batteries by Western Power (%)

66%

Support Western Power owning or funding community batteries as part of managing the ongoing changes in the energy industry.



Preference for Western Power ownership/funding was largely consistent across demographic groups. Males (70%) were more likely than females (62%) to prefer Western power ownership/funding of community batteries.

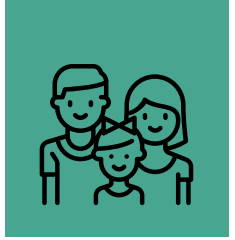
There was no significant difference in preference for Western Power ownership/funding by location:

- Urban 65%
- Rural Short 67%
- Rural Long 73%

SOURCE: X4. Do you support Western Power owning or funding community batteries as part of managing the ongoing changes in the energy industry?
BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

▲ Significantly higher than total
▼ Significantly lower than total

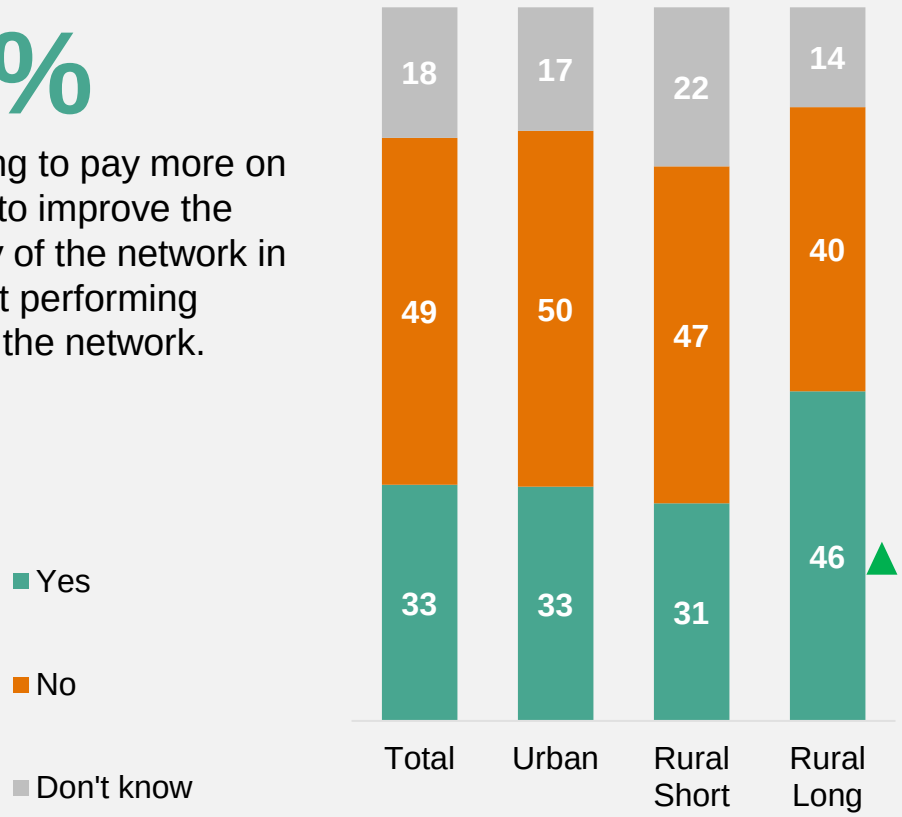
Not surprisingly, given the current network performance in Urban and Rural Short areas, just 33% are willing to pay more to improve the reliability of the network in the worse performing areas. In comparison, almost half of those living in Rural Long areas were willing to pay more for this to improve.



Willingness to pay more to improve the reliability of the network in worse performing areas (%)

33%

Are willing to pay more on their bill to improve the reliability of the network in the worst performing areas of the network.



Three in ten residential customers in Urban (33%) and Rural Short (31%) locations were willing to pay more to improve network reliability in the worse performing areas of the network.

However, almost half (46%) of Rural Long customers were willing to pay more improve to do so. Similarly those households having unplanned outages every month were more likely than average to be willing to pay more to improve reliability (55%).

Respondents aged 18-34 years were most likely to be willing to pay more to improve network reliability across the network.

Willingness to pay more on bill to improve the reliability of the network in worse performing areas by Age

	18-34 years	35-44 years	45 – 54 years	55 – 64 years	65+ years
Yes	42% ▲	37%	33%	18% ▼	25% ▼
No	41%	47%	50%	56%	55%
Don't know	17%	15%	17%	26%	19%

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SOURCE: X5. The frequency and length of power outages differs across the network. In some regional locations on the network it can be as frequent as occurring every few months and can last more than 12 hours. Would you be willing to pay more on your bill for Western Power to improve the reliability of the network in the worse performing areas of the network?
BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

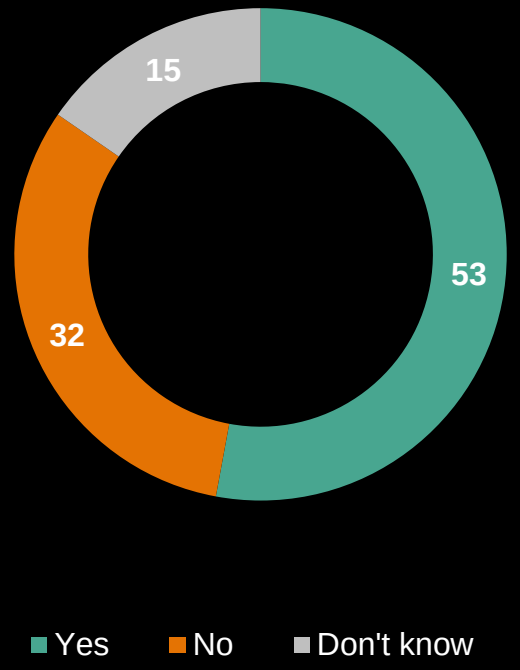
▲ Significantly higher than total
▼ Significantly lower than total

Half would consider a time of use tariff if it was available to them, with Rural Long customers again significantly more likely to do so.

Consider time of use tariff if available (%)

53%

Would consider a time of use tariff if it was available to them.



While 53% of residents would consider a time of use tariff 33% indicated they would not.

Residents in Rural Long areas were significantly more likely than average to consider a time of use tariff if it was available to them.

Consideration of a time of use tariff did not differ significantly by the size of the electricity bill, household income, household structure or household size.

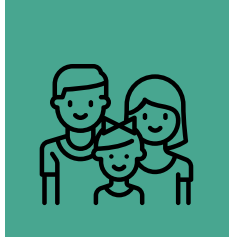
Willingness to pay more on bill to improve the reliability of the network in worse performing areas by Age

	Urban	Rural Short	Rural Long
Yes	51%	55%	64% ▲
No	33%	29%	25%
Don't know	16%	16%	12%

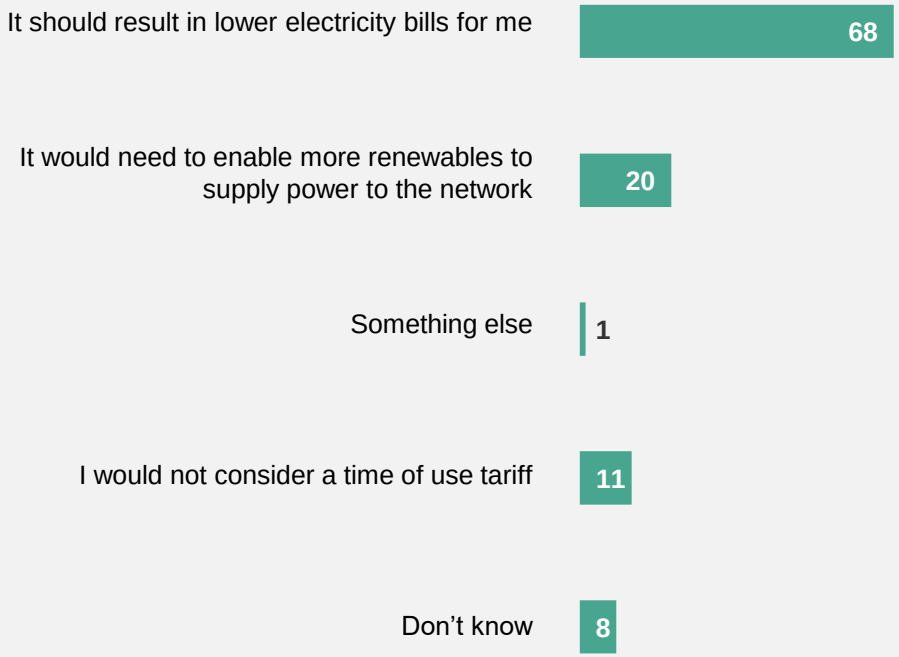
SOURCE: X7a Typically, the cost of electricity for a household is the same regardless of the time of day you use it. An alternative to this is a time of use tariff where electricity costs different amounts depending on what time of day you use it. For example, it may be more expensive to use electricity at peak demand times (e.g. between 5pm and 9pm at night) and cheaper to use at other times of the day. Would you consider a time of use tariff if it was available to you?
BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

▲ Significantly higher than total
▼ Significantly lower than total

While half of residential customers would consider a time of use tariff, a reduced electricity bill is essential to its consideration.



Conditions necessary for residents to consider switching to a time of use electricity tariff (%)



- Almost seven in ten (68%) residential customers would require a lower electricity bill as a condition of switching to a time of use electricity tariff. This was consistent regardless of network location (Urban 69%, Rural Short 66%, Rural Long 63%).
- Consideration of a time of use tariff did not differ significantly by the size of the electricity bill, household income, household structure or household size.
- Two in ten (20%) would consider such a tariff if it enabled more renewables to supply power to the network.
- Eight in ten (82%) of those who had initially indicated they would consider a time of use tariff would require lower electricity bills as a consequence.
- Amongst those who had initially indicated they would not consider a time of use tariff, half (50%) would consider such a tariff if it resulted in lower electricity bills. However, 32% of this group would not consider a time of use tariff regardless.

SOURCE: X7b. Which of the following conditions, if any, would need to be guaranteed for you to consider switching to a time of use electricity tariff?
BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

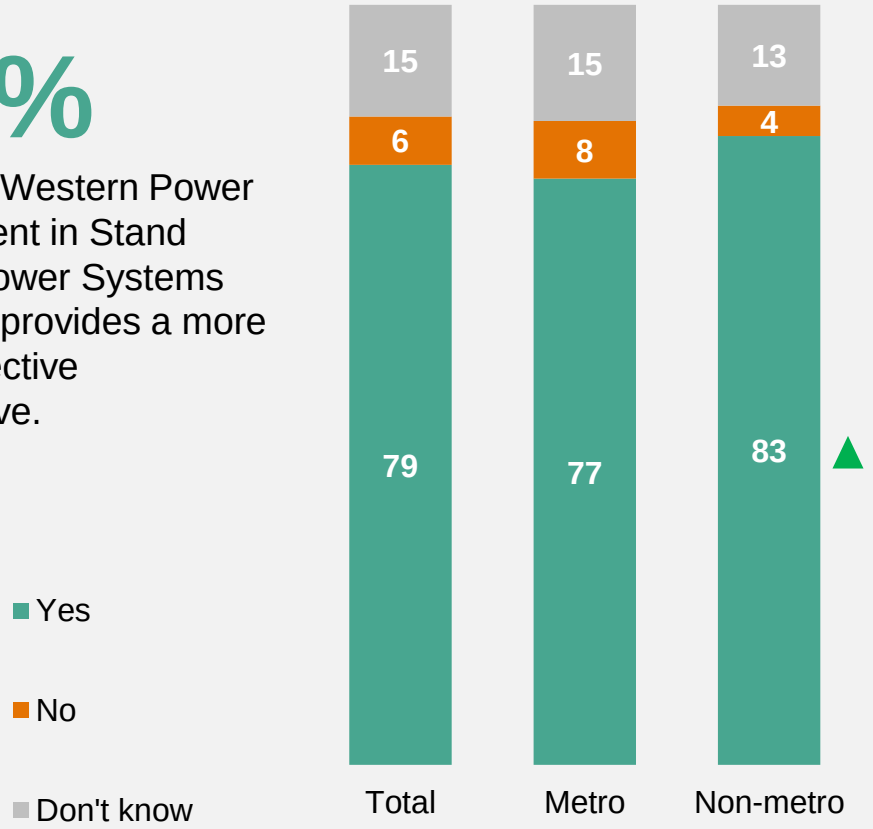
▲ Significantly higher than total
▼ Significantly lower than total

An overwhelming 79% support investment in SPS where it provides a more cost-effective alternative to traditional infrastructure to improve reliability.

Support for Investment by Western Power in Stand Alone Power Systems (%)

79%

Support Western Power investment in Stand Alone Power Systems where it provides a more cost-effective alternative.



Eight in ten (79%) residents support Western Power investing in Stand Alone Power Systems where it provides a more cost-effective alternative to traditional infrastructure to improve reliability for remote/regional customers and reduce the overall network required.

Non-metro residents (83%) were significantly more likely then Metro residents (77%) to support investment in Stand Alone Power Systems.

Overall, the strength of support does not differ significantly by the frequency of planned or unplanned outages or by length of outage or by whether the household currently was connected to the network by above or below ground powerlines.

SOURCE: X9. Do you support Western Power investment in Stand Alone Power Systems where it provides a more cost-effective alternative to traditional infrastructure to improve reliability for remote/regional customers and reduce the overall network required?
BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

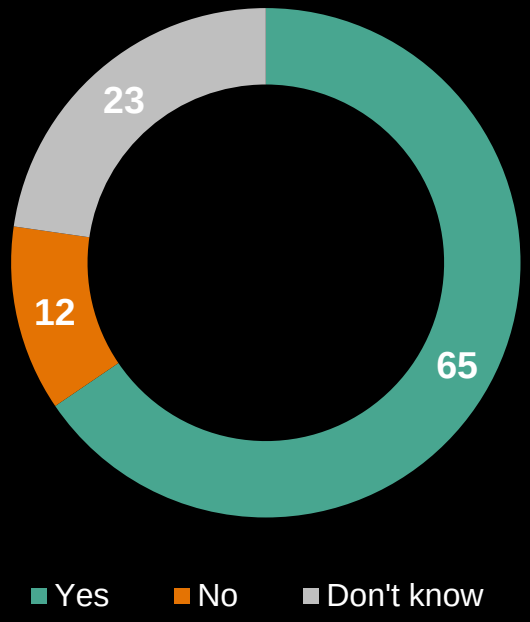
▲ Significantly higher than total
▼ Significantly lower than total

Almost two-thirds (65%) of residents support investment in Microgrids. Support for Microgrids was significantly greater amongst Rural Long customers (74%).

Support for Investment by Western Power in Microgrids (%)

65%

Support Western Power increasing investment in options such as Microgrids.



Overall 65% of residents support Western Power increasing investment in Microgrids. Support for increasing investment was significantly stronger amongst Rural Long customers (74%) than overall.

Males (71%) were significantly more likely than females (60%) to support increasing investment in microgrids.

Overall, the strength of support does not differ significantly by the frequency of planned or unplanned outages or by length of outage or by whether the household currently was connected to the network by above or below ground powerlines.

SOURCE: X10. Increasingly, community microgrids are being seen as an option to increase local energy independence and resilience. However, this may require additional upfront expenditure and may result in a slight increase in bills in the short term. Do you support Western Power increasing investment in such things as Microgrids?
BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

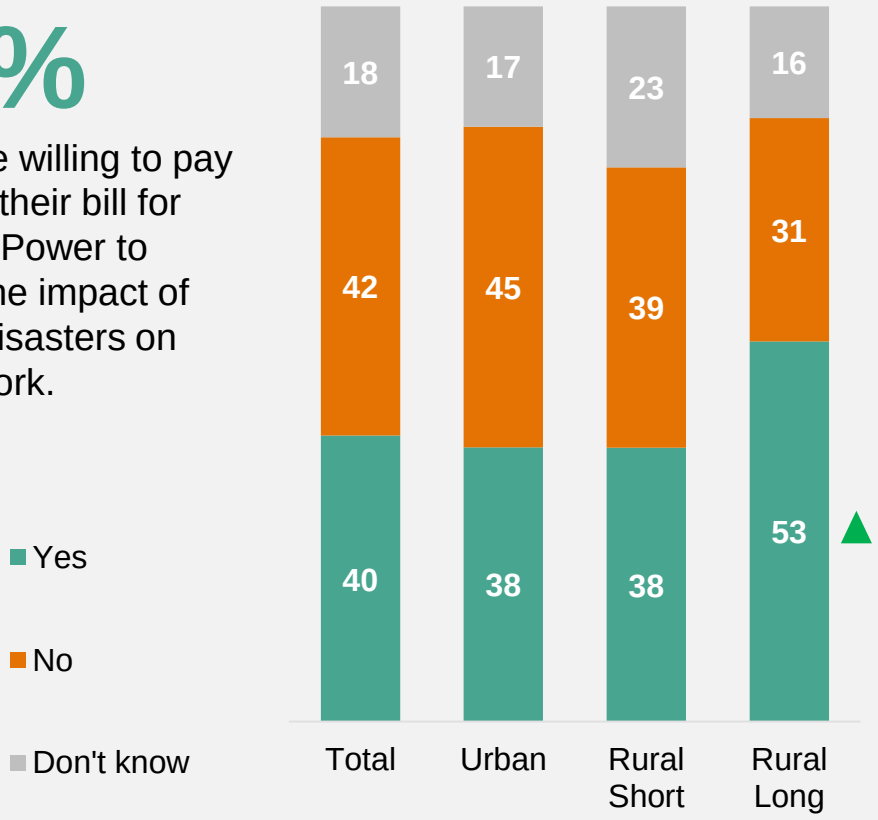
▲ Significantly higher than total
▼ Significantly lower than total

When thinking about reducing the impact of natural disasters, 40% would be willing to pay more to do so, particularly Rural Long customers and those frequently impacted by unplanned outages.

Willingness to pay more to reduce the impact of natural disasters (%)

40%

Would be willing to pay more on their bill for Western Power to reduce the impact of natural disasters on the network.



Overall 40% of residents are willing to pay more on their bill to reduce the impact of natural disasters (such cyclones or major storm activity or catastrophic bush fires) which can have a substantial impact on the electricity network.

Willingness to pay to reduce natural disaster impact was significantly stronger amongst Rural Long customers (53%) than those living in other areas of the network.

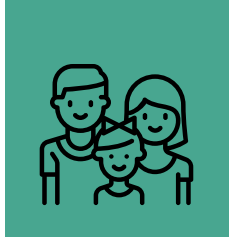
Those households with frequent unplanned outages (every 2 or 3 months or more often) were more willing than others to pay more on their bill to reduce the impact of natural disasters (48% compared to 38%).

Overall, the strength of support does not differ significantly by the frequency of planned or unplanned outages or by length of outage or by whether the household currently was connected to the network by above or below ground powerlines.

SOURCE: X11. Western Australia periodically suffers from natural disasters such cyclones/major storm activity or catastrophic bush fires which can have a significant impact on the electricity network. Western Power can make investments to diminish the impact of these events on the network such as designing & building a more modular grid over time, undergrounding parts of the network, creating and maintaining fire breaks around the extreme fire risk lines or the installation of fire mitigation technologies like fault current limiters, fire safe fuses etc. Would you be willing to pay more on your bill for Western Power to reduce the impact of these events on the network? BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

▲ Significantly higher than total
▼ Significantly lower than total

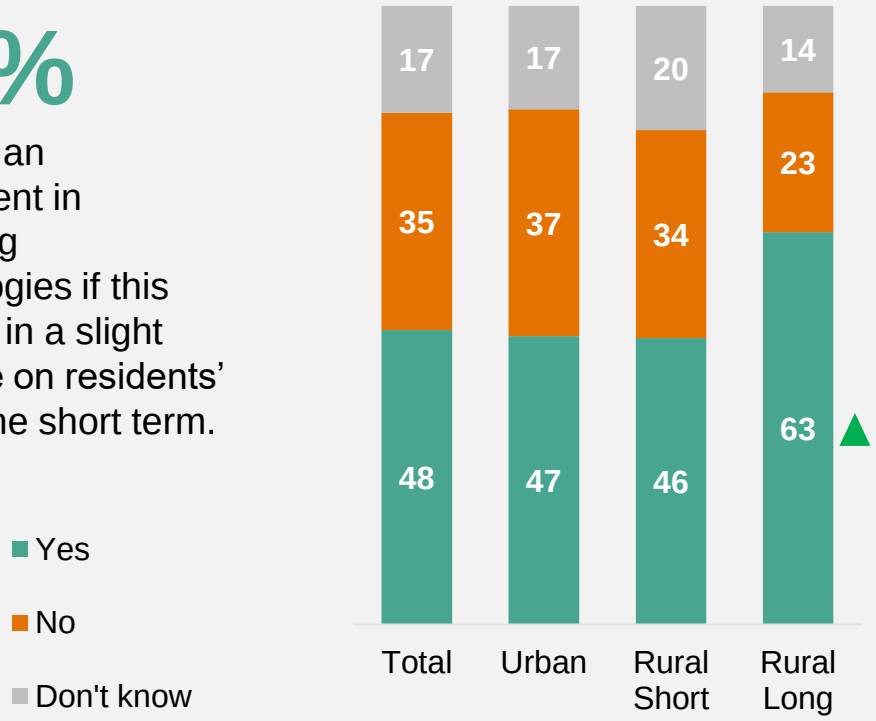
Almost 50% support R&D in emerging technologies if there is a slight short term increase to their bill. This increases to almost 9 in10 if it is a cost neutral investment.



Willingness to pay more to support R&D in emerging technologies – slight bill increase (%)

48%

Support an investment in emerging technologies if this resulted in a slight increase on residents' bills in the short term.

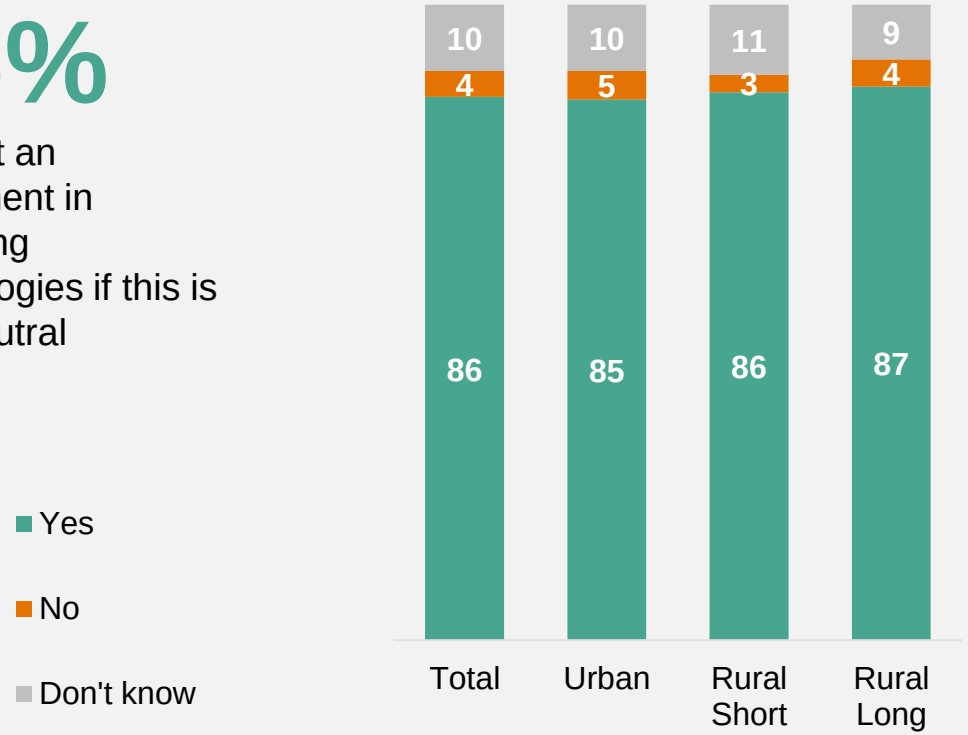


Rural Long residents are significantly more likely to support investment in emerging technologies with a slight increase in electricity bill.

Willingness to pay more to support R&D in emerging technologies if cost neutral (%)

86%

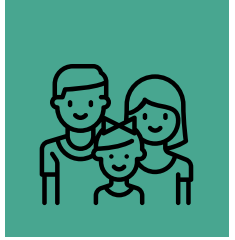
Support an investment in emerging technologies if this is cost neutral



SOURCE: X12A. Western Power can invest in research and development in emerging technologies that can significantly improve its ability to predict or mitigate catastrophic safety incidents such as digital substations that can help predict and prevent potential catastrophic failures. Investment in such technologies is designed to help manage risk associated with deferring more costly replacement investments in some areas of Western Power's network. Would you support such investment [in research and development of emerging technologies], if this was to lead to a slight increase in your bill in the short term? X12B. Would you support such investment, if this was cost neutral?
BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

▲ Significantly higher than total
▼ Significantly lower than total

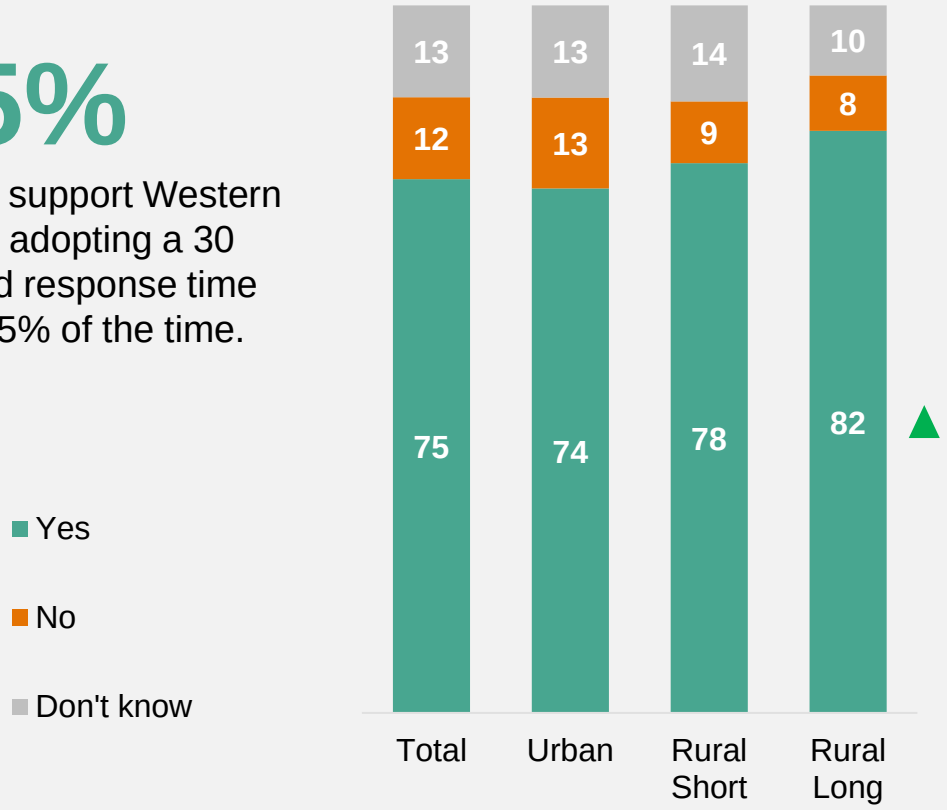
Three quarters of customers support a slight increase in response times to 30 seconds.



Support 30 second response time 75%+ of time (%)

75%

Would support Western Power adopting a 30 second response time over 75% of the time.

