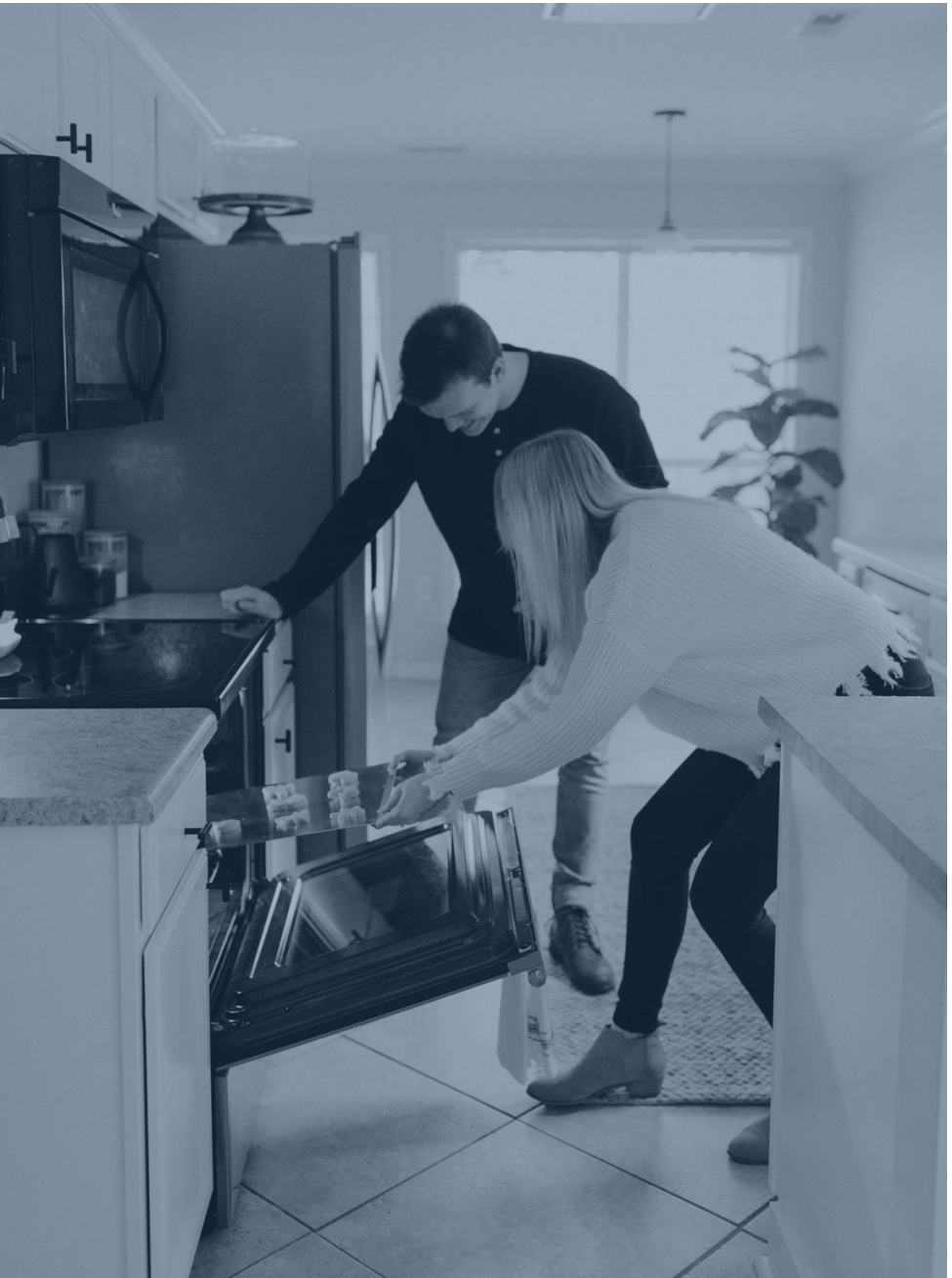


Customer Values Analysis

Prepared for:

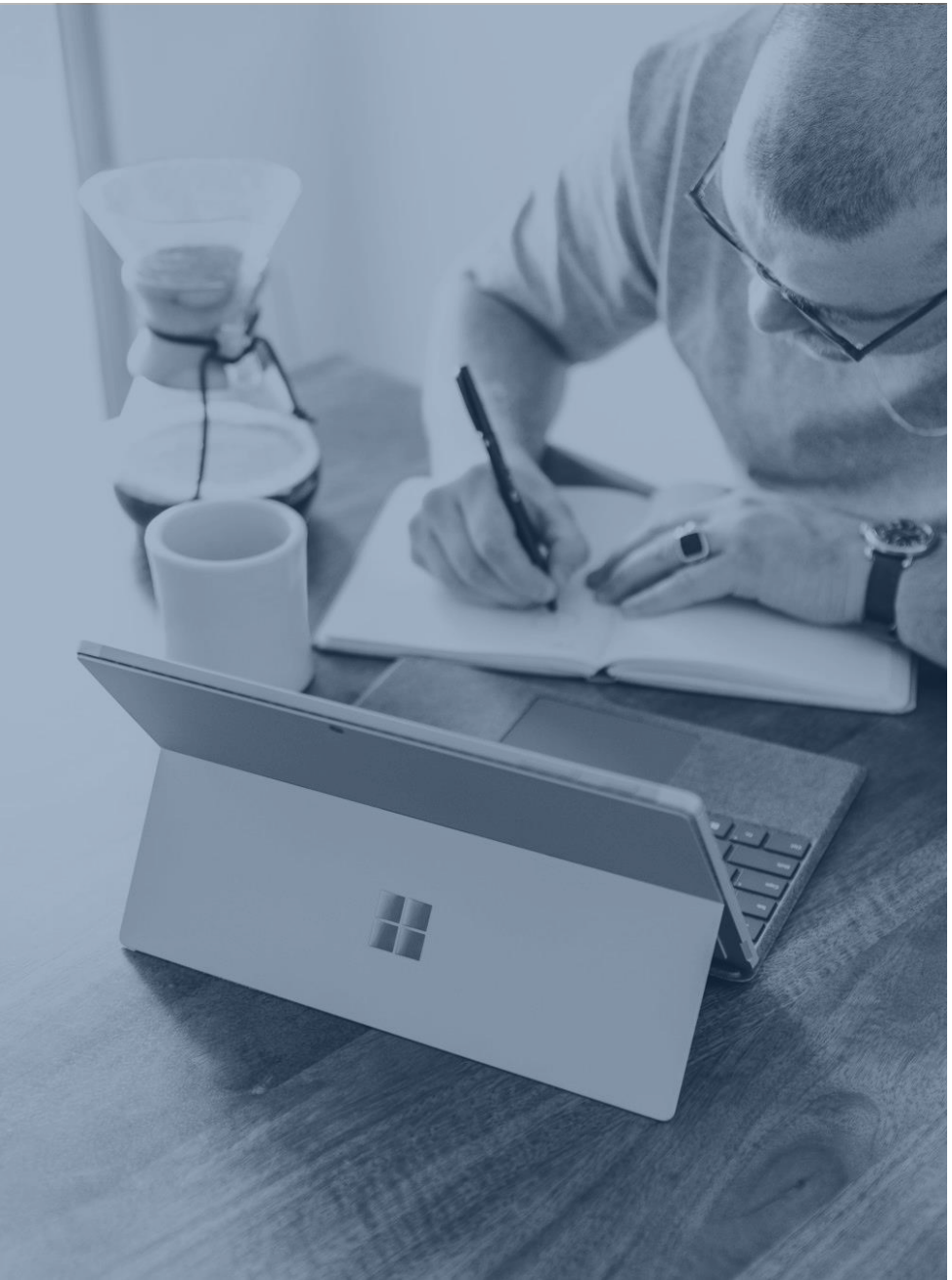
Brent Cleeve
Head of Regulatory Policy and Compliance

Ellen Lukin
Regulatory Manager

Belyan Matthews
Senior Regulatory Analyst

Report version 2: June 14, 2024

CitiPower Powercor Australia united energy Forethought Outcomes



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Program background and objectives

Background

CitiPower, Powercor and United Energy (CPPALUE) are regulated by the Australian Energy Regulatory (AER) to ensure prices and service quality meet the expectations of customers. As such, expenditure must be approved by the AER subject to the condition that the expenditure is reflective of customer preferences.

Research was undertaken in 2021 from mid-August to late November aimed at providing a holistic customer valuation of potential service improvement. These improvements considered customers' desires for the network, not only their own functional needs. A key implication was that customers showed a propensity to pay for service improvements that didn't directly benefit them, for example, paying to improve reliability for those customers experiencing below-average network reliability and reducing bushfire risk across the state.

Given changing circumstances, including the impact of COVID-19 and the need to prepare for the 2026-2031 Regulatory Reset period, a re-evaluation of the 2021 research is imperative.

Core Business Objective

Support CitiPower, Powercor and United Energy in the successful approval of the 2026-2031 regulatory reset proposal.

Program Objectives

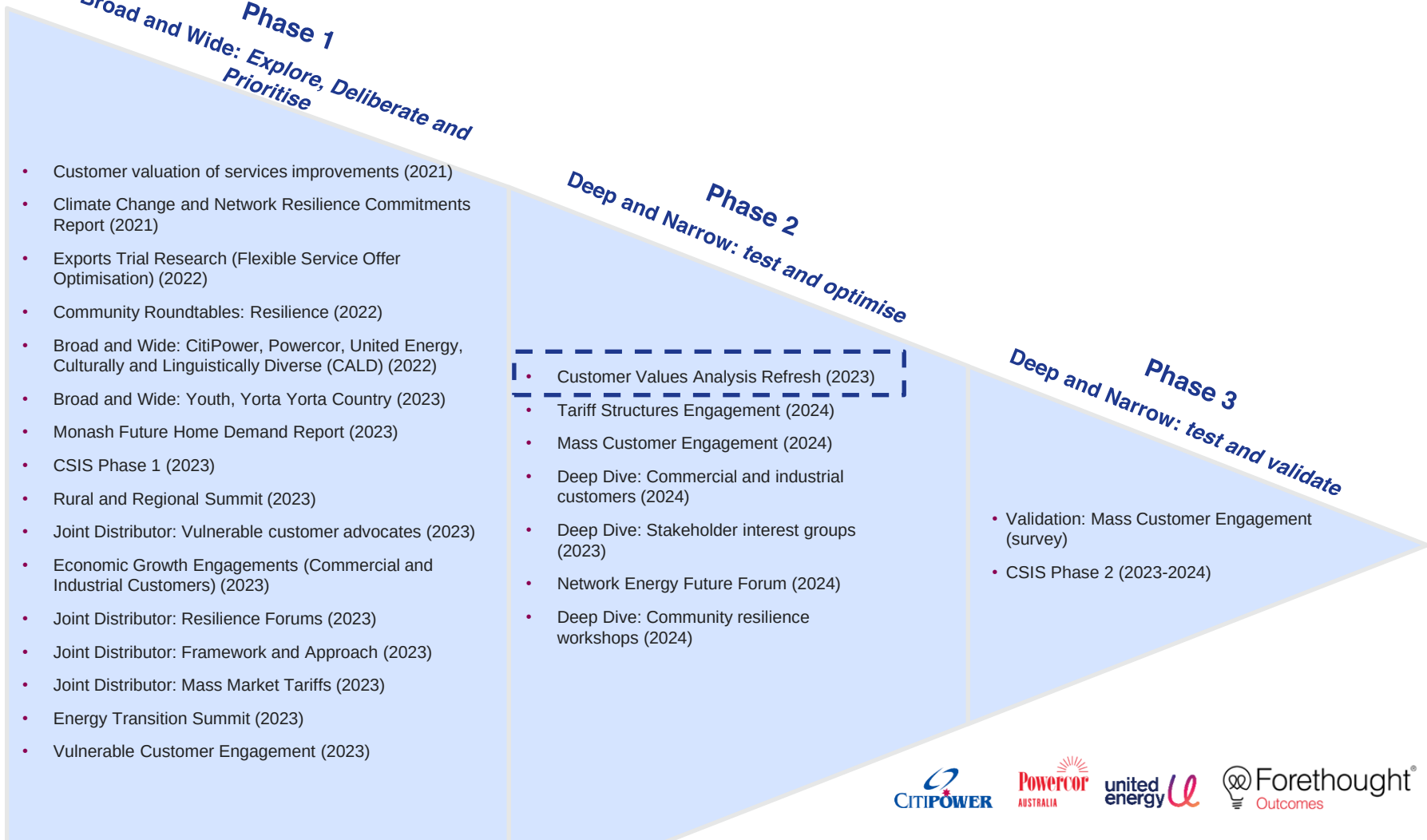
- Measure the relative importance that customers place on CitiPower, Powercor and United Energy's services;
- Determine a hierarchy of the importance of services provided within individual service areas;
- Support CPPLAUE to determine how the networks can incorporate customer values into investment decision making and regulatory proposals to ensure they are responsive to customers' needs.

This study is part of a broader program of engagement with CPPALUE customers and stakeholders

To support the development of the regulatory reset proposal, Phase 1 of an extensive community engagement initiatives was conducted from 2021 to 2023. This program aimed to explore and identify the primary needs and preferences of customers.

Building on this research, focused engagement phases are being implemented to further understand customer preferences and priorities on targeted topics and with particular customer segments.

The deep and narrow engagement phases adopt a more targeted approach testing, **understanding** and **quantifying** customer preferences and priorities. All customer and stakeholder feedback gathered informs subsequent phases of the 2026-2031 regulatory reset proposal development, including the formulation and evaluation of business cases aligned with identified customer outcomes.



Overview of approach

	Phase 1: Design	Phase 2: Quantify	Phase 3: Forecasting
What	**Stakeholder Engagement:** Forethought engaged and collaborated with CPPALUE over a three-week period to: • Review and leverage internal data for extrapolation; • Align on project objectives, overview and scope; • And implement CAP (Customer Advisory Panel) feedback from the stakeholder engagement sub-committee;	**Preference Modelling and Constant Sum** Forethought conducted a 20min survey, with 1,211 residential customers* and 308 SMB (Small to Medium Business) across CPPALUE to: • Compare customer preferences for customer service attributes. • Measure the value that customers place on service improvements to relevant services to be provided by the network. • The survey design was conducted in collaboration with CPPALUE stakeholders to determine levels of 'reasonable improvement' to be tested across each customer value. This process ensured that **realistic** and **possible** improvements were tested with customers (see slides 11-15 for additional detail).	Forethought and CPPALUE collaborated to identify the best methods for calculating customer value outputs, ensuring that the calculations accurately reflect the value customers receive from the service or product.
Outcome	✓ Confirm extrapolated data calculations to be integrated into quantitative research ✓ Finalised quantitative survey ✓ Engaged internal business stakeholders and CAP	✓ Measurement of the value of services provided by the networks to inform CPPALUE service prioritisation and improvement.	✓ Customer values across priority service areas for each network.

Note: *See slide 6 for additional detail on sampling frame

Who we spoke to

How?

20 minute online quantitative study

Fieldwork Dates: 2nd January 2024 - 20th January 2024

The weighting process was employed to ensure that the composition of our sample closely mirrors the demographic distribution of Victoria's population, as per ABS statistics. Initially, we prioritise weighting by age and gender to achieve a balanced representation. Following this step, we assess other demographic variables such as area of residence and income to ensure conformity with our targets within acceptable ranges. No additional weighting was necessary as these variables fell within acceptable tolerances.

To ensure data integrity, our panel partner employs a system of checks including the use of CleanID. CleanID is an industry-leading fraud and duplication detection system built to analyse and identify device-level attributes to eliminate known data threats in real time. This solution forms an integral part of our ongoing commitment to providing efficient, reliable, and high-quality data.

Addressable market

- Respondents were 18+ Victorians in the CPPALUE networks who were either the main or joint decision-makers for household or SMB.

Sample

	Residential Customers	Small Business Customers	Total
CitiPower	n= 402	n= 103	n= 505
Powercor	n= 406	n= 100	n= 506
United Energy	n= 403	n= 105	n= 508
Total	n= 1,211	n= 308	n= 1519

Vulnerable Customers Sample

	Income Vulnerable	Medically Vulnerable	Australian Aboriginal or Torres Strait Islander	Single Parent	Vulnerable population
CitiPower	n= 54	n=35	n= 8	n= 11	n= 85
Powercor	n= 133	n= 30	n= 4	n= 29	n= 165
United Energy	n= 91	n= 27	n= 4	n= 32	n= 129

Notes on sample

- Any responses captured from vulnerable customers were natural fallout and included the types of vulnerable customers outlined in the table above.

The definition for customers experiencing vulnerability has been guided by the AER

There is currently no universally accepted definition for individuals experiencing vulnerability. Therefore, this study has adopted the definition outlined in the AER's report titled "Towards the Energy Sector".

*Consumers experiencing vulnerability' refers to circumstances that mean a person may be less able to protect or represent the*ir interests, engage effectively and/or are more likely to suffer detriment. This includes having insufficient capacity to pay for energy use.

We believe that vulnerability is best understood as a dynamic spectrum, allowing people to transition in and out of vulnerable states rather than a fixed or lifelong condition. Individuals may encounter vulnerability and disadvantage at various stages in their lives, and this status is not constant.

Customers experiencing vulnerability included in this study (see slide 6 for sample)

✓ Income Vulnerable	✓ Medically Vulnerable	✓ Australian Aboriginal or Torres Strait Islander	✓ Single Parent	✓ Vulnerable to extreme weather	Customers who could fall within AER's definition of experiencing vulnerability, but not included in this study
This includes individuals with limited income who are currently receiving one or more of the following income support payments from Centrelink: Carer Payment, Austudy, Age Pension, Disability Support Pension and JobSeeker Payment. This group can often include students, single parents, and individuals with disabilities (such as those receiving disability pensions).	This includes individuals experiencing of disability and/or mental ill health. These customers may require continuous energy for life support, oxygen, or other medical assistance. The respondent or someone in their household is registered with their electricity provider as a 'medically vulnerable' customer due to specific health conditions or equipment requirements.	They identify as Australian Aboriginal or Torres Strait Islander.	They are a single parent with children who still live at home (regardless of the child(ren)'s age	Residents in areas prone to natural disasters or extreme weather events, where energy access is critical for safety and well-being. (Note these customers are included in the total sample for this study, however are not included when this report references 'vulnerable customers' because they are typically treated as their own segment)	• CALD (culturally and linguistically diverse) customers • People experiencing homelessness or housing instability

Overview of survey

Illustrative Questionnaire Flow

20 MIN

Screening
Respondents were screened to ensure they qualified as part of the defined addressable market.

Willingness to Pay
Each customer was asked maximum willingness to pay to improve their distribution service.

Max-Diff Trade-off Exercise and Constant Sum
Each customer was asked to prioritise improvement options. This determined a hierarchy of the most important service areas and a dollar value for each service area. United Energy and Powercor customers completed the Max-Diff Trade-off Exercise and CPPALUE customers completed the Constant Sum exercise.

EV Deep Dive
Customers were asked questions about their attitudes and flexibility towards electricity and electric vehicles.

Profiling, Attitudinals and Demographics
Respondents were asked profiling questions, and about their values and attitudes towards their distributor.

Respondent education

Respondents were given an education of the different values tested throughout the survey, including descriptions of values and any relevant service improvements proposed. Results were interpreted under the assumption that the market had knowledge of the attributes tested.

Why Max Diff?

Forethought used Maximum Difference Scaling (MaxDiff) to uncover the hierarchy of attributes and value of CPPALUE services. Customers were asked to choose the most and least important features from a randomly allocated list. This choice task was repeated several times by the same respondent, with the short list of features changing between tasks. MaxDiff was employed for prioritisation of **Powercor** and **United Energy** customer values, while Constant Sum (see below) was employed for CitiPower). This was due to the number of customer values needing to be tested across each network.

These results determined customers' **inferred** hierarchy of values which was used to allocate their total willingness to pay across the specific values in the survey.

Why Constant Sum?

A joint decision between CPPALUE and Forethought was made to use Constant Sum for CitiPower customers as the number of values being tested for CPPALUE was better suited to this methodology. This is a 'stated' approach where customers were asked to allocated 100 percentage points across the service areas that were most important to them. This determined a stated hierarchy o the most important service areas.

Overview of survey

Illustrative Questionnaire Flow

20 MIN

Screening
Respondents were screened to ensure they qualified as part of the defined addressable market.

Willingness to Pay
Each customer was asked maximum willingness to pay to improve their distribution service.

Max-Diff Trade-off Exercise and Constant Sum
Each customer was asked to prioritise improvement options. This determined a hierarchy of the most important service areas and a dollar value for each service area. United Energy and Powercor customers completed the Max-Diff Trade-off Exercise and CPPALUE customers completed the Constant Sum exercise.

EV Deep Dive
Customers were asked questions about their attitudes and flexibility towards electricity and electric vehicles.

Profiling, Attitudinals and Demographics
Respondents were asked profiling questions, and about their values and attitudes towards their distributor.

What is your average electricity bill?

What is your total incremental willingness to pay for improvements to your service?

What are your preferences for improvement in the following areas?

Network resilience	Carbon emissions	Community resilience
Worst-served reliability	Locally generated energy	Solar exports

Note: improvements were specifically defined in collaboration with CPPALUE stakeholders in each category based on current performance and a proposed ‘reasonable’ improvement over the next five years.

Final WTP outputs
$ / improvement unit

Fieldwork was conducted in early 2024 prior to any significant outages

2nd January – 20th January:
Fieldwork Conducted

February 13th 2024:

- Extreme storms across Victoria lead to power outages across the state, affecting thousands of Victorians.
- All four units at AGL's Loy Yang A power station went offline
- The Australian Energy Market Operator (AEMO) started load shedding at 2 pm in Victoria

21st February:
Power outages continue across Victoria

February 2024

Victoria

Push to weatherproof Australia's electricity grid as 77,000 still without power in Victoria

State's energy minister calls for national approach to energy system resilience as climate change causes more extreme weather events

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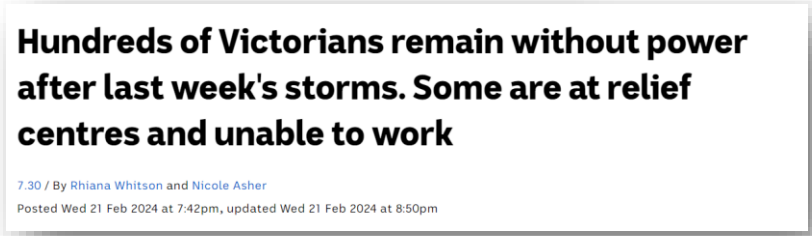
Benita Kolovos
Victorian state correspondent

Thu 15 Feb 2024 11.56 AEDT

Half a million Victorian customers without power as Loy Yang A shuts down and storms damage infrastructure

ABC Gippsland / By Jarrod Whittaker and Natasha Schapova

Posted Tue 13 Feb 2024 at 4:03pm, updated Tue 13 Feb 2024 at 7:15pm



Hundreds of Victorians remain without power after last week's storms. Some are at relief centres and unable to work

7.30 / By Rhiana Whitson and Nicole Asher

Posted Wed 21 Feb 2024 at 7:42pm, updated Wed 21 Feb 2024 at 8:50pm

Overview of customer values and service improvements tested

The below table represents the customer values and their associated improvements that were tested with all customers included in the study across the three networks. The proposed 'reasonable' improvements were determined by CPPALUE by evaluating the feasibility of proposed enhancements within the context of operational and technological capabilities for the next regulatory period (2026-2031). The content in the table below lays out inputs into both MaxDiff and Constant Sum methods.