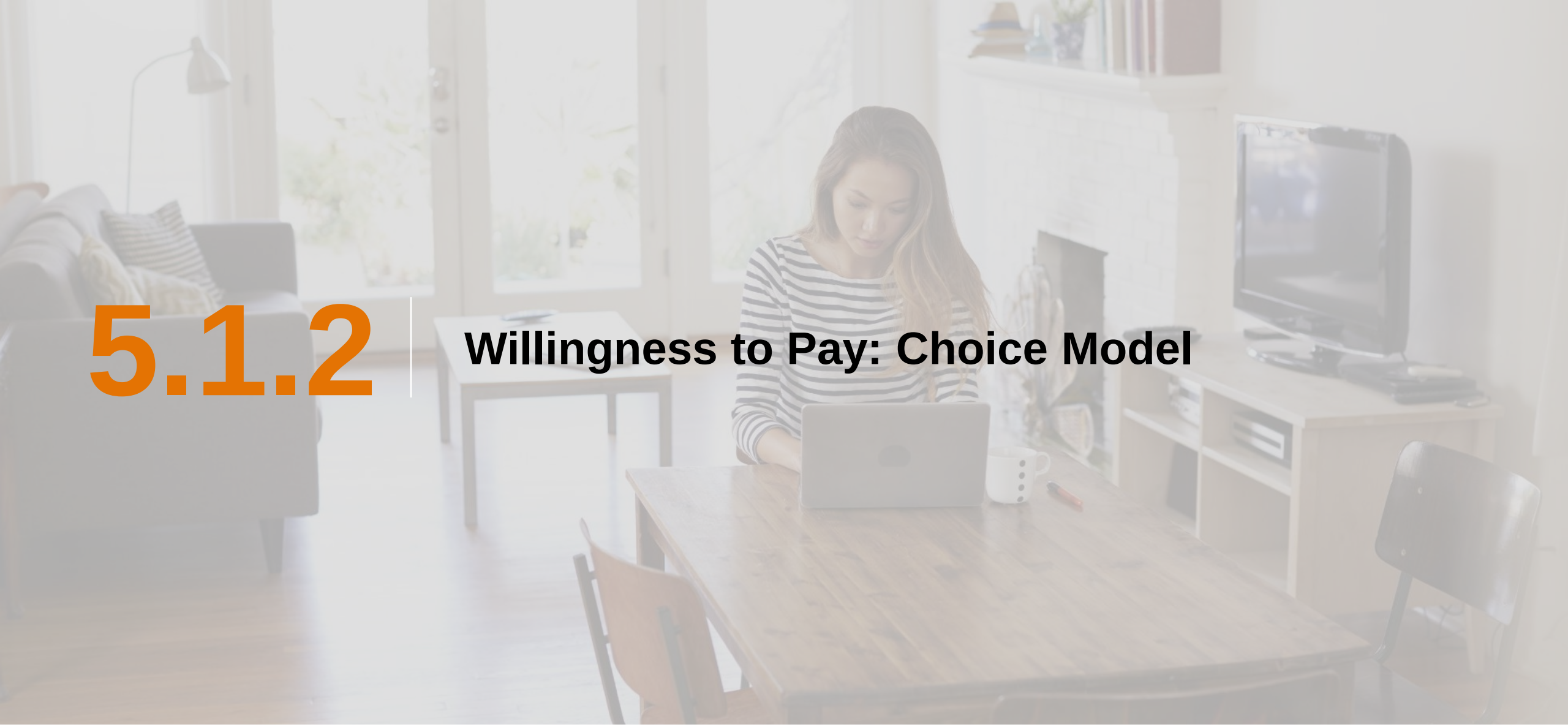


Overall 75% of respondents would support a slight increase in response times. Support for such a proposition is greater amongst Rural Long residents.

Overall, the strength of support for adopting a 30 second response time over 75% of the time, does not differ significantly by the frequency of planned or unplanned outages or by length of outage or by whether the household currently was connected to the network by above or below ground powerlines.

SOURCE: X6 The range of ways in which Western Power communicates with its customers has increased significantly over recent years. However, the increased number of communication channels to be serviced by Western Power call centre staff whilst maintaining existing service levels can add costs to customers bills. One solution to overcome this challenge is to slightly increase the response times in some channels in order to service customer enquiries or issues via other channels (e.g. online chat) with the intent of not putting upward pressure on customer bills. Western Power is required to respond within 30 seconds 87% of the time. Would you support Western Power adopting a 30 second response time over 75% of the time?
BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

▲ Significantly higher than total
▼ Significantly lower than total



5.1.2 Willingness to Pay: Choice Model

KANTAR PUBLIC Synergies ECONOMIC CONSULTING westernpower

CHOICE MODEL

SUMMARY

- Reliability of supply (frequency/duration of outages), overall customer bill size and, especially for Rural Long customers, new technologies are the most important attributes influencing customer choice.
- The relative importance of attributes does not differ whether the household is supplied via underground or above ground powerlines within feeder type (Rural Long, Rural Short or Urban) or whether their household has Solar PV or not.
- Residents are more sensitive to increases in bill size than to decreases. Urban and Rural Short customers also appear more sensitive to price changes than Rural Long customers.
- Keeping the lights on and keeping the fridge cold (frequency of and duration of unplanned outages), are preferences for all, however Urban customers are more sensitive to increases in these and their bill preference reduces accordingly.
- Decreasing investment in renewable energy/new technologies has a greater impact on preference than increasing investment in Urban areas.
- Whilst there is strong support towards investment in undergrounding, Rural Short customers are more sensitive towards these changes.
- Tree trimming is relatively unimportant to Western Power customers. However, amongst Rural Long customers decreased investment in tree trimming has a greater impact on preference than increased investment.
- Customers are less likely to pay more for vegetation management, improved communications or undergrounding, with all suggesting between 1-2% bill increase only.

Choice Modelling

Choice experiments are used to be able to determine the latent (underlying) preference structures and decision rules used by a person to choose, and if a price attribute is considered willingness to pay (WTP) or willingness to accept (WTA) for concepts, outcomes and product/service attributes.

Choice experiments are designed so an individual has to trade off various features against one and other to maximise their perceived value. That is, they choose the option which given all the competing options is best for them.

To this end choice modelling is based on the Lancastrian economic axiom that people choose a product/service/outcome based on the value they place on the sum of its parts, not the product/service/outcome in and of itself.

Through choice model analysis, customers' preferences regarding supply reliability, new technologies etc and the trade-offs they make for cost savings or increases in different situations were tested. Within the survey, respondents were provided a series of 12 hypothetical scenarios. Each scenario consisted of 3 packages of 7 attributes with a random combination of features of that service or a 'none of these' option. Having reviewed the features of each package, the respondent was asked to select their preferred. In order to provide realistic scenarios to customers, prohibitions were also set so particular scenarios were not shown to customers if that option was substantially outside the current reliability standards.

Analysis was conducted to determine the relative importance of each attribute and service option in driving preference. An interactive simulation tool was also provided so that Western Power can explore the impact of different service options and levels, both overall and for a range of customer segments.

The following pages present the broad choice options, attributes and levels and a task example.

Choice Options Explained

Attribute	Description
Change on your electricity bill	This is the average 2 monthly electricity bill that you would receive. It has been scaled to reflect your current bill size
Average number of unplanned outages (blackouts) per customer	This is the average number of unplanned outages. This could be due to extreme weather events (i.e. storm/cyclone/bush fire), a localised incident (i.e. car hitting a power pole) or equipment failure on the network
Average outage (blackout) length	This is the average length of an unplanned outage
Tree trimming/vegetation management	This reflects the investment in tree trimming protocols, which can improve safety and reduce the risk of unplanned outages
Underground power	This reflects the investment in moving power poles underground, which can improve safety, reduce the risk of unplanned outages, and remove power poles from sight
New Technologies (incl. Solar, Stand Alone Power Systems, Battery Storage etc)	This reflects the investment in preparing the network for greater renewable energy sources and other new technologies, which may reduce costs in the long-term, and deliver benefits to the economy and environment
Communications & Customer	This reflects the investment in communication methods and customer service, which can improve your experience when dealing with Western Power

Choice attributes and levels

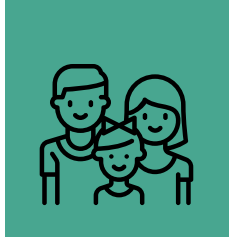
	Level 1	Level 2	Level 3	Level 4	Level 5
Change on your electricity bill	-10%	-5%	0	5%	10%
Average number of unplanned outages (blackouts) per customer	1 outage every month	1 outage every 3 months	1 outage every 6 months	1 outage a year	1 outage every 3 years
Average outage (blackout) length	15 minutes	60 minutes	4 hours	12 hours	24 hours
Tree trimming/vegetation management	Decreasing investment in tree trimming	No change to tree trimming protocols	Increasing investment in tree trimming		
Underground power	Decreasing investment to move power lines underground	No change to underground power protocols	Increasing investment to move power lines underground		
New Technologies (incl. Solar, Stand Alone Power Systems etc)	Decreasing investment in enabling renewable energy or new technologies on the network	No change to investment in enabling renewable energy or new technologies on the network	Increasing investment in enabling renewable energy or new technologies on the network		
Communications & Customer	Decreasing investment in outage notifications and customers service	No change to current communication methods or customer service	Increasing investment in improved outage notifications and customer service		

Choice model: Base Case

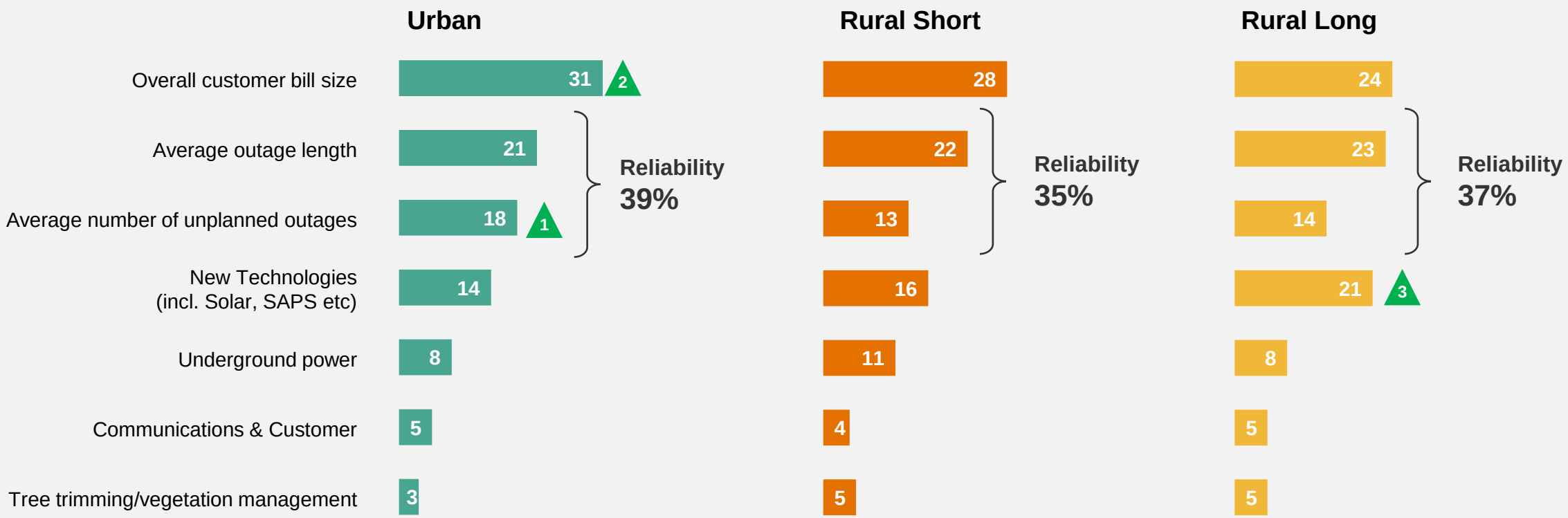
Preference Share represents a level of appeal/preference with regards to a particular configuration. The base case below best indicates the level of reliability currently experienced by each specific customer according to network data. From that we have a starting level of appeal/preference towards this base case. The base case starts at 50% preference. As we change this configuration we can understand how this preference changes between 0% and 100%.

	Urban	Short Rural	Long Rural
Overall customer bill size (% change)	**0%**	**0%**	**0%**
Average number of unplanned outages (blackouts) per customer	**1 outage every year**	**1 outage every 6 months**	**1 outage every 3 months**
Average outage (blackout) length	**2 hours**	**4 hours**	**14 hours**
Tree trimming/vegetation management	No change to tree trimming protocols	No change to tree trimming protocols	No change to tree trimming protocols
Underground power	No change to underground power protocols	No change to underground power protocols	No change to underground power protocols
New Technologies (incl. Solar, Stand Alone Power Systems etc)	No change to investment in enabling renewable energy or new technologies on the network	No change to investment in enabling renewable energy or new technologies on the network	No change to investment in enabling renewable energy or new technologies on the network
Communications & Customer	No change to current communication methods or customer service	No change to current communication methods or customer service	No change to current communication methods or customer service
Preference share	**50%**	**50%**	**50%**

Reliability, overall customer bill size and new technologies (especially for Rural Long customers) are the most important attributes influencing customer choice.



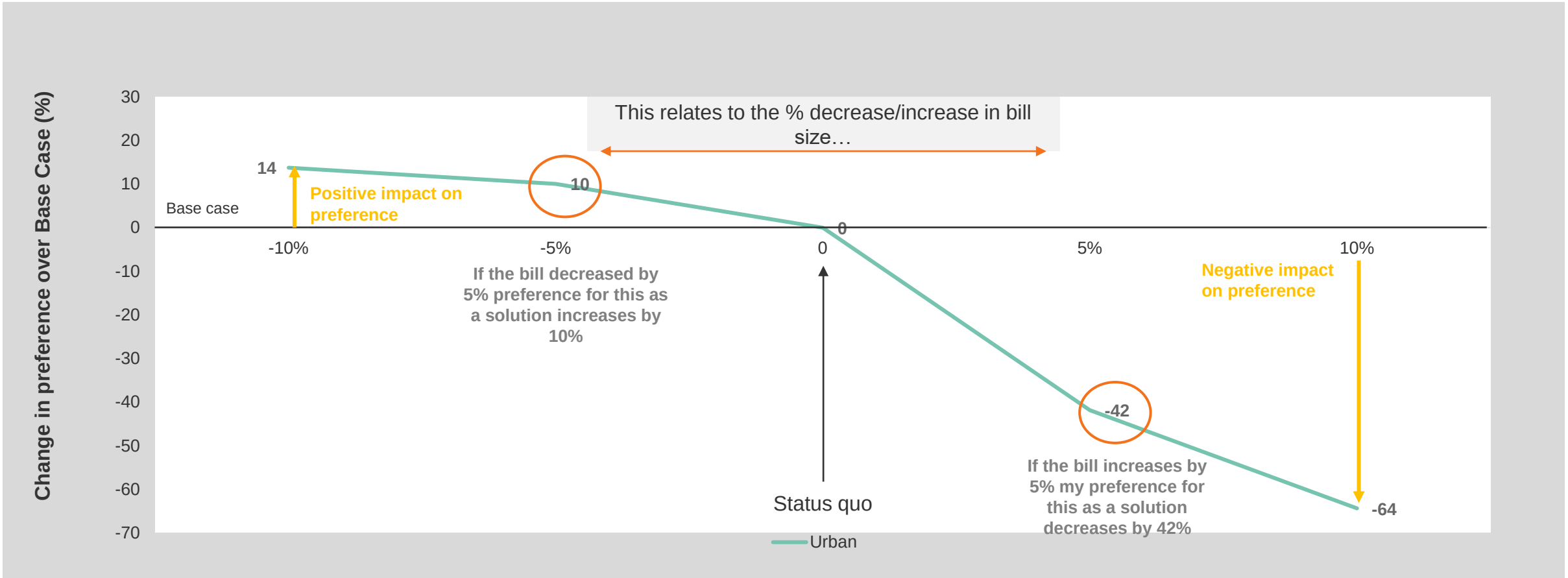
Relative importance of each attribute to customer choice by feeder type (%)



As with the Max Diff Analysis the Choice Model reveals the relative importance of each attribute in the customer choice. A relatively low important proportion does not mean an attribute is unimportant.

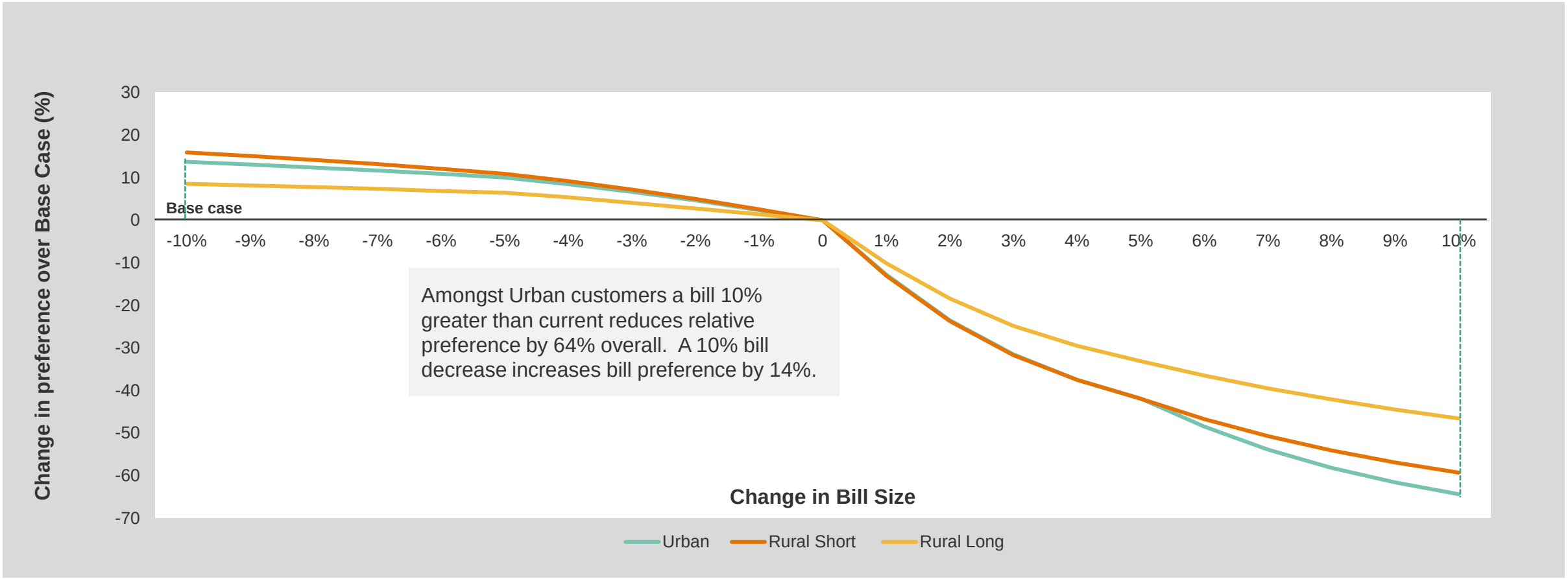
How to interpret the following charts…

Overall customer bill size: Relative difference between simulation and base case (%)



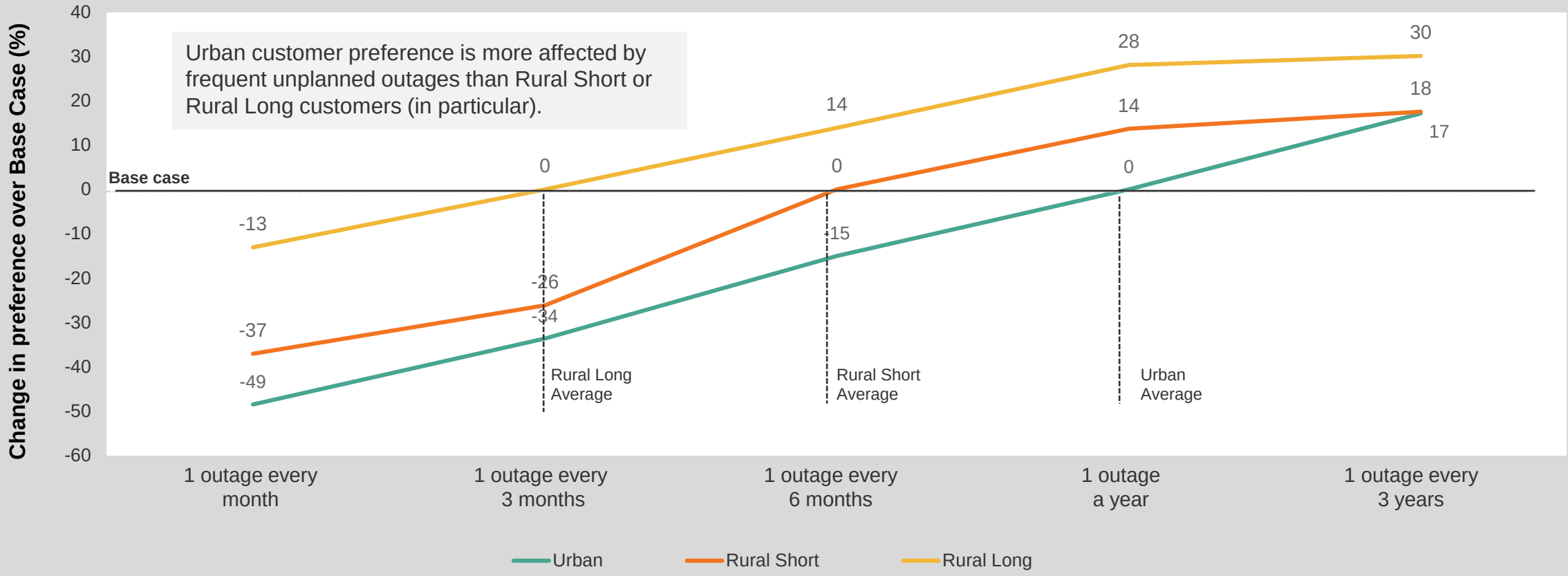
Customers are more sensitive to increases in bill size than to decreases. Urban and Rural Short customers appear more sensitive to price changes than Rural Long customers.

Overall customer bill size: Relative difference between simulation and base case (%)



Minimising unplanned outages –'keeping the lights on' – is also important to customers, particularly Urban customers.

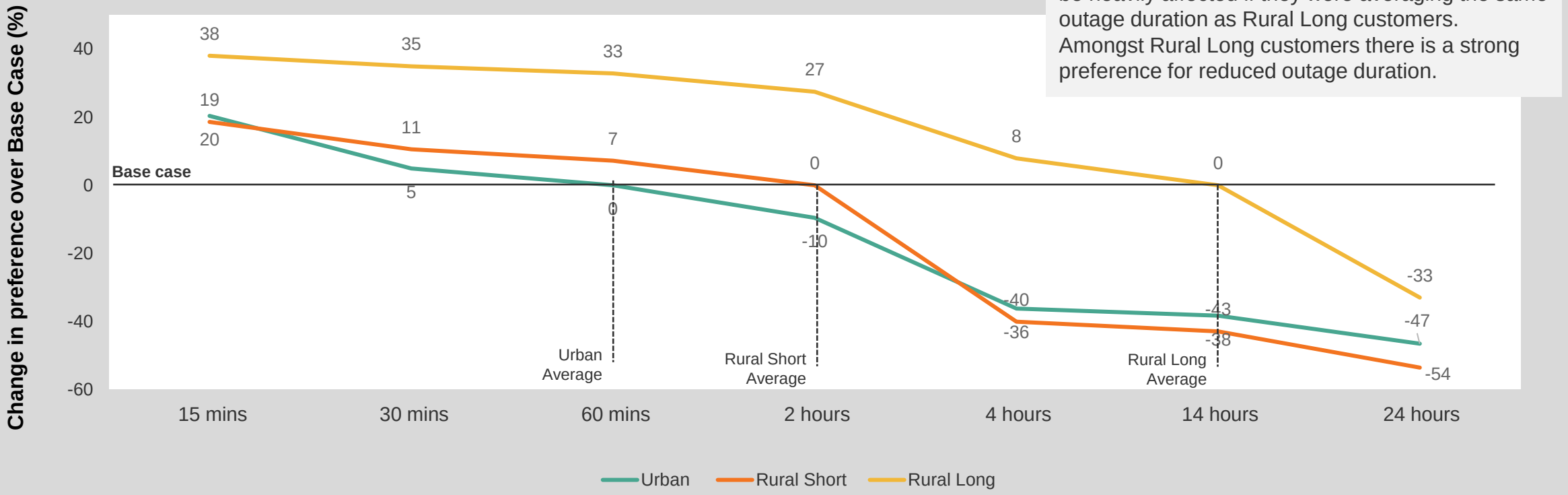
Frequency of unplanned outages (blackouts) per customer: Relative difference between simulation and base case (%)



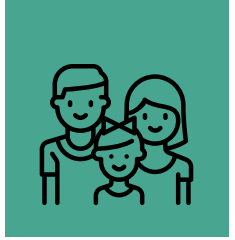
It is also important to customers to reduce the length (i.e. have short outages) when they do occur –'keeping the fridge cold'.

Average outage (blackout) length: Relative difference between simulation and base case (%)

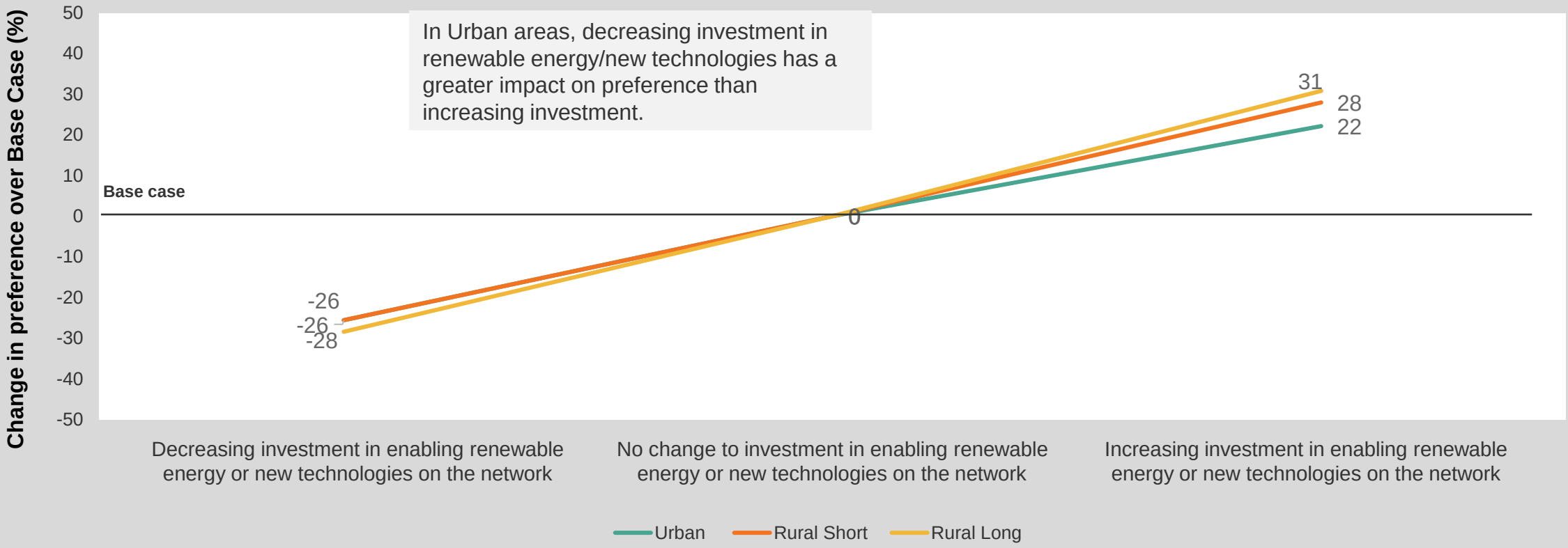
Urban and Rural Short customer preference would be heavily affected if they were averaging the same outage duration as Rural Long customers. Amongst Rural Long customers there is a strong preference for reduced outage duration.



Increasing investment in enabling renewable energy or technologies on the network is strongly preferred by customers.