Customer Value	Description	Unit of measurement	Proposed 'reasonable' improvement	Relevant network/s
Reducing carbon emissions (in the distribution of your electricity)	The means lowering the carbon emissions produced by from electricity distribution activities. Key areas of focus include: • Reducing distribution line loss, • Minimising emissions from public lighting, • Cutting down fuel use in vehicles.	CO2 tonnes	The aim is for your electricity distributor to achieve a **35% reduction in carbon emissions**	**CitiPower**
				Powercor
				United Energy
Ensuring the network can **support customers exporting solar energy** into the future	This means having a reliable and supportive energy system to facilitate the sharing of excess solar power with the grid. As rooftop solar increases, network congestion is expected to increase, potentially impacting reliability and leading to more outages This could also necessitate stricter limits on solar exports. • Improvements in this area would involve: • Upgrading the network to host more community-generated energy. • Accommodating additional energy inputs from households	kWh	Investment in this area may **enable 698** houses to fully export solar	**CitiPower**
			Investment in this area may **enable** 10,438 houses to fully export solar	**Powercor**
			Investment in this area may **enable** 1,247 houses to fully export solar	**United Energy**
Ensuring any **locally generated energy** can be used to support, and grow, local community participation	This involves: • Neighbours joining forces to utilise local renewable sources (e.g., solar panels, shared batteries). • Prioritising community-generated energy over the wider network. • Optimising the use of locally generated clean energy resources.	kWh	**Proposed**: Add an additional 150,000 kWh storage capacity	**CitiPower**
			Proposed: Add an additional 145,000 kWh storage capacity	**Powercor**
			Proposed: Add an additional 172,000 kWh storage capacity	**United Energy**

The list of customer values outlined were refined from an original list of nine values. Following an extensive deliberation process with CPPALUE, the final list was confirmed.

Overview of customer values and service improvements tested (continued)

Customer Value	Description	Unit of measurement	Proposed 'reasonable' improvement	Relevant network/s
Improving **network resilience** to reduce **long-duration outages** from extreme weather events	This means implementing measures to prevent extended outages (12+ hours) due to extreme weather, which historically occurred every 10 to 20 years but with changing climate, they will occur more frequently.	kWh	In recent extreme weather events (e.g., 2020), 2.3% of Powercor customers experienced an average of **116 hours of extended outages (12+ hours) due to an extreme weather event.** Improving this service would **reduce these outages by 68 hours** on average.	**Powercor**
			In recent extreme weather events (e.g., 2021), 8.7% of United Energy customers experienced an average of **38 hours of extended outages (12+ hours) due to an extreme weather event**. Improving this service would **reduce these outages by 14 hours** on average.	**United Energy**
Improving **community** resilience (both proactively and reactively)	This means enhancing community support during long-duration outages caused by extreme weather. This support includes; • emergency response vehicles, • community liaison officers • additional support to the community	Per customer	**Currently**: Deployment of two emergency response vehicles and one community liaison officer during extreme weather. **Proposed**: Two additional vehicles and one more liaison officer.	**Powercor**
			Currently: No emergency response vehicles or liaison officers for extreme weather events. **Proposed:** One emergency response vehicle and one liaison officer	**United Energy**
Improving reliability for worst-served areas	This involves enhancing the consistency and dependability of electricity supply. The goal is to notably enhance electricity reliability, especially in rural and underserved areas.	kWh	**Currently:** On average, between 2015 and 2023, 22,572 customers have experienced more than 500 minutes of power outages annually. This outage duration is 3.7 times greater than that of the average customer. **Proposed:** The improvement aims to reduce the number of customers affected by excessive outages to 15,000.	**Powercor**

The list of customer values outlined were refined from an original list of nine values. Following an extensive deliberation process with CPPALUE, the final list was confirmed.

Overview of process for calculations using outputs from modelling

The following provides an **example** of the calculations used to reach a cost per (unit), across each of the customer values tested in this study. In this example, inputs into the calculations have been drawn from multiple sources including data from CPPALUE and from survey responses. The **example** final output is the cost per tonne of CO2 emissions reduction for CitiPower residential customers.

Example inputs to illustrate calculations

Desired CO2 improvement	710,000 tonnes	Input from CPPALUE
Number of customers (CitiPower)	288,743 customers	Input from CPPALUE
Relative importance of CO2 reduction (to other customer values)	34.38%	Based on survey data collected through both MaxDiff and Constant Sum methods, utilising the entire research sample
Average annual electricity bill	$1,320	Determined using survey inputs
Maximum WTP from all respondents (median)	6.25%	Determined using survey inputs

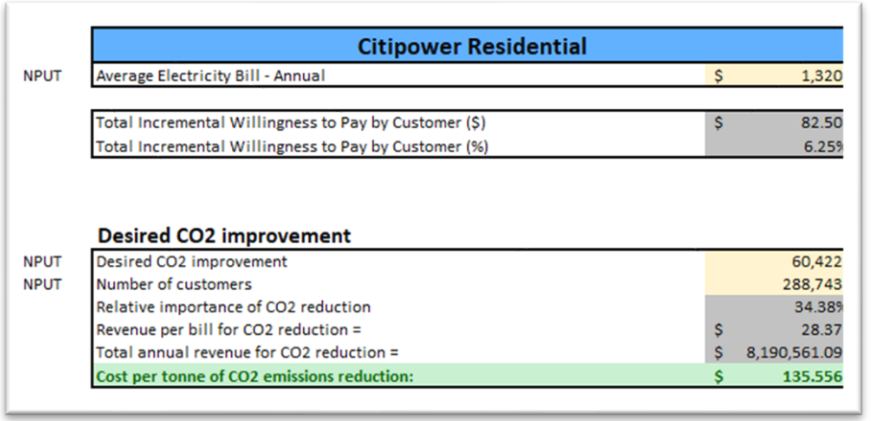
1	**Calculate maximum willingness to pay from all customers**	• Average Annual Bill = $1,320 • Number of Customers = 288,743 • Maximum Willingness to Pay (WTP) Percentage = 6.25% • Incremental Amount WTP = $1,320 x 6.25% ≈ $82.50
2	**Calculate the total customer investment value**	• Total Value = $82.50 x 288,743 ≈ $23,821,298
3	**Allocate the proportion of value for CO2 reduction**	• Proportion of Value for CO2 Reduction = 34.38% • Total Allocation for CO2 Reduction = $23,821,298 x 34.38% ≈ $8,190,561
4	**Calculate the Customer Investment per tonne of CO2 improvement**	• Desired CO2 Improvement = 710,000 tonnes • Customer Investment per Tonne = Total Value / Desired CO2 Improvement • Customer Investment per Tonne = $8,190,561 / 710,000 ≈ $11.5

An excel simulator was developed to assist with calculations

The final output outlined in slides 15-20 are dependent upon the inputs into the calculation for each value (see slide 9). A simulator tool was developed in excel with CPPALUE to provide the ability to adjust relevant inputs according to business needs. The following table provides an example of the inputs into the simulator which are variable and which inputs are fixed (i.e., inputs from customer data).

Fixed inputs consistent across all values calculations		
Average Electricity Bill - Annual	$1,320	Fixed input from customer survey data
Total Incremental Willingness to Pay by Customer ($)	$82.50	
Total Incremental Willingness to Pay by Customer (%)	6.25%	

Example: Desired improvement in reduction of CO2 emissions		
Desired CO2 improvement	60,422	Variable input determined by CPPALUE
Number of customers	288,743	Variable input based on CPPALUE customer data
Relative importance of CO2 reduction	34.38%	Fixed input from customer survey data
Revenue per bill for CO2 reduction =	$28.37	Fixed input from customer survey data
Total annual revenue for CO2 reduction =	$8,190,561.09	Fixed input from customer survey data
Cost per tonne of CO2 emissions reduction:	$135.55	**Variable output from simulator dependent upon above inputs**



	Citipower Residential		
NPUT	Average Electricity Bill - Annual	$	1,320
	Total Incremental Willingness to Pay by Customer ($)	$	82.50
	Total Incremental Willingness to Pay by Customer (%)		6.25%
	Desired CO2 improvement		
NPUT	Desired CO2 improvement		60,422
NPUT	Number of customers		288,743
	Relative importance of CO2 reduction		34.38%
	Revenue per bill for CO2 reduction =	$	28.37
	Total annual revenue for CO2 reduction =	$	8,190,561.09
	Cost per tonne of CO2 emissions reduction:	$	135.556

The following approach was adopted to understand customers' value of time

Customer value of time assesses how much customers would be willing to pay for additional leisure time in their day. This can be used as a proxy for understanding how the networks could quantify the value of customers' time in the context of improving customer experience (e.g., wait times for call centres or improving the functionality of online services to save customers time).

This value was calculated using the median value of customers' stated response to the question 'How much would you be willing to pay someone in return for one hour of leisure time for yourself?'

Example Inputs
How much would you be willing to pay someone in return for one hour of leisure time for yourself?

Calculate annual customer value of time for residential customers is drawn from customers' stated response to the question asking them	**CitiPower residential: $30 per hour**
	Powercor residential: $20 per hour
	United Energy residential: $20 per hour
Calculate annual customer value of time for SMB customers is drawn from customers' stated response to the question asking them	**CitiPower SMB: $50 per hour**
	Powercor SMB: $30 per hour
	United Energy SMB: $30 per hour

The survey question used to determine the value of time for both residential and small and medium-sized business (SMB) customers was consistent. This departure from the methodology used in a previous study conducted in 2021 means that direct comparisons between the two studies may not be possible.

Determining an '**inconvenience factor**' for deferring load

Why the need for an inconvenience rating

In a 2023 study, the Australian Energy Regulator (AER) determined a Value of Customer Reliability (VCR). The VCR represents the economic value that customers place on a reliable electricity supply, particularly during times of high demand or when disruptions are costly.

VCR is a metric used in cost-benefit analysis and utility planning to assess the economic implications of investments in infrastructure, such as upgrading or reinforcing the distribution network to improve reliability. It enables consideration of the costs of investments against the benefits of improved reliability. However, the VCR does not account for the value associated with load flexibility, such as the ability to defer energy consumption.

This study sought to understand how customers value **reliability** when directly traded off against **load flexibility** (deferring their energy consumption). An **inconvenience factor** measures the level of inconvenience or discomfort that customers experience when they have to adjust their energy usage patterns to maintain reliability. The study included both conceptual and scenario-specific assessments of inconvenience, including the overall inconvenience of deferring any load and the specific scenario of deferring electric vehicle (EV) charging. The hypothesis tested was that customers may be willing to accept a certain level of inconvenience if it helps ensure reliability.

Customers were asked to consider a trade-off between reliability (measured by the risk of more frequent outages) and the inconvenience of deferring electric vehicle (EV) charging. Their responses informed the inconvenience rating assigned to each network.

The following questions were included in the survey. The outputs from the second question were used to determine the inconvenience factor

1. Household consumption habits

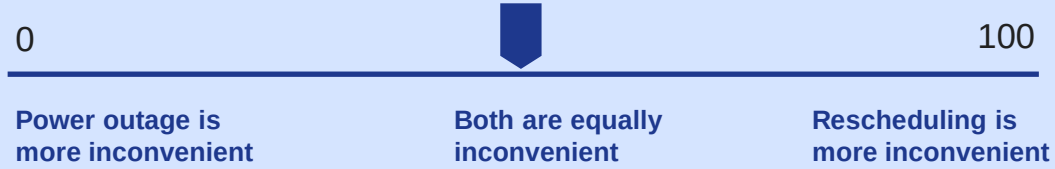
Overall inconvenience of changing consumption habits:
Overall, how inconvenient would it be to change the timing of high-electricity household tasks in your daily routine?

2. EV charging preferences

The Inconvenience of a trade-off between deferring EV charging and higher risk of an outage:
As electric vehicles become more popular, our electricity networks face greater demand, potentially leading to more power outages. To reduce this risk, there might be a need to manage when electric vehicle batteries are charged.

Now thinking about the following options:
Rescheduling the charging of your electric vehicle
A power outage occurs when charging your electric vehicle

Which option is more inconvenient in your view?



Executive Summary

Executive Summary

Customer priority areas for improvements

What future improvements to the network will customers value, and what are they willing to pay?

- Powercor and United Energy **residential and SMB customers** prioritised service improvements for network resilience, aiming to reduce long-duration outages (see slides 23, 24, 44 and 45).
- CitiPower residential customers showed no strong preference for any area of improvement, rating all three relatively equally across both SMB and residential (see slides 25 and 46).
- While ratings for CitiPower SMB were evenly spread, they were more likely to pay more for a better standard of service and prioritised solar energy exports, locally generated energy, and reducing carbon emissions relatively equally (see slide 46).
- Both residential and SMB preferred to pay the same for the same level of service (see slides 26 and 48). However, United Energy and CitiPower SMB customers were significantly more likely to be willing to pay more for improvements in service standards than United Energy and CitiPower residential customers.
- Residential customers expressed concerns around cost-of-living pressures, potentially influencing their willingness to pay (see slide 29).

Emerging technologies

How will emerging technologies change customer consumption in the future, and what are the implications for networks?

- Almost half of residential customers and over half of SMB customers in each network owned or were considering purchasing an EV in the next 5 years, suggesting significant increases in demand on the network (see slides 31 and 53).
- The majority of residential EV owners and considerers use or would use it as their primary vehicle, highlighting the growing importance of reliable access to charging infrastructure (see slide 32).
- Across both residential and SMB customers a greater proportion are open to flexibility in EV charging schedules (see slides 34 and 54), suggesting potential for behaviour change incentives.
- For both SMB and residential customers, early evening and work hours are identified as the least common charging periods, while overnight and early morning see higher proportions of charging (slides 35 and 56). This highlights an opportunity to collaborate with business owners, managers, or local government to encourage charging during the 10:00 am – 4:00 pm period.
- Moreover, EV owners were more open than non-EV owners to their energy provider managing charging times if it led to cost savings (slide 37 and appendix slide 99). This presents an opportunity to incentivise customers to modify their charging behaviours.

Future consumption behaviour

How will household energy habits change in the future and what are the implications for the networks?

Residential customers:

- Generally, residential customers are open to changing their electricity usage behaviours.
- Shifting consumption behaviour at home is expected to be more challenging with CitiPower compared with Powercor and United Energy (see slide 39).
- Cooking, heating and cooling are the least flexible activities, and **will likely pose the greatest challenge in influencing behaviour** (see slide 40).
- Clothes washing and drying are among the most flexible and **offer easier opportunities for behaviour influence** (see slide 41).
- Medically vulnerable customers rated the inconvenience of changing the timing of their daily tasks as higher than the other vulnerable customer cohorts (see appendix, slide 93)

Customers' value of service improvements: **Powercor residential customers**

$51.13 / kWh

Improving usage of locally generated energy

Residential Powercor customers valued improving usage of locally generated energy at $51.13 / kWh

$11.91 / tonne of CO2e

Improving carbon emissions reduction

Residential Powercor customers valued improving carbon emissions in the distribution of their electricity at $11.91 / tonne of CO2e

$0.09 / kWh

Improving solar export capacity

Residential Powercor customers valued ensuring the network can support customers exporting solar energy into the future at $0.09 / kWh

$26.17 / kWh

Improving network resilience

Residential Powercor customers valued improving network resilience at $26.17 / kWh

$865.61 / customer impacted

Improving community resilience

Residential Powercor customers valued improving community resilience at $865.61 / customer impacted

$159.85 / kWh

Improving reliability for worst served areas

Residential Powercor customers valued improving reliability for worst served areas at $159.85 / kWh

$20 / hour**

Customer value of time

Residential Powercor customers value one hour of additional leisure time at $20 per hour

32%**

Customer inconvenience factor

Residential Powercor customers rate the inconvenience of **deferring EV charging** as 32% when compared with relative inconvenience of a power outage

Understanding these values

These values are calculated using inputs provided by CPPALUE (see slide 14), such as the incremental improvements proposed for each initiative. Therefore, they do not reflect how customers prioritise these initiatives relative to each other. The best way to interpret these values (left) are in the context of customer prioritisation (see slide 27).

- When asked to prioritise investment into improvements, customers prioritised improving network resilience (to reduce long-duration outages) (41.9% importance across six values tested) (see slide 27).
- *Improving reliability for 'worst-served' areas* ranked second (20.4% importance) (see slide 27).
- Secondary TURF (total unduplicated reach and frequency) analysis indicates that improving reliability for worst served is consistently grouped with improvements to network resilience in the top responses for Powercor (see slide 105).
- These preferences may be attributed, in part, to Powercor customers experiencing lower levels of reliability and reporting a higher frequency of interruptions due to climate events compared to metro networks.
- The relatively low rating of improving carbon emissions reduction (see slide 27) further supports this trend, suggesting that for Powercor customers, addressing basic needs such as reliability and resilience are prioritised above environmental sustainability initiatives.

*The value for this initiative is notably higher than others resulting from the smaller number of customers impacted by it.
**Note, these values were determined using stated questions, not quantitative modelling
Note, not all customers have expressed willingness to incur additional charges on their current bills. The outlined preferences stem from customer responses when asked to prioritise mandatory increases across various service areas.

Customers' value of service improvements: **Powercor SMB customers**

$34.83 / kWh

Improving usage of locally generated energy

SMB Powercor customers valued improving usage of locally generated energy at $34.83 / kWh

$6.21 / tonne of CO2e

Improving carbon emissions reduction

SMB Powercor customers valued improving carbon emissions in the distribution of their electricity at $6.21 / tonne of CO2e

$0.05 / kWh

Improving solar export capacity

SMB Powercor customers valued ensuring the network can support customers exporting solar energy into the future at $0.05 / kWh

$11.85 / kWh

Improving network resilience

SMB Powercor customers valued improving network resilience at $11.85 / kWh

$739.10 / customer impacted*

Improving community resilience

SMB Powercor customers valued improving community resilience at $739.10 / customer impacted

$83.97 / kWh

Improving reliability for worst served areas

SMB Powercor customers valued improving reliability for worst served areas at $83.97 / kWh

$30 / hour**

Customer value of time

SMB Powercor customers value one hour of additional leisure time at $30 / hour

41%**

Customer inconvenience factor

SMB Powercor customers rate the inconvenience of **deferring EV charging** as 41% when compared with relative inconvenience of a power outage

Understanding these values

These values are calculated using inputs provided by CPPALUE (see slide 14), such as the incremental improvements proposed for each initiative. Therefore, they do not reflect how customers prioritise these initiatives relative to each other. The best way to interpret these values (left) are in the context of customer prioritisation (see slide 48).

- When asked to prioritise improvements Powercor SMB customers saw Improving network resilience as the area of improvement that was most important at 35.6%. The second most important to Powercor SMB customers was Improving reliability for worst-served areas at 20.1%.
- Powercor SMB customers held strong attitudes about increased electrification, with 50% strongly believing that society will become more dependent on electricity in the future.
- The inconvenience factor for deferring EV charging is approximately 10% higher for SMB customers than residential customers.

*The value for this initiative is notably higher than others resulting from the smaller number of customers impacted by it.
**Note, these values were determined using stated questions, not quantitative modelling
Note, not all customers have expressed willingness to incur additional charges on their current bills. The outlined preferences stem from customer responses when asked to prioritise mandatory increases across various service areas.

Customers' value of service improvements: **United Energy residential customers**

$28.70 / kWh

Improving usage of locally generated energy

Residential United Energy customers valued improving usage of locally generated energy at $28.70 / kWh

$29.80 / tonne of CO2e

Improving carbon emissions reduction

Residential United Energy customers valued improving carbon emissions in the distribution of their electricity at $29.80 / tonne of CO2e

$0.87 / kWh

Improving solar export capacity

Residential United Energy customers valued ensuring the network can support customers exporting solar energy into the future at $0.87 / kWh

$38.18 / kWh

Improving network resilience

Residential United Energy customers valued improving network resilience at $38.18 / kWh

$1,402.55 / customer impacted*

Improving community resilience

Residential United Energy customers valued improving community resilience at $1,402.55 / customer impacted

$20 / hour**

Customer value of time

Residential United Energy customers value one hour of additional leisure time at $20 per hour

33%**

Customer inconvenience factor

Residential United Energy customers rate the inconvenience of **deferring EV charging** as 33% when compared with relative inconvenience of a power outage

Understanding these values

These values are calculated using inputs provided by CPPALUE (see slide 14), such as the incremental improvements proposed for each initiative. Therefore, they do not reflect how customers prioritise these initiatives relative to each other. The best way to interpret these values (left) are in the context of customer prioritisation (see slide 28).

- When asked to prioritise investment into improvements, customers prioritised improving network resilience (to reduce long-duration outages) (54.6% importance across five values tested).
- Ensuring locally generated energy can be used in the local community areas was prioritised second (16% importance).
- Ensuring the network can support customers exporting solar was prioritised **third** (14% importance).
- United Energy customers exhibit greater heterogeneity in their prioritisation of values compared to customers of other networks. The secondary TURF analysis conducted indicates less consistent groupings across the top prioritised values, thereby implying less clarity in their priorities.

*The value for this initiative is notably higher than others resulting from the smaller number of customers impacted by it.
**Note, these values were determined using stated questions, not quantitative modelling
Note, not all customers have expressed willingness to incur additional charges on their current bills. The outlined preferences stem from customer responses when asked to prioritise mandatory increases across various service areas.

Customers' value of service improvements: **United Energy SMB customers**

$33.46 / kWh

Improving usage of locally generated energy

SMB United Energy customers valued improving usage of locally generated energy at $33.46 / kWh

$38.76 / tonne of CO2e

Improving carbon emissions reduction

SMB United Energy customers valued improving carbon emissions in the distribution of their electricity at $38.76 / tonne of CO2e

$0.76 / kWh

Improving solar export capacity

SMB United Energy customers valued ensuring the network can support customers exporting solar energy into the future at $0.76 / kWh

$42.65 / kWh

Improving network resilience

SMB United Energy customers valued improving network resilience at $42.65 / kWh

$2,363.41 / customer impacted*

Improving community resilience

SMB United Energy customers valued improving community resilience at $2,363.41 / kWh

$30 / hour**

Customer value of time

SMB United Energy customers value one hour of additional leisure time at $30

41%**

Customer inconvenience factor

SMB United Energy customers rate the inconvenience of **deferring EV charging** as 41% when compared with relative inconvenience of a power outage

Understanding these values

These values are calculated using inputs provided by CPPALUE (see slide 14), such as the incremental improvements proposed for each initiative. Therefore, they do not reflect how customers prioritise these initiatives relative to each other. The best way to interpret these values (left) are in the context of customer prioritisation (see slide 49).

- When asked to prioritise investment into improvements, United Energy SMB customers placed 53.4% importance on improving network resilience (to reduce long-duration outages from extreme weather events).
- Whilst United Energy SMB customers (5.18) see improving network resilience as being important, they are less willing than SMB customers in Powercor (5.43) and CitiPower (6.16) to share the cost. unwilling to share this cost.

*The value for this initiative is notably higher than others resulting from the smaller number of customers impacted by it.
**Note, these values were determined using stated questions, not quantitative modelling
Note, not all customers have expressed willingness to incur additional charges on their current bills. The outlined preferences stem from customer responses when asked to prioritise mandatory increases across various service areas.

Customers' value of service improvements: **CitiPower residential customers**

$54.64 / kWh

Improving usage of locally generated storage

Residential CitiPower customers valued improving use of locally generated storage at $54.64 / kWh

$135.56 / tonne of CO2e

Improving carbon emissions reduction

Residential CitiPower customers valued improving carbon emissions in the distribution of their electricity at $135.56 / tonne of CO2e

$3.70 / kWh

Improving solar export capacity

Residential CitiPower customers valued ensuring the network can support customers exporting solar energy into the future at $3.70 / kWh

$30 / hour*

Customer value of time

Residential CitiPower customers value one hour of additional leisure time at $30 per hour

37%*

Customer inconvenience factor

Residential CitiPower customers rate the inconvenience of **deferring EV charging** as 37% when compared with relative inconvenience of a power outage

Understanding these values

These values are calculated using inputs provided by CPPALUE (see slide 14), such as the incremental improvements proposed for each initiative. Therefore, they do not reflect how customers prioritise these initiatives relative to each other. The best way to interpret these values (left) are in the context of customer prioritisation (see slide 29).

- CitiPower residential customers placed relatively even importance when prioritising service improvements across improving the usage of locally generated storage for the local community (34.4%), reducing carbon emissions in the distribution of your electricity (34.4%) and ensuring the network can support customer exporting solar (31.2%).
- CitiPower customers prioritised ensuring the network can support customers to export solar marginally lower than the other values tested, likely due to the lower number of solar customers in CitiPower (compared with other networks).
- CitiPower are more likely than other networks to be willing to pay more in the short term to facilitate energy upgrades to improve long-term reliability (see Appendix for additional detail).