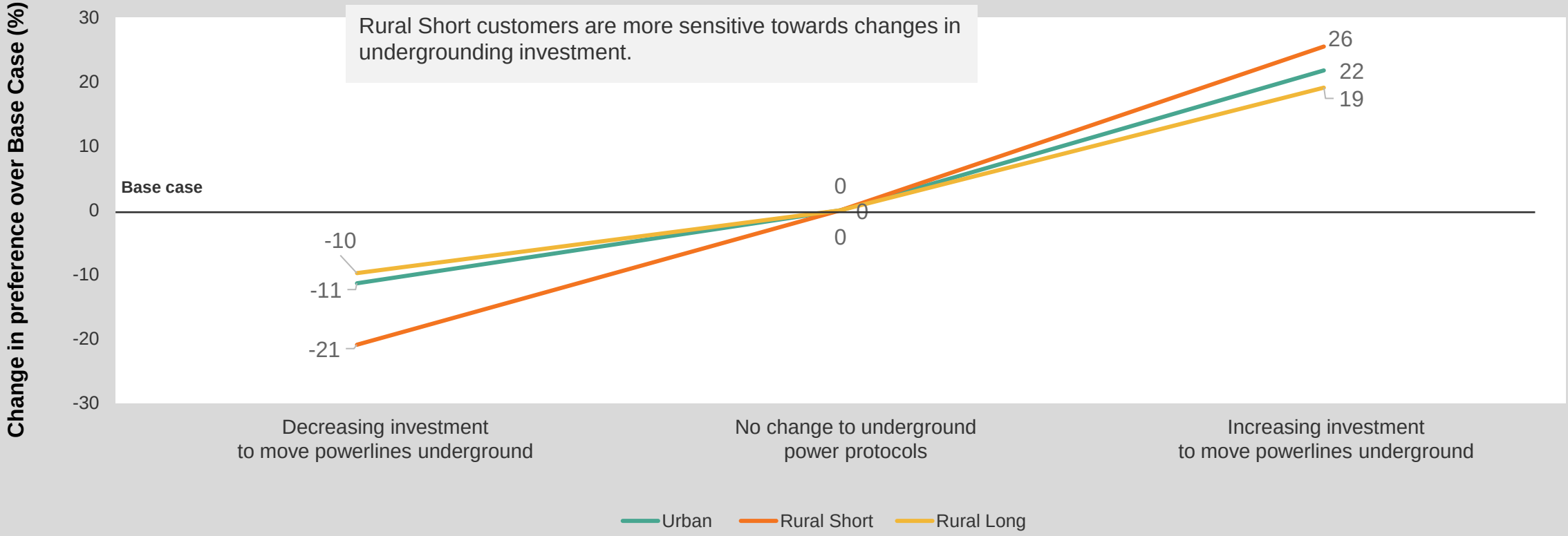


New technologies: Relative difference between simulation and base case (%)



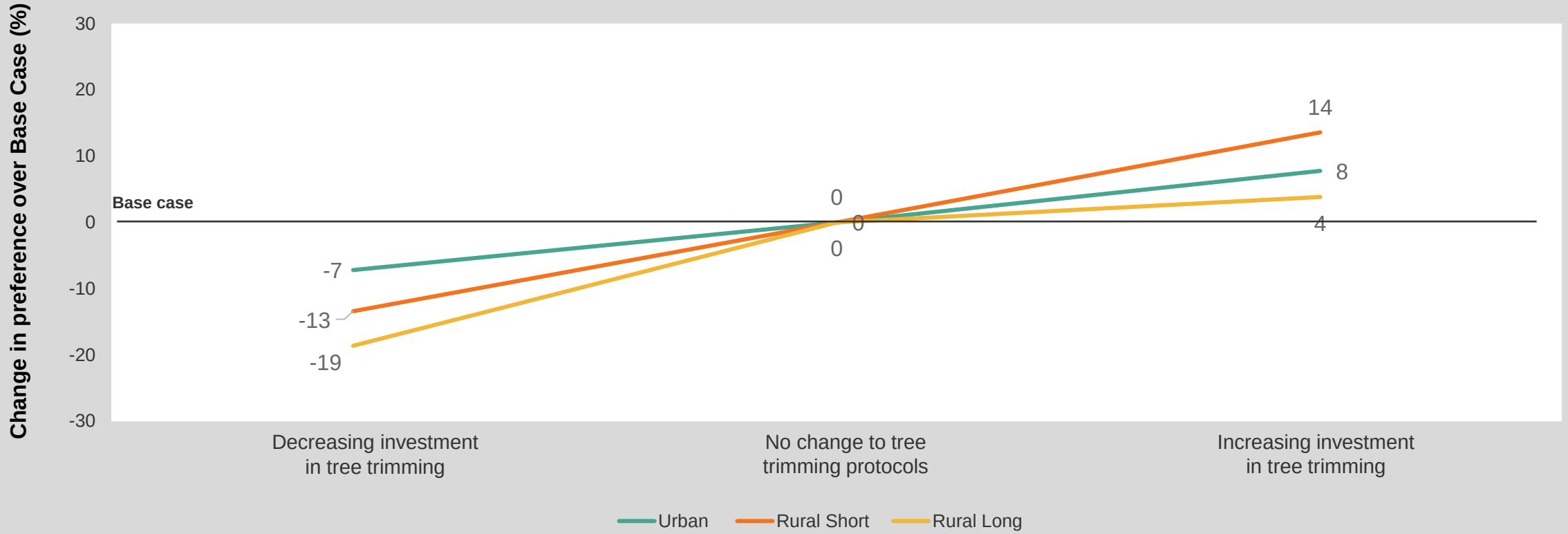
There is a stronger preference towards increasing, then decreasing investment in undergrounding amongst Urban, Rural Short and Rural Long customers.

Underground power: Relative difference between simulation and base case (%)



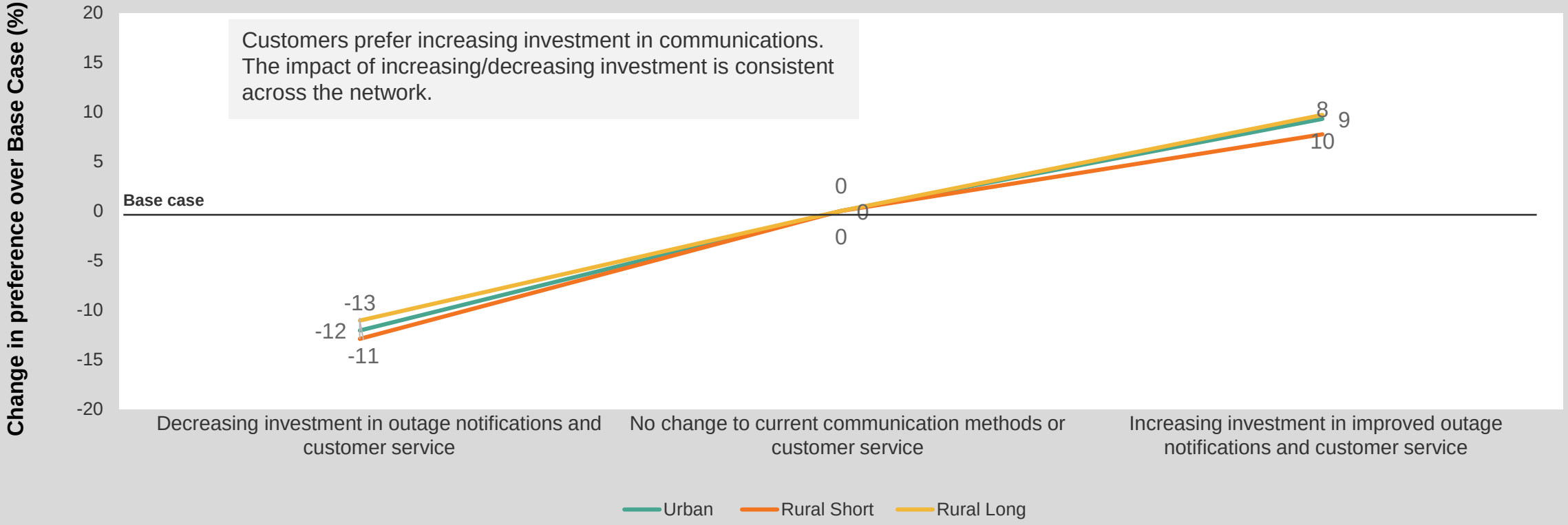
Tree trimming is relatively unimportant to Western Power customers. However, decreased investment below current levels has a negative impact on customer preference.

Tree trimming/vegetation management: Relative difference between simulation and base case (%)



Communications and customer service is seen as relatively unimportant to Western Power customers compared to the other attributes tested. However, decreased investment in this area has a greater impact than increasing investment.

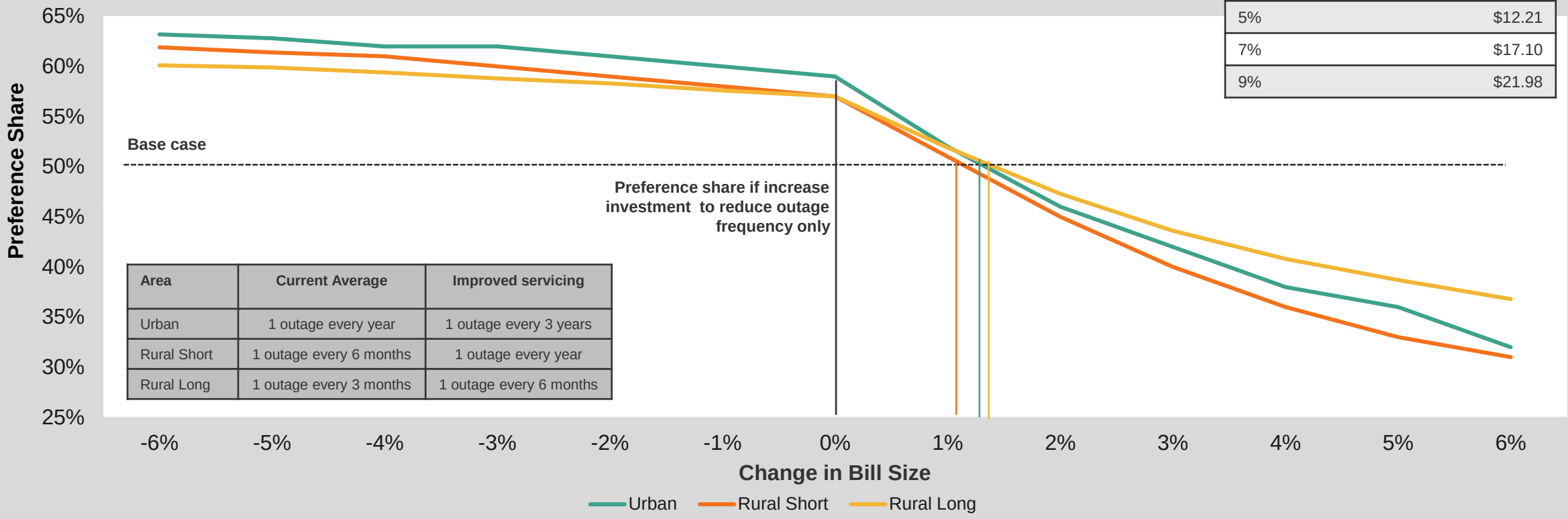
Communications & customer service: Relative difference between simulation and base case (%)



While residential customers value a reduction in outage frequency they are unwilling to pay more than an additional 1% (approx. $2.44) on their electricity bill to improve service.

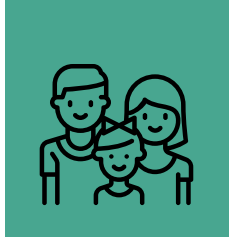
Willingness to pay for reduced outage frequency

Bill Size Change on average Bimonthly Bill	$
1%	$2.44
3%	$7.33
5%	$12.21
7%	$17.10
9%	$21.98



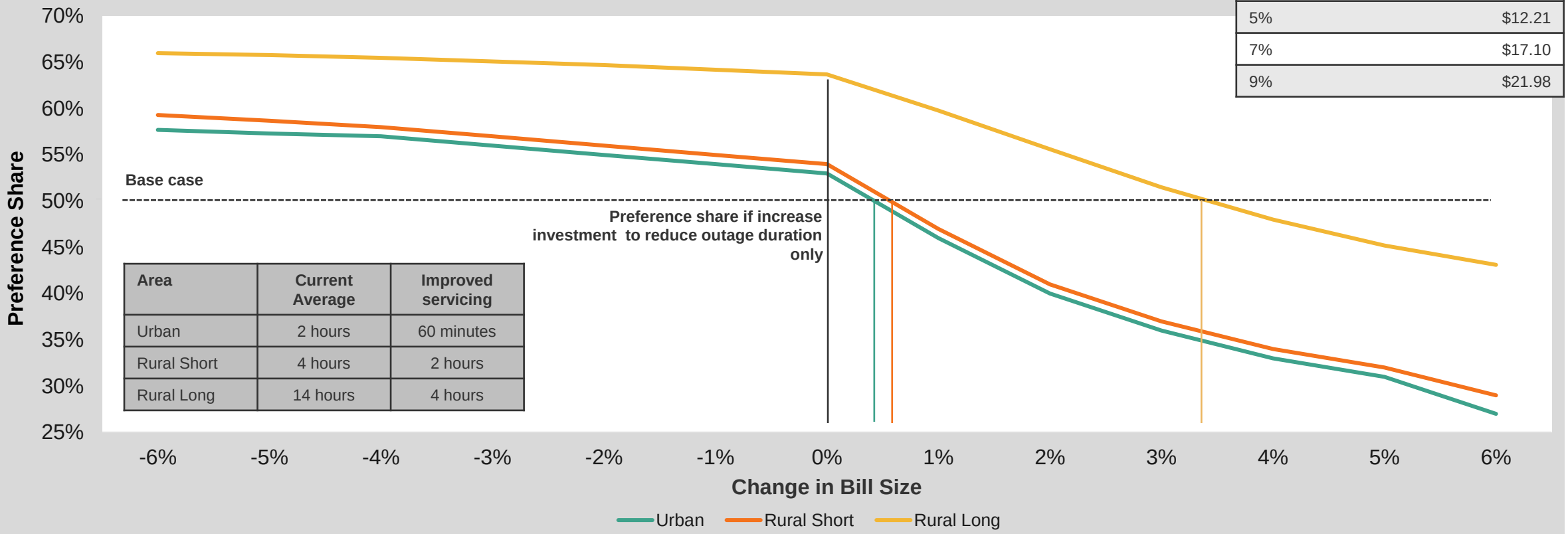
Area	Current Average	Improved servicing
Urban	1 outage every year	1 outage every 3 years
Rural Short	1 outage every 6 months	1 outage every year
Rural Long	1 outage every 3 months	1 outage every 6 months

Urban and Rural Short customers are willing to pay less than 1% more on the average bill to halve their average outage time. Rural Long customers are willing to pay 3% more per bill (approx. $7.33) to reduce the average outage length from 14 hours to 4 hours.



Willingness to pay for reduced outage duration

Bill Size Change on average Bimonthly Bill	$
1%	$2.44
3%	$7.33
5%	$12.21
7%	$17.10
9%	$21.98

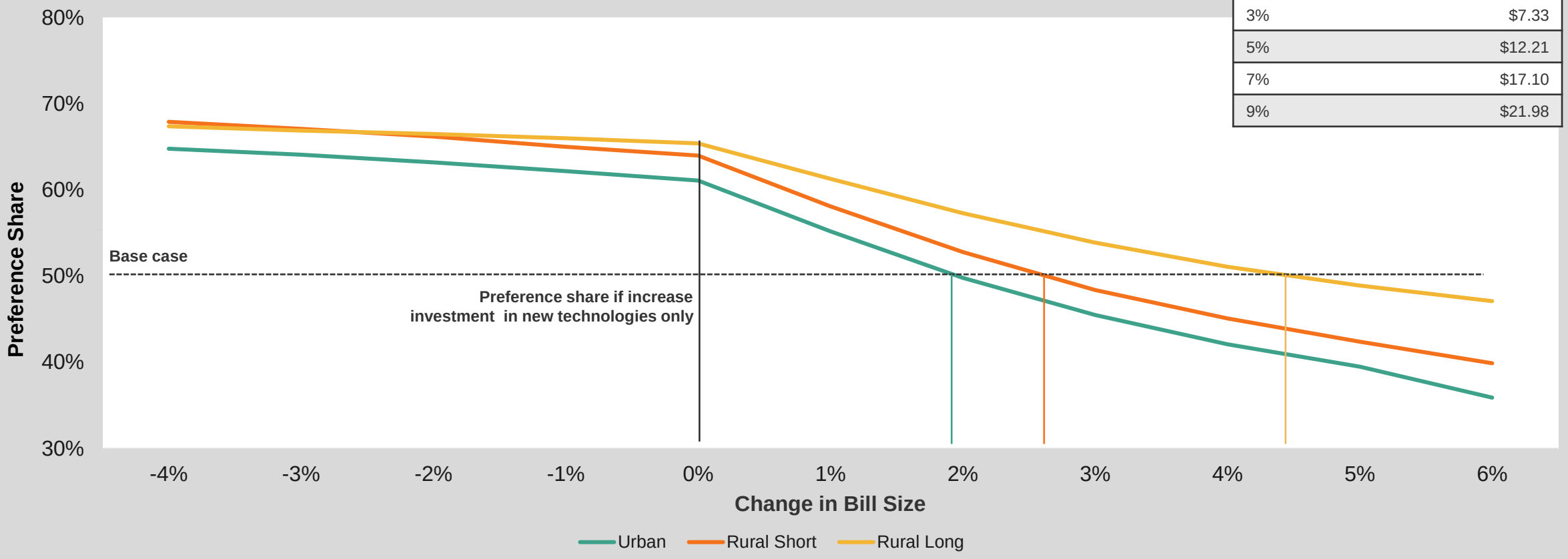


Area	Current Average	Improved servicing
Urban	2 hours	60 minutes
Rural Short	4 hours	2 hours
Rural Long	14 hours	4 hours

Rural Long customers are willing to pay more than both Urban and Rural Short customers to increase investment in new technologies and renewables – likely as this is seen to assist in reliability issues.

Willingness to pay for new technologies and renewables

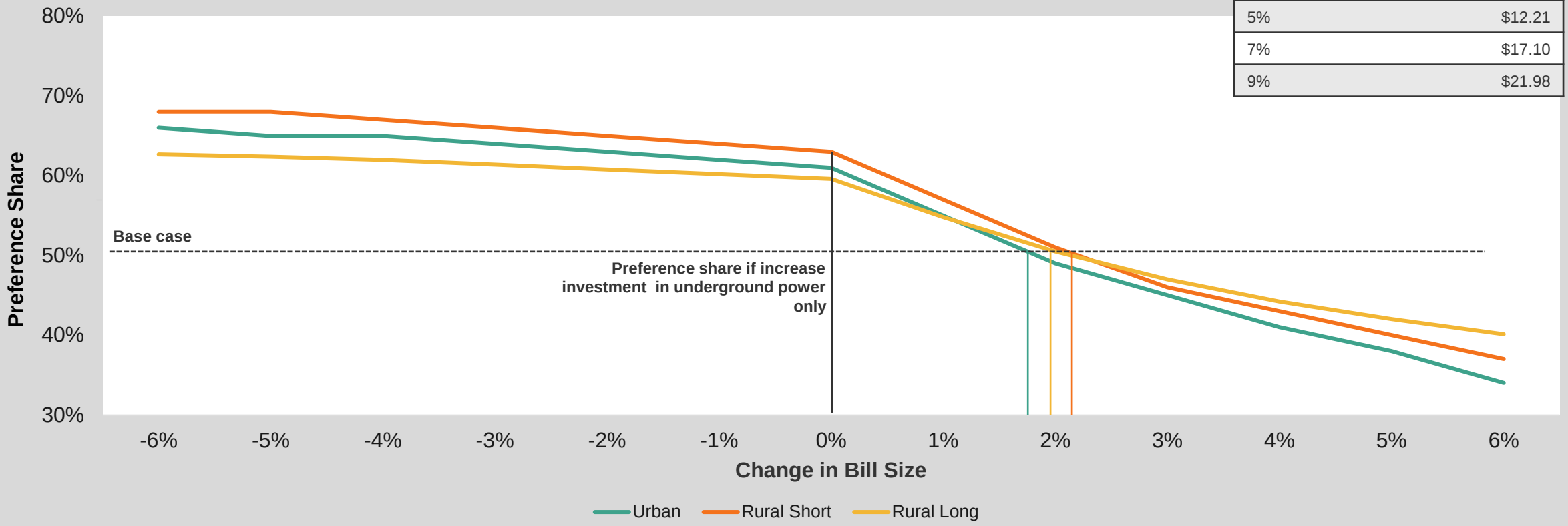
Bill Size Change on average Bimonthly Bill	$
1%	$2.44
3%	$7.33
5%	$12.21
7%	$17.10
9%	$21.98



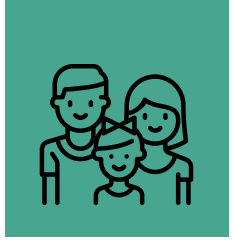
While customers prefer increasing investment to move powerlines underground, they are willing to pay approximately 2% more on the average bill (approx. $4.88).

Willingness to pay for underground power

Bill Size Change on average Bimonthly Bill	$
1%	$2.44
3%	$7.33
5%	$12.21
7%	$17.10
9%	$21.98

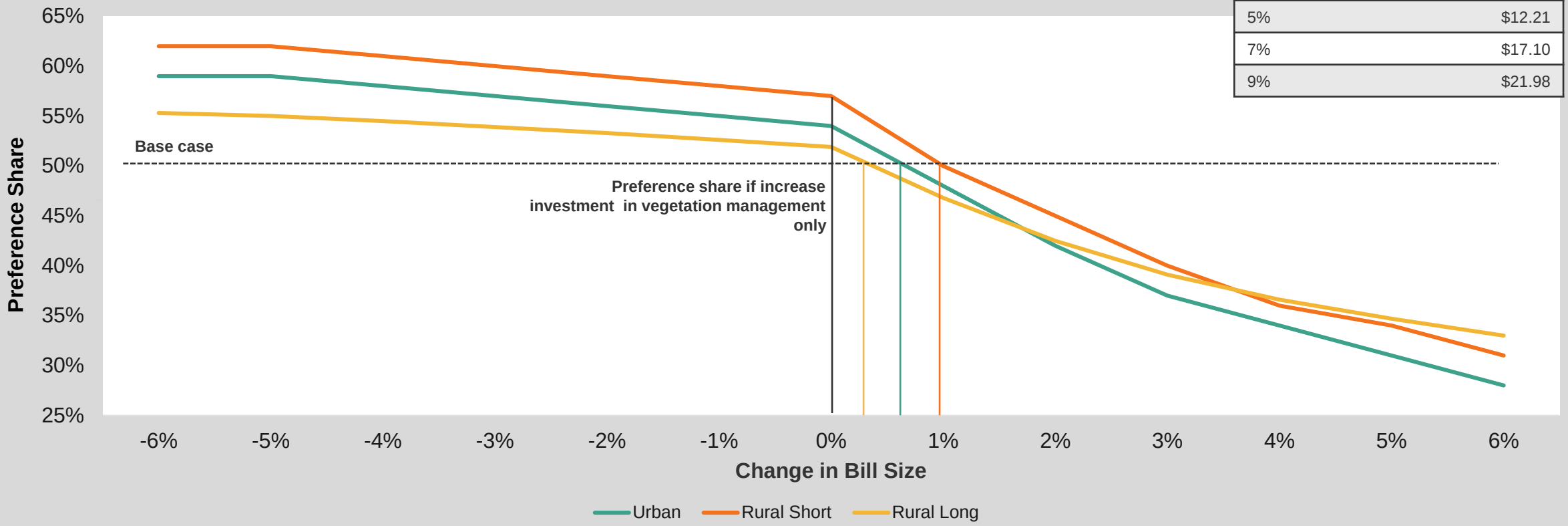


Customers are willing to pay no more than an additional 1% (approx. $2.44) on their bill to increase investment in improved tree trimming and vegetation management.



Willingness to pay for tree trimming/vegetation management

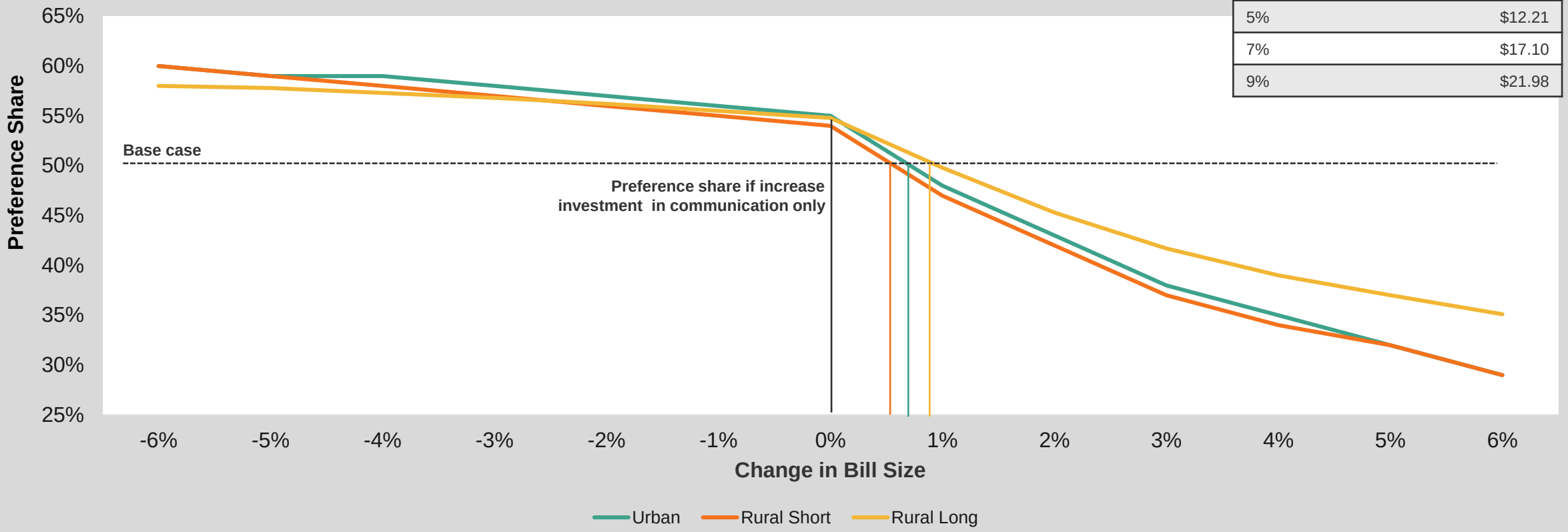
Bill Size Change on average Bimonthly Bill	$
1%	$2.44
3%	$7.33
5%	$12.21
7%	$17.10
9%	$21.98



Customers are willing to pay no more than an additional 1% (approx. $2.44) on their bill to increase investment in improved outage notifications and customer service.

Willingness to pay for improved communication

Bill Size Change on average Bimonthly Bill	$
1%	$2.44
3%	$7.33
5%	$12.21
7%	$17.10
9%	$21.98

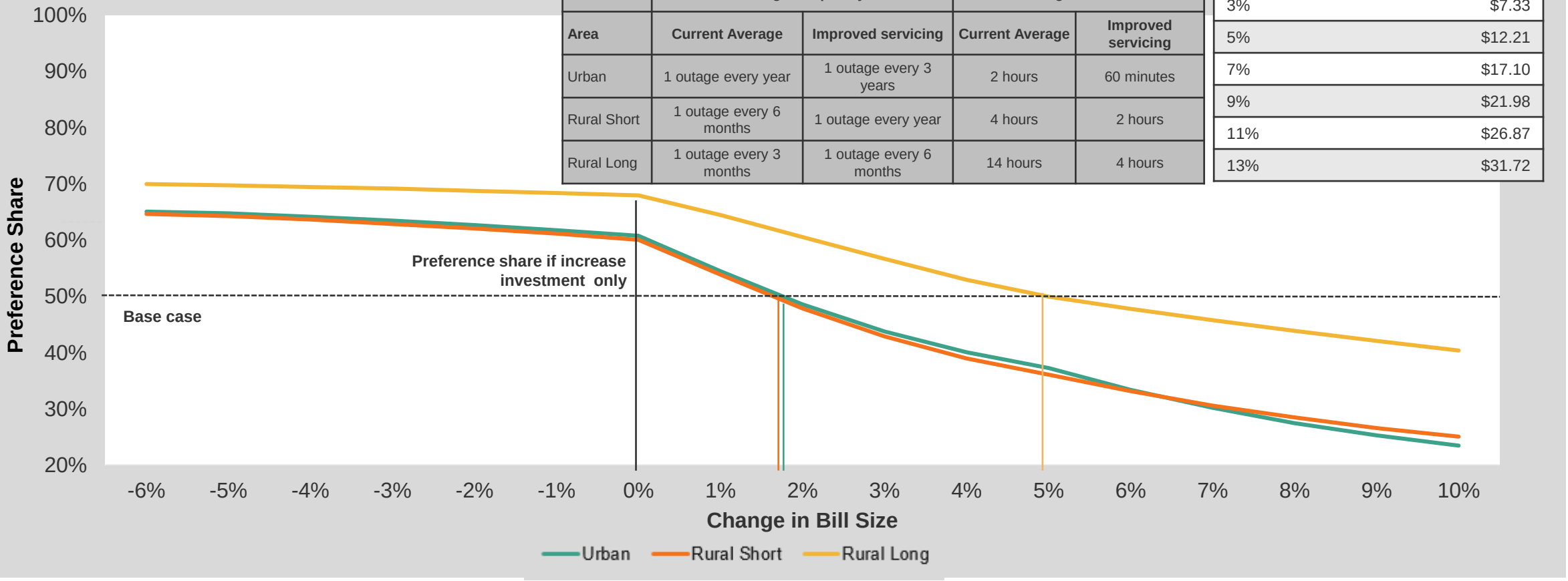


Urban and Rural Short customers would be willing to pay an additional 2% to reduce the frequency and duration of outages. In comparison, Rural Long customers are willing to pay up to 5% to improve servicing.