*Note, these values were determined using stated questions, not quantitative modelling

- Note, not all customers have expressed willingness to incur additional charges on their current bills. The outlined preferences stem from customer responses when asked to prioritise mandatory increases across various service areas.

Customers' value of service improvements: **CitiPower SMB customers**

$96.28 / kWh

Improving usage of locally generated storage

SMB CitiPower customers valued improving usage of locally generated storage at $96.28 / kWh.

$207.35 / tonne of CO2e

Improving carbon emissions reduction

SMB CitiPower customers valued improving carbon emissions in the distribution of their electricity at $207.35 / tonne of CO2e.

$7.36 / kWh

Improving solar export capacity

SMB CitiPower customers valued ensuring the network can support customers exporting solar energy into the future at $7.36 / kWh

$50 / hour*

Customer value of time

SMB CitiPower customers value one hour of additional leisure time at $50 / hour.

45%*

Customer inconvenience factor

SMB CitiPower customers rate the inconvenience of **deferring EV charging** as 45% when compared with relative inconvenience of a power outage

Understanding these values

These values are calculated using inputs provided by CPPALUE (see slide 14), such as the incremental improvements proposed for each initiative. Therefore, they do not reflect how customers prioritise these initiatives relative to each other. The best way to interpret these values (left) are in the context of customer prioritisation (see slide 50).

- CitiPower SMB customers attributed relatively equal importance to Improving usage of locally generated storage (35.4%), Improving carbon emissions reduction (34.6%), and Improving solar export capacity (30.0%).
- CitiPower SMB customers were more concerned about the effects of climate change and more likely to be willing to pay extra on top of their bill to improve others' energy supply than SMB customers in other networks.

*Note, these values were determined using stated questions, not quantitative modelling

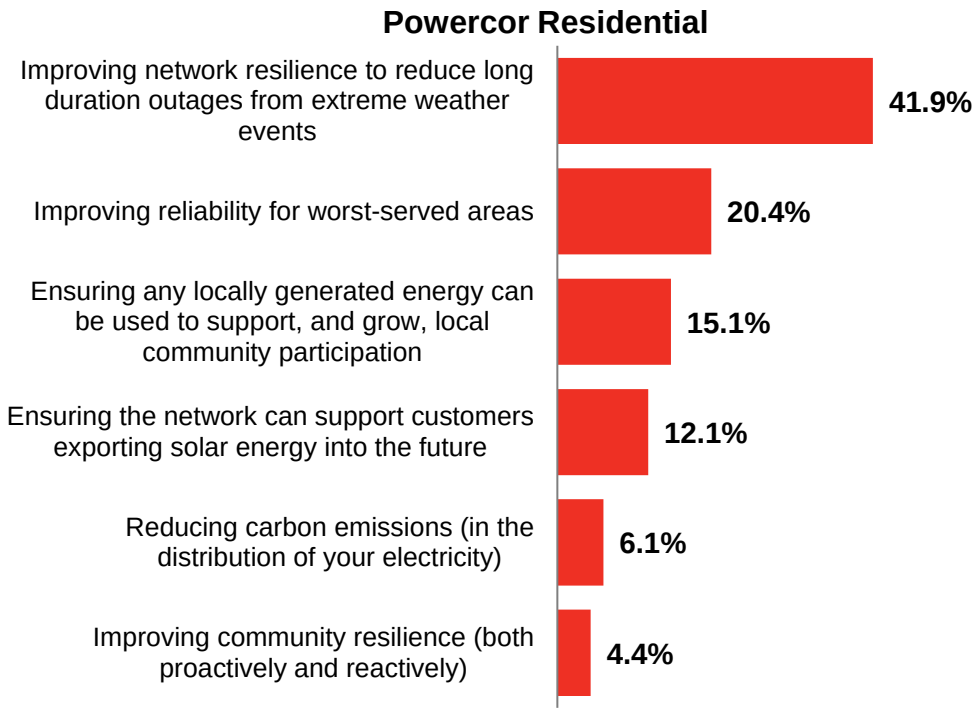
- Note, not all customers have expressed willingness to incur additional charges on their current bills. The outlined preferences stem from customer responses when asked to prioritise mandatory increases across various service areas.

Residential Customers

What future improvements to the network will customers value and what are they willing to pay?

Powercor customers prioritised **network resilience** and **reliability for worst served**

How customers prioritise service improvements

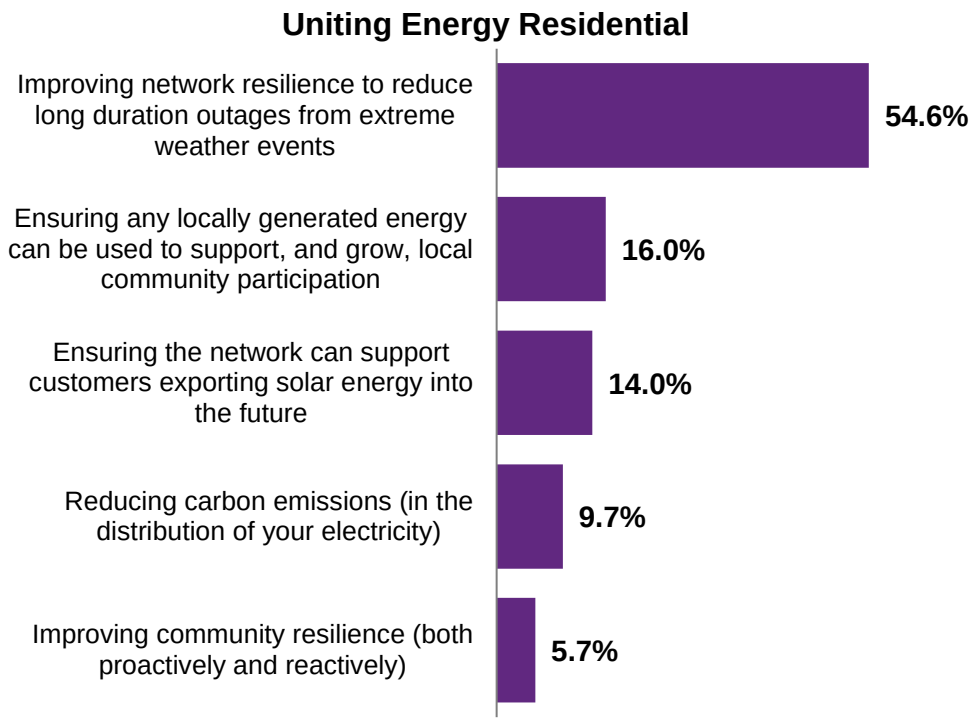


- When asked to prioritise investment into improvements, customers prioritised improving network resilience (to reduce long-duration outages) (41.9% importance across six values tested).
- *Improving reliability for 'worst-served' areas* ranked second (20.4% importance).
- Secondary TURF analysis indicates that improving reliability for worst served is consistently grouped with improvements to network resilience in the top responses for Powercor (see appendix slide 102).
- These preferences may be attributed, in part, to Powercor customers experiencing lower levels of reliability and reporting a higher frequency of interruptions due to climate events compared to other networks.
- The relatively low rating of improving carbon emissions reduction further supports this trend, suggesting that for Powercor customers, addressing basic needs such as reliability and resilience are prioritised above environmental sustainability initiatives.

Note: Figures may not sum to 100% due to rounding.

United Energy residential customers prioritised network resilience improvements

How customers prioritise service improvements

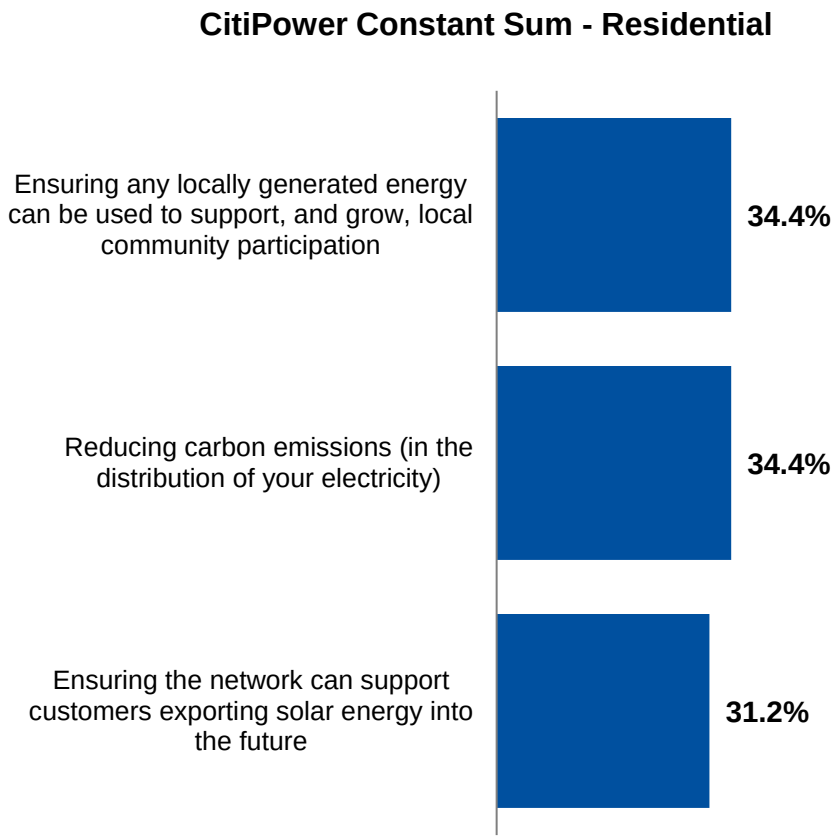


Understanding these values

- When asked to prioritise investment into improvements, customers prioritised improving network resilience (to reduce long-duration outages) (54.6% importance across five values tested).
- Ensuring locally generated energy can be used in the local community areas was prioritised second (16% importance).
- Ensuring the network can support customers exporting solar was prioritised **third** (14% importance).
- United Energy customers exhibit greater heterogeneity in their prioritisation of values compared to customers of other networks. The secondary TURF analysis conducted indicates less consistent groupings across the top prioritised values, thereby implying less clarity in their priorities (see appendix slide 102).

Note: Figures may not sum to 100% due to rounding.

When asked to prioritise improvements CitiPower customers generally rated service improvements relatively even

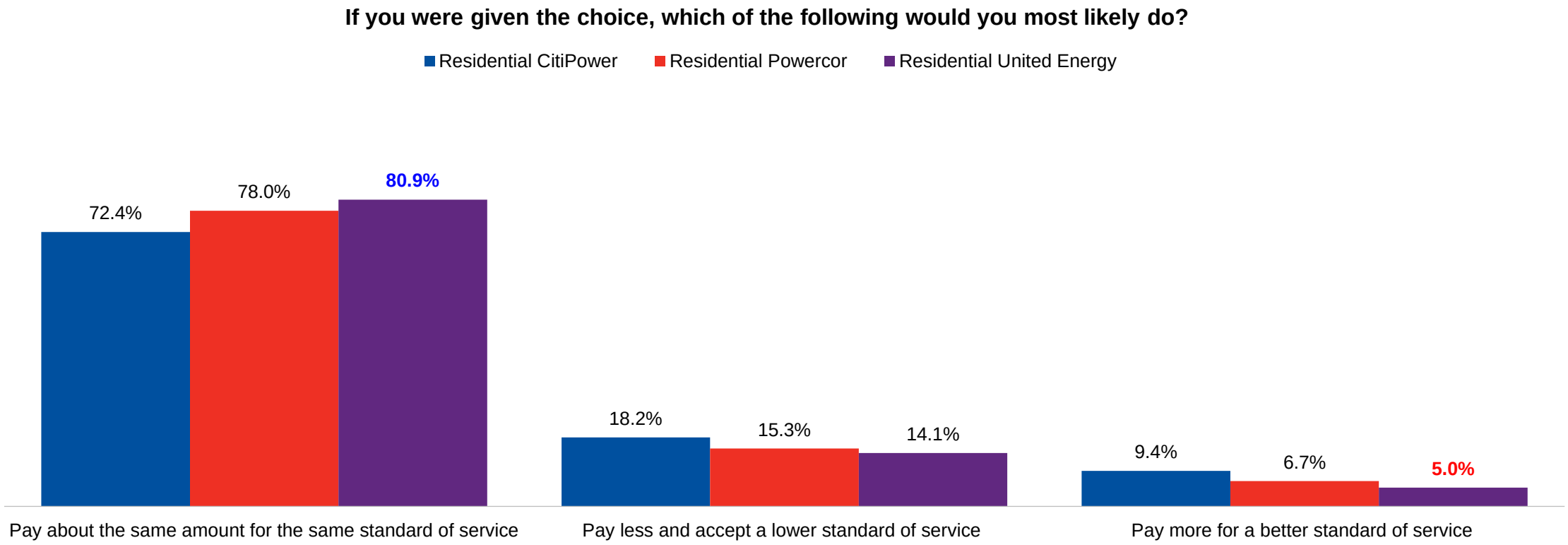


Understanding these values

- CitiPower residential customers placed relatively even importance when prioritising service improvements across improving the usage of locally generated storage for the local community (34.4%), reducing carbon emissions in the distribution of your electricity (34.4%) and ensuring the network can support customer exporting solar (31.2%).
- CitiPower customers prioritised ensuring the network can support customers to export solar marginally lower than the other values tested, likely due to the lower number of solar customers in CitiPower (compared with other networks).
- CitiPower are more likely than other networks to be willing to pay more in the short term to facilitate energy upgrades to improve long-term reliability (see Appendix for additional detail).

Note: Figures may not sum to 100% due to rounding.

The majority of customers prefer to **pay the same** for their existing service standard rather **than paying more for improvements**

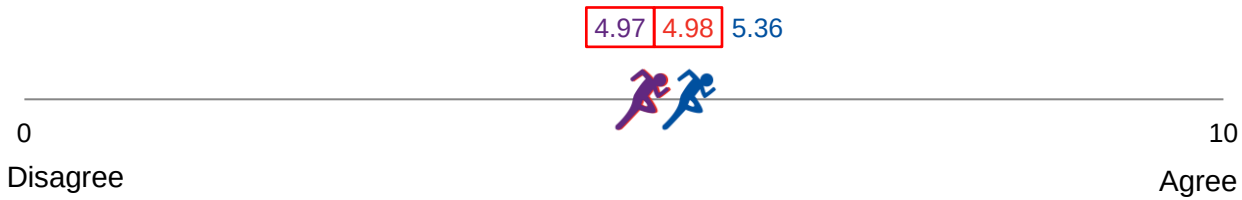


Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the residential CitiPower result and red indicates that it was significantly lower.

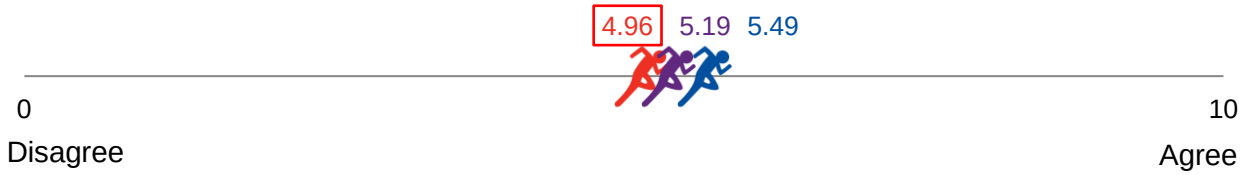
Customers did not hold strong attitudes on their willingness to invest in energy infrastructure to ensure long term reliability, sustainability and affordability

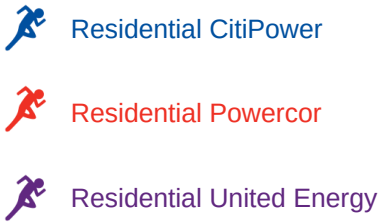
Customers were asked a series of attitudinal questions designed to measure opinions, beliefs or attitudes towards a topic, issue or concept. An attitudinal question on a 0-10 scale asks respondents to rate their agreement or disagreement with a statement, with 0 representing complete disagreement and 10 representing complete agreement.

Paying a bit more in the short term to upgrade energy infrastructure is worthwhile to provide long-term reliability



Paying more to improve energy infrastructure investments now is a good idea if it promises long-term sustainability, affordability, and reliability.



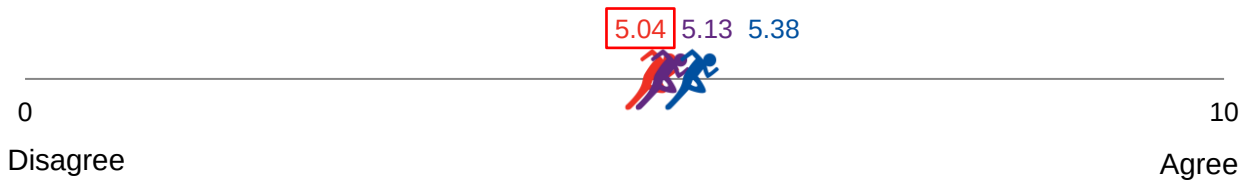


Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance.
A red box indicates that the other supplier result was significantly lower than the residential CitiPower result.

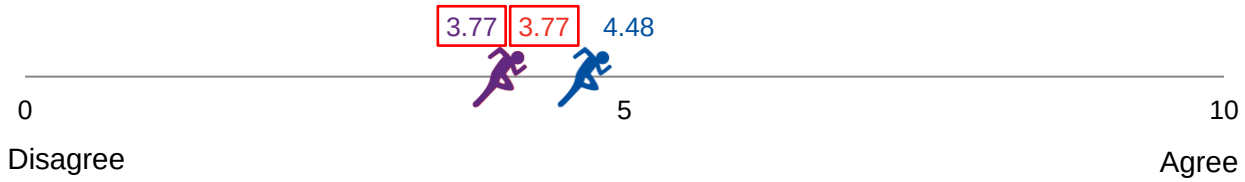
Customers indicated little willingness to pay for improvements for themselves or others

Customers were asked a series of attitudinal questions designed to measure opinions, beliefs or attitudes towards a topic, issue or concept. An attitudinal question on a 0-10 scale asks respondents to rate their agreement or disagreement with a statement, with 0 representing complete disagreement and 10 representing complete agreement.

As a community, I am willing to share the cost to ensure every Victorian gets reasonable standard of reliability



I am willing to pay more for improvement in others' energy supply



Residential CitiPower

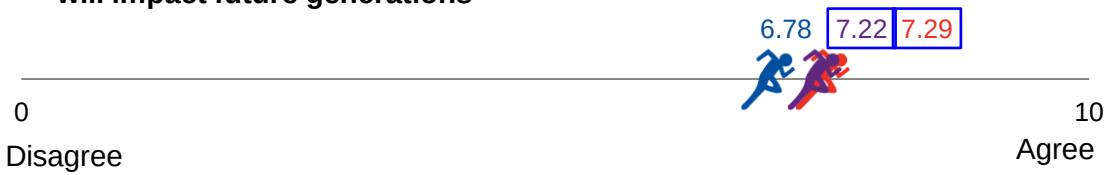
Residential Powercor

Residential United Energy

Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance.
A red box indicates that the other supplier result was significantly lower than the residential CitiPower result.

Which may be influenced by concerns regarding cost-of-living pressures

I am concerned with longer-term energy affordability and how it will impact future generations



I am concerned that I cannot keep up with the current cost-of-living pressures

Having access to more information and data about my electricity usage would improve my ability to manage electricity costs

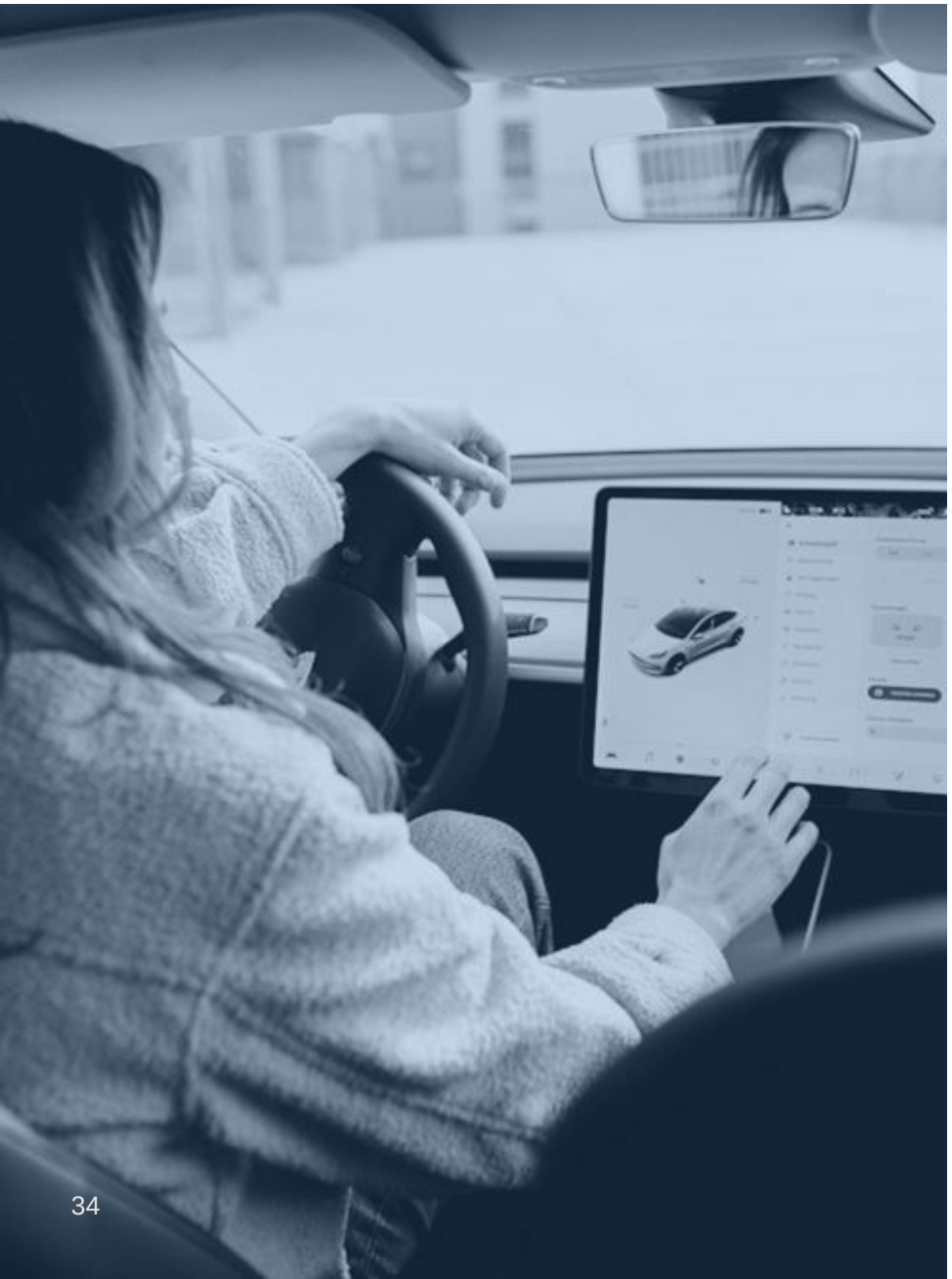
I am concerned that others cannot keep up with the current cost-of-living pressures

Residential CitiPower

Residential Powercor

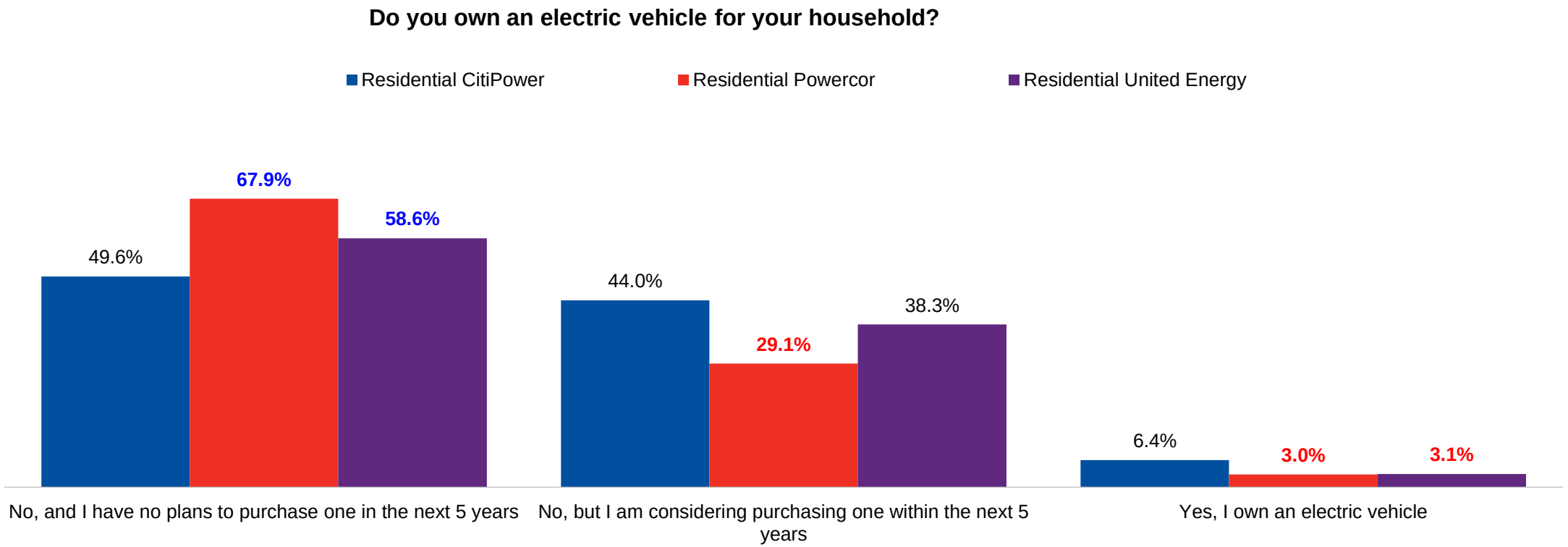
Residential United Energy

Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. A red box indicates that the other supplier result was significantly lower than the residential CitiPower result. A blue box indicates that the other supplier result was significantly higher than the residential CitiPower result



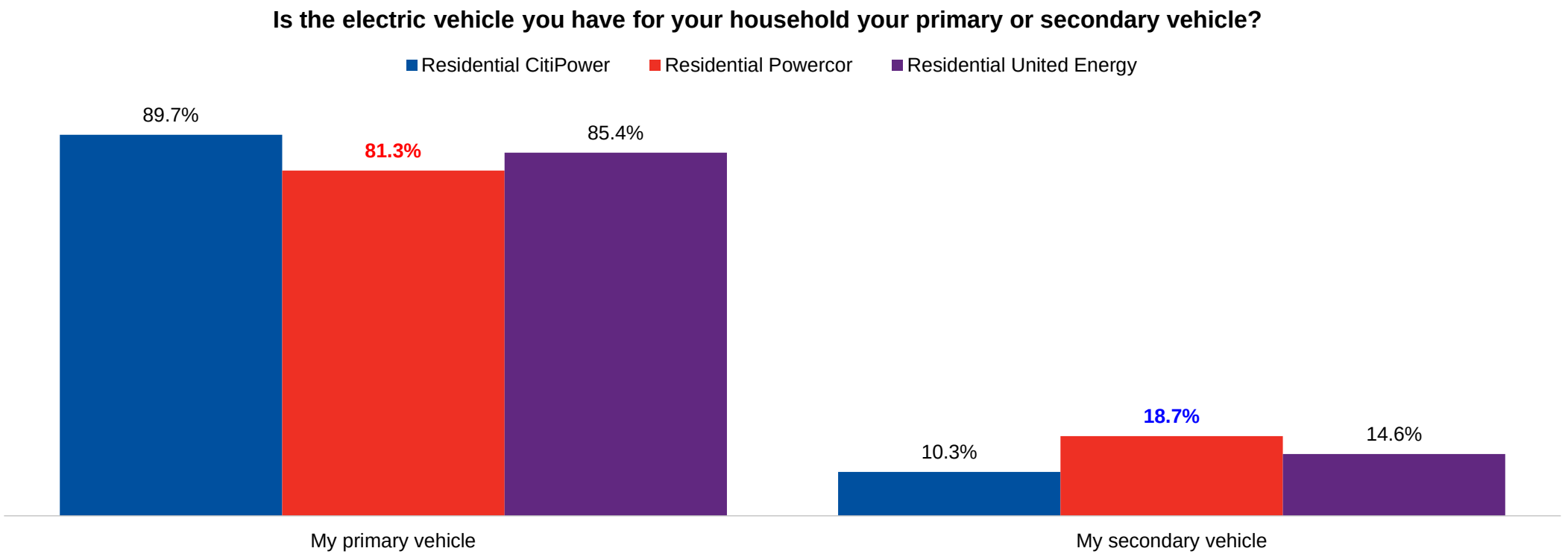
How will **emerging technologies** change customer consumption in the future and what are the implications for the networks?

Almost half of CitiPower and United Energy customers own or are considering purchasing an EV



Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the residential CitiPower result and red indicates that it was significantly lower.

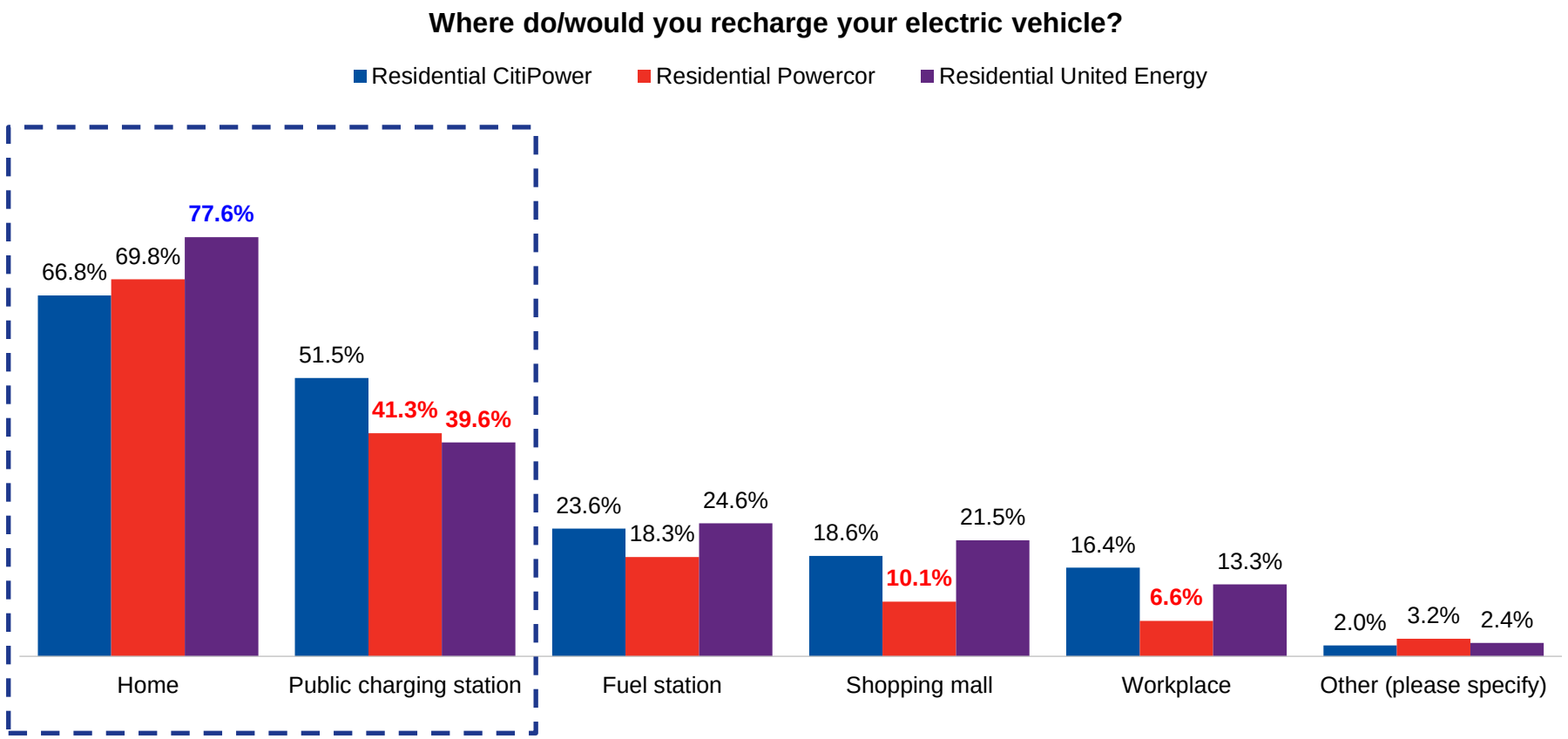
Many EV owners and potential buyers depend on their EV as their main vehicle, underscoring the increasing need for access to charging infrastructure



Note, EV owners and considerers have been combined for greater sample (enabling significance testing).
Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the residential CitiPower result and red indicates that it was significantly lower.

Most residential customers tend to or would charge at home or public charging stations

- CitiPower customers are more likely to charge at public charging stations and at work, which could be attributed to greater accessibility to charging infrastructure at these locations in metro areas. This suggests that as accessibility to charging infrastructure improves for regional areas, their charging behaviours may change.
- United Energy customers are more likely to charge their EV at home, which aligns with their preference for charging overnight, when it is cheapest and when it is most convenient (see slide 35 for additional detail on charging time preferences).



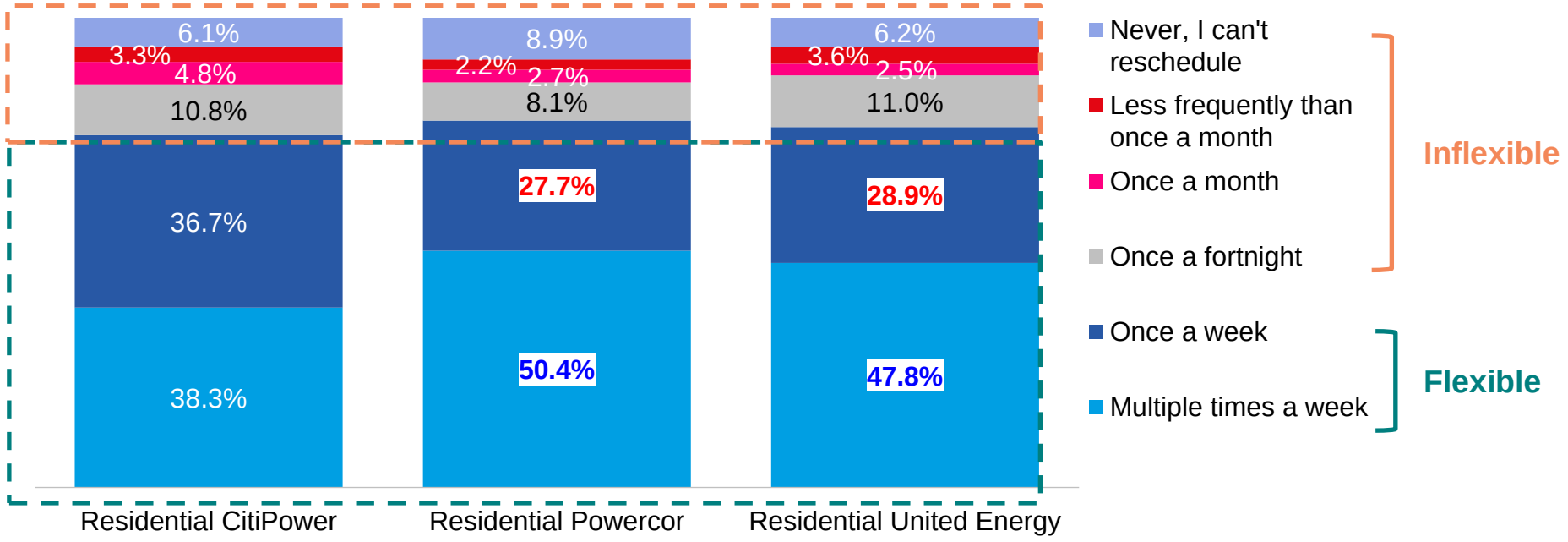
Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the residential CitiPower result and red indicates that it was significantly lower.
The following EV Powerhouse Charging Stations Australia Map demonstrates accessibility to public charging infrastructure across Victoria: https://evpowerhouse.com.au/ev-charging-stations-australia-map/

A higher proportion of customers indicated they **are flexible** when it comes to rescheduling charging their EV

CitiPower's willingness to defer charging once per week may be reflective of the typically shorter trip size for this network. Typically, a CitiPower customer would have a shorter trip than a Powercor or United Energy and may experience less range anxiety compared with their regional counterparts.

Additionally, CitiPower customers report a higher rate of charging at work, indicating a higher reliance on workplace charging infrastructure.

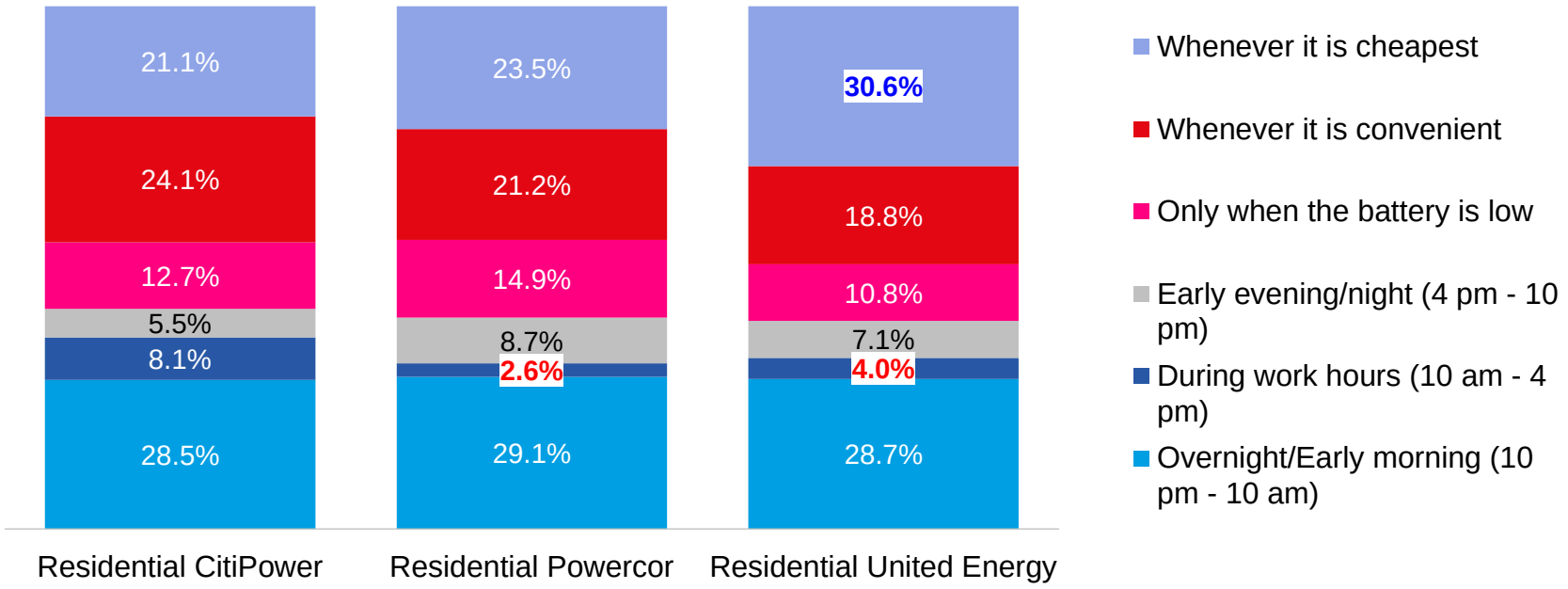
Thinking about recharging your electric vehicle, how flexible are you in rescheduling it to different times? I am willing to be flexible…



Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the residential CitiPower result and red indicates that it was significantly lower.

Early evening and **during work hours** are among the lowest charging periods

When do/would you typically recharge your electric vehicle?



- Generally across networks, customers indicate a high preference for charging EVs overnight / when most convenient.
- Fewer customers indicated a preference for charging in the early evening and night periods.
- There may be an opportunity to work with business owners/managers or local government to incentivise charging during the 10.00 am - 4.00 pm period.
- There is a price-sensitive cohort in United Energy, with a significantly higher proportion of customers preferring to charge whenever it is cheapest.
- A higher proportion of CitiPower customers are charging during the day, possibly due to charging at work.

Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the residential CitiPower result and red indicates that it was significantly lower.

Powercor and United Energy customers rate a power outage as more inconvenient than changing EV charging time

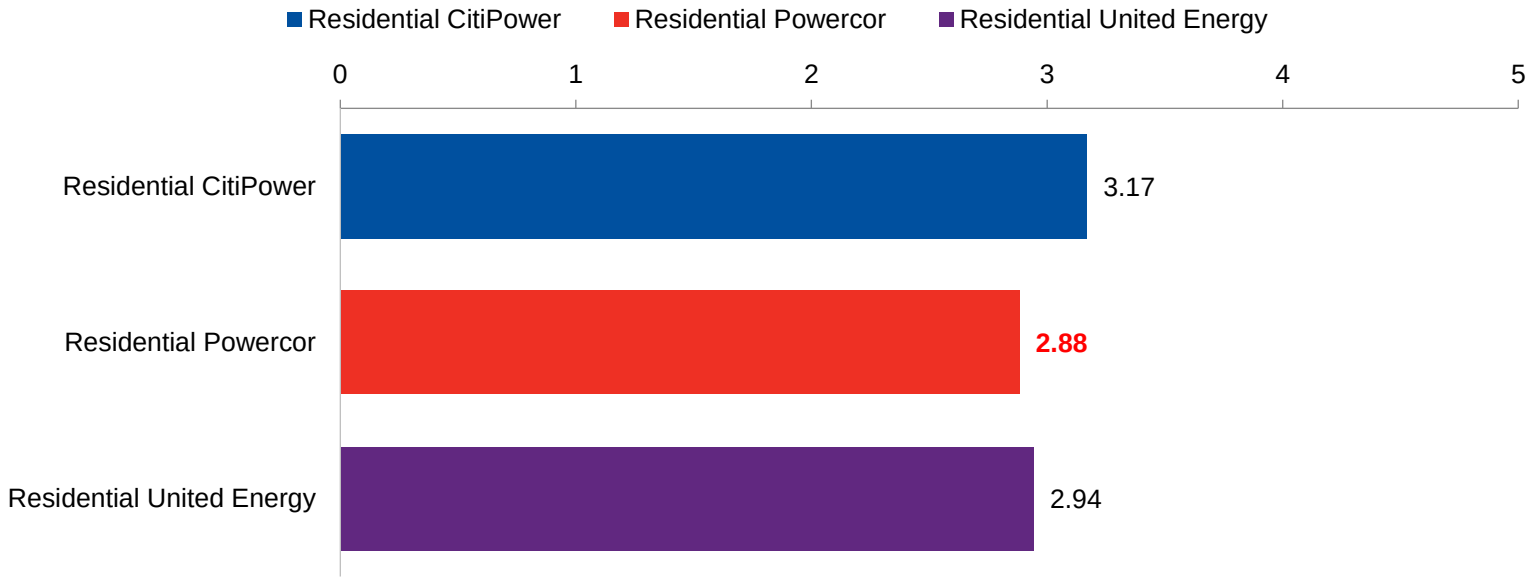
The AER has introduced a concept called the customer value of 'deferred load'. The AER has noted their view that customers place a different value on avoiding load constraints than on avoiding power outages.

The survey aimed to explore this question by understanding customers' preferences towards EV flexibility in comparison to experiencing an outage. The survey explained to customers: "as electric vehicles become more popular, electricity networks face greater demand, potentially leading to more power outages. To reduce this risk, there might be a need to manage when electric vehicle batteries are charged. When thinking about the following options which one is more inconvenient:

- Rescheduling the charging of your EV
- A power outage occurs when charging your electric vehicle"

Which option is more inconvenient when charging your EV?

A power outage occurs when charging your electric vehicle | **Both are equally inconvenient**



Note: Significance testing was conducted between CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the CitiPower result, and red indicates it was significantly lower. Figures may not sum to 100% due to rounding.

Those who already owned an EV were significantly more likely than those who were considering owning one to allow their energy provider to manage their charging if it resulted in lower costs

If I had an EV in the future, I am comfortable with my energy provider managing when I can charge my EV if it resulted in lower costs

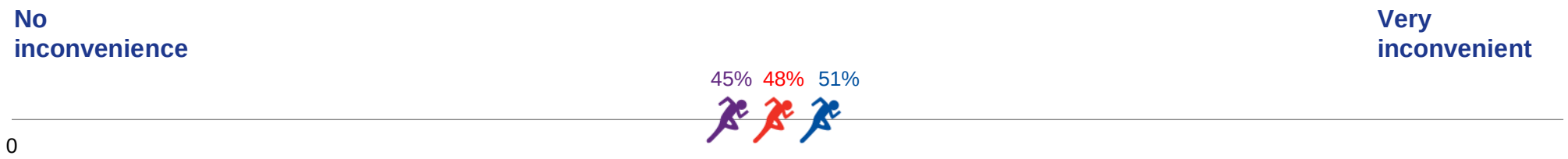
Note: Significance testing was conducted between Have an EV and the other EV groups at the 5% level of significance. A red box indicates that the other EV group result was significantly lower than the Have an EV result.

How will household energy habits change in the future and what are the implications for the networks?

CitiPower Powercor Australia united energy Forethought Outcomes

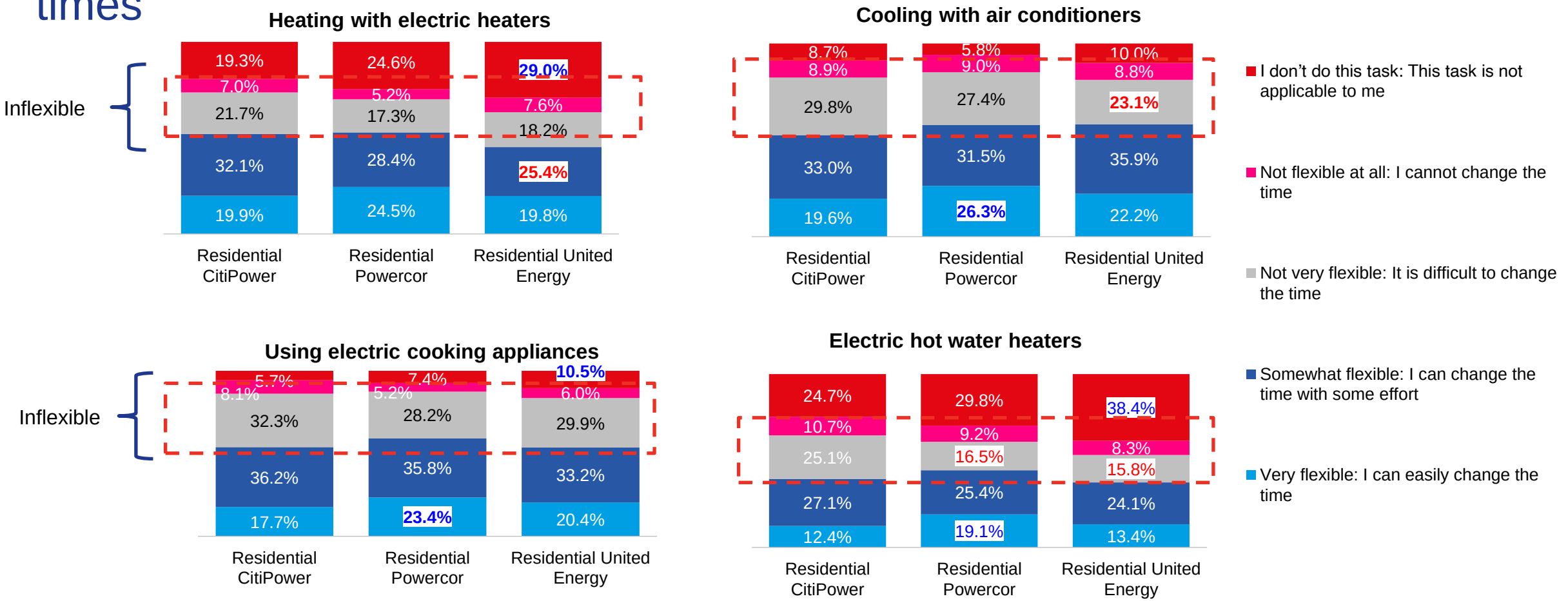
Customers in all networks rated the inconvenience of shifting consumption behaviour similarly, indicating equal difficulty across networks when it comes to influencing and shifting this behaviour

Overall, how inconvenient would it be to change the timing of high-electricity household tasks in your daily routine?