Willingness to pay for reduced outage frequency and duration

	Outage Frequency		Outage Duration	
Area	Current Average	Improved servicing	Current Average	Improved servicing
Urban	1 outage every year	1 outage every 3 years	2 hours	60 minutes
Rural Short	1 outage every 6 months	1 outage every year	4 hours	2 hours
Rural Long	1 outage every 3 months	1 outage every 6 months	14 hours	4 hours

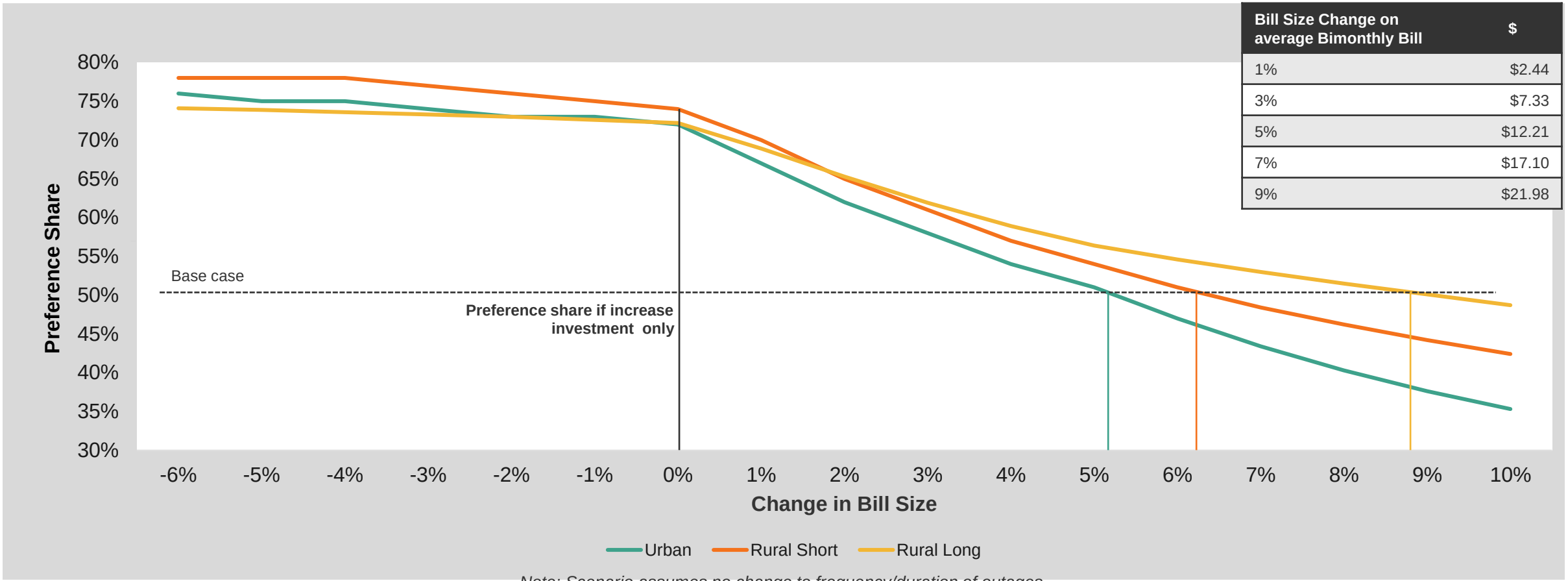
Bill Size Change on average Bimonthly Bill	$
1%	$2.44
3%	$7.33
5%	$12.21
7%	$17.10
9%	$21.98
11%	$26.87
13%	$31.72



Caution: Rural Long sample size is limited

When looking at the potential combination of elements, modelling allows for scenario predictions of between 5% and 9% increase in the average bill, depending on feeder, if investment was increased in each of vegetation management, communications, new technologies and undergrounding.

Willingness to pay Improvements in Vegetation Management, Communication, New technologies and Undergrounding



Bill Size Change on average Bimonthly Bill	$
1%	$2.44
3%	$7.33
5%	$12.21
7%	$17.10
9%	$21.98

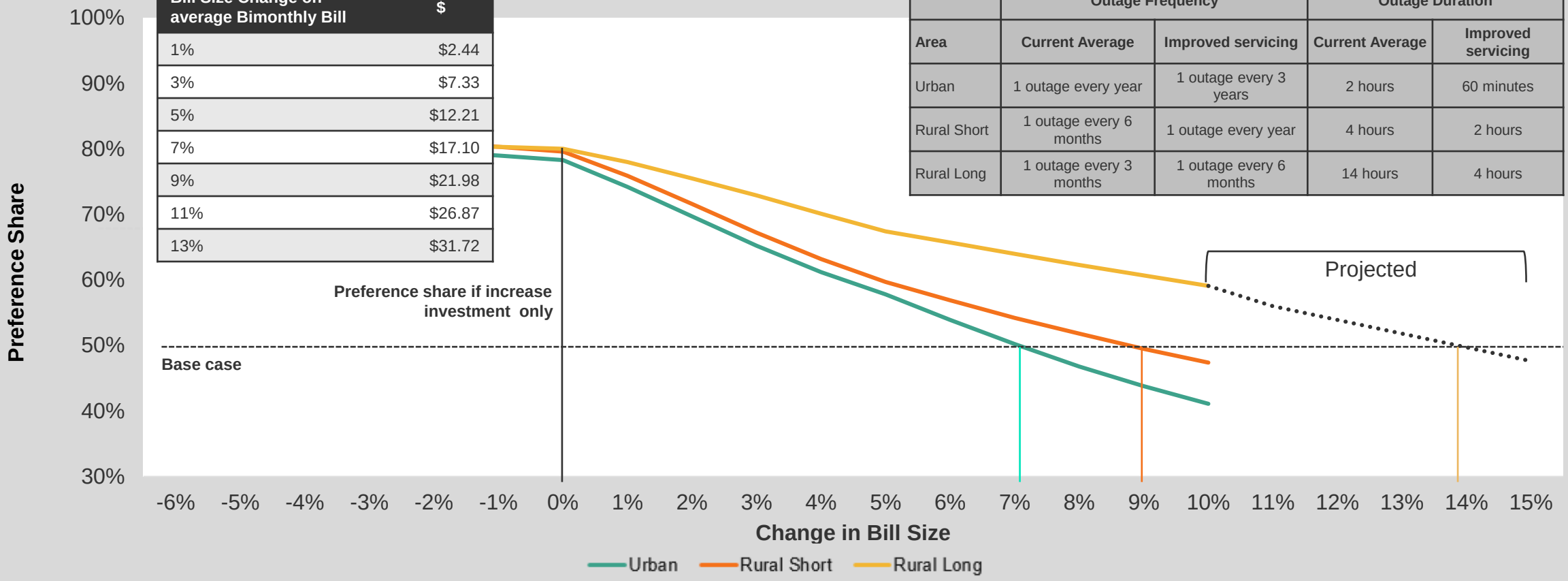
Note: Scenario assumes no change to frequency/duration of outages

When looking at the potential combination of elements, modelling allows for scenario predictions of between 7% and 14% increase in the average bill, depending on feeder, if investment was increased across each attribute.

Willingness to pay for improvements in each attribute

Bill Size Change on average Bimonthly Bill	$
1%	$2.44
3%	$7.33
5%	$12.21
7%	$17.10
9%	$21.98
11%	$26.87
13%	$31.72

	Outage Frequency		Outage Duration	
Area	Current Average	Improved servicing	Current Average	Improved servicing
Urban	1 outage every year	1 outage every 3 years	2 hours	60 minutes
Rural Short	1 outage every 6 months	1 outage every year	4 hours	2 hours
Rural Long	1 outage every 3 months	1 outage every 6 months	14 hours	4 hours



Caution: Rural Long sample size is limited

5.1.3 Communication

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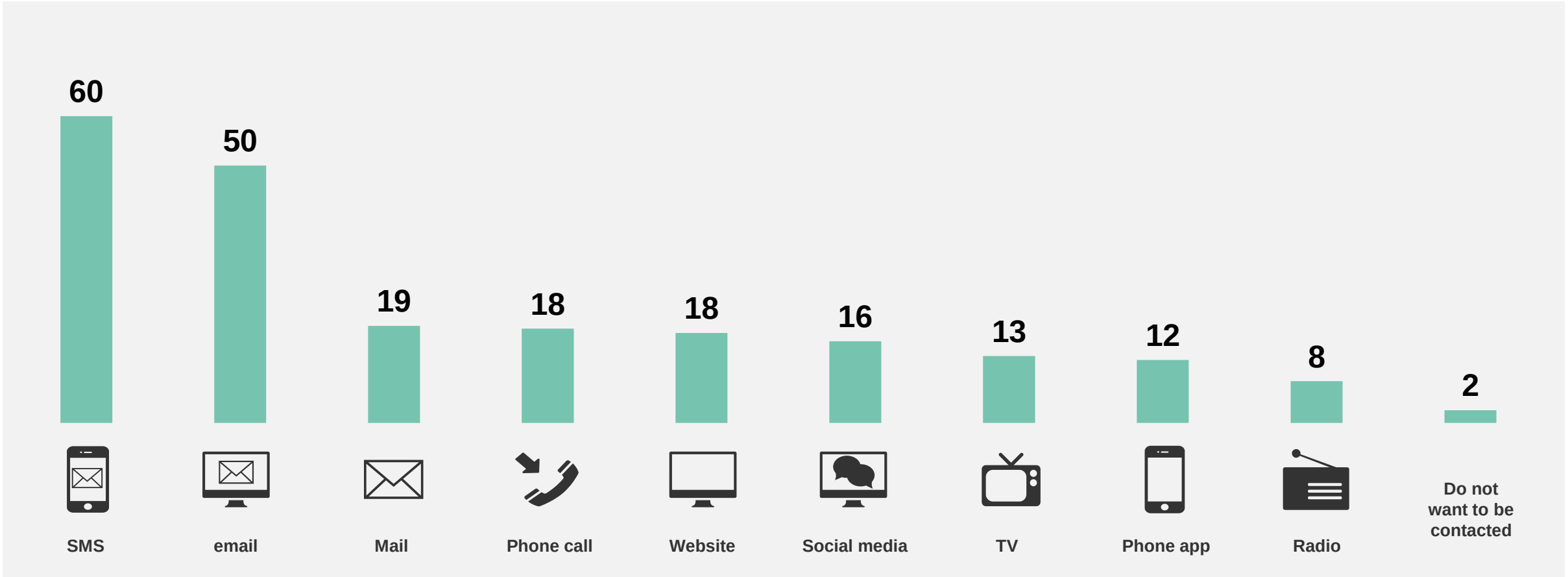
COMMUNICATION

SUMMARY

- Preferred method of communication from Western Power is via SMS and email, whilst the majority prefer to call or email when they need to communicate with Western Power themselves.
- They give preference to Western Power communicating with them about planned outages, unplanned outages (in terms of resolution), storm/cyclone warnings and how to reduce their energy usage.
- Vegetation, community events, employment opportunities, peak demand and environmental programs are not areas of communication customers are looking for from Western Power.

SMS and Email are the preferred channels for information from Western Power.

Preferred method of communication from Western Power (%)

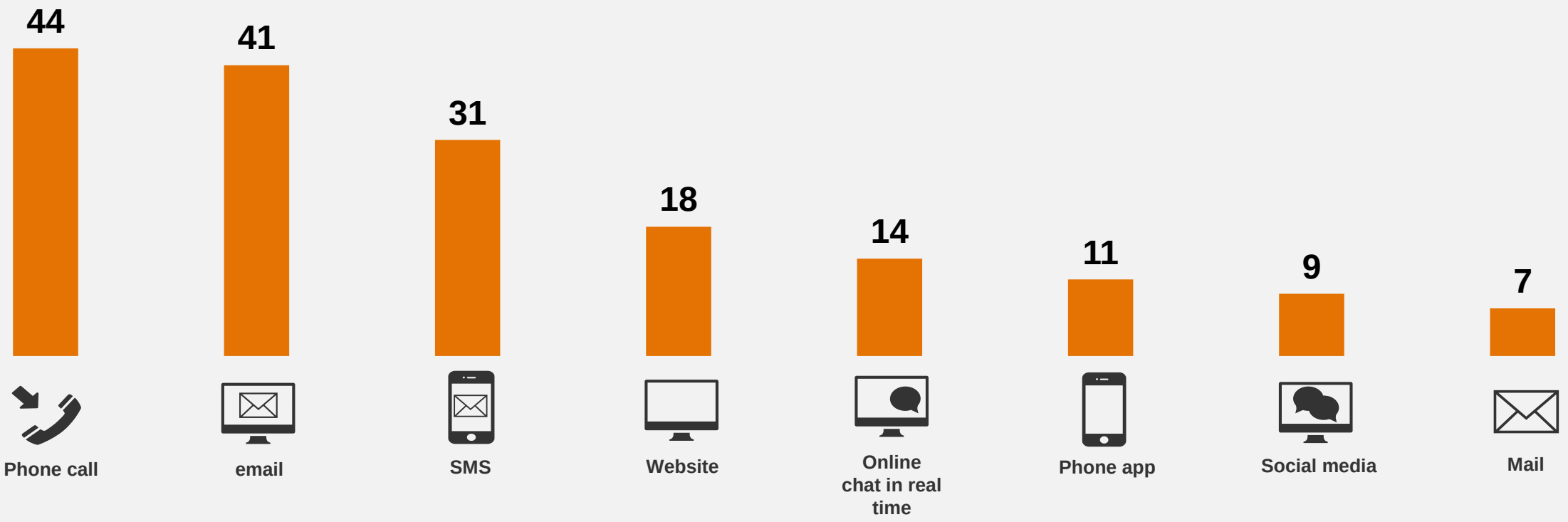


SOURCE: E1a. Listed below are a number of different ways that Western Power could communicate with you about different things that are occurring with the network (e.g. planned and unplanned outages, electrical safety issues, new technologies, renewable energy etc). Which of the following would you prefer Western Power uses to communicate to you?
BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

▲ Significantly higher than total
▼ Significantly lower than total

Phone and Email are the preferred channels for residents who want to contact Western Power.

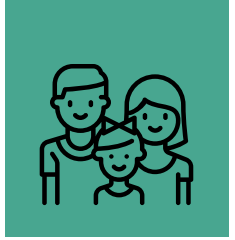
Preferred method of communication to Western Power (%)



SOURCE: E1a. Listed below are a number of different ways that Western Power could communicate with you about different things that are occurring with the network (e.g. planned and unplanned outages, electrical safety issues, new technologies, renewable energy etc). Which of the following would you prefer Western Power uses to communicate to you?
BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

▲ Significantly higher than total
▼ Significantly lower than total

Customers would like to hear from Western Power about planned outages, unplanned outages (in terms of resolution), storm/cyclone warnings and how to reduce their energy usage.



Preferred topics of communication from Western Power (%)

		Urban	Rural Short	Rural Long
Planned outages	61	62	62	51
Unplanned outages	50	51	51	36
Storm/cyclone warnings	34	34	34	29
Money to reduce household/business energy usage	29	30	30	13
Electricity tariffs	27	29	26	16
Energy efficiency	25	27	24	16
Meter readings	25	25	27	28
Information on solar panels/energy	24	25	22	19
Battery storage	23	23	24	18
Electrical safety	20	22	18	11

		Urban	Rural Short	Rural Long
Intelligent grid/future network	19	19	19	9
Local electricity infrastructure projects	17	17	17	11
New connection/disconnection processes	15	15	15	7
Peak demand	14	14	16	7
Environmental programs	14	14	14	8
Employment opportunities	1	11	12	5
Local community events	8	8	10	2
Vegetation management	8	7	9	10
None of these	9	9	9	9

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SOURCE: E2. Which of the following, if any, would you like Western Power to communicate with you about?
BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

▲ Significantly higher than total
▼ Significantly lower than total

5.1.4 Outages

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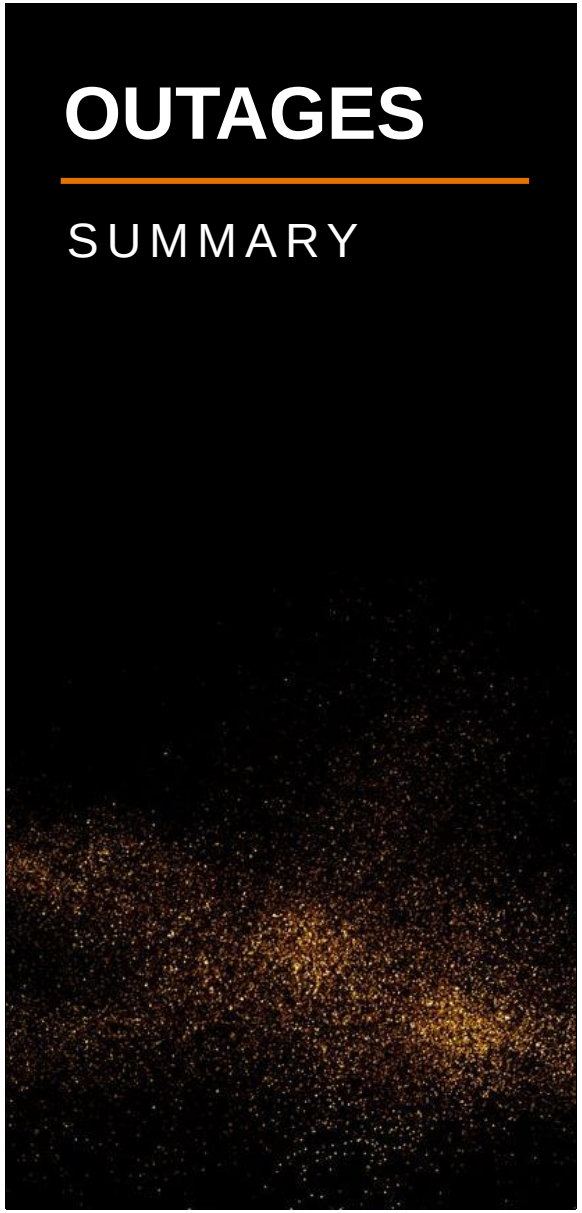
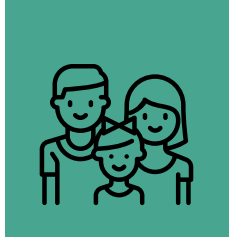
OUTAGES

SUMMARY

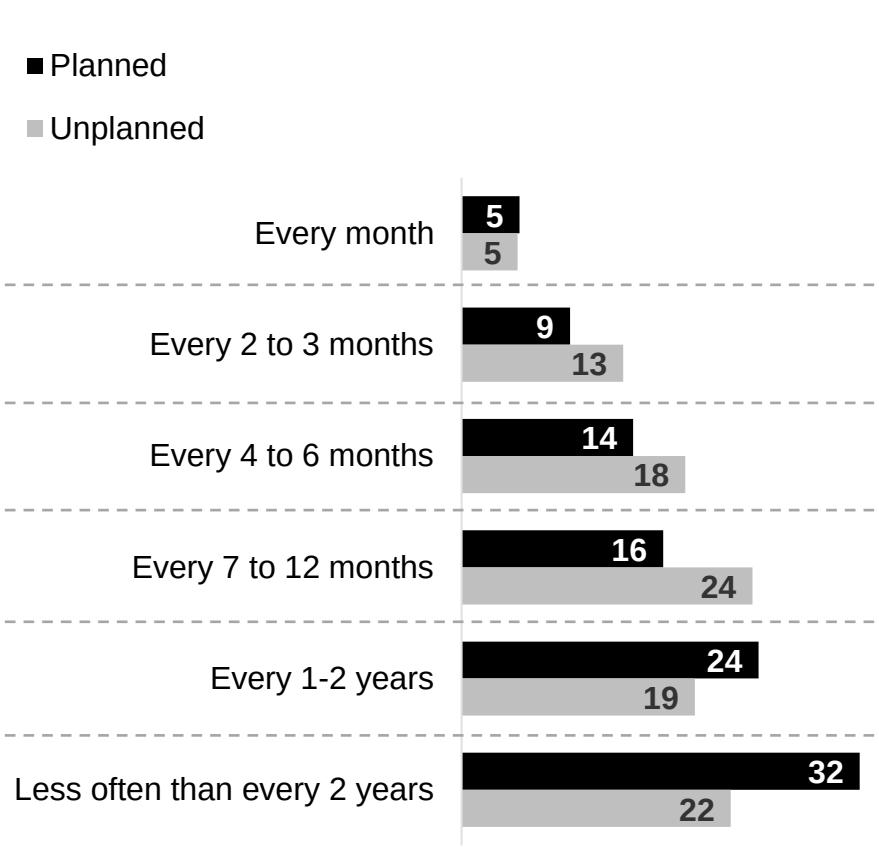


- Overall, 31% of residents believe Western Power needs to improve its reliability performance in their area. Rural Long and Rural Short customers are more likely than Urban customers to believe Western Power needs to improve its reliability performance.
- Urban customers are more likely than Rural Short/Long customers to claim experiencing planned outages less often than every 2 years (37% compared to 24% Rural Short and 14% Rural Long).
- Similarly, Urban customers are more likely Rural Short/Long customers to claim experiencing unplanned outages less often than every 2 years (26% compared to 14% Rural Short and 16% Rural Long).
- Rural Long customers are more likely than those in other areas to suffer planned or unplanned outages every 2 to 3 months or more often.
- Residents connected to the network via overhead lines were significantly more likely than those connected via underground lines to suffer unplanned outages every 12 months or more often (62% compared to 49%).
- Rural customers are more likely than Urban customers to have had an unplanned outage in the past 3 months.
- Overall, 38% of outages were no more than an hour long.
- Overall, 50% of residents would prefer at least one week ahead of a planned outage.

Urban customers are more likely than Rural Short or Rural Long customers to claim experiencing planned & unplanned outages less often than every 2 years.



Frequency of power outages (%)



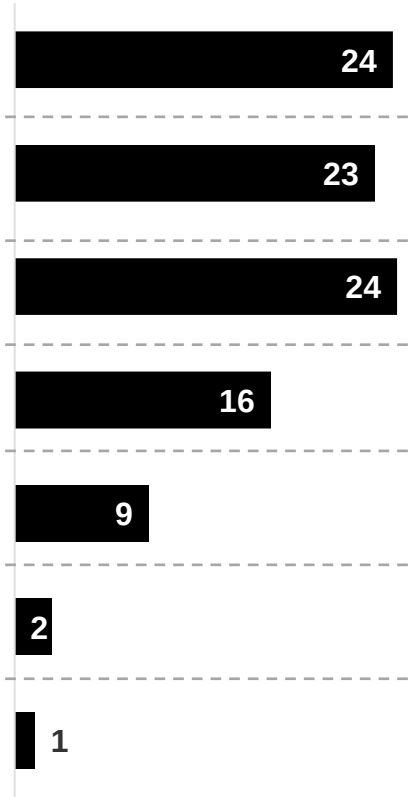
	Planned			Unplanned		
	Urban	Rural Short	Rural Long	Urban	Rural Short	Rural Long
Every month	4	4	11 ▲	4	6	9
Every 2 to 3 months	8	10	12	10	16	31 ▲
Every 4 to 6 months	12	18 ▲	20	17	21	21
Every 7 to 12 months	15	20	22	22	27	23
Every 1-2 years	25	23	22	20	18	9 ▼
Less often than every 2 years	37 ▲	24 ▼	14 ▼	26 ▲	14 ▼	6 ▼

SOURCE: B1. Electricity outages can occur when your home temporarily loses its electricity supply. Which of the following best describes how often you experience planned and unplanned electricity outages at your home?
PLEASE NOTE: A planned outage is where you have received notification ahead of time by Western Power so they could safely conduct work on the network. An unplanned outage (i.e. blackout) may be due to a fault on the network, a localised incident (i.e. car crash) or as a result of storm activity.
BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

▲ Significantly higher than total
▼ Significantly lower than total

Rural customers are more likely than Urban customers to have had an unplanned outage in the past 3 months.

Recent unplanned outage (%)



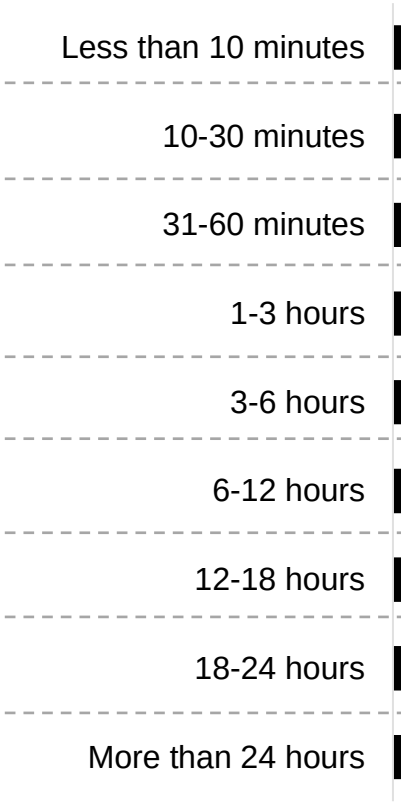
	Urban	Rural Short	Rural Long
In the last 3 months	18 ▼	34 ▲	52 ▲
In the last 3 to 6 months	23	24	17
In the last 7 to 12 months	24	26	20
In the last 1 to 2 years	19 ▲	12 ▼	9 ▼
In the last 2 to 5 years	11 ▲	3 ▼	1
In the last 6 to 10 years	3 ▲	1	0
More than 10 years	2 ▲	0	0

SOURCE: B2. To the best of your knowledge when was the last time you had an unplanned outage at your home?
BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

▲ Significantly higher than total
▼ Significantly lower than total

Overall, 38% of outages were no more than an hour long.

Duration of unplanned outage (%)



	Urban	Rural Short	Rural Long
Less than 10 minutes	6	8	9
10-30 minutes	13	16	21 ▲
31-60 minutes	18	14	15
1-3 hours	39 ▲	33	16 ▼
3-6 hours	16	15	18
6-12 hours	5	5	5
12-18 hours	1	2	4 ▲
18-24 hours	1	0	2
More than 24 hours	1 ▼	6	10 ▲

SOURCE: B3. How long did your unplanned outage last?
BASE: Residents who have experienced an unplanned outage in the past 2 years (n=1277)

▲ Significantly higher than total
▼ Significantly lower than total

Overall, 50% of residents would prefer at least one week ahead of a planned outage.

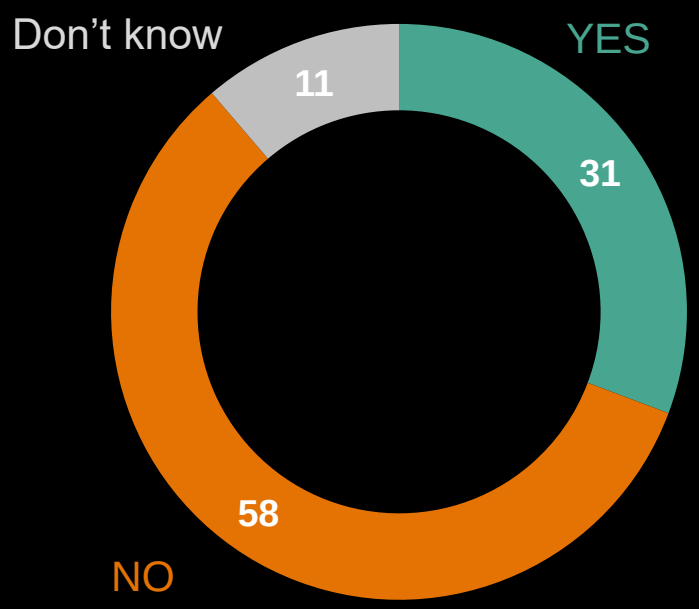
Required length of notice prior to planned outage (%)

	Urban	Rural Short	Rural Long
No notice needed	4	2	2
24 hours	12	16	25 ▲
48 hours	18	17	10 ▼
2-4 days	15	18	16
1 week	32	30	29
2 weeks	13	14	14
More than 2 weeks	5	3▼	5

SOURCE: B5. How much notice, if any, would you like Western Power to provide before carrying out a planned outage (of any duration) at your home?
BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

▲ Significantly higher than total
▼ Significantly lower than total

Rural Long and Rural Short customers are more likely than Urban customers to believe Western Power needs to improve its reliability performance.



31%

of Residents believe Western Power needs to improve its reliability performance in their area. However, there are differences by feeder.

- Urban 26% ▼
- Rural Short 37% ▲
- Rural Long 56% ▲

SOURCE: B6. Do you think Western Power needs to improve its reliability performance in your area?
BASE: Total Residents (n=1538); Urban (n=934); Rural Short (n=431); Rural Long (n=173)

▲ Significantly higher than total
▼ Significantly lower than total

5.2 SME Customer Preferences

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5.2.1 Evaluation of future network management proposals

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Evaluation of future network management proposals

SUMMARY

- Overall when exploring SME customer focus areas via the Max Diff analysis the results show broad consistency with residential customers.
  - For SMEs building new infrastructure to cope with demand and investing in new technologies are the top priorities. Reducing electricity prices was a mid-level priority to SMEs.
- In terms of evaluating reactions to specific areas of future investment:
  - Overall, 34% of SMEs indicated they are willing to pay more on their bill to increase the share of renewable electricity generation on the network. However, 38% indicated they were unwilling to do so.
  - Overall 45% of SMEs are willing to pay more to increase the installation of community batteries across the network, which increases to 55% in Rural Long SMEs.
  - As with residential there is strong support for Western Power to own or fund community batteries as part of managing the ongoing changes in the energy industry.
  - Paying more to improve the network reliability for SMEs is not a preference, with only a third stating so. Unlike some other attributes, this does not increase significantly for Rural Long or Short SMEs.
  - There is substantial support, at 85%, for investment in SPS where it provides a more cost effective alternative.
  - In addition microgrids are also well supported with almost 7 in 10 SMEs stating they would be willing to pay more for investment in these. As with the residential results, to the consultancy team this appeared to be a surprisingly high result, and there may be value in exploring the understanding of microgrids with customers further, to ensure a full understanding of what they are and potential cost implications.
  - Just over a third of all SMEs would be willing to pay more to mitigate the impact of natural disasters, with Rural Short SMEs less likely than others to do so.
  - Whilst support in emerging technologies is strong (53%), as we saw with residential, it becomes very strong (88%) when suggested in terms of a cost neutral investment.
  - Mirroring residential customers again, there is also very strong support (79%) in terms of adopting a 30 second response time over 75% of the time, which could be an opportunity for Western Power.

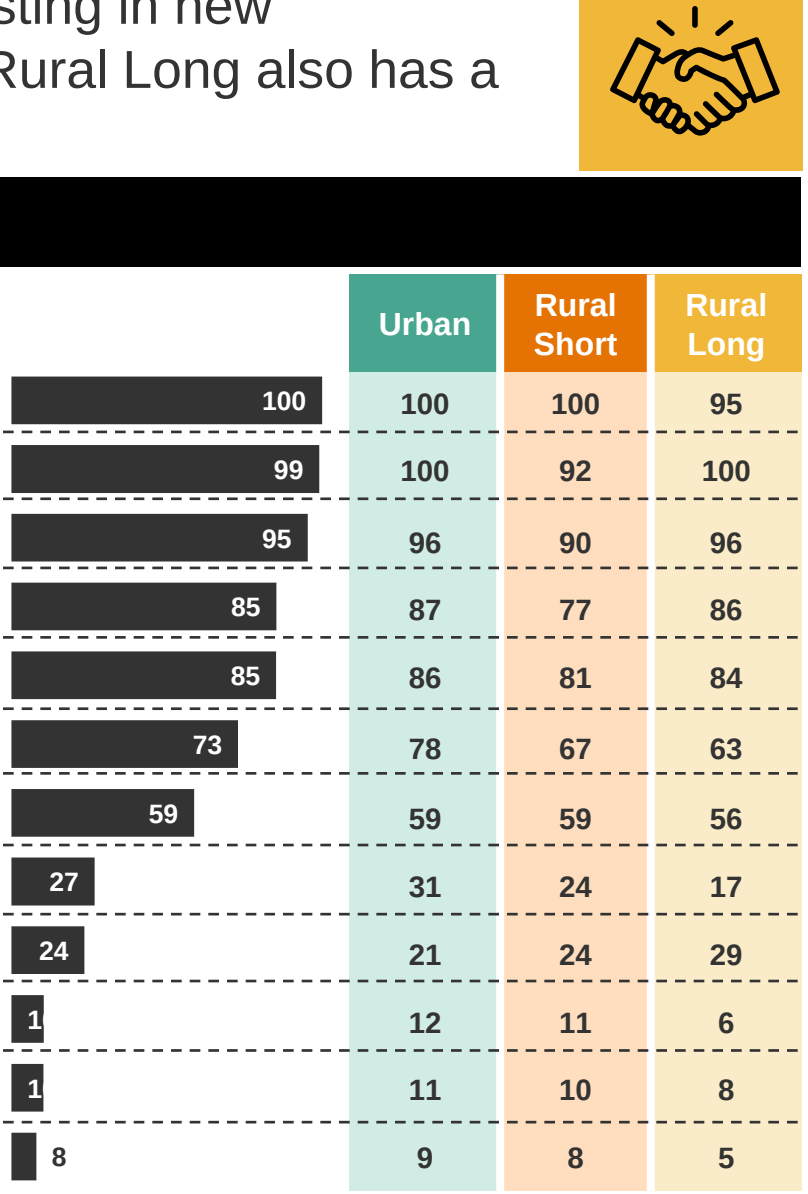
For SMEs building new infrastructure to cope with demand and investing in new technologies are the top priorities for Urban and Rural Short, whilst Rural Long also has a priority with ensuring public safety when using the network.

Maximum Difference Analysis (%)

Customers were presented with 12 different potential priority areas to secure their electricity future. Through Maximum Difference (Max Diff) Analysis a priority rank order is revealed.

The analysis shows consistency in Urban and Rural Short SME customer preferences, with Rural Long similar but with some slight variations.

The index reveals the relative importance of the 12 priority areas to SMEs. A relatively low priority does not mean an area is unimportant. It is simply less of a priority than other areas tested via the Max Diff Analysis.



	Urban	Rural Short	Rural Long
Building new infrastructure to cope with future demand (i.e. augmenting the distribution network)	100	100	95
Supporting renewable energy and management of solar connections to the electricity network	100	92	100
Investing in new technologies to prepare the network for the future	96	90	96
Maintaining the existing reliability of the network (i.e. the poles and wires)	87	77	86
Maintaining Western Power's outage response capability (i.e. storm or emergency response)	86	81	84
Reducing electricity prices	78	67	63
Improving network resilience to minimise the impact of a natural disaster	59	59	56
Improving public safety when using the network	31	24	17
Collaborating with customers to solve localised energy supply problems	21	24	29
Improving communications to the customer	12	11	6
Improving Western Power's customer service	11	10	8
Community initiatives (i.e. community safety, energy literacy and community events/participation)	9	8	5

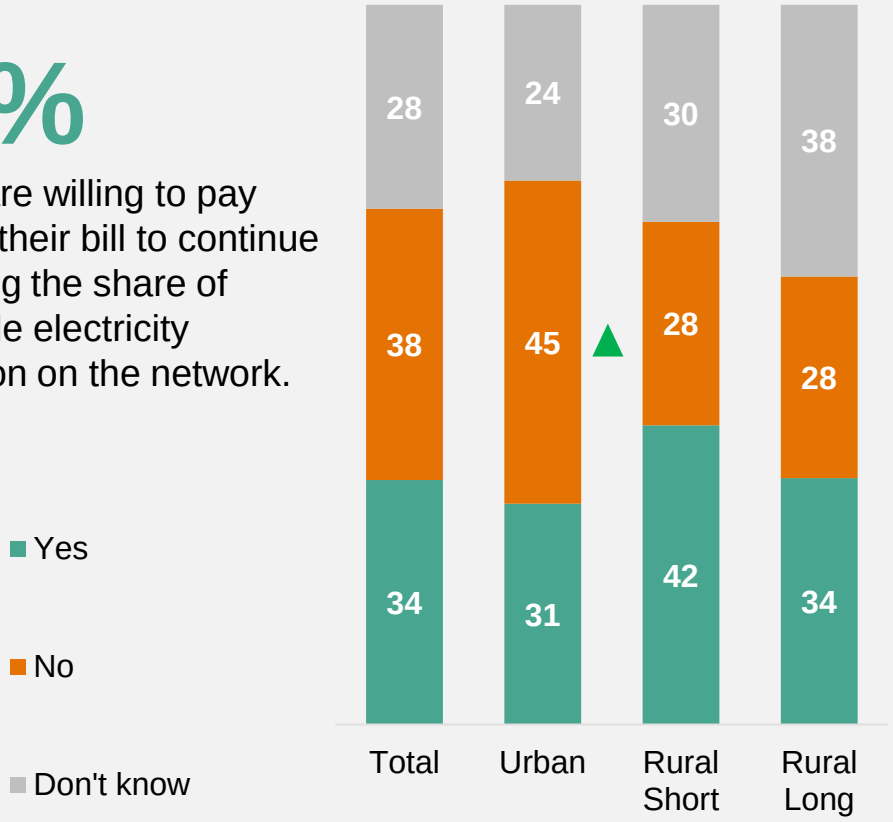
SOURCE: X1. In each of the next few questions you will see lists of different areas Western Power could prioritise to help secure the electricity network for the future.
On each screen, you will be asked to select which one area you feel Western Power should MOST prioritise, and which one area you feel they should invest LEAST in.
BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39)

Overall, 34% of SMEs indicated they are willing to pay more on their bill to increase the share of renewable electricity generation on the network. However, 38% indicated they were unwilling to do so.

SME: Willingness to pay more to increase renewable electricity generation (%)

34%

Overall are willing to pay more on their bill to continue increasing the share of renewable electricity generation on the network.



This was particularly evident amongst Urban based SMEs where 45% indicated they were unwilling to support the proposition. This was a significantly higher result than Rural based customers (28%).

SMEs connected to the network via underground powerlines were significantly more willing to pay more (41%) than those connected via overhead powerlines (29%) to increase the share of renewables on the network.

Those SMEs who consider their business is performing well financially were also significantly more likely to be supportive of the proposition (50%) than other SMEs (32%).

SOURCE: Western Power works with industry and Western Australian communities to help the state transition to a low-carbon energy future. Renewable energy, such as solar, can cause challenges for the electricity network in maintaining frequency and voltage across the network. Western Power may be required to invest significantly in upgrading the network to enable the increasing connection of renewables to the network and maintain its stability. Would you be willing to pay more on your bill for Western Power to continue increasing the share of renewable electricity generation on the network?
BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39)

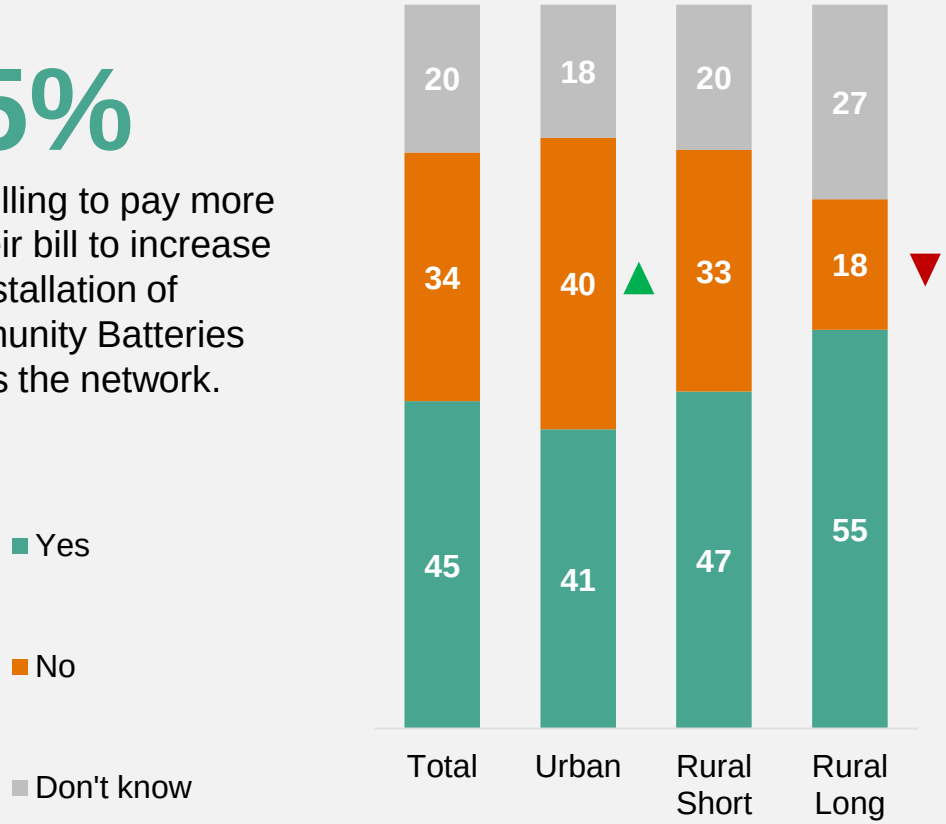
▲ Significantly higher than total
▼ Significantly lower than total

Overall 45% of SMEs are willing to pay more to increase the installation of community batteries across the network.

SME: Willingness to pay more to increase installation of Community Batteries (%)

45%

Are willing to pay more on their bill to increase the installation of Community Batteries across the network.



Urban based SMEs were significantly more likely than Rural based SMEs to be unwilling to pay more to increase the installation of Community Batteries across the network (40% Urban compared to 27% Rural).

Those SMEs that had an unplanned outage in the past 6 months (55%) were significantly more likely to support the proposition than those whose most recent outage was more than 6 months ago (40%).

SMEs with 5 or more employees were significantly more likely to support the proposition than those with less than 5 employees (53% compared 39%).

Those SMEs who consider their business is performing well financially were also significantly more likely to be supportive of the proposition (59%) than other SMEs (44%).

SOURCE: X3. As more WA homeowners and businesses generate their own solar power, batteries and storage are fast becoming part of the network. Community batteries are connected to the grid and store excess solar energy from households in that area. Community batteries also unlock the potential for customers to virtually store their excess solar power in the battery and draw it back out again (to a limit) when needed. An added benefit for all customers is batteries also help to smooth the flow of power on the local network grid which can offset the need for local traditional network upgrades. Would you be willing to pay more on your bill for Western Power to increase the installation of Community Batteries, where possible, across the network?
BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39)

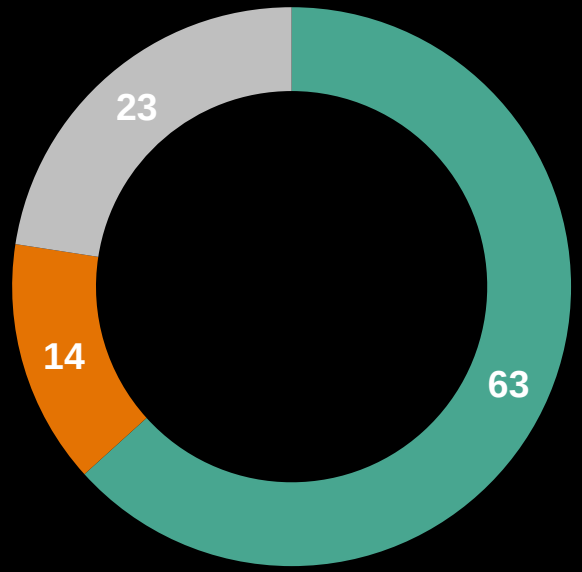
▲ Significantly higher than total
▼ Significantly lower than total

There is majority support for Western Power to own or fund community batteries as part of managing the ongoing changes in the energy industry.

SME: Ownership/Funding of Community Batteries by Western Power (%)

63%

Support Western Power owning or funding community batteries as part of managing the ongoing changes in the energy industry.



- Yes, Western Power should own or fund
- No, private enterprise should own or fund
- Don't know

Preference for Western Power ownership/funding was largely consistent across business groups (and similar to residential).

There was no significant difference in preference for Western Power ownership/funding by location:

- Urban 62%
- Rural Short 56%
- Rural Long 74%

SOURCE: X4. Do you support Western Power owning or funding community batteries as part of managing the ongoing changes in the energy industry?
BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39)

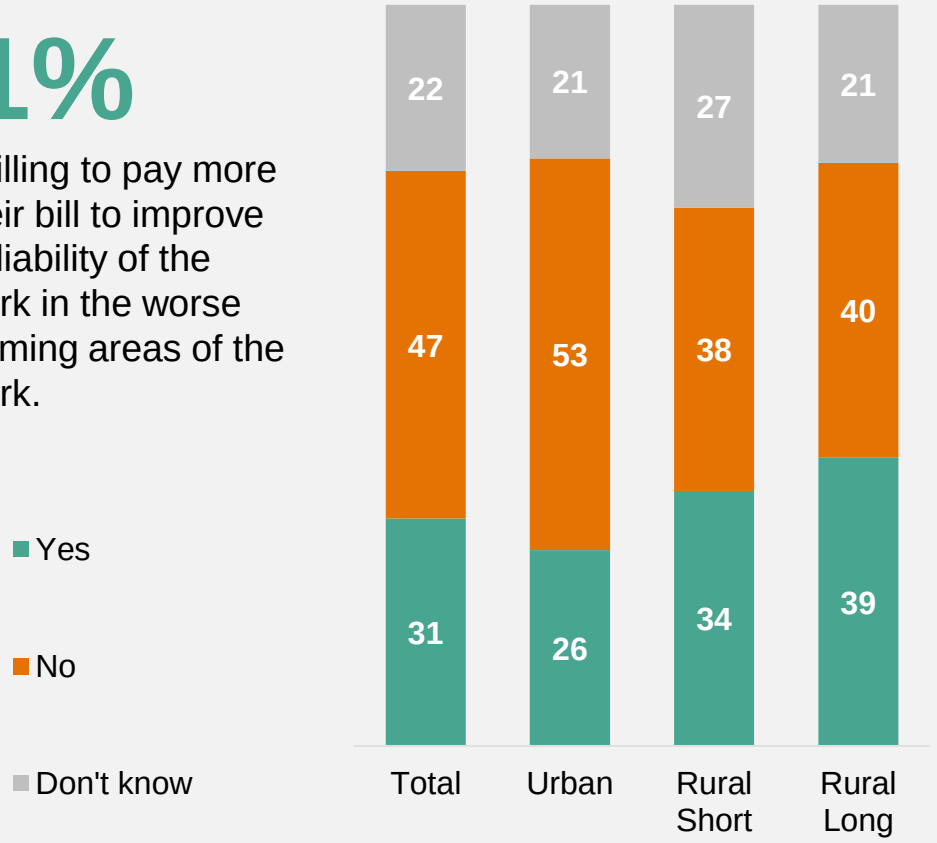
▲ Significantly higher than total
▼ Significantly lower than total

Three in ten SME customers overall were willing to pay more on their bill to improve the reliability of the network in the worst performing areas.

SME: Willingness to pay more to improve the reliability of the network in worse performing areas (%)

31%

Are willing to pay more on their bill to improve the reliability of the network in the worse performing areas of the network.



Three in ten SME customers (31%) overall were willing to pay more on their bill to improve the reliability of the network in the worst performing areas. However, almost half (47%) of SME customers were unwilling to do so.

Urban based SMEs were significantly more likely to be unwilling to pay more (53%) on their bill to improve network reliability in the worst performing areas than Rural SME customers (Short + Long 39%).

SMEs that have very infrequent unplanned outages - less often than every 2 years – were less likely to be willing to pay more to improve network reliability in worst performing areas (Yes - 21%) than those with more frequent unplanned interruptions (Yes - 34%).

Those businesses that were performing well financially were more likely to support the proposition.

Willingness to pay more on bill to improve the reliability of the network in worse performing areas Business Performance

	We are performing well financially	We meet costs, with little margin on top	We are performing poorly financially	Don't know/ prefer not to say
Yes	45% ▲	33%	8% ▼	15% ▼
No	37%	49%	70%	48%
Don't know	18%	19%	21%	37% ▲

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SOURCE: X5. The frequency and length of power outages differs across the network. In some regional locations on the network it can be as frequent as occurring every few months and can last more than 12 hours. Would you be willing to pay more on your bill for Western Power to improve the reliability of the network in the worse performing areas of the network?
BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39)

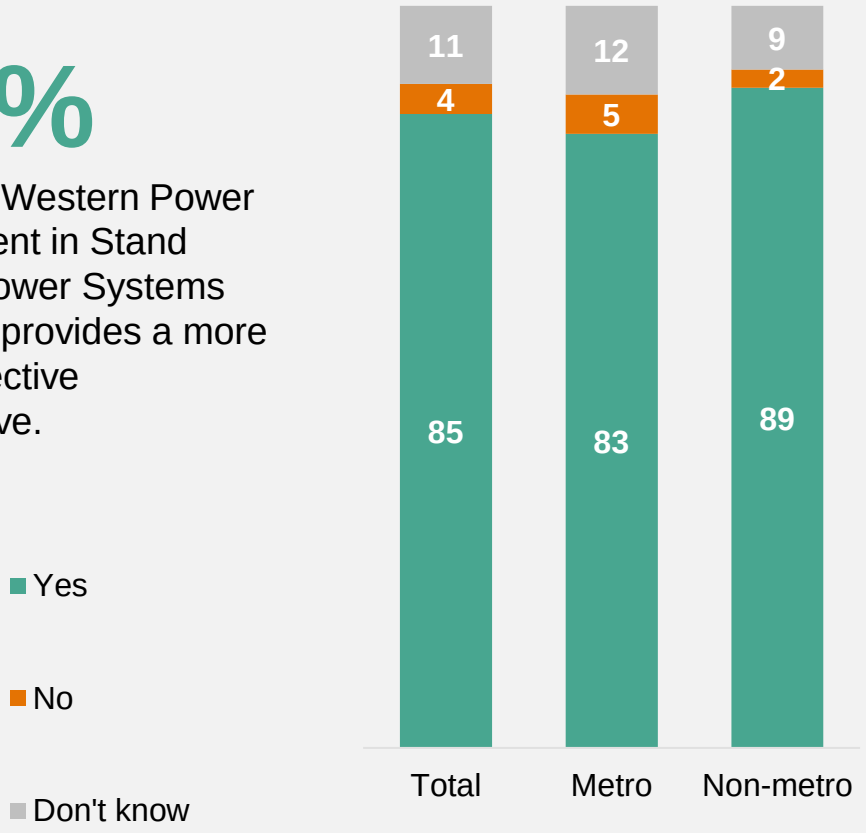
▲ Significantly higher than total
▼ Significantly lower than total

There is considerable support for investment in SPS where it provides a more cost effective alternative.

SME: Support for Investment by Western Power in Stand Alone Power Systems (%)

85%

Support Western Power investment in Stand Alone Power Systems where it provides a more cost-effective alternative.



Overall, 85% of SMEs support Western Power investing in Stand Alone Power Systems where it provides a more cost-effective alternative to traditional infrastructure to improve reliability for remote/regional customers and reduce the overall network required.

Support for the proposition was consistent amongst SMEs in Metro and non-metro areas.

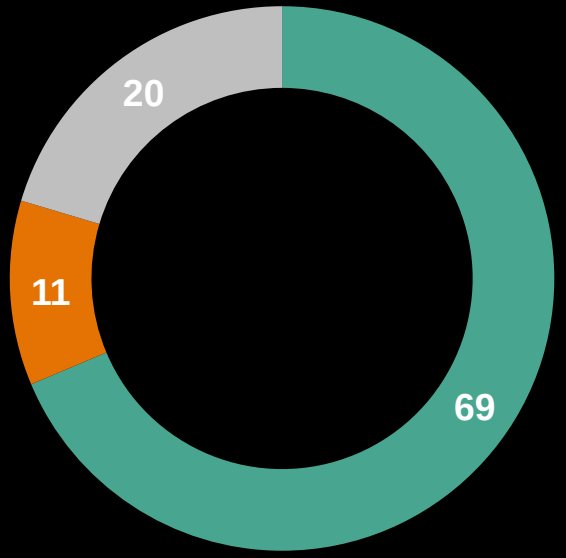
Overall, the strength of support does not differ significantly by the frequency of planned or unplanned outages, by length of outage, by size of business or whether the household currently was connected to the network by above or below ground powerlines.

Microgrids are also well supported with almost 7 in 10 SMEs stating they would be willing to pay more for investment in these.

SME: Support for Investment by Western Power in Microgrids (%)

69%

Support Western Power increasing investment in options such as Microgrids.



Overall 69% of SMEs support Western Power increasing investment in Microgrids. Support for the proposition was consistent amongst SMEs in Metro and non-metro areas.

Those SMEs that are performing well financially are significantly more likely to support investment in Microgrids (82%) than other SMEs (66%).

Overall, the strength of support does not differ significantly by the frequency of planned or unplanned outages, by length of outage, by size of business or whether the SME was currently was connected to the network by above or below ground powerlines.

SOURCE: X10. Increasingly, community microgrids are being seen as an option to increase local energy independence and resilience. However, this may require additional upfront expenditure and may result in a slight increase in bills in the short term. Do you support Western Power increasing investment in such things as Microgrids?
BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39)

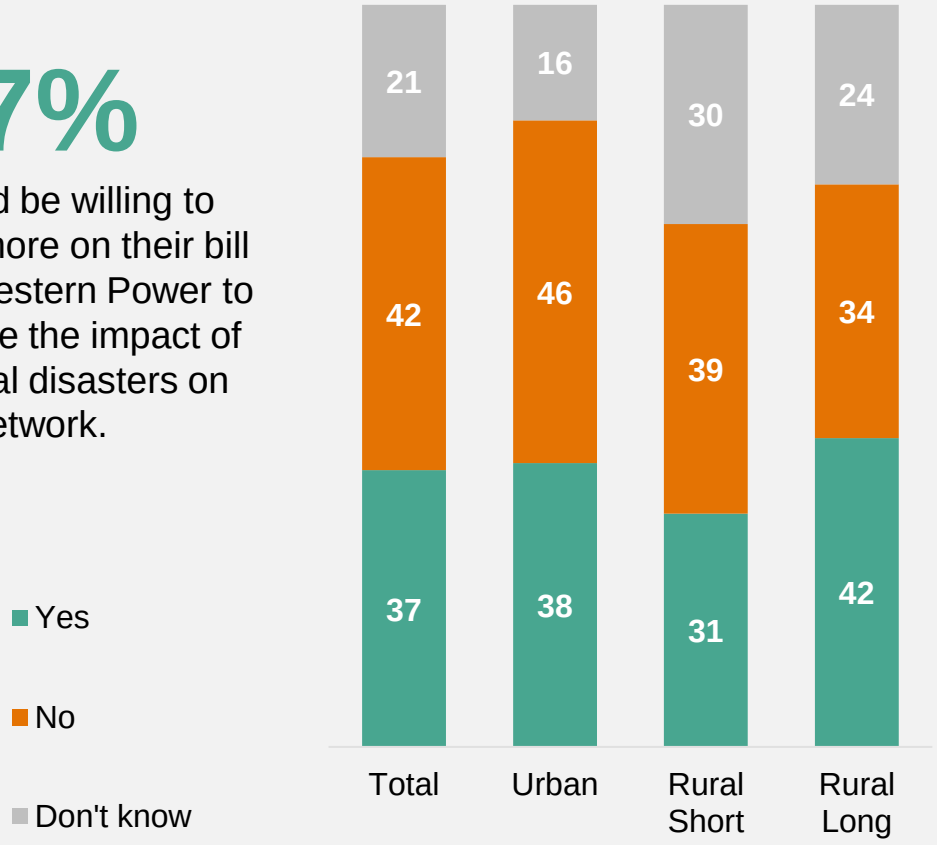
▲ Significantly higher than total
▼ Significantly lower than total

Just over a third would be willing to pay more to mitigate the impact of natural disasters.

SME: Willingness to pay more to reduce the impact of natural disasters (%)

37%

Would be willing to pay more on their bill for Western Power to reduce the impact of natural disasters on the network.



Overall 37% of SMEs are willing to pay more on their bill to reduce the impact of natural disasters (such as cyclones or major storm activity or catastrophic bush fires) which can have a major impact on the electricity network.

There was no significant difference by location in the support for the proposition.

Overall, the strength of support does not differ significantly by the frequency of planned or unplanned outages, by length of outage, by size of business or whether the SME was currently connected to the network by above or below ground powerlines.

SOURCE: X11. Western Australia periodically suffers from natural disasters such cyclones/major storm activity or catastrophic bush fires which can have a significant impact on the electricity network. Western Power can make investments to diminish the impact of these events on the network such as designing & building a more modular grid over time, undergrounding parts of the network, creating and maintaining fire breaks around the extreme fire risk lines or the installation of fire mitigation technologies like fault current limiters, fire safe fuses etc. Would you be willing to pay more on your bill for Western Power to reduce the impact of these events on the network? BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39)

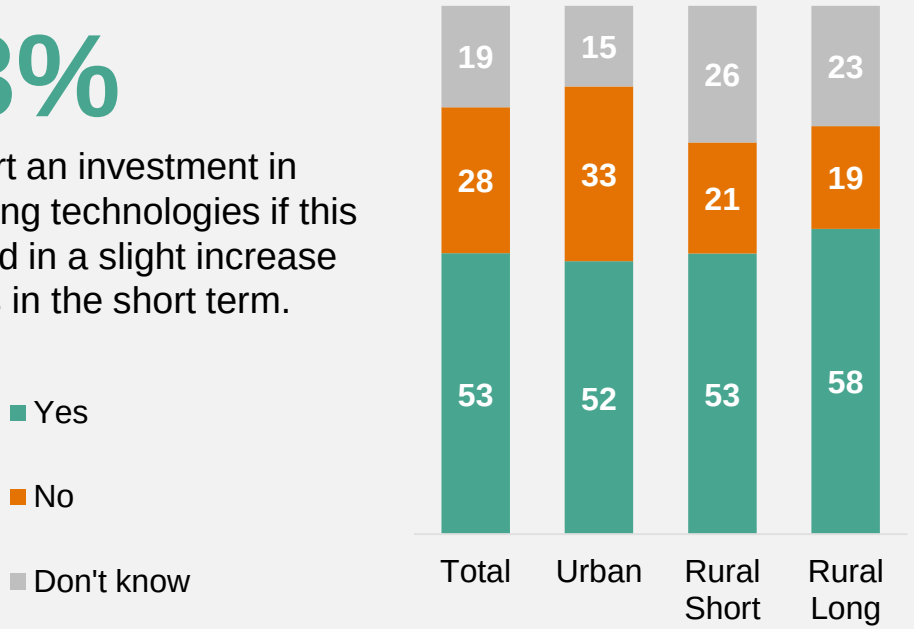
▲ Significantly higher than total
▼ Significantly lower than total

Whilst support for R&D in emerging technologies is strong, as we saw with residential, it increases when the investment is cost neutral.