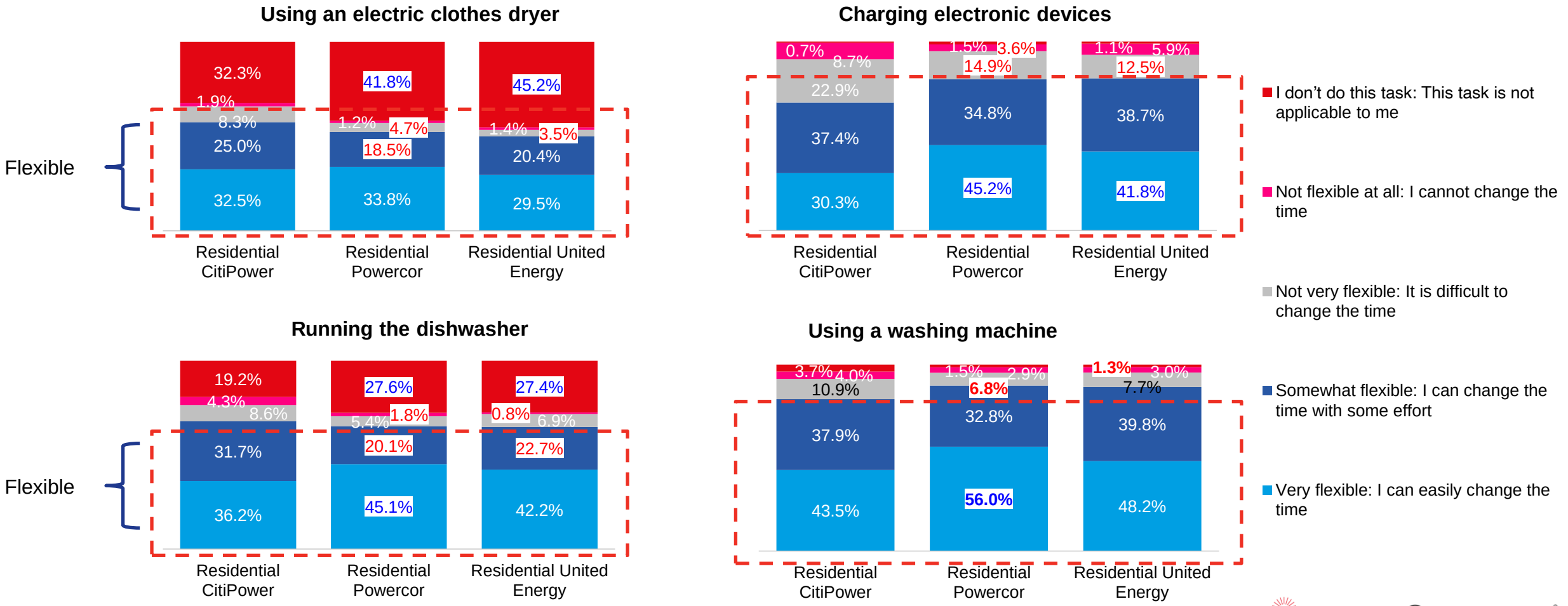
Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. Red indicates that the other supplier result was significantly lower than the residential CitiPower result.
Vulnerable cohorts included in the study include: financially vulnerable (income vulnerable), medically vulnerable, Indigenous Australians and Single Parents

Home consumption habits show cooking, heating, and cooling as the **least flexible activities**, posing challenges in altering customer consumption times



Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the residential CitiPower result, and red indicates it was significantly lower.
Across residential customers, **63% were a main decision maker** and **36% a joint decision maker** when making decisions relating to household tasks.
Note: Additional views of this data are available on Appendix slides 94 and 95.

Clothes washing and drying are the **most flexible activities**, presenting opportunities for influencing customer consumption times

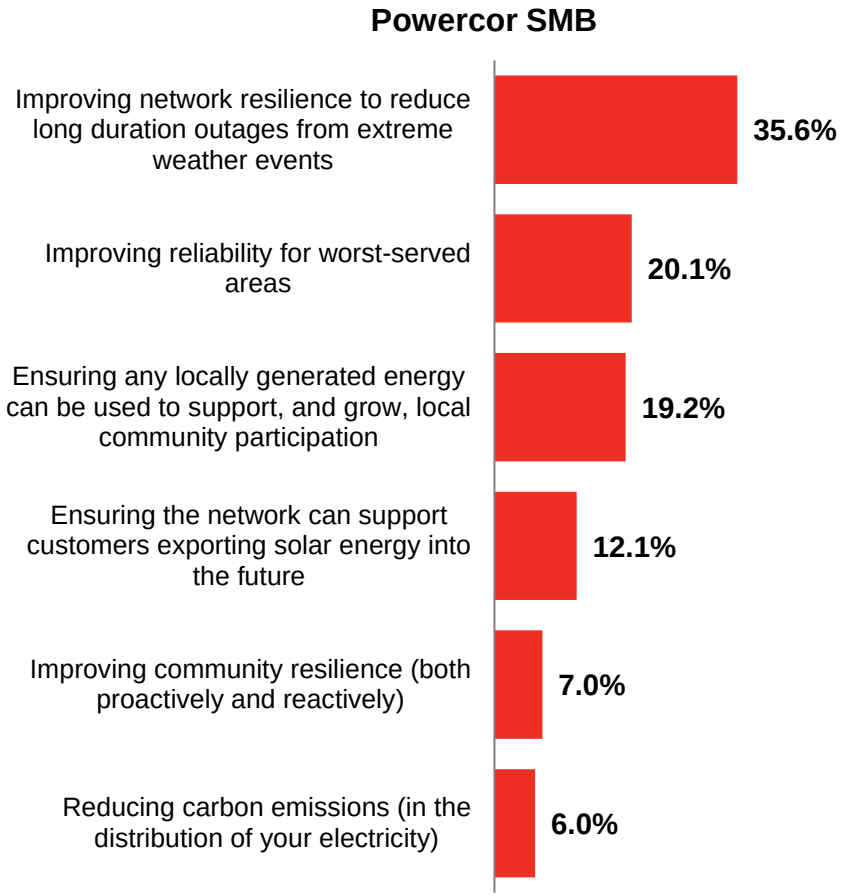


Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the residential CitiPower result, and red indicates it was significantly lower.
Across residential customers, **63% were a main decision maker** and **36% a joint decision maker** when making decisions relating to household tasks.

SMB Customers

SMB Customer Priority areas for improvements

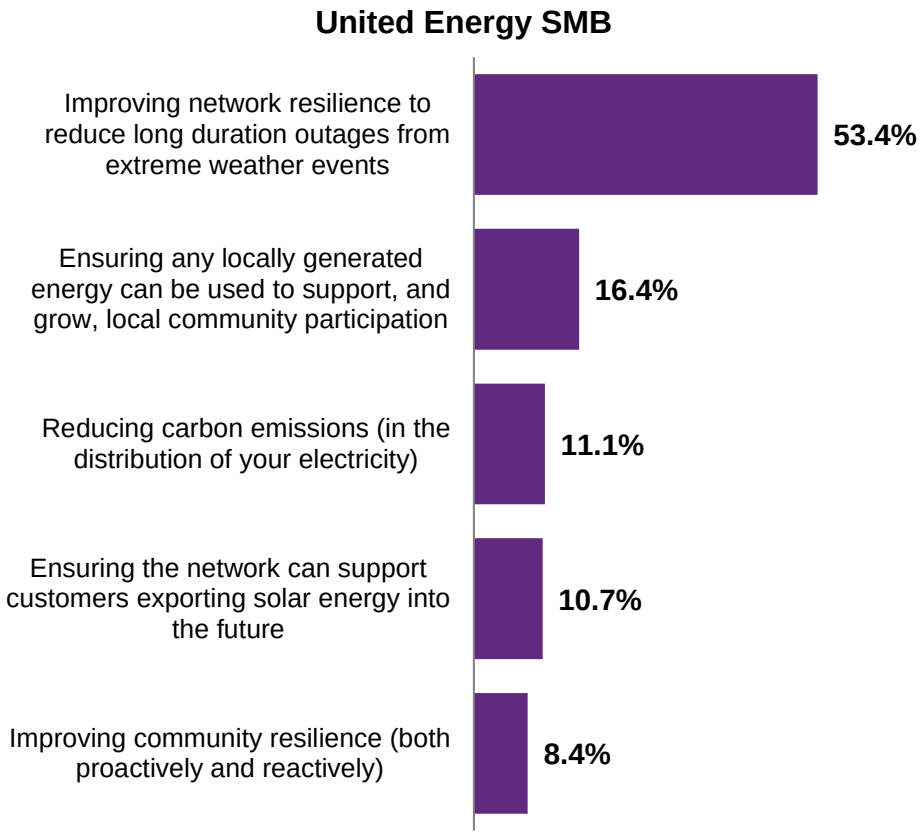
Improvement in network resilience and reliability for worst-served areas were top priorities for Powercor SMB customers



- SMB Powercor customers rated the relative importance of different values similarly to residential Powercor customers. The only difference was the 5th and 6th ranked values, which swapped places for SMB Powercor customers compared to residential.
- Secondary TURF analysis showed that Improving reliability for worst-served areas was often grouped with Improving network resilience in the top responses for Powercor SMB customers (see appendix slide 103).

Note: Figures may not sum to 100% due to rounding.

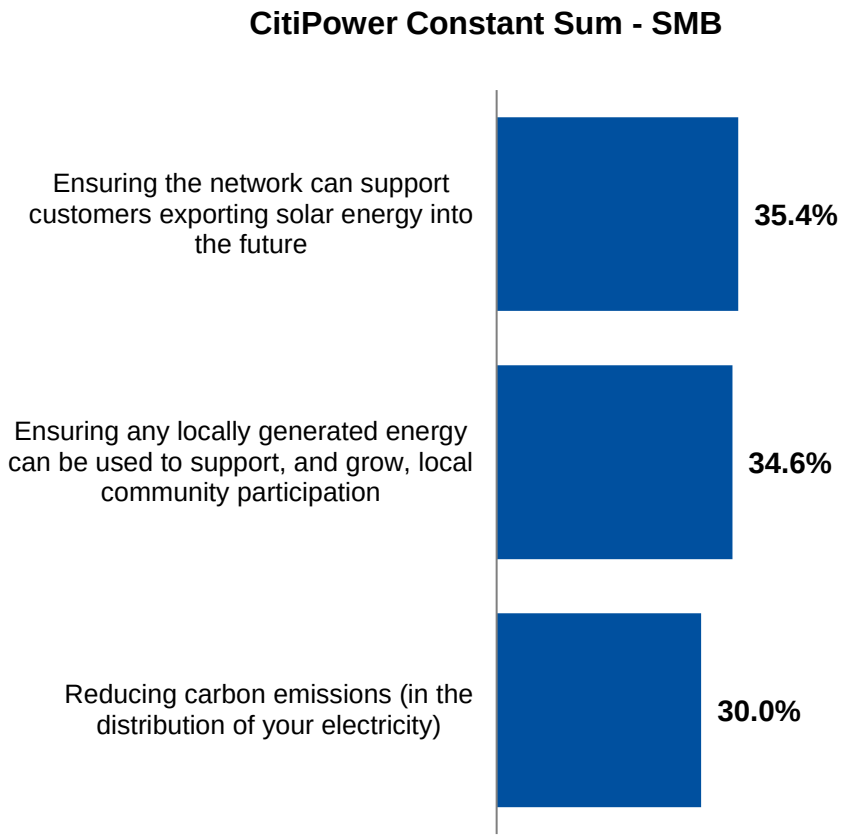
Over half of United Energy SMB customers prioritised improving network resilience to reduce long duration outages as an area for improvement



- United Energy SMB customers prioritised the values similarly to United Energy residential customers. The only difference was that for United Energy residential customers, Reducing carbon emissions ranked fourth whilst Exporting solar energy ranked third.

Note: Figures may not sum to 100% due to rounding.

CitiPower SMB customers rated the importance of all areas of improvement nearly equally, with no strong preferences for any of the three options



- Like CitiPower residential customers, SMB CitiPower customers rated the importance of the three values shown at similar levels.
- The prioritisation of values was different for SMB CitiPower customers though, as exporting solar energy was the lowest ranked for residential CitiPower customers and the highest ranked for SMB. The SMB cohort did have a higher level of solar users compared to residential customers, which could account for this.

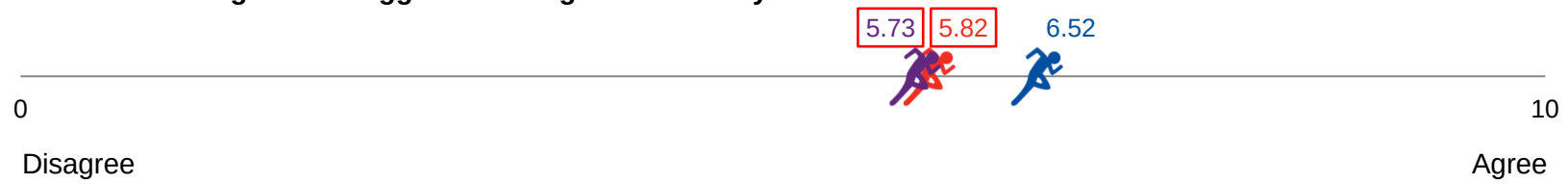
Note: Figures may not sum to 100% due to rounding.

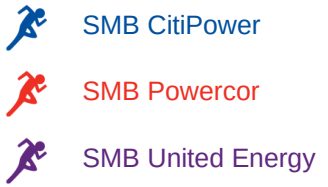
CitiPower SMB customers were significantly more concerned about the impacts of climate change than SMB customers in other networks

Customers were asked a series of attitudinal questions designed to measure opinions, beliefs or attitudes towards a topic, issue or concept. An attitudinal question on a 0-10 scale asks respondents to rate their agreement or disagreement with a statement, with 0 representing complete disagreement and 10 representing complete agreement.

Extreme weather events driven by climate change are a significant concern for me and how it will impact others lives

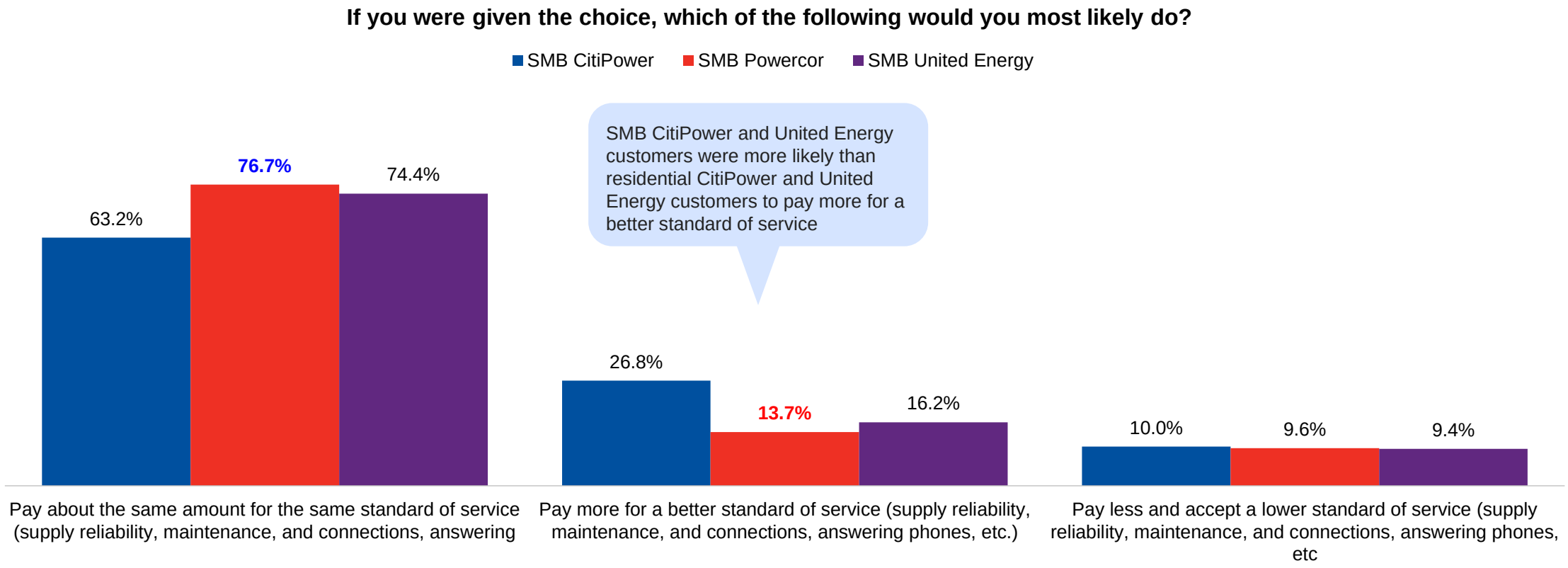
Climate change is the biggest challenge we currently face





Note: Significance testing was conducted between SMB CitiPower and the other suppliers at the 5% level of significance.
A red box indicates that the other supplier result was significantly lower than the SMB CitiPower result.

Whilst majority of SMB customers would prefer to pay the same for the same standard of service, ¼ of CitiPower SMB customers were prepared to pay more for better service



Note: Significance testing was conducted between SMB CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the SMB CitiPower result and red indicates that it was significantly lower.

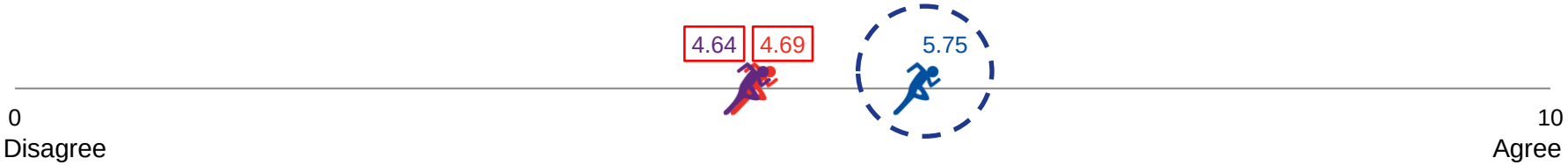
When given the choice SMB customers were not especially willing to pay to ensure a reasonable standard of reliability for all or improvements in others' supply

Customers were asked a series of attitudinal questions designed to measure opinions, beliefs or attitudes towards a topic, issue or concept. An attitudinal question on a 0-10 scale asks respondents to rate their agreement or disagreement with a statement, with 0 representing complete disagreement and 10 representing complete agreement.

However, CitiPower SMB customers were more inclined to pay for improvements in others' supply and to ensure everyone gets a reasonable standard of reliability than SMB customers in other networks.

As a community, I am willing to share the cost to ensure every Victorian gets reasonable standard of reliability

I am willing to pay more for improvement in others' energy supply



SMB CitiPower

SMB Powercor

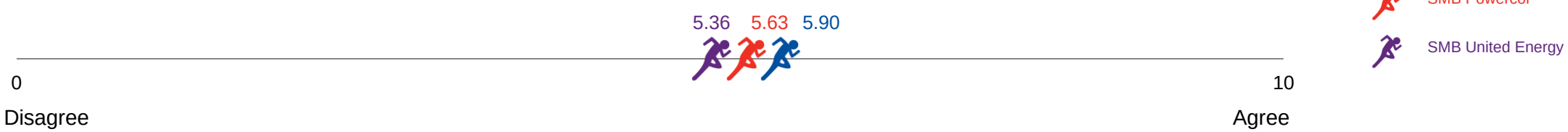
SMB United Energy

Note: Significance testing was conducted between SMB CitiPower and the other suppliers at the 5% level of significance.
A red box indicates that the other supplier result was significantly lower than the SMB CitiPower result.

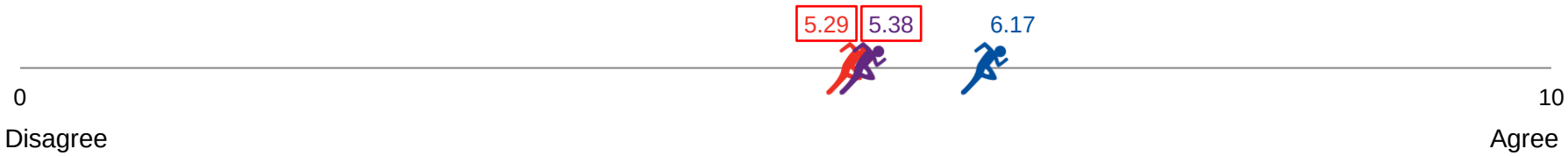
Similarly, customers were not willing to invest in the short term for long-term improvements in energy reliability, sustainability and affordability

Customers were asked a series of attitudinal questions designed to measure opinions, beliefs or attitudes towards a topic, issue or concept. An attitudinal question on a 0-10 scale asks respondents to rate their agreement or disagreement with a statement, with 0 representing complete disagreement and 10 representing complete agreement.

Paying a bit more in the short term to facilitate upgrades to the energy infrastructure is worthwhile to provide long-term reliability



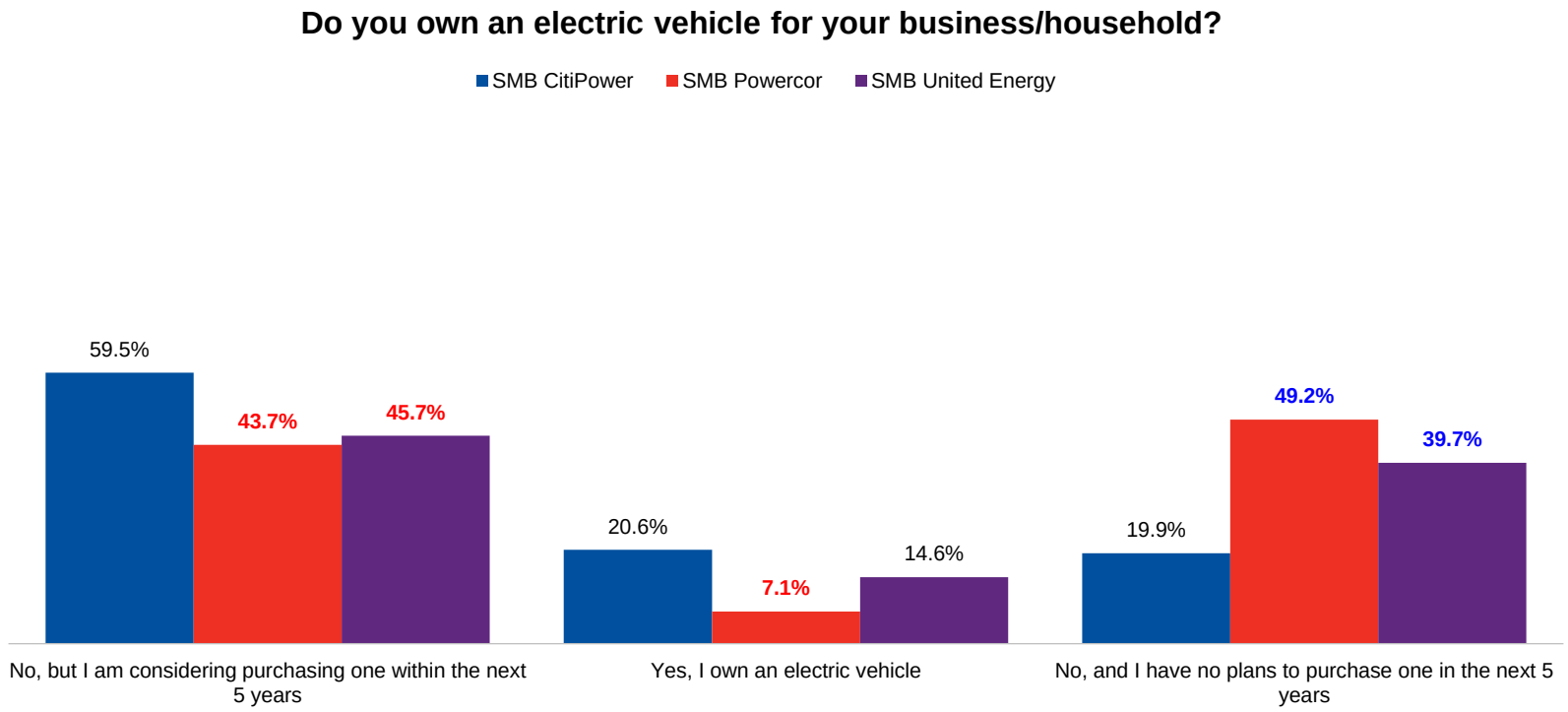
I believe paying a bit more in the short term on investments in energy infrastructure is a good idea as it will ensure long-term sustainability, affordability, and reliability



Note: Significance testing was conducted between SMB CitiPower and the other suppliers at the 5% level of significance.
A red box indicates that the other supplier result was significantly lower than the SMB CitiPower result.