SME: Willingness to pay more to support R&D in emerging technologies – slight bill increase (%)

53%

Support an investment in emerging technologies if this resulted in a slight increase on bills in the short term.

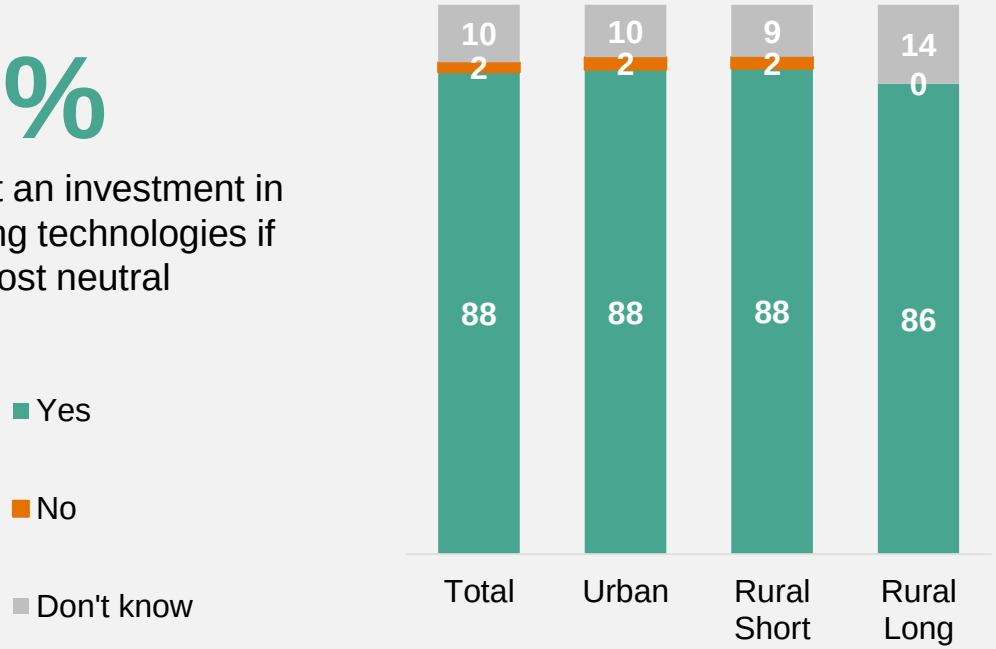


There was no significant difference by location in the support for the proposition. Overall, the strength of support does not differ significantly by the frequency of planned or unplanned outages, by length of outage, by size of business or whether the SME was currently was connected to the network by above or below ground powerlines.

SME: Willingness to pay more to support R&D in emerging technologies – cost neutral (%)

88%

Support an investment in emerging technologies if this is cost neutral



If this investment is cost neutral support increases to almost nine in ten SMEs across different business segments.

SOURCE: X12A. Western Power can invest in research and development in emerging technologies that can significantly improve its ability to predict or mitigate catastrophic safety incidents such as digital substations that can help predict and prevent potential catastrophic failures. Investment in such technologies is designed to help manage risk associated with deferring more costly replacement investments in some areas of Western Power's network. Would you support such investment [in research and development of emerging technologies], if this was to lead to a slight increase in your bill in the short term? X12B. Would you support such investment, if this was cost neutral?
BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39)

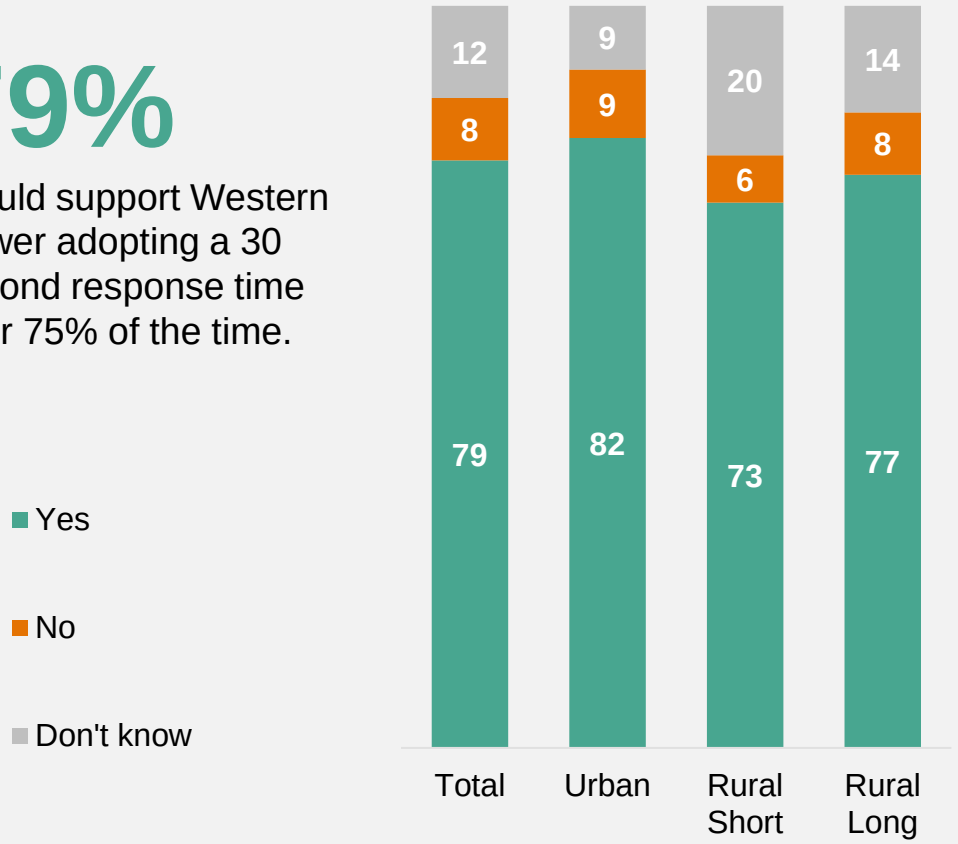
▲ Significantly higher than total
▼ Significantly lower than total

As with residential customers there is very strong support in terms of adopting a 30 second response time over 75% of the time.

Support 30 second call centre response time 75%+ of time (%)

79%

Would support Western Power adopting a 30 second response time over 75% of the time.

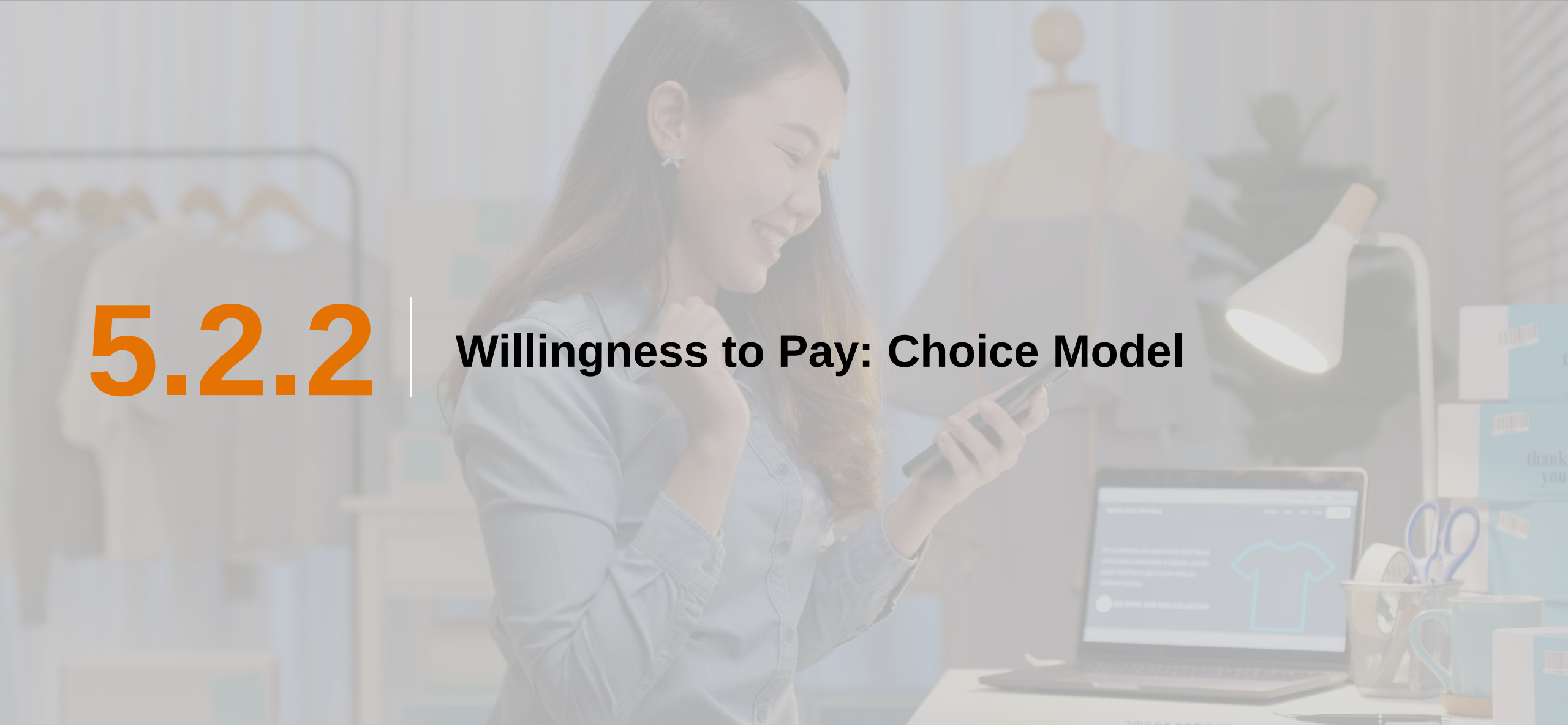


Overall 79% of SMEs would support a slight increase in call centre response times. Support for such a proposition is greater amongst Rural Long residents.

Overall, the strength of support for adopting a 30 second response time over 75% of the time, does not differ significantly by the frequency of planned or unplanned outages, by length of outage, by size of business or whether the SME was currently was connected to the network by above or below ground powerlines.

SOURCE: X6 The range of ways in which Western Power communicates with its customers has increased significantly over recent years. However, the increased number of communication channels to be serviced by Western Power call centre staff whilst maintaining existing service levels can add costs to customers bills. One solution to overcome this challenge is to slightly increase the response times in some channels in order to service customer enquiries or issues via other channels (e.g. online chat) with the intent of not putting upward pressure on customer bills. Western Power is required to respond within 30 seconds 87% of the time. Would you support Western Power adopting a 30 second response time over 75% of the time?
BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39)

▲ Significantly higher than total
▼ Significantly lower than total



5.2.2 Willingness to Pay: Choice Model

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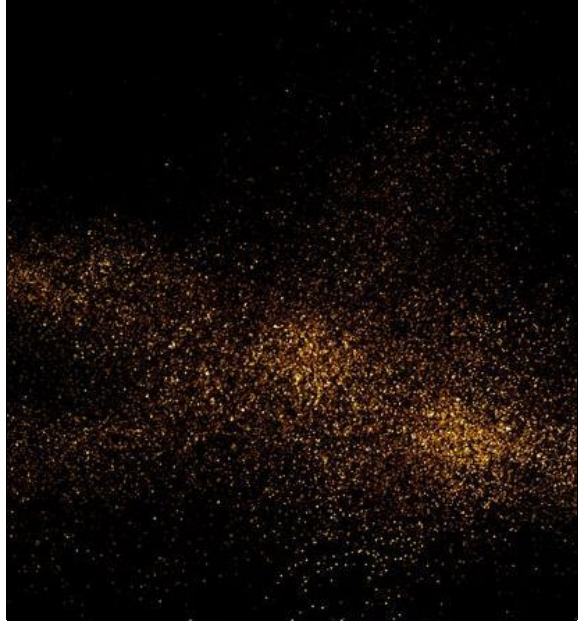
Choice Model

SUMMARY



- Reliability of supply (frequency/duration of outages), overall customer bill size and, especially for Rural Long customers, new technologies are the most important attributes influencing customer choice.
- As with residents, SME customers are more sensitive to increases in bill size than to decreases. Urban customers also appear more sensitive to price changes than Rural Short or Rural Long customers.
- Keeping the lights on and keeping the fridge cold (frequency of and duration of unplanned outages), are preferences for all, however Urban SME customers are more sensitive to increases in these and their bill preference reduces accordingly.
- Increasing investment in renewable energy/new technologies has a greater impact on preference than decreasing investment. Increasing investment in renewable energy/new technologies is particularly desired amongst Rural Long SME customers.
- Whilst there is strong support towards investment in undergrounding, Rural Short customers are more sensitive towards these changes.
- Tree trimming is relatively unimportant to Western Power customers. However, amongst Rural Long customers increased investment has a considerable positive impact on preference.
- Customers are less likely to pay more for vegetation management, improved communications or undergrounding, with all suggesting between 1-2% bill increase only.

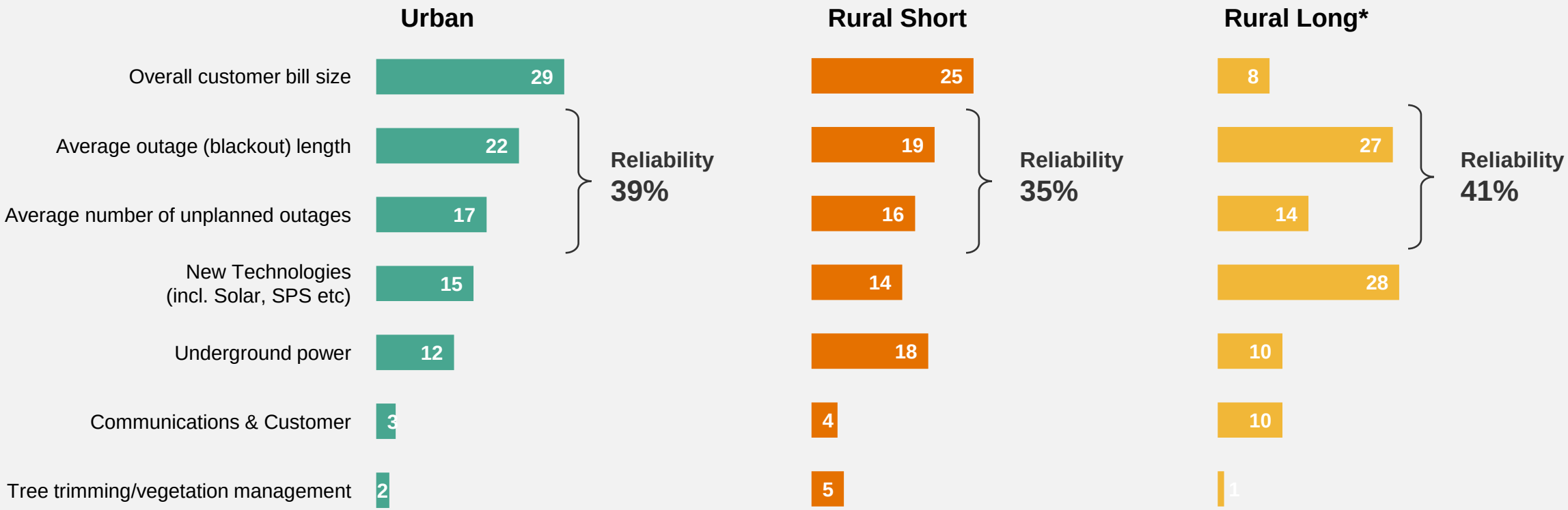
Choice model: Base Case

Preference Share represents a level of appeal/preference with regards to a particular configuration. The base case below best indicates the level of reliability experienced by each specific customer according to network data. From that we have a starting level of appeal/preference towards this base case. The base case starts at 50% preference. As we change this configuration we can understand how this preference changes between 0% and 100%.

	Urban	Short Rural	Long Rural
Overall customer bill size (% change)	**0%**	**0%**	**0%**
Average number of unplanned outages (blackouts) per customer	**1 outage every year**	**1 outage every 6 months**	**1 outage every 3 months**
Average outage (blackout) length	**2 hours**	**4 hours**	**14 hours**
Tree trimming/vegetation management	No change to tree trimming protocols	No change to tree trimming protocols	No change to tree trimming protocols
Underground power	No change to underground power protocols	No change to underground power protocols	No change to underground power protocols
New Technologies (incl. Solar, Stand Alone Power Systems etc)	No change to investment in enabling renewable energy or new technologies on the network	No change to investment in enabling renewable energy or new technologies on the network	No change to investment in enabling renewable energy or new technologies on the network
Communications & Customer	No change to current communication methods or customer service	No change to current communication methods or customer service	No change to current communication methods or customer service
Preference share	**50%**	**50%**	**50%**

Reliability (frequency and duration) is the most important factor for all SMEs, with new technologies rating second highest importance for Rural Long, and customer bill size for Urban and Rural Short.

SME: Relative importance of each attribute to customer choice by feeder type (%)



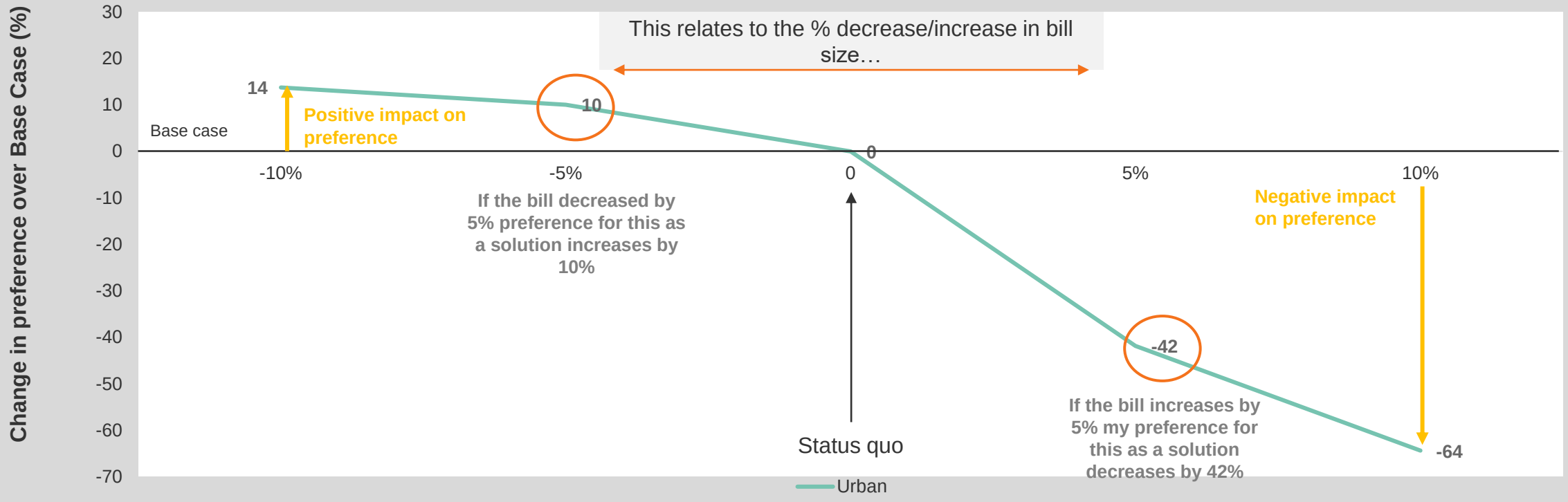
** Caution: Small Sample size*

As with the Max Diff Analysis the Choice Model reveals the relative importance of each attribute in the customer choice. A relatively low important proportion does not mean an attribute is unimportant.

BASE: Urban (n=171), Rural Short (n=57), Rural Long (n=35)

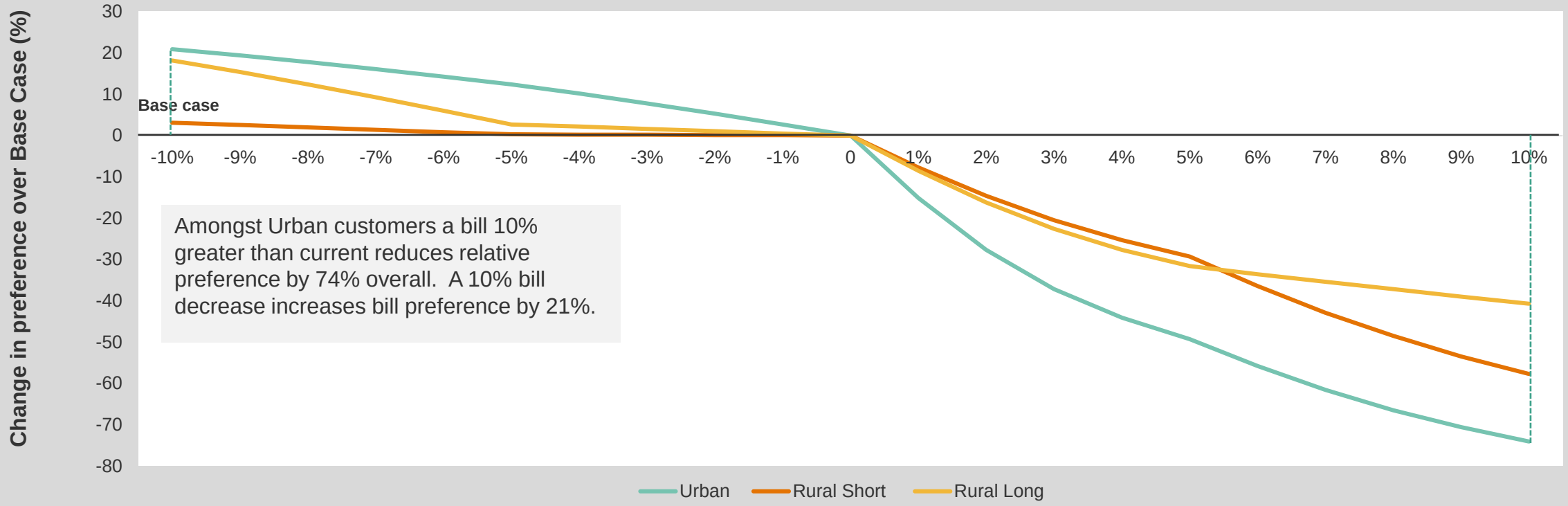
How to interpret the following charts…

SME: Overall customer bill size: Relative difference between simulation and base case (%)



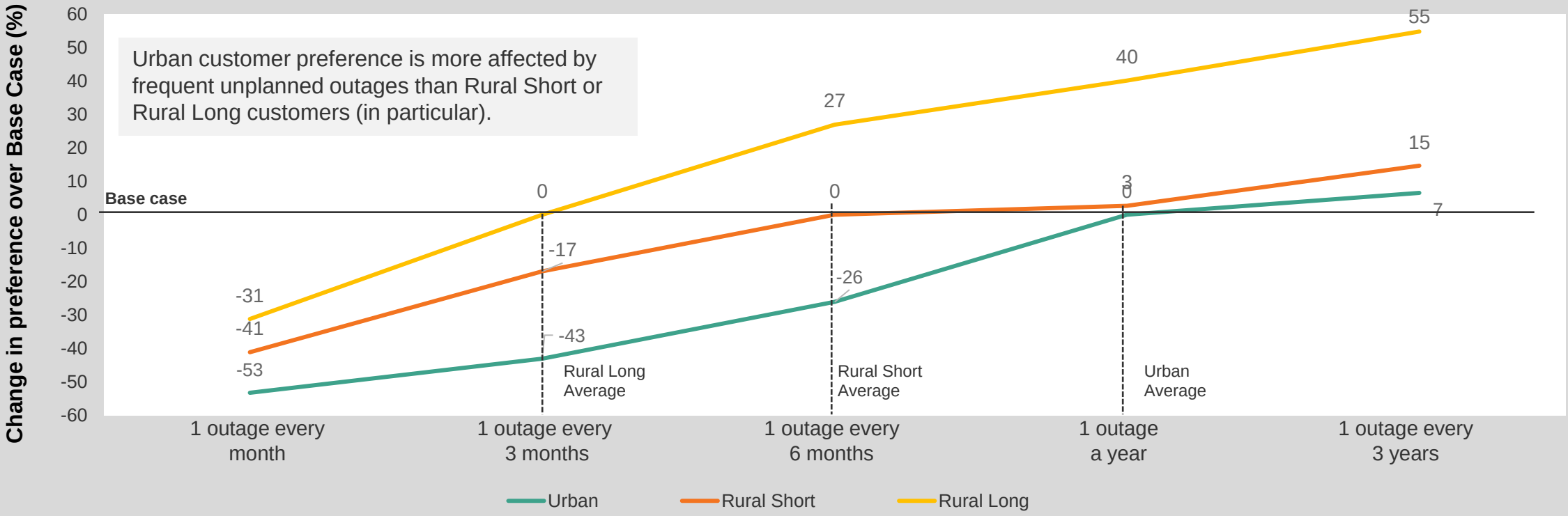
As with Residents, SME customers are more sensitive to increases in bill size than to decreases.

SME: Overall customer bill size: Relative difference between simulation and base case (%)



Minimising unplanned outages is also important to SME customers.

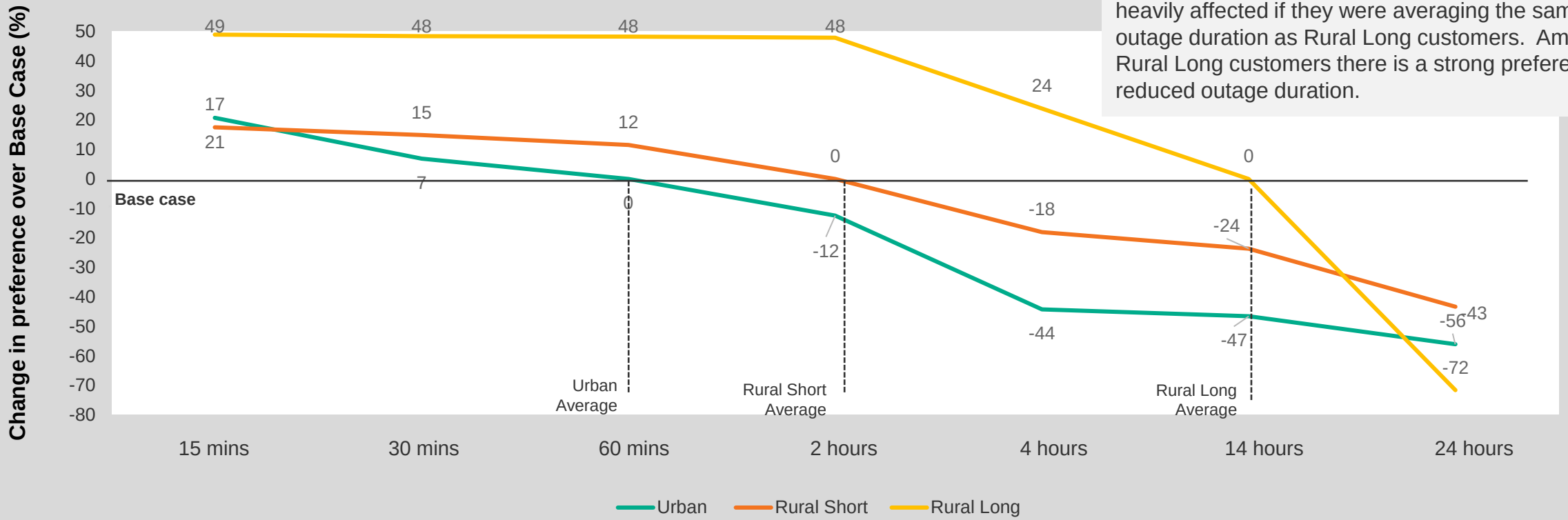
SME: Frequency of unplanned outages (blackouts) per customer: Relative difference between simulation and base case (%)



BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39) *Caution: Rural Long sample size is limited*

Again, as with residential customers, it is also important to SME customers to have short outages when they occur.

SME: Average outage (blackout) length: Relative difference between simulation and base case (%)

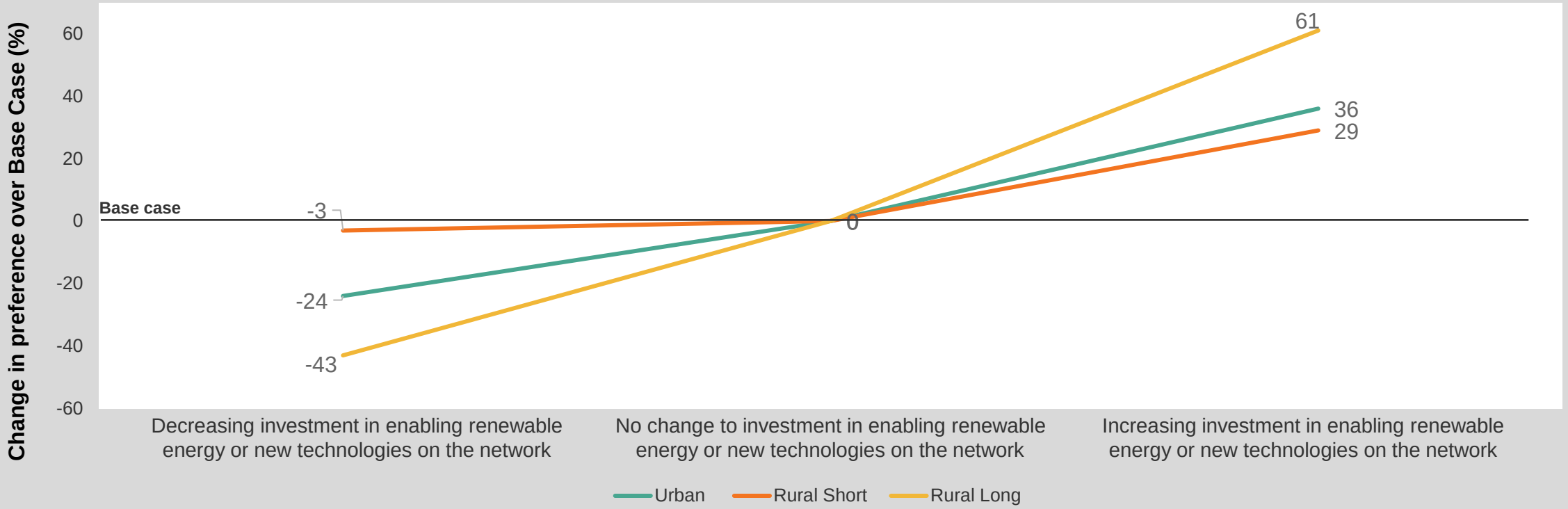


Urban and Rural Short customer preference would be heavily affected if they were averaging the same outage duration as Rural Long customers. Amongst Rural Long customers there is a strong preference for reduced outage duration.

BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39) *Caution: Rural Long sample size is limited*

Increasing investment in enabling renewable energy or technologies on the network is strongly preferred by Urban, Rural Short and Rural Long SME customers.

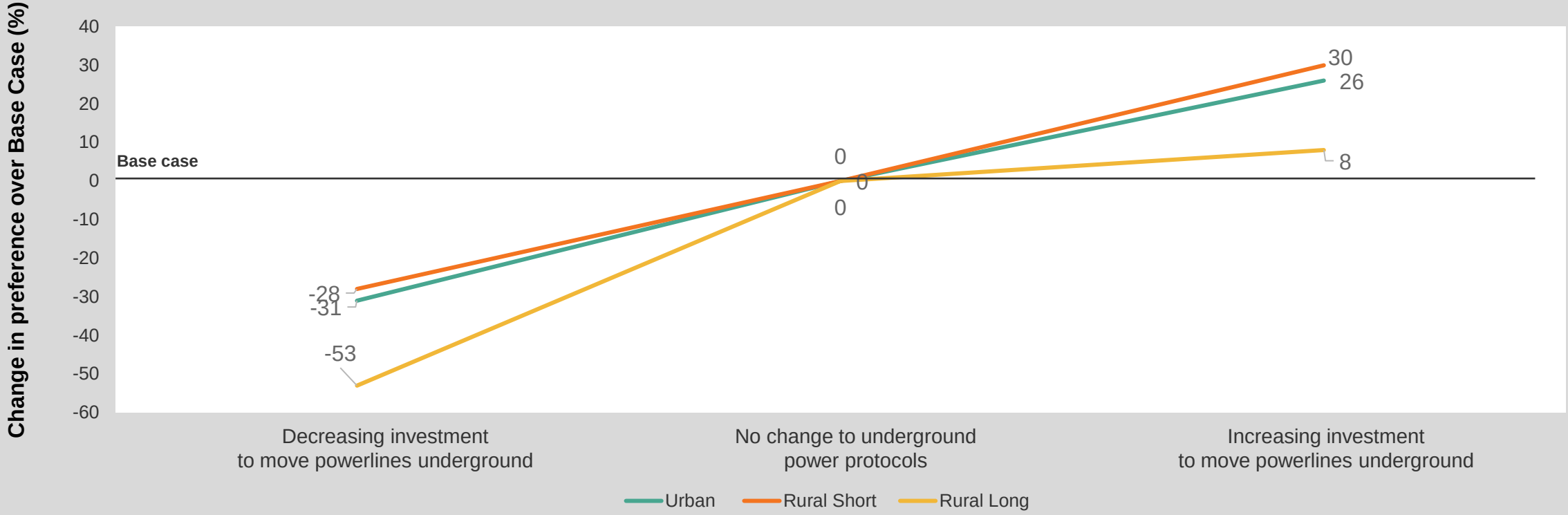
SME: New technologies: Relative difference between simulation and base case (%)



BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39) *Caution: Rural Long sample size is limited*

There is a stronger preference towards increasing investment in undergrounding amongst Urban and Rural Short SME customers. Rural Long customers are more sensitive to decreasing than increasing investment in this area.

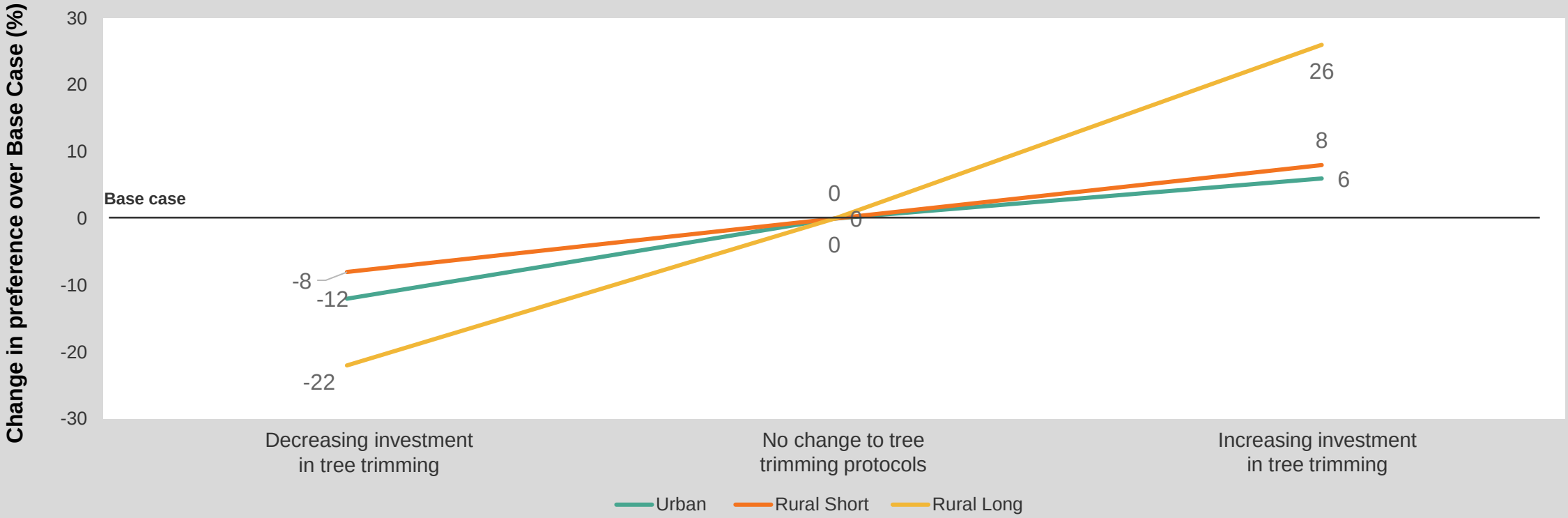
SME: Underground power: Relative difference between simulation and base case (%)



BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39) *Caution: Rural Long sample size is limited*

Tree trimming is relatively unimportant to Western Power customers. However, amongst Rural Long customers increased investment in tree trimming is preferred.

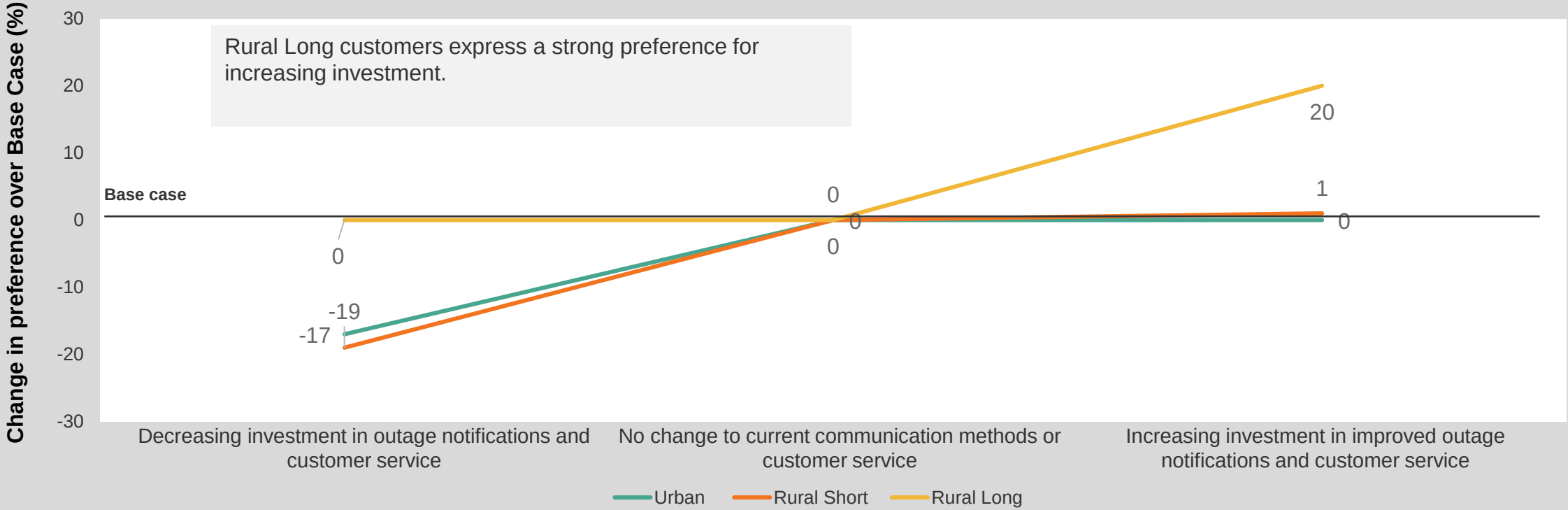
SME: Tree trimming/vegetation management: Relative difference between simulation and base case (%)



BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39) *Caution: Rural Long sample size is limited*

Overall, communications and customer service is also seen as relatively unimportant to Western Power customers compared to the other attributes tested. In Urban and Rural Short areas SMEs are sensitive to decreased investment in this area.

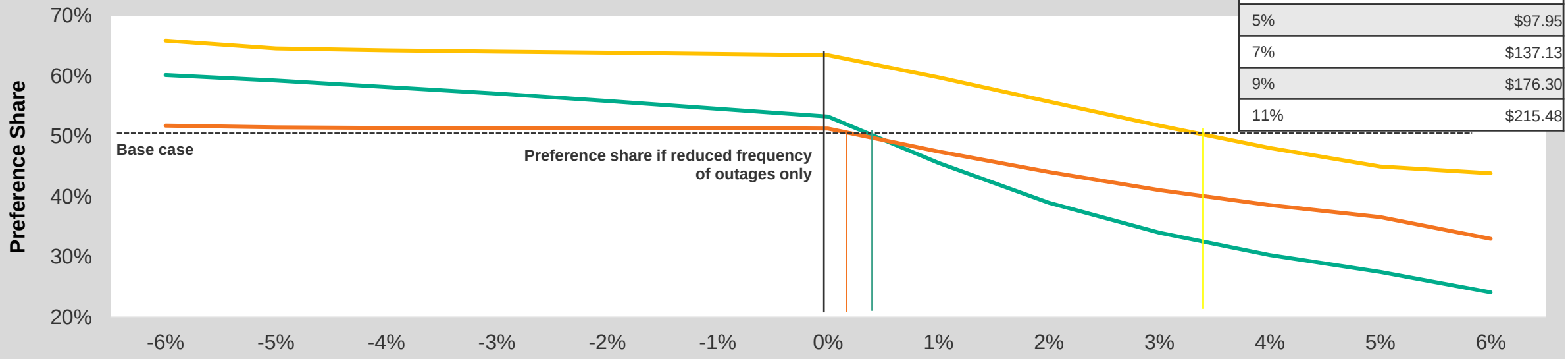
SME: Communications & customer service: Relative difference between simulation and base case (%)



BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39) *Caution: Rural Long sample size is limited*

While Urban and Rural Short SME customers value a reduction in outage frequency they are unwilling to pay more than an additional 1% on their electricity bill to improve a level. However, Rural Long SME customers appear willing to pay up to 4% more to reduce outage frequency.

SME: Willingness to pay for reduced outage frequency (%)



Bill Size Change on average Bimonthly Bill	$
1%	$19.59
3%	$58.77
5%	$97.95
7%	$137.13
9%	$176.30
11%	$215.48

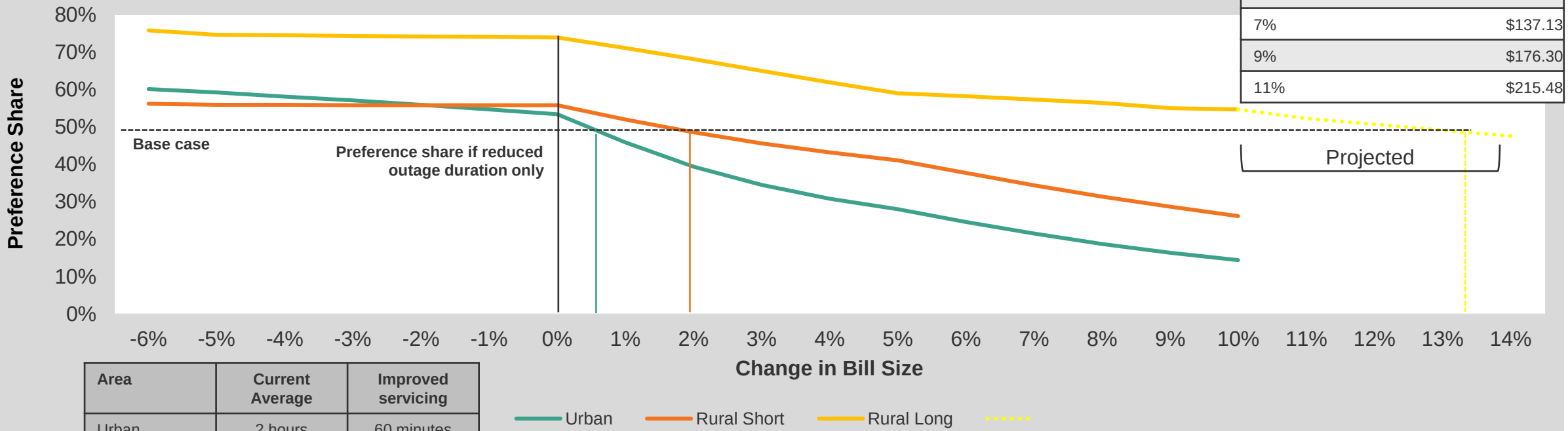
Area	Current Average	Improved servicing
Urban	1 outage every year	1 outage every 3 years
Rural Short	1 outage every 6 months	1 outage every year
Rural Long	1 outage every 3 months	1 outage every 6 months

BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39) *Caution: Rural Long sample size is limited*

Urban and Rural Short SME customers are willing to pay between 1% and 2% more on the average bill to halve their average outage time.

SME: Willingness to pay for reduced outage duration (%)

Bill Size Change on average Bimonthly Bill	$
1%	$19.59
3%	$58.77
5%	$97.95
7%	$137.13
9%	$176.30
11%	$215.48



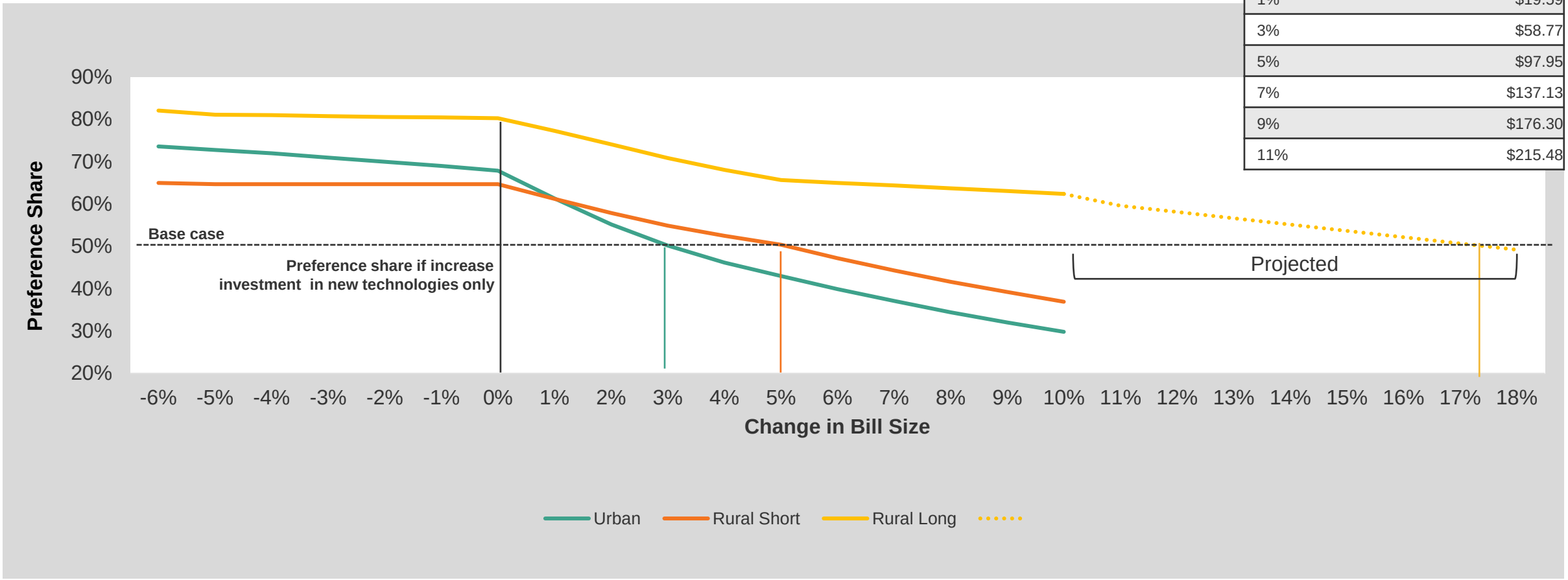
Area	Current Average	Improved servicing
Urban	2 hours	60 minutes
Rural Short	4 hours	2 hours
Rural Long	14 hours	4 hours

BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39) *Caution: Rural Long sample size is limited*

Urban and Rural Short SME customers are willing to pay between 3% and 5% additional on their bill to increase Western Power investment in new technologies and renewables.

SME: Willingness to pay for new technologies and renewables (%)

Bill Size Change on average Bimonthly Bill	$
1%	$19.59
3%	$58.77
5%	$97.95
7%	$137.13
9%	$176.30
11%	$215.48

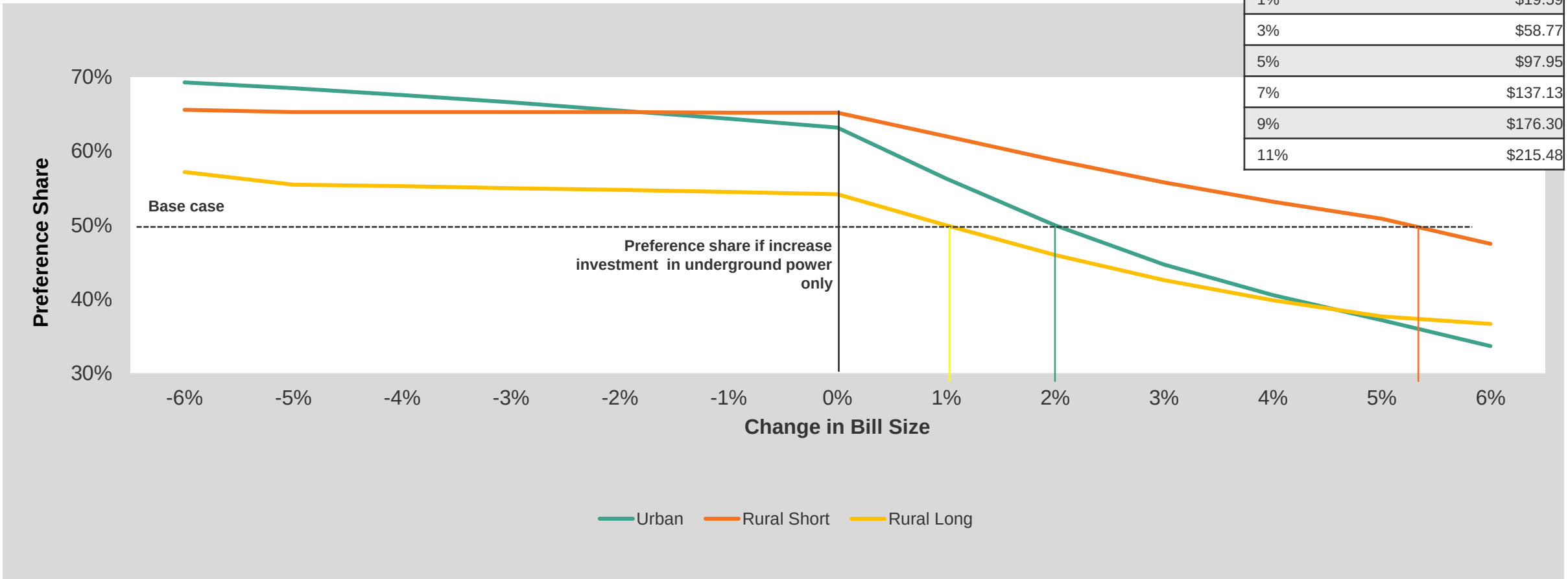


BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39) *Caution: Rural Long sample size is limited*

Urban based SME customers are willing to pay approximately 2% additional on their bill for this increased investment compared to 5% amongst Rural Short customers.

SME: Willingness to pay for underground power (%)

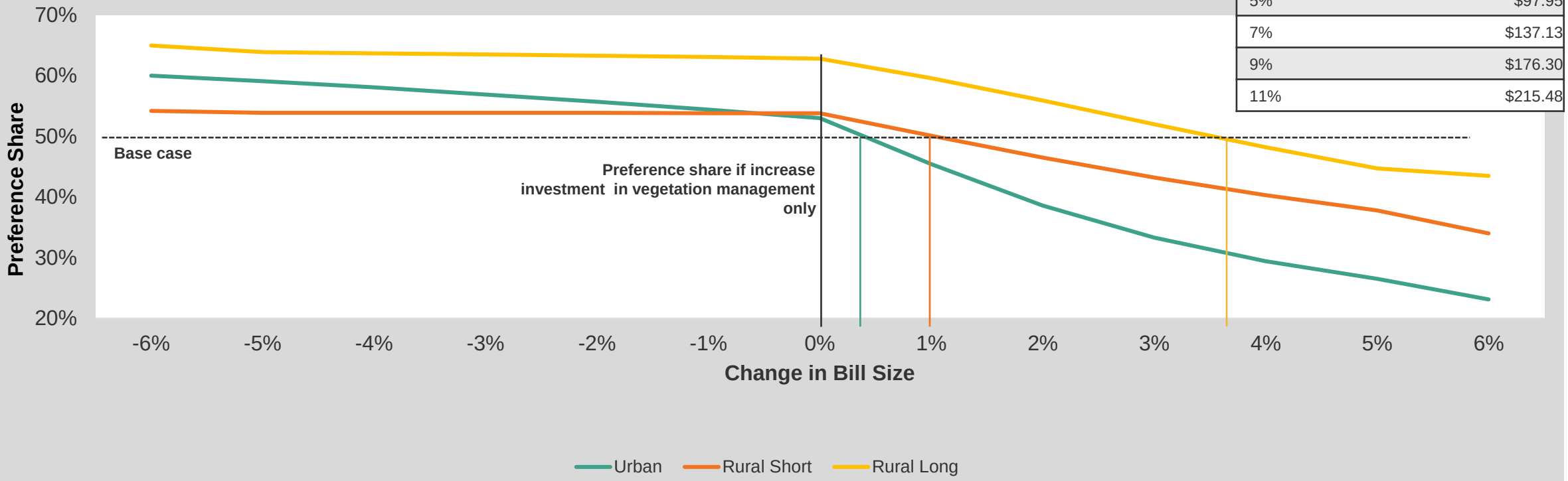
Bill Size Change on average Bimonthly Bill	$
1%	$19.59
3%	$58.77
5%	$97.95
7%	$137.13
9%	$176.30
11%	$215.48



BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39) *Caution: Rural Long sample size is limited*

Urban and Rural Short SME customers are willing to pay no more than an additional 1% on their bill to increase investment in improved tree trimming and vegetation management.

SME: Willingness to pay for tree trimming/vegetation management (%)

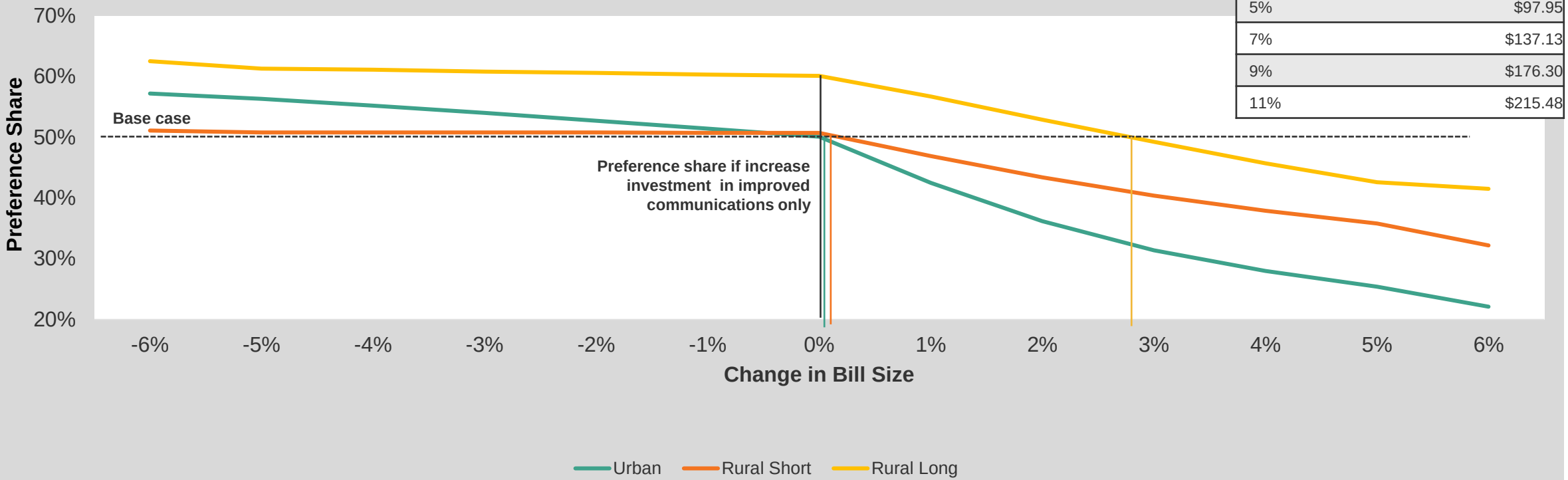


Bill Size Change on average Bimonthly Bill	$
1%	$19.59
3%	$58.77
5%	$97.95
7%	$137.13
9%	$176.30
11%	$215.48

BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39) *Caution: Rural Long sample size is limited*

Urban and Short Rural SME customers are willing to pay <1% more on their bill to increase investment in improved outage notifications and customer service.