Emerging Technologies

Over half of SMB customers in each network owned or were considering purchasing an EV in the next 5 years. This was higher in all networks compared to residential customers

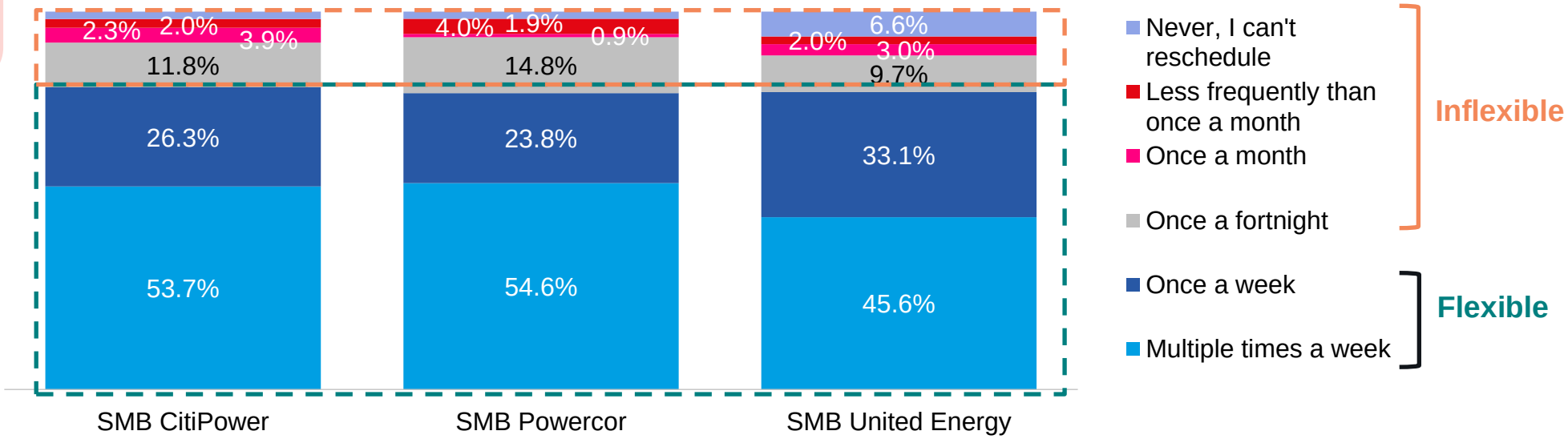


Note: Significance testing was conducted between SMB CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the SMB CitiPower result, and red indicates that it was significantly lower.

SMB customers across networks were generally flexible when it came to rescheduling their EV charging to a different time

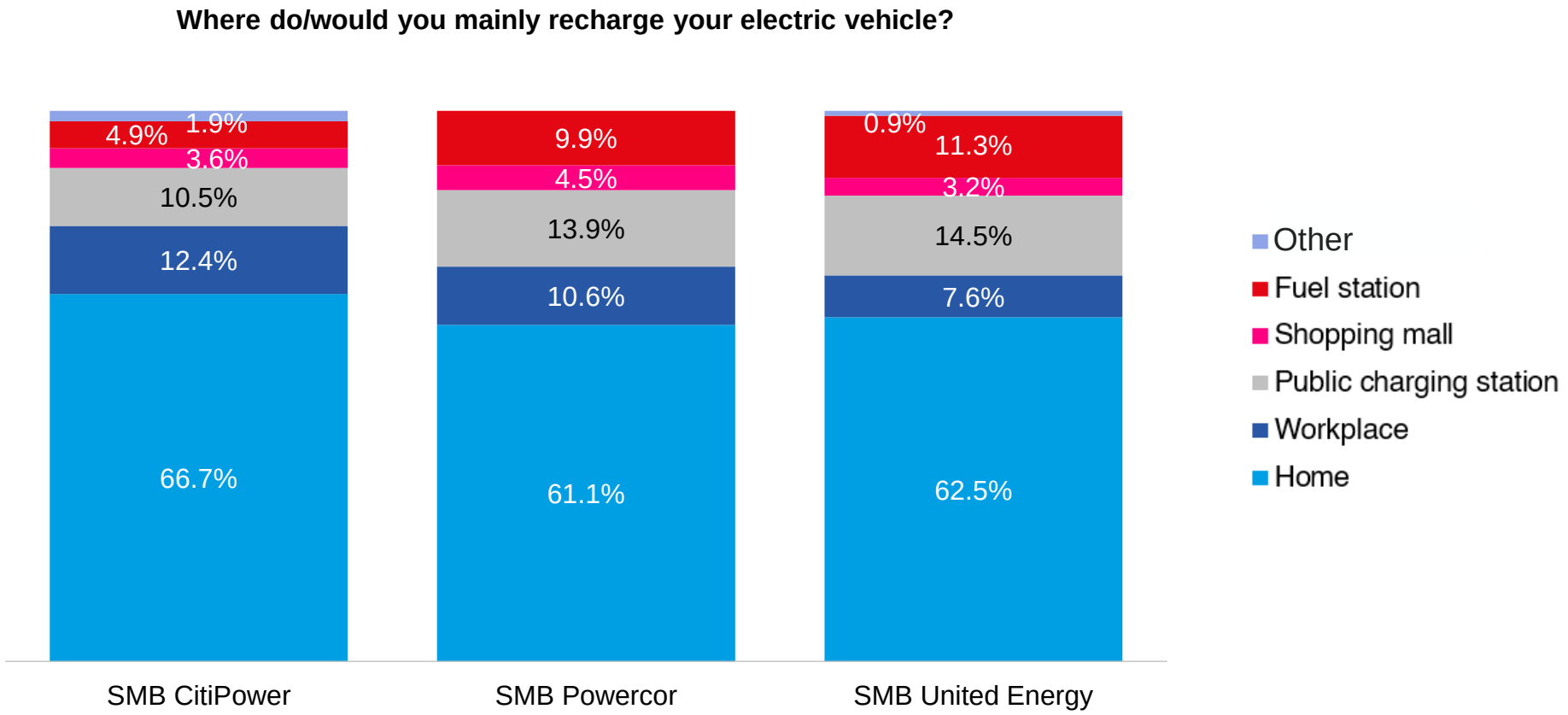
SMB CitiPower customers saw a higher proportion of people willing to be flexible multiple times a week than residential CitiPower customers. This may be attributed to longer trip sizes amongst SMB customers who use their car for work

Thinking about recharging your electric vehicle, how flexible are you in rescheduling it to different times? I am willing to be flexible…



Note: Significance testing was conducted between SMB CitiPower and the other suppliers at the 5% level of significance. No significant differences were found.

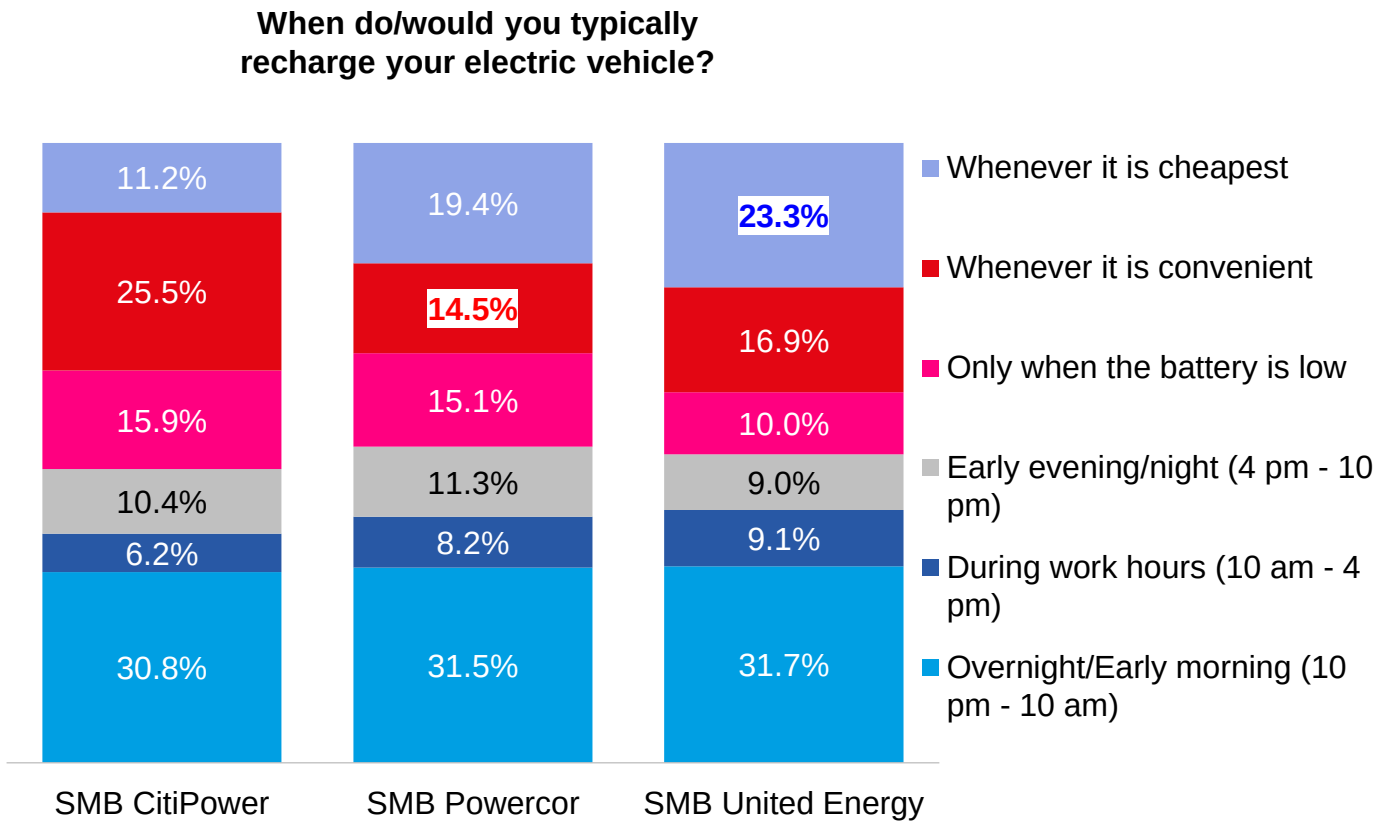
Majority of customers across all networks would or do mainly recharge their EV at home



Note: Significance testing was conducted between SMB CitiPower and the other suppliers at the 5% level of significance. No significant differences were found.

Overnight/Early morning was the most popular time to charge across all networks, with few choosing to charge their EV during the period of 10 am – 4 pm

Similarly to residential customers, there is an opportunity to work with commercial building owners and building managers to incentivise charging between 10 am to 4 pm.



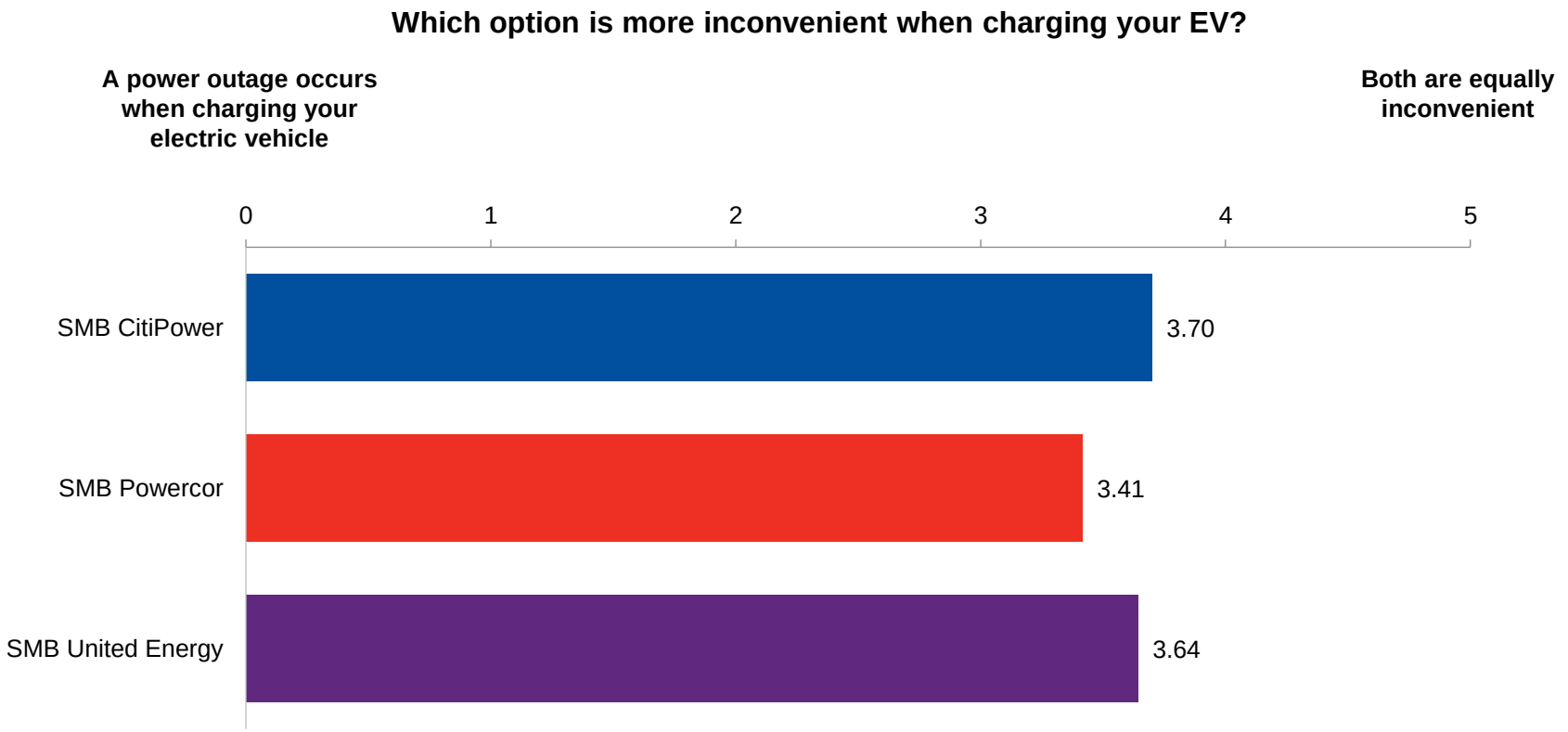
Note: Significance testing was conducted between SMB CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the SMB CitiPower result, and red indicates that it was significantly lower.

Whilst SMB customers were flexible in changing their charging times, there was only a marginal preference for this over a power outage occurring when charging across all networks

The AER has introduced a concept called the customer value of 'deferred load'. The AER has noted their view that customers place a different value on avoiding load constraints than on avoiding power outages.

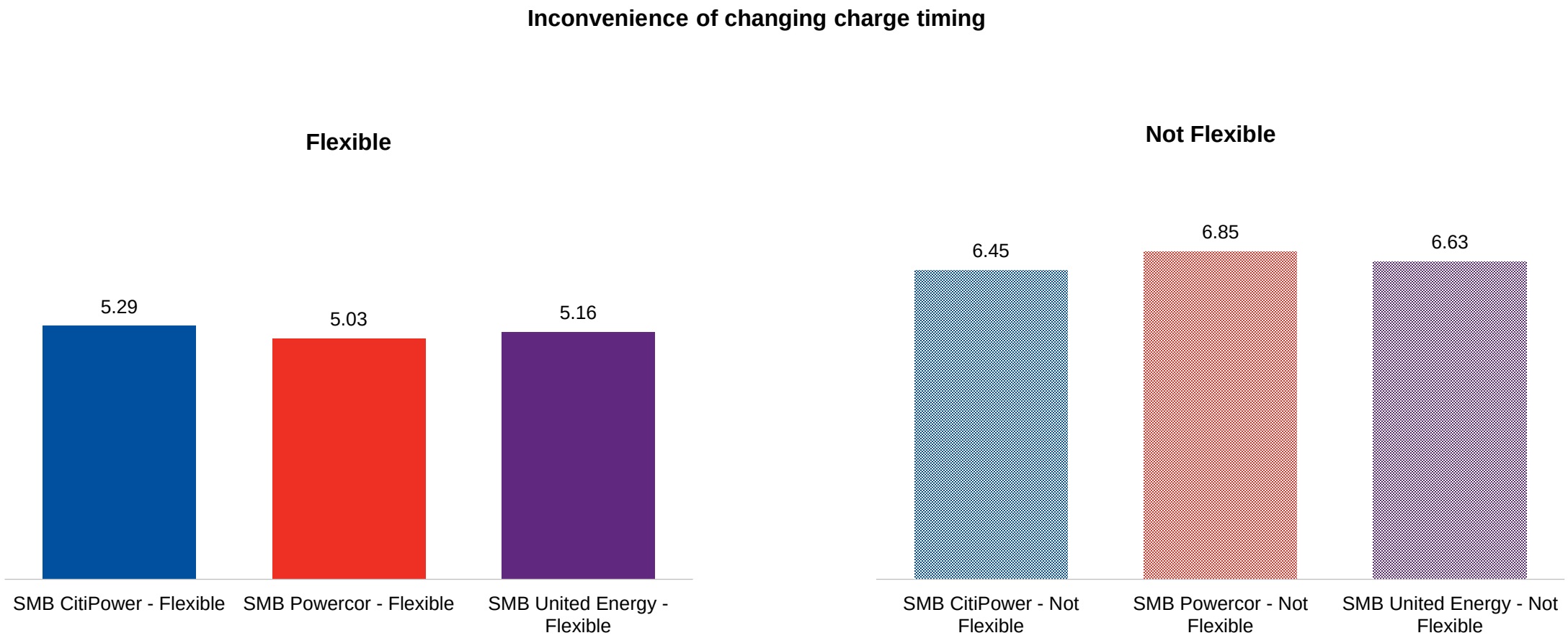
The survey aimed to explore this question by understanding customers' preferences towards EV flexibility in comparison to experiencing an outage. The survey explained to customers: "as electric vehicles become more popular, electricity networks face greater demand, potentially leading to more power outages. To reduce this risk, there might be a need to manage when electric vehicle batteries are charged. When thinking about the following options which one is more inconvenient:

- Rescheduling the charging of your EV
- A power outage occurs when charging your electric vehicle



Note: Significance testing was conducted between CitiPower and the other suppliers at the 5% level of significance. No significant differences were found.

SMB customers who were flexible were less likely than those who weren't to find changing the timing of charging their EV inconvenient

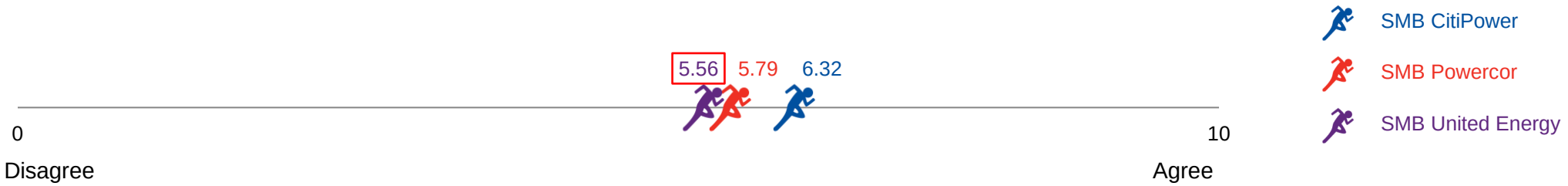


Note: Shaded bars indicates results based on small sample sizes where significance testing could not be conducted. A minimum sample size of n=30 is recommended for an indicative result.

SMB customers did not feel strongly towards energy providers managing where they could charge their EV if it resulted in lower costs

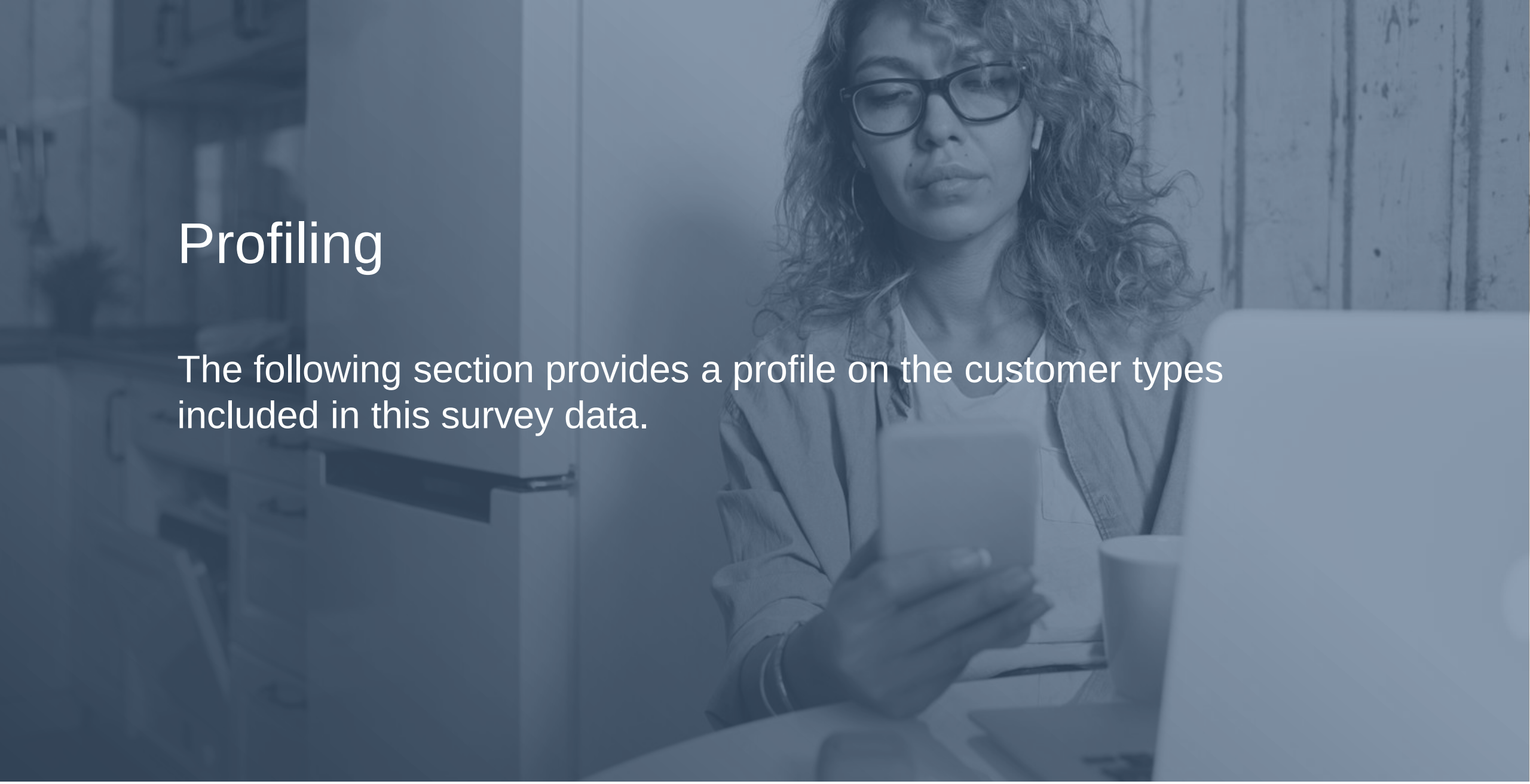
Customers were asked a series of attitudinal questions designed to measure opinions, beliefs or attitudes towards a topic, issue or concept. An attitudinal question on a 0-10 scale asks respondents to rate their agreement or disagreement with a statement, with 0 representing complete disagreement and 10 representing complete agreement.