SME: Willingness to pay for improved communication (%)



Bill Size Change on average Bimonthly Bill	$
1%	$19.59
3%	$58.77
5%	$97.95
7%	$137.13
9%	$176.30
11%	$215.48

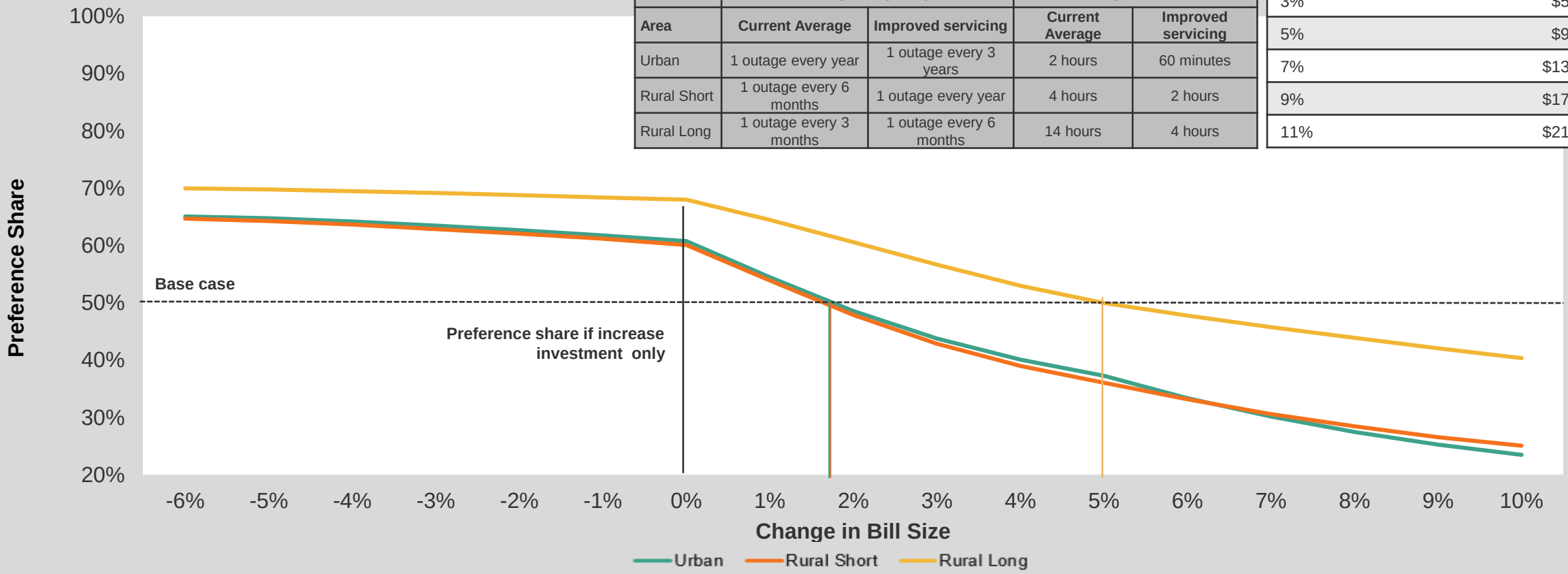
BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39) *Caution: Rural Long sample size is limited*

Urban and Rural Short customers would be willing to pay an additional 2% to reduce the frequency and duration of outages. In comparison, Rural Long customers are willing to pay up to 5% more to improve servicing.

SME: Willingness to pay for reduced outage frequency and duration

	Outage Frequency		Outage Duration	
Area	Current Average	Improved servicing	Current Average	Improved servicing
Urban	1 outage every year	1 outage every 3 years	2 hours	60 minutes
Rural Short	1 outage every 6 months	1 outage every year	4 hours	2 hours
Rural Long	1 outage every 3 months	1 outage every 6 months	14 hours	4 hours

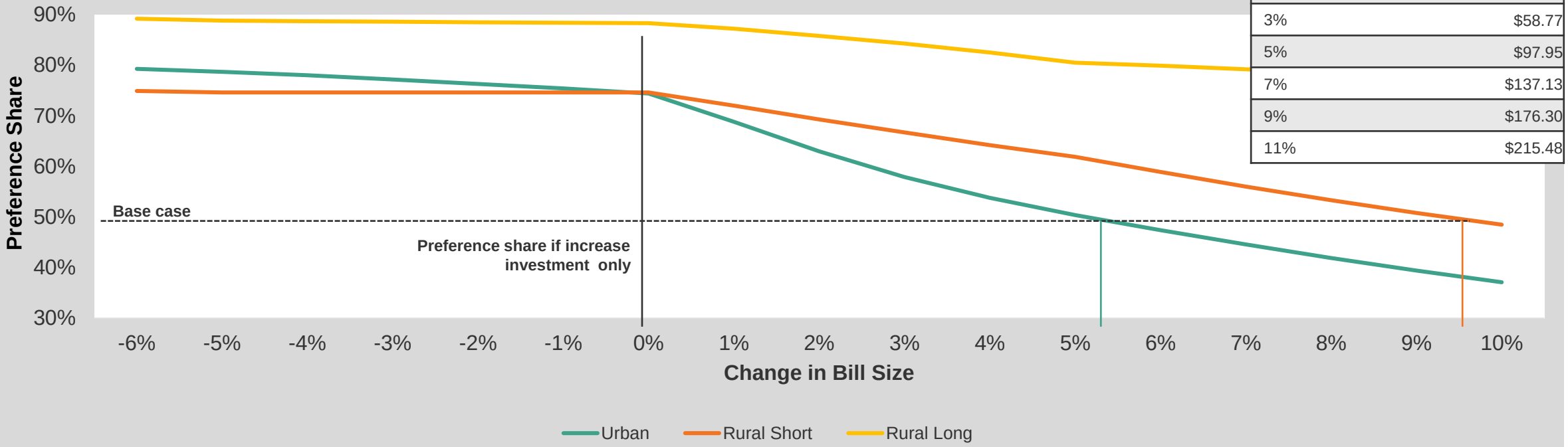
Bill Size Change on average Bimonthly Bill	$
1%	$19.59
3%	$58.77
5%	$97.95
7%	$137.13
9%	$176.30
11%	$215.48



BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39) *Caution: Rural Long sample size is limited*

When looking at the potential combination of elements, modelling allows for scenario predictions of between 5% and 10% increase in the average bill, depending on feeder, if investment was increased in each of vegetation management, communications, new technologies and undergrounding.

SME: Willingness to pay Improvements in Vegetation management, Communication, New technologies and Undergrounding (%)



Bill Size Change on average Bimonthly Bill	$
1%	$19.59
3%	$58.77
5%	$97.95
7%	$137.13
9%	$176.30
11%	$215.48

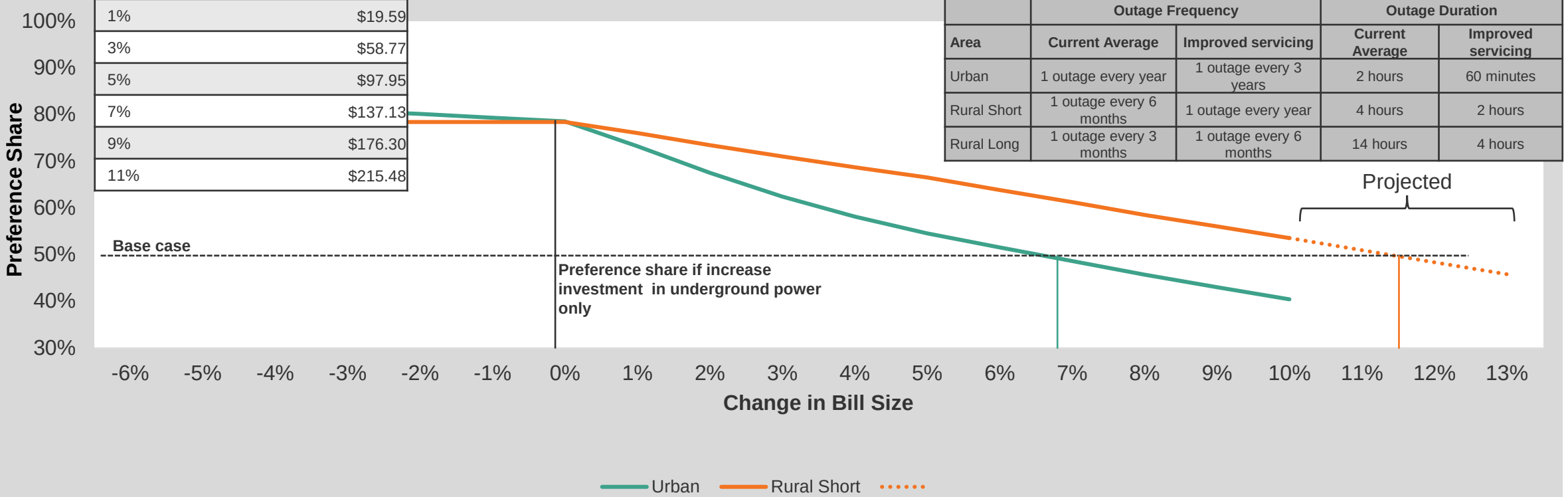
BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39) *Caution: Rural Long sample size is limited*

When looking at the potential combination of elements, modelling allows for scenario predictions of between 7% and 12% increase in the average bill, depending on feeder, if investment was increased across each attributes.

SME: Willingness to pay for improvements in each attribute

Bill Size Change on average Bimonthly Bill	$
1%	$19.59
3%	$58.77
5%	$97.95
7%	$137.13
9%	$176.30
11%	$215.48

	Outage Frequency		Outage Duration	
Area	Current Average	Improved servicing	Current Average	Improved servicing
Urban	1 outage every year	1 outage every 3 years	2 hours	60 minutes
Rural Short	1 outage every 6 months	1 outage every year	4 hours	2 hours
Rural Long	1 outage every 3 months	1 outage every 6 months	14 hours	4 hours



BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39) *Caution: Rural Long sample size is limited*

5.2.3 Communication

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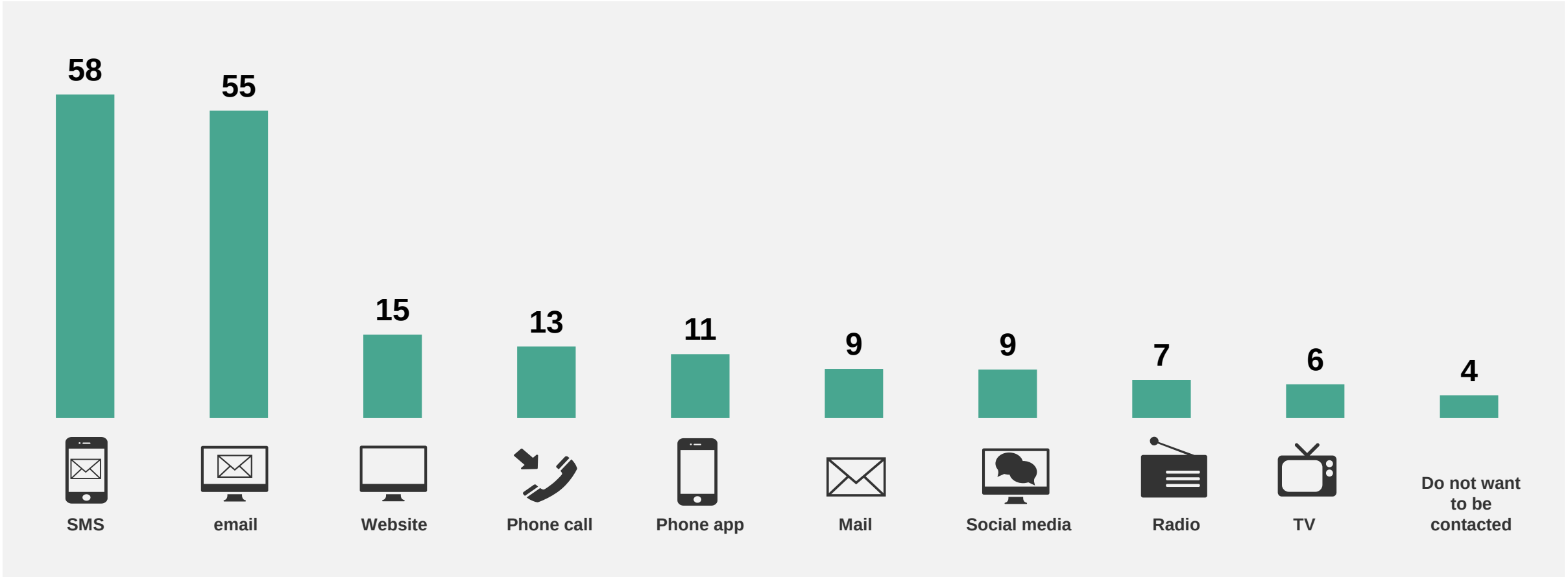
COMMUNICATION

SUMMARY

- SMEs prefer Western Power to communicate via SMS and email with phone calls and emails the preference to contact Western Power as and when needed. This is consistent with residential customers.
- Planned and Unplanned outages are the top priority topics for Western Power to contact SMEs about. This was followed by battery storage, information on solar panels and energy, and storm/cyclone warnings closely aligned.
- Community events, employment opportunities and vegetation management are the least preferred topics of communication. This is consistent with residential customers.

SMS and Email are the preferred channels for information from Western Power.

SME: Preferred method of communication from Western Power (%)

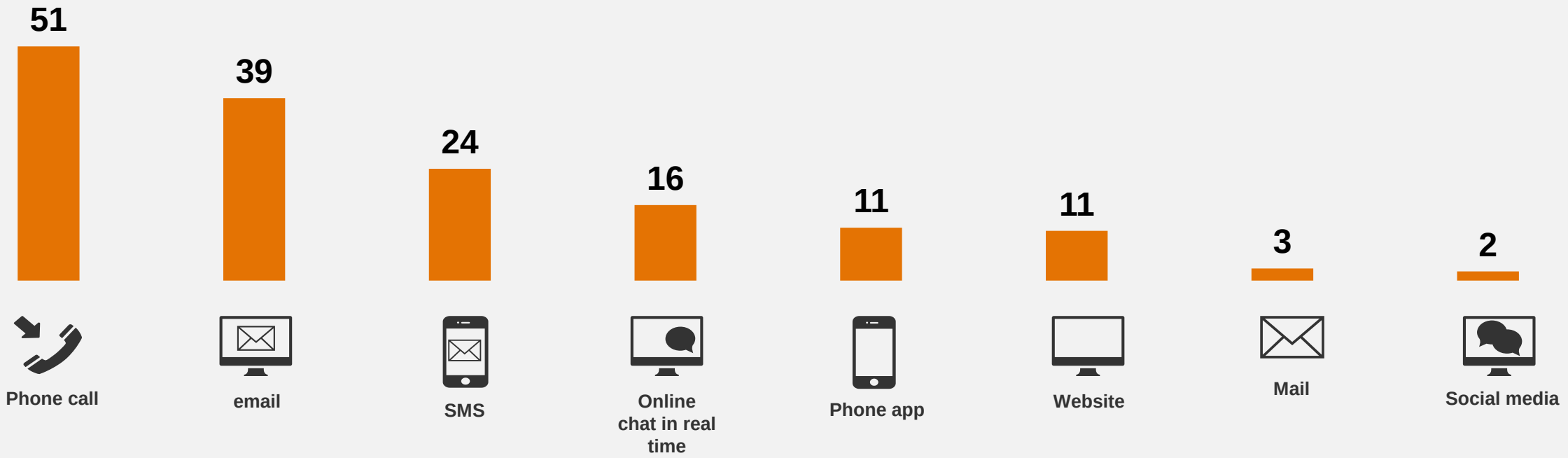


SOURCE: E1a. Listed below are a number of different ways that Western Power could communicate with you about different things that are occurring with the network (e.g. planned and unplanned outages, electrical safety issues, new technologies, renewable energy etc). Which of the following would you prefer Western Power uses to communicate to you?
BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39)

▲ Significantly higher than total
▼ Significantly lower than total

Phone and Email are the preferred channels for SME customers who want to contact Western Power.

SME: Preferred method of communication to Western Power (%)



SOURCE: E1a. Listed below are a number of different ways that Western Power could communicate with you about different things that are occurring with the network (e.g. planned and unplanned outages, electrical safety issues, new technologies, renewable energy etc). Which of the following would you prefer Western Power uses to communicate to you?
BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39)

▲ Significantly higher than total
▼ Significantly lower than total

SME customers would like to hear from Western Power about planned outages, unplanned outages (in terms of resolution), battery storage and information on solar energy.

SME: Preferred topics of communication to Western Power (%)

		Urban	Rural Short	Rural Long
Planned outages	67	65	67	70
Unplanned outages	53	52	50	59
Battery storage	30	27	38	30
Information on solar panels/energy	28	26	25	39
Storm/cyclone warnings	27	27	24	30
Meter readings	24	22	25	28
Electricity tariffs	22	23	14	29
Money to reduce household/business energy usage	22	22	24	18
Intelligent grid/future network	19	16	22	25
Energy efficiency	18	19	12	20

		Urban	Rural Short	Rural Long
Local electricity infrastructure projects	16	11 ▼	20	26
Electrical safety	13	12	15	16
New connection/disconnection processes	12	9	13	19
Peak demand	11	10	12	11
Environmental programs	7	9	3	8
Vegetation management	7	9	5	3
Employment opportunities	3	2	1	10
Local community events	3	2	3	6
None of those	10	9	12	10

SOURCE: E2. Which of the following, if any, would you like Western Power to communicate with you about?
BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39)

▲ Significantly higher than total
▼ Significantly lower than total

5.2.4 Outages

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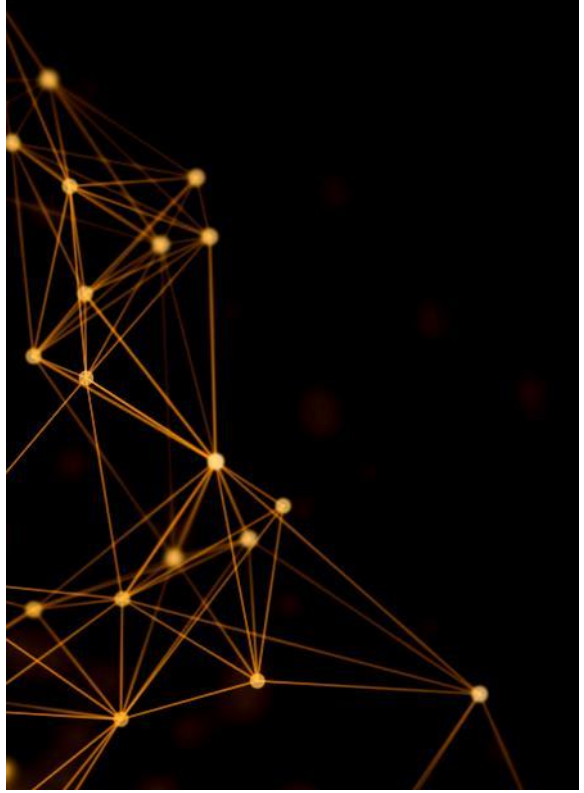
Outages

SUMMARY



- Overall, 26% of SME customers believe Western Power needs to improve its reliability performance in their area. Rural Long and Rural Short customers are more likely than Urban customers to believe Western Power needs to improve its reliability performance.
- Urban customers are more likely than Rural Short/Long customers to claim experiencing planned outages less often than every 2 years (47% compared to 26% Rural Short and 11% Rural Long).
- Similarly, Urban customers are more than likely Rural Short/Long customers to claim experiencing unplanned outages less often than every 2 years (35% compared to 14% Rural Short and <1% Rural Long).
- Rural Long customers are more likely than those in other areas to suffer planned or unplanned outages every 2 to 3 months or more often.
- Rural Short/Long customers are more likely than Urban customers to have had an unplanned outage in the past 3 months.
- Overall, 36% of outages were no more than an hour long.
- Overall, 71% of SME customers would prefer at least one week ahead of a planned outage.

Urban SME customers are more likely than Rural Short or Rural Long SME customers to claim experiencing planned & unplanned outages less often than every 2 years.

Frequency of power outages (%)

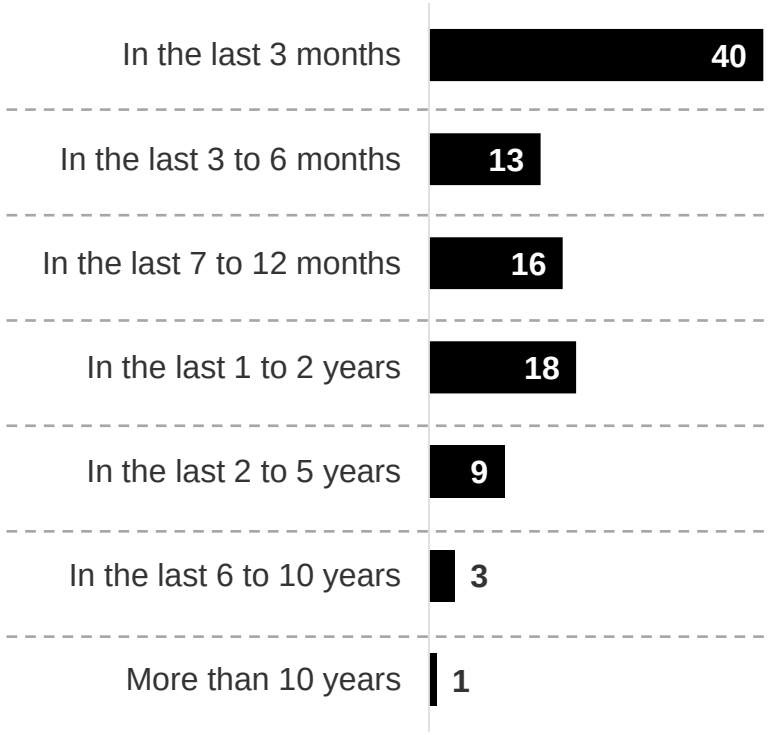
	Planned			Unplanned		
	Urban	Rural Short	Rural Long	Urban	Rural Short	Rural Long
Every month	0	0	0	2	6	13
Every 2 to 3 months	3	3	13	5 ▼	28 ▲	31
Every 4 to 6 months	7	7	8	10 ▼	24	21
Every 7 to 12 months	15 ▼	23	41 ▲	26	14	26
Every 1-2 years	27	41	26	25 ▲	13	9
Less often than every 2 years	47 ▲	26	11	35 ▲	14	0

SOURCE: B1. Electricity outages can occur when your home temporarily loses its electricity supply. Which of the following best describes how often you experience planned and unplanned electricity outages at your home?
PLEASE NOTE: A planned outage is where you have received notification ahead of time by Western Power so they could safely conduct work on the network. An unplanned outage (i.e. blackout) may be due to a fault on the network, a localised incident (i.e. car crash) or as a result of storm activity.
BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39)

▲ Significantly higher than total
▼ Significantly lower than total

Rural customers are more likely than Urban customers to have had an unplanned outage in the past 3 months.

Recent unplanned outage (%)



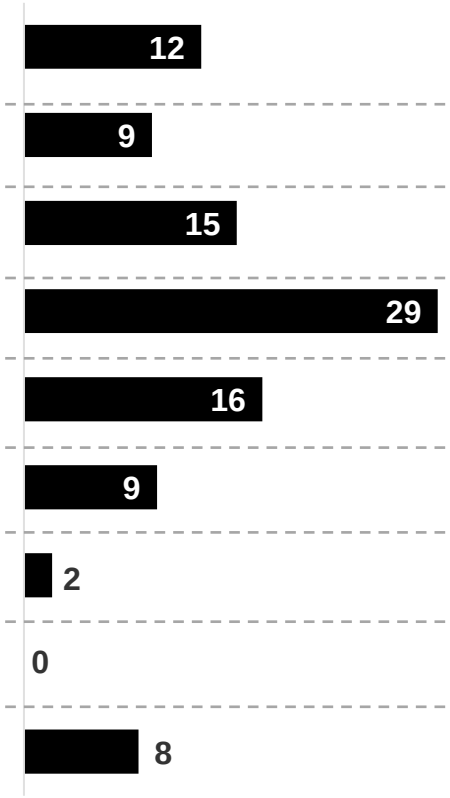
	Urban	Rural Short	Rural Long
In the last 3 months	19 ▼	63 ▲	74 ▲
In the last 3 to 6 months	17	5	11
In the last 7 to 12 months	21 ▲	10	10
In the last 1 to 2 years	24 ▲	13	5
In the last 2 to 5 years	12	8	0
In the last 6 to 10 years	5	0	0
More than 10 years	2	0	0

SOURCE: B2. To the best of your knowledge when was the last time you had an unplanned outage at your home?
BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39)

▲ Significantly higher than total
▼ Significantly lower than total

Overall, 36% of outages were no more than an hour long.

Time of unplanned outage (%)



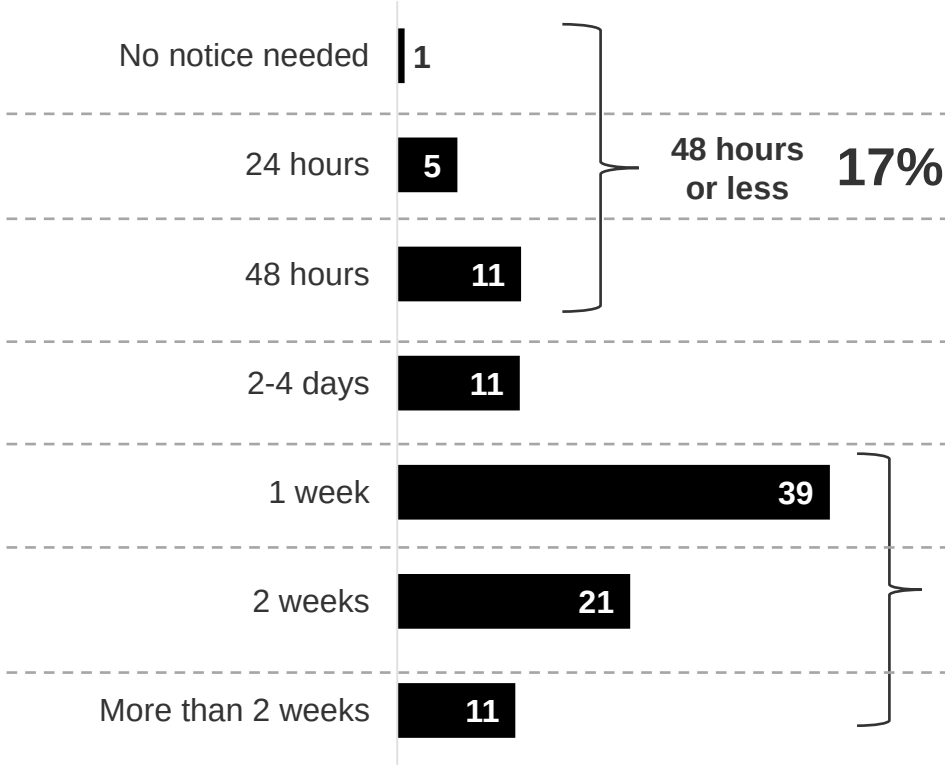
	Urban	Rural Short	Rural Long
Less than 10 minutes	6 ▼	16	22
10-30 minutes	8	16	3
31-60 minutes	17	10	15
1-3 hours	37 ▲	23	17
3-6 hours	19	14	14
6-12 hours	10	9	6
12-18 hours	2	0	4
18-24 hours	0	0	0
More than 24 hours	2	12	17

SOURCE: B3. How long did your unplanned outage last?
BASE: Businesses who have experienced an unplanned outage in the past 2 years (n=241)

▲ Significantly higher than total
▼ Significantly lower than total

Overall, 71% of SME customers would prefer at least one week notice ahead of a planned outage.

Required length of notice prior to planned outage (%)

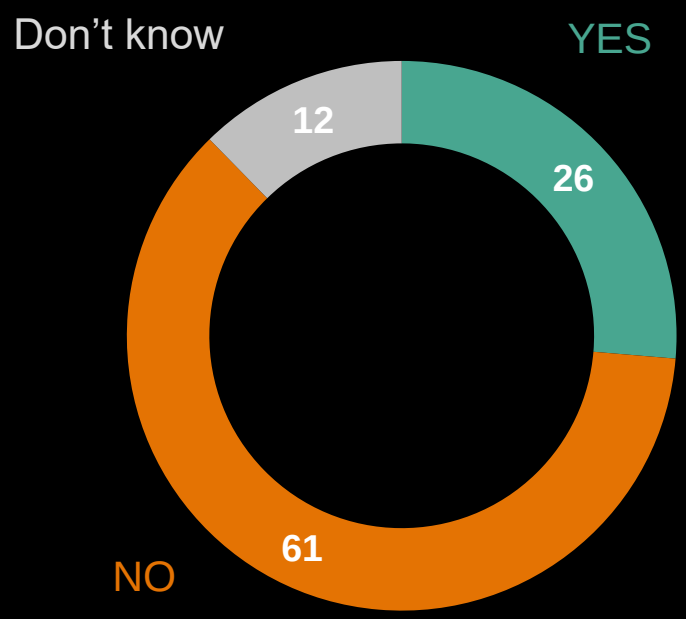


	Urban	Rural Short	Rural Long
No notice needed	0	2	0
24 hours	6	5	3
48 hours	11	12	12
2-4 days	12	10	9
1 week	41	40	35
2 weeks	18	20	32
More than 2 weeks	11	10	9

SOURCE: B5. How much notice, if any, would you like Western Power to provide before carrying out a planned outage (of any duration) at your home?
BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39)

▲ Significantly higher than total
▼ Significantly lower than total

Rural Long and Rural Short SME customers are more likely than Urban customers to believe Western Power needs to improve its reliability performance.



26%

of Residents believe Western Power needs to improve its reliability performance in their area.

- Urban 16% ▼
- Rural Short 30%
- Rural Long 51% ▲

SOURCE: B6. Do you think Western Power needs to improve its reliability performance in your area?
BASE: Total Businesses (n=301); Urban (n=200); Rural Short (n=62); Rural Long (n=39)

▲ Significantly higher than total
▼ Significantly lower than total

Thank you

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