If I had an EV in the future, I am comfortable with my energy provider managing when I can charge my EV if it resulted in lower costs



Note: Significance testing was conducted between SMB CitiPower and the other suppliers at the 5% level of significance.
A red box indicates that the other supplier result was significantly lower than the SMB CitiPower result.

Appendix

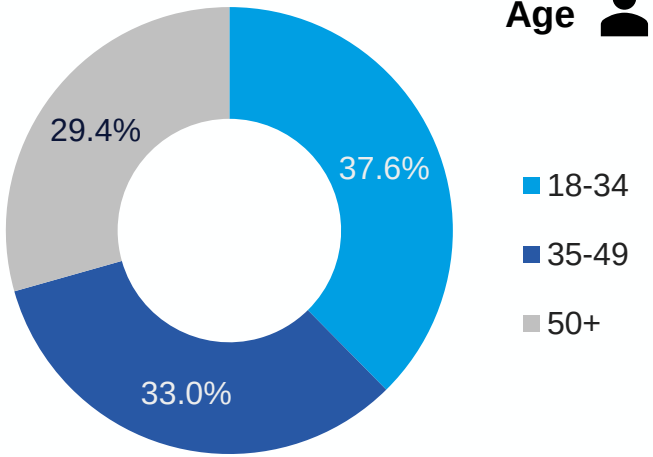


Profiling

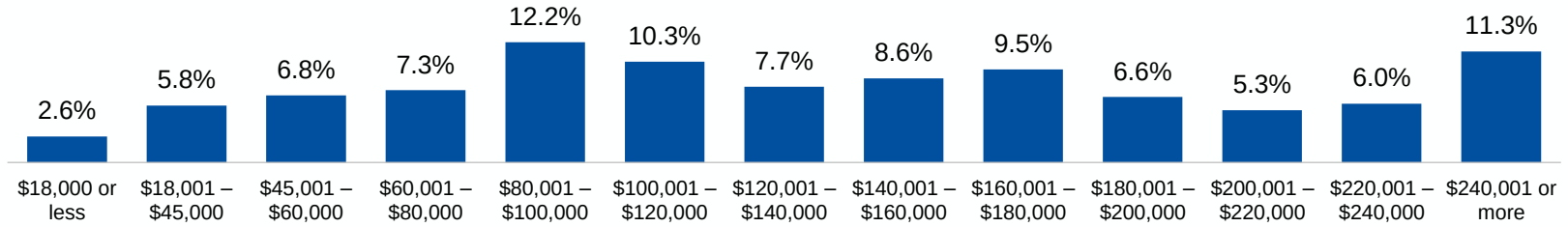
The following section provides a profile on the customer types included in this survey data.

CitiPower **residential** Customer Profile (included in this study)

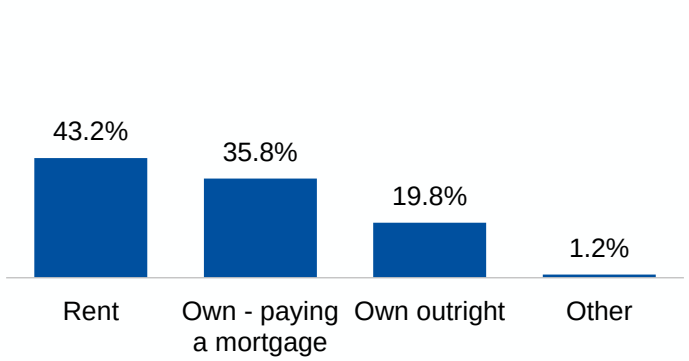
Age



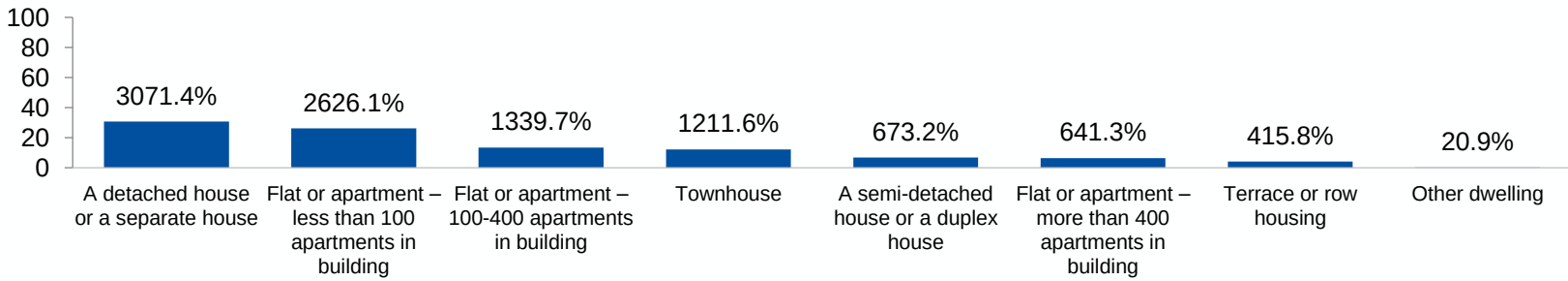
Household Income



Home Ownership



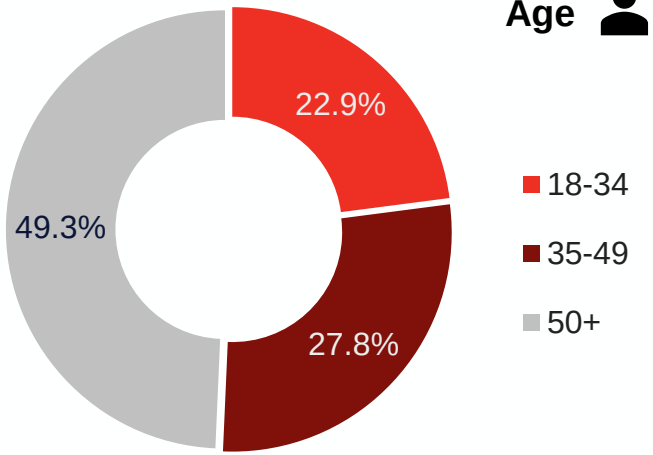
Dwelling Type



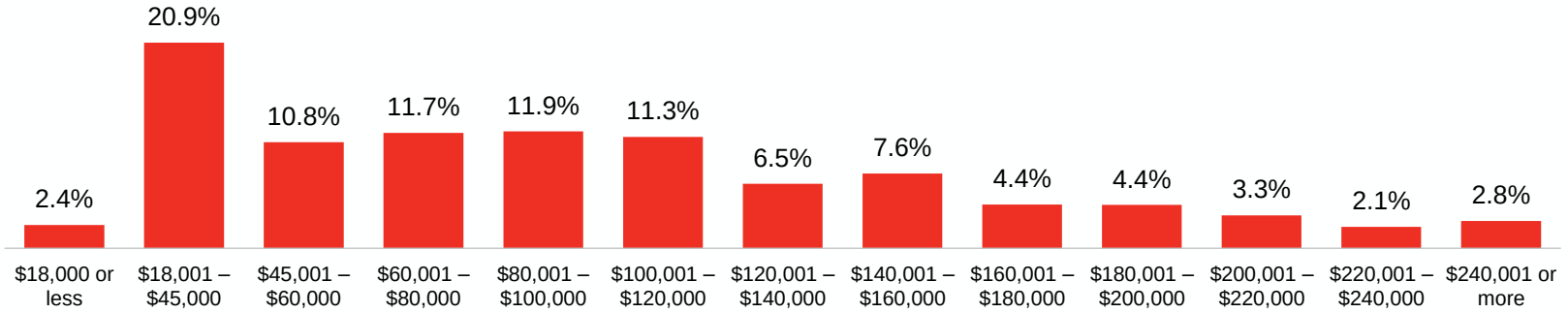
Note: Percentages may not sum to 100% due to rounding.

Powercor **residential** Customer Profile (included in this study)

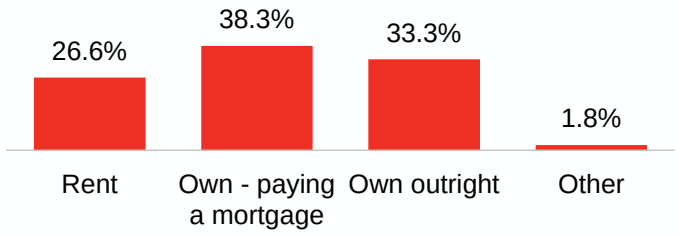
Age



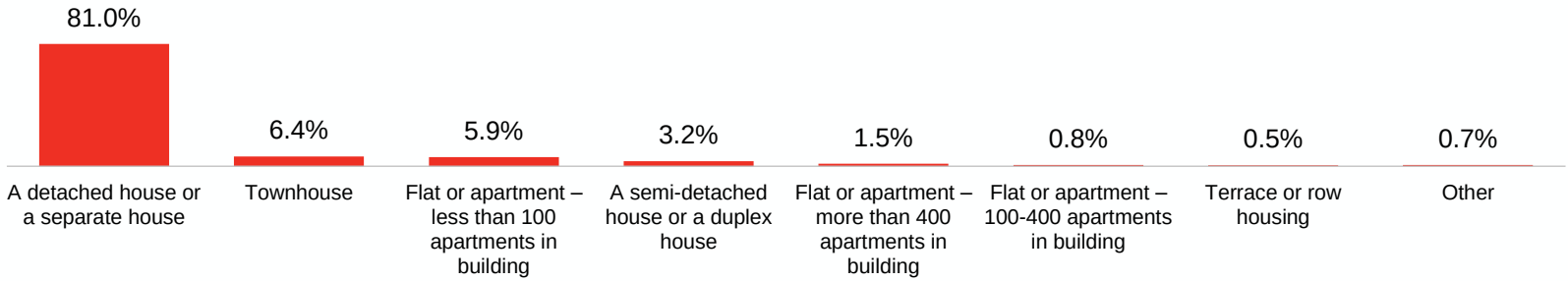
Household Income



Home Ownership



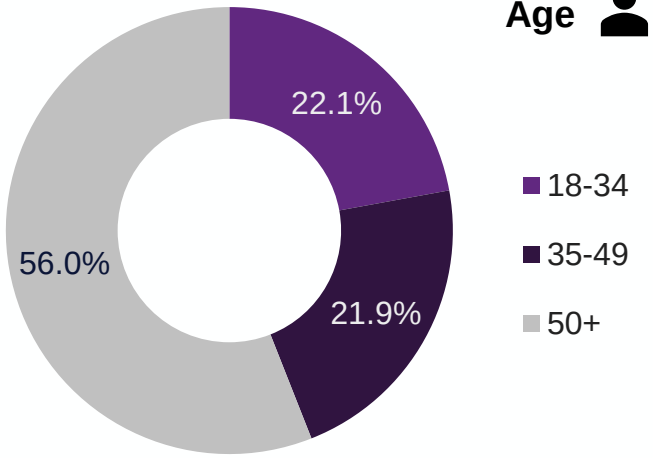
Dwelling Type



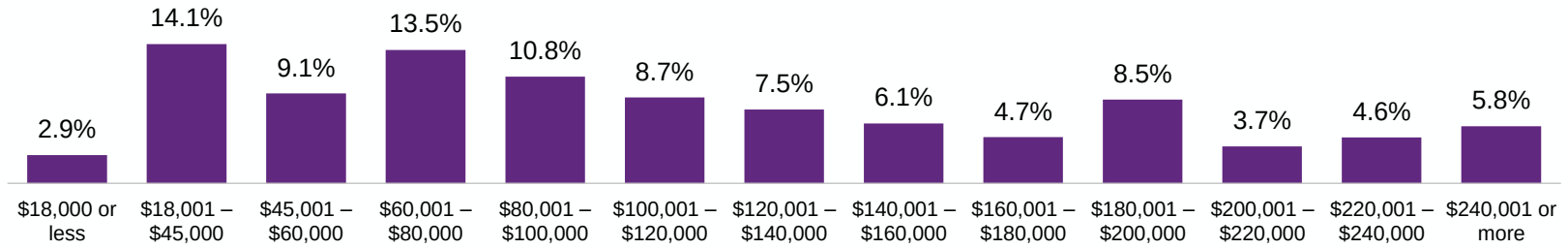
Note: Percentages may not sum to 100% due to rounding.

United Energy **residential** Customer Profile (included in this study)

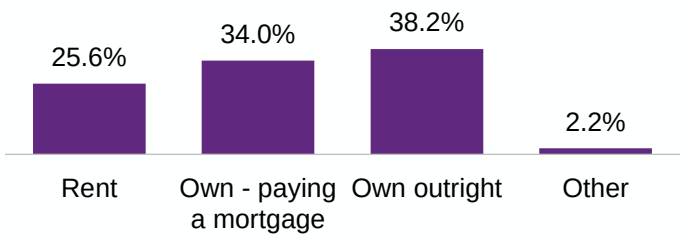
Age



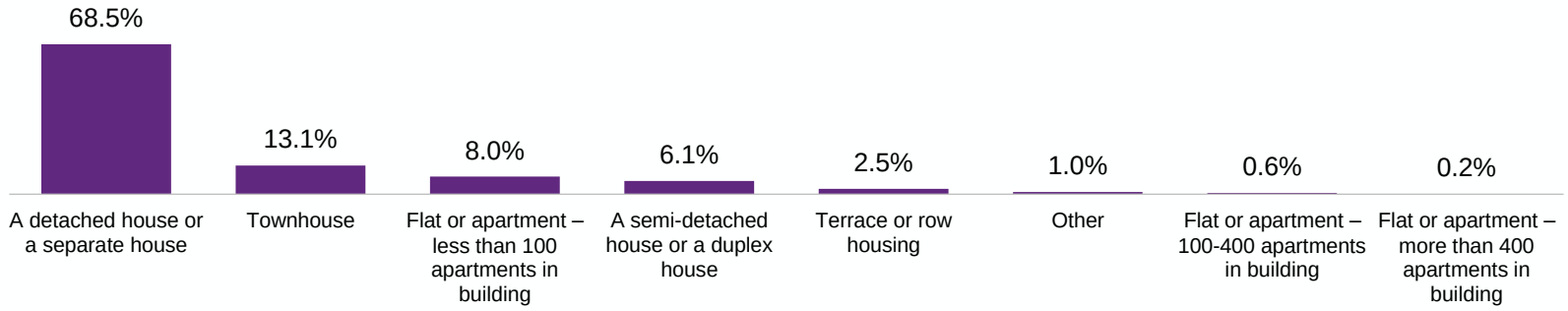
Household Income



Home Ownership



Dwelling Type



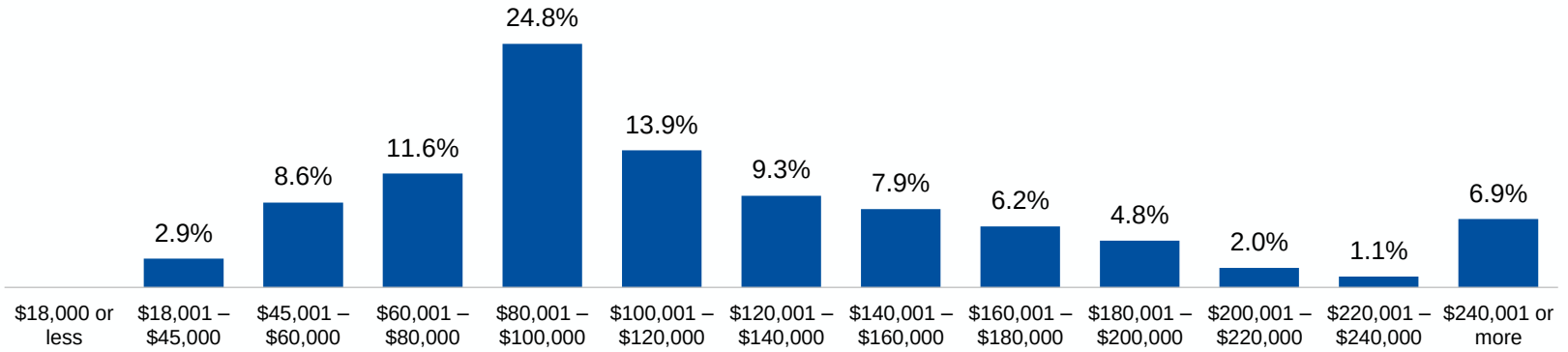
Note: Percentages may not sum to 100% due to rounding.

Profile of CitiPower **SMB** customers (included in this study)

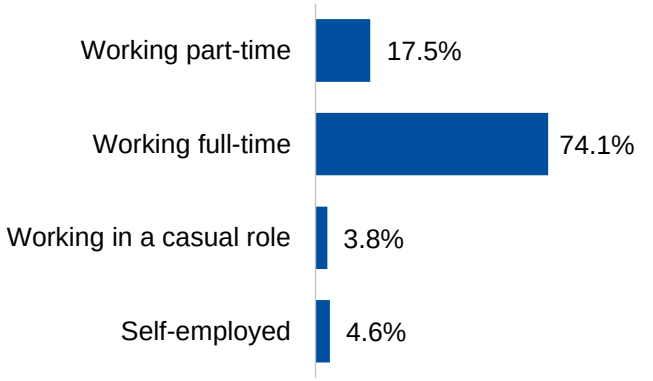
Business Size

1 – 200

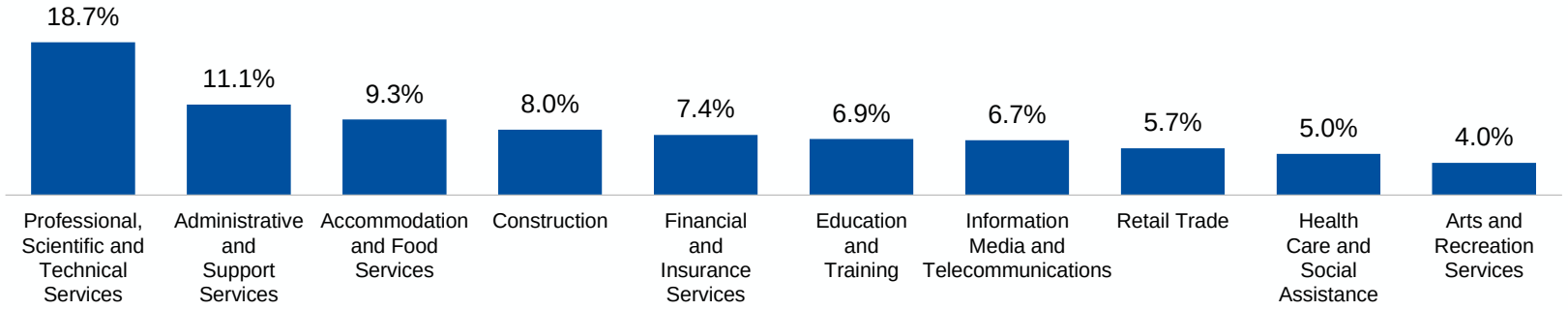
Income



Work Status



Type of Business (Top 10)



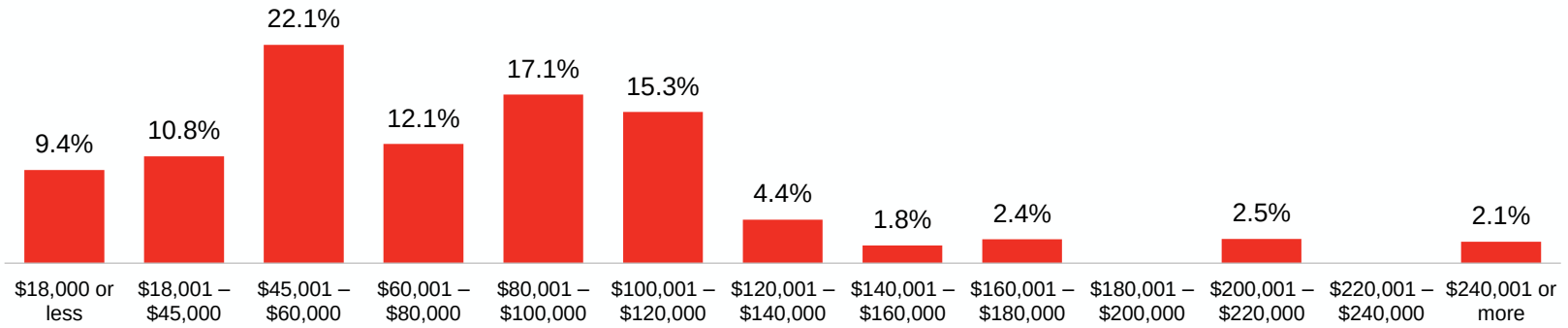
Note: Percentages may not sum to 100% due to rounding.
Note: Income references personal income, not including business revenue or turnover.

Profile of Powercor **SMB** customers (included in this study)

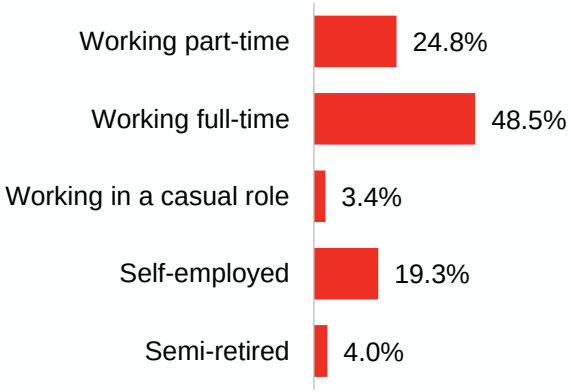
Business Size

1 – 200

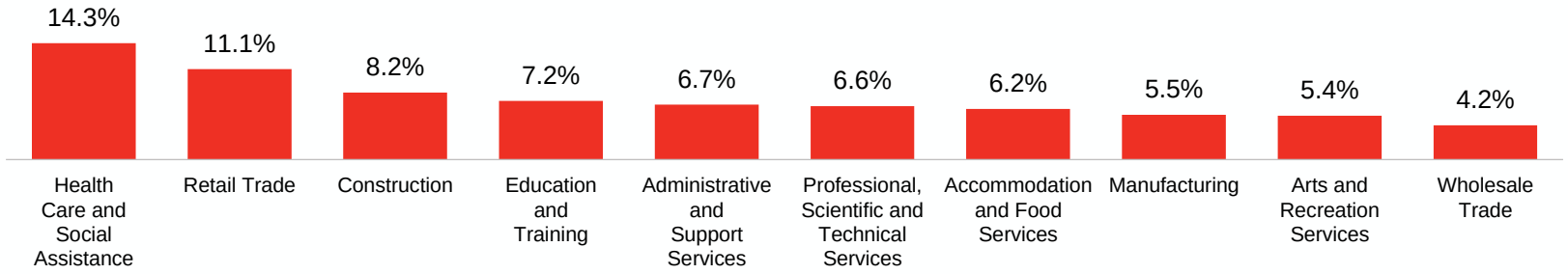
Income



Work Status



Type of Business (Top 10)



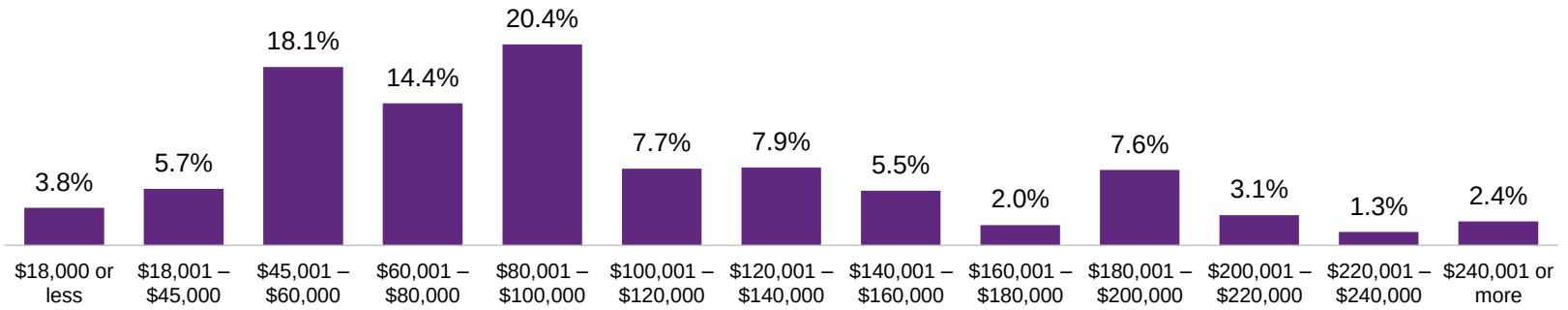
Note: Percentages may not sum to 100% due to rounding.
Note: Income references personal income, not including business revenue or turnover.

Profile of United Energy **SMB** customers (included in this study)

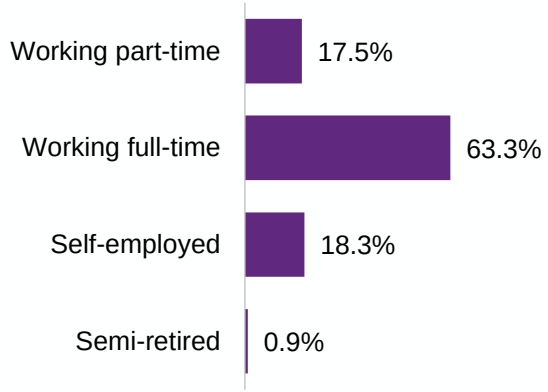
Business Size

1 – 200

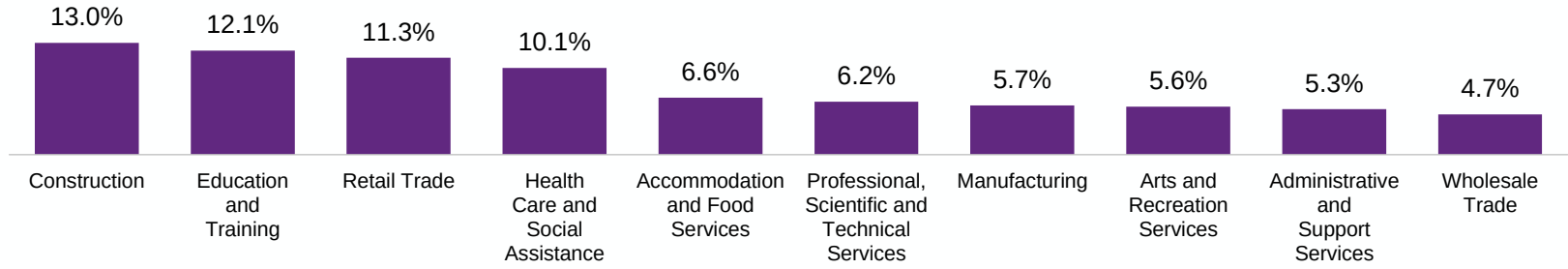
Income



Work Status



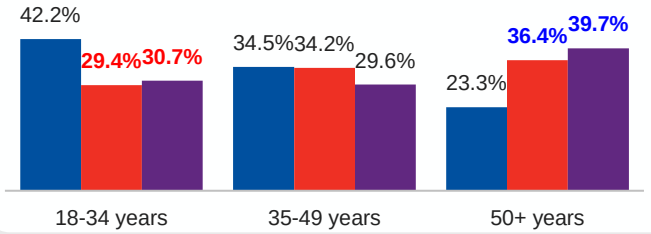
Type of Business (Top 10)



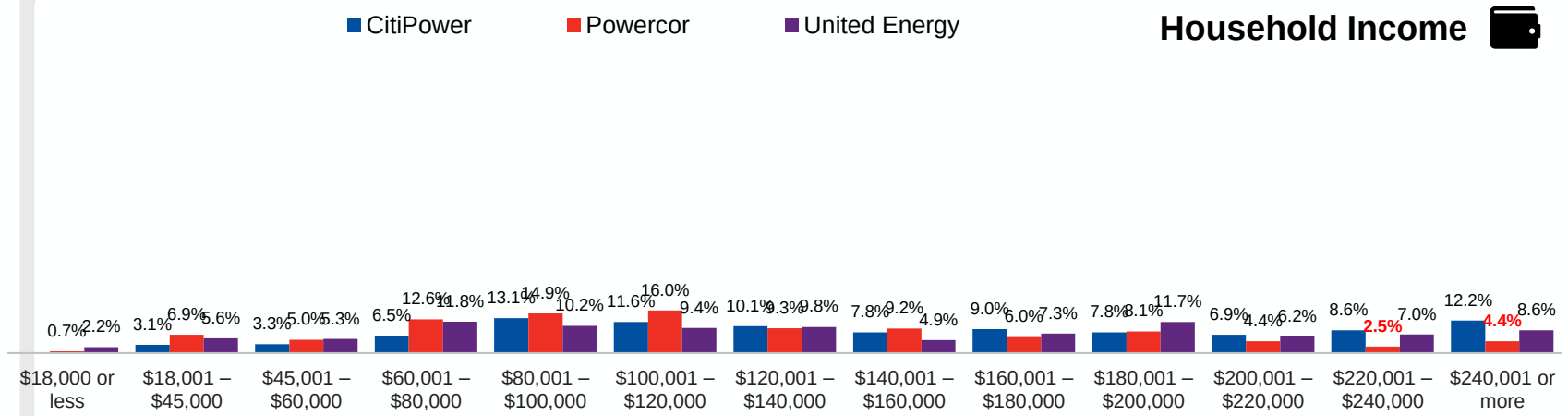
Note: Percentages may not sum to 100% due to rounding.
Note: Income references personal income, not including business revenue or turnover.

Profile of **residential EV** Owners and Considerers (included in this study)

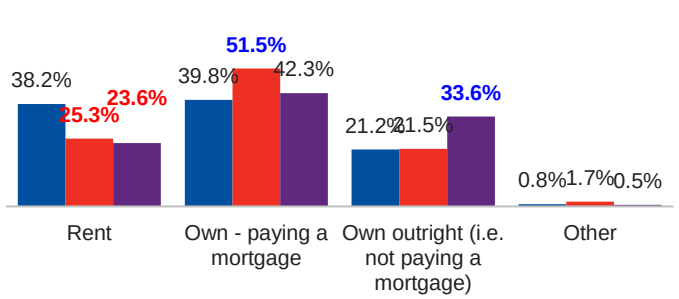
Age



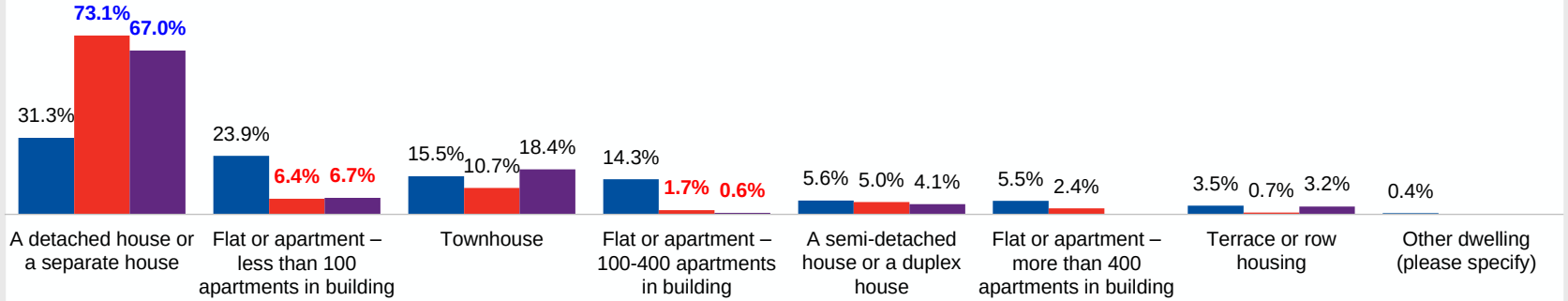
Household Income



Home Ownership



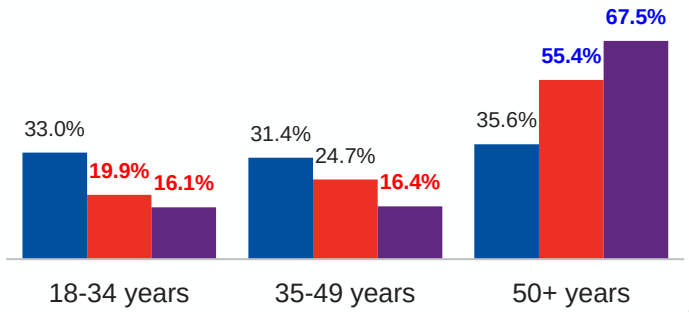
Dwelling Type



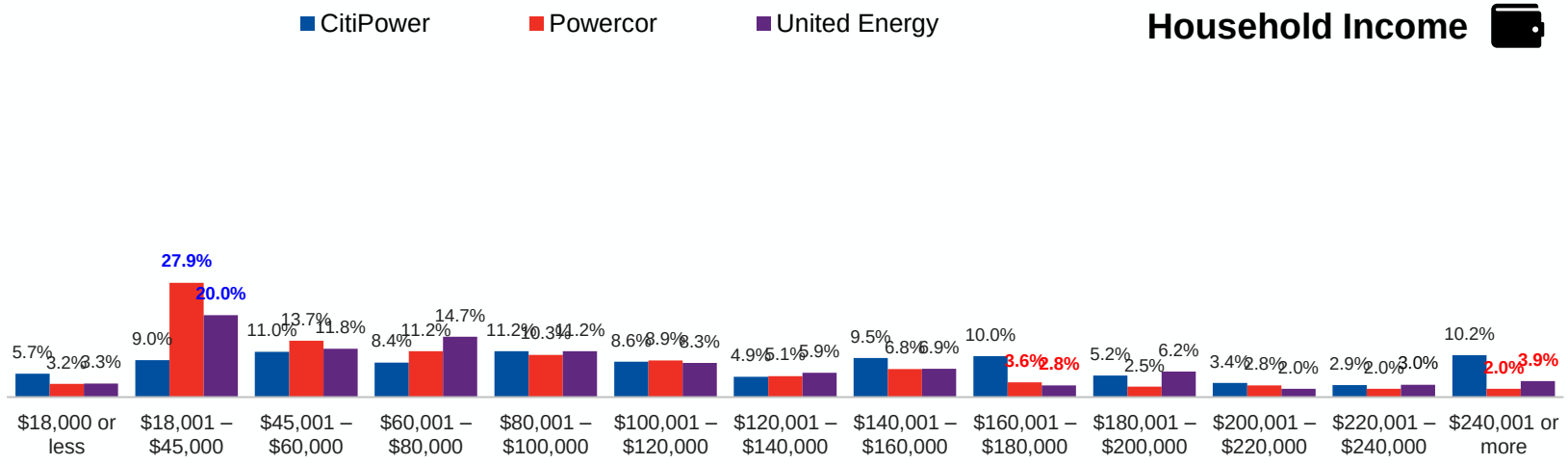
Note: Significance testing was conducted between CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the CitiPower result, and red indicates it was significantly lower. Percentages may not sum to 100% due to rounding.

Profile of **residential Non-EV** Owners (included in this study)

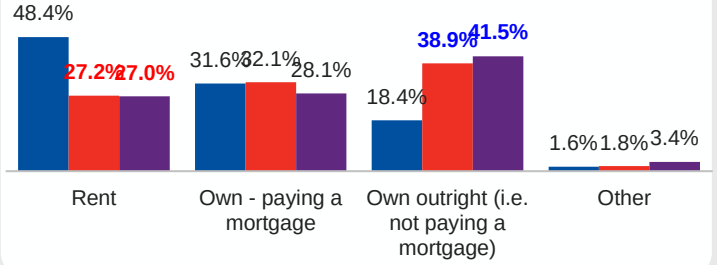
Age



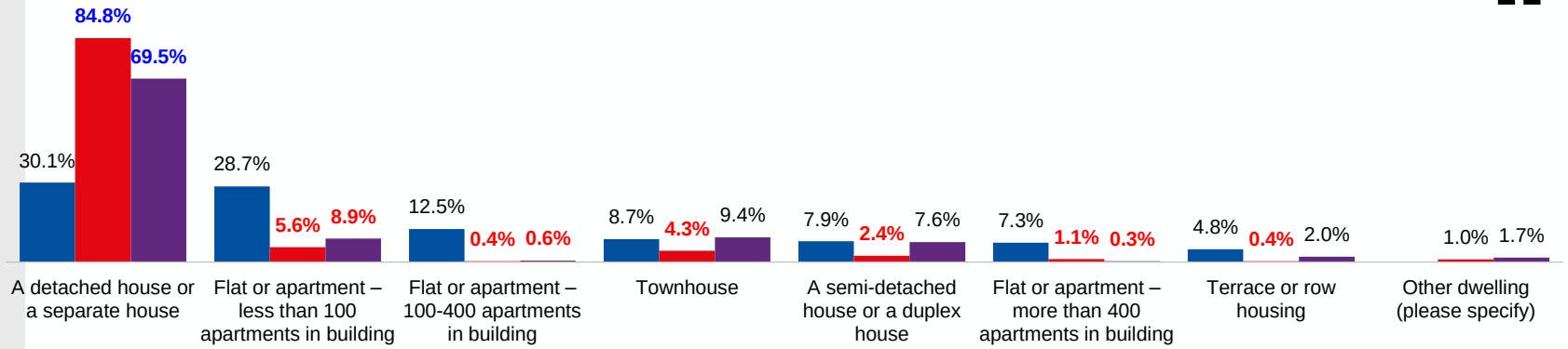
Household Income



Home Ownership



Dwelling Type



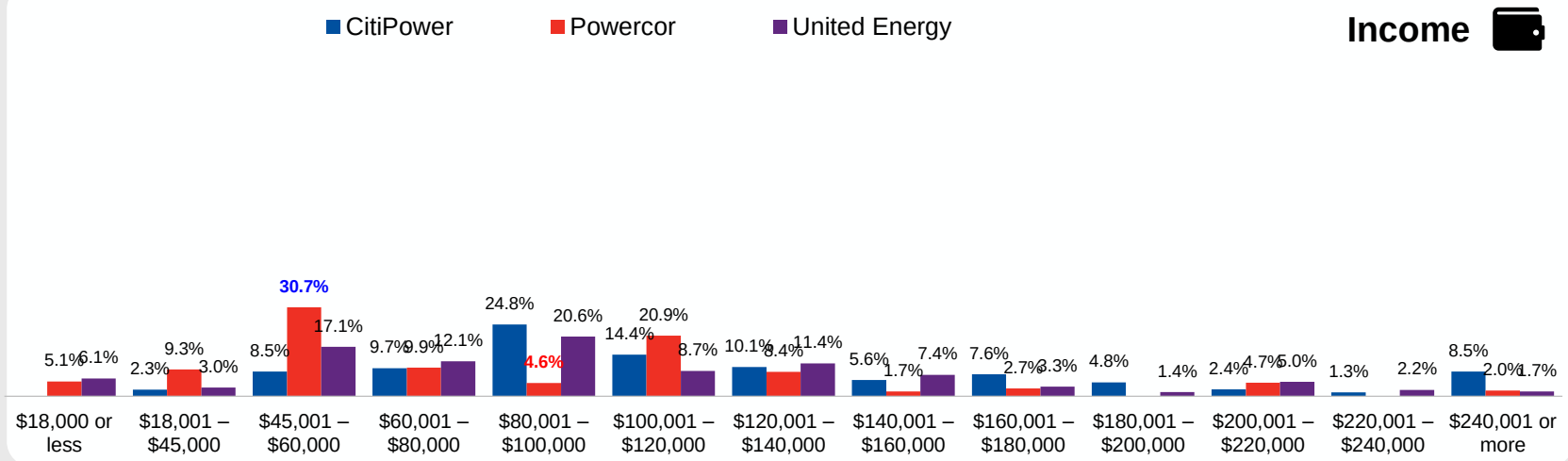
Note: Significance testing was conducted between CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the CitiPower result, and red indicates it was significantly lower. Percentages may not sum to 100% due to rounding.

Profile of **SMB EV** Owners and Considerers (included in this study)

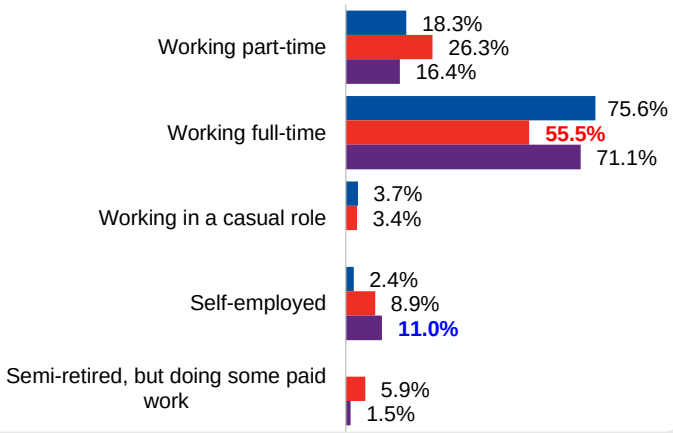
Business Size

1 – 200

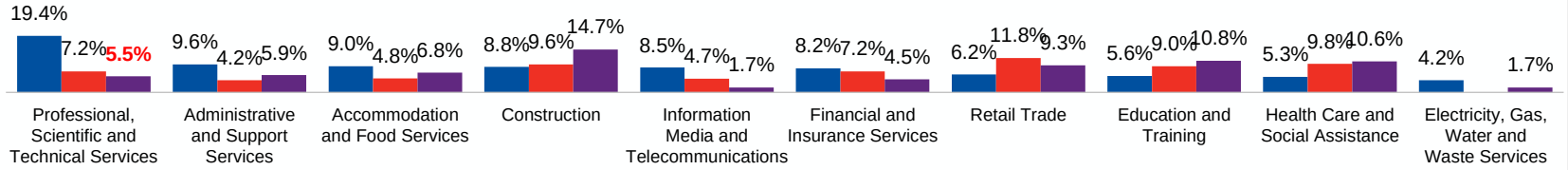
Income



Work Status



Type of Business (Top 10)



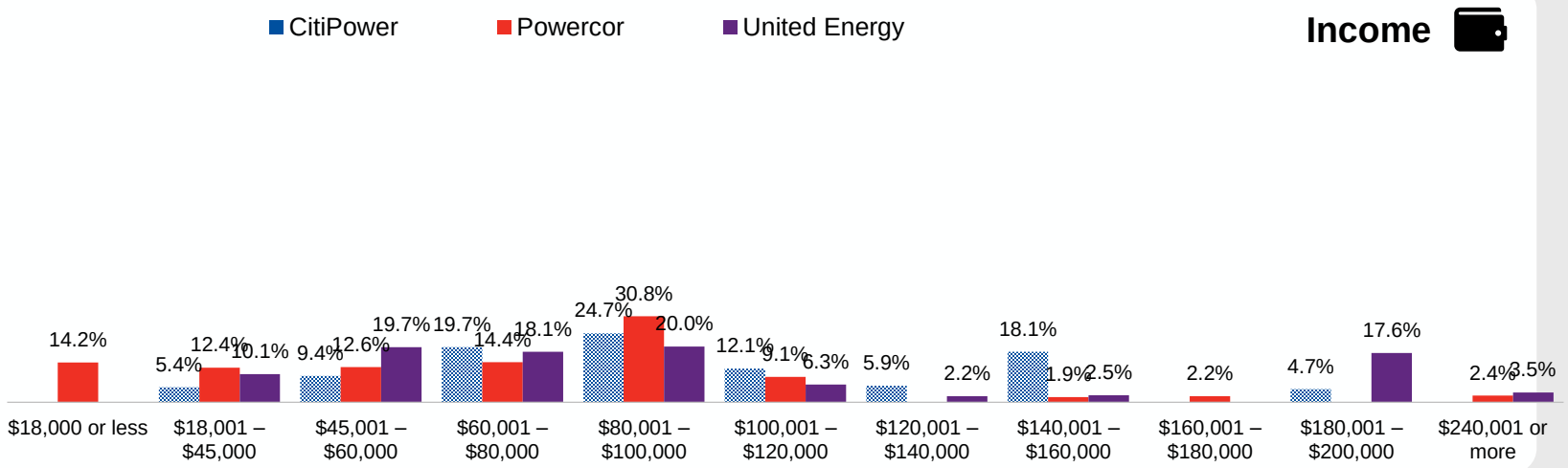
Note: Significance testing was conducted between CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the CitiPower result, and red indicates it was significantly lower. Percentages may not sum to 100% due to rounding.
Note: Income references personal income, not including business revenue or turnover.

Profile of Overall **SMB Non EV** Owners and Considerers (included in this study)

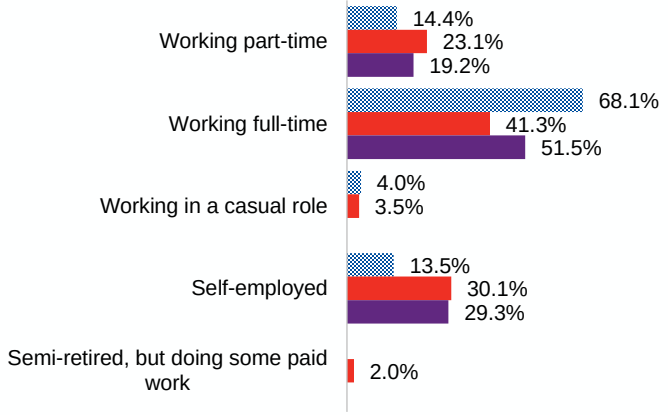
Business Size

1 – 200

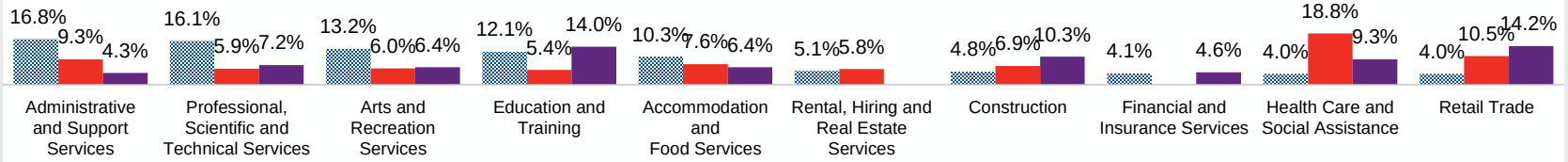
Income



Work Status



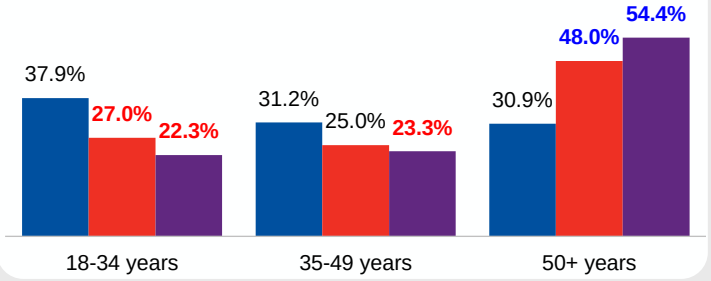
Type of Business (Top 10)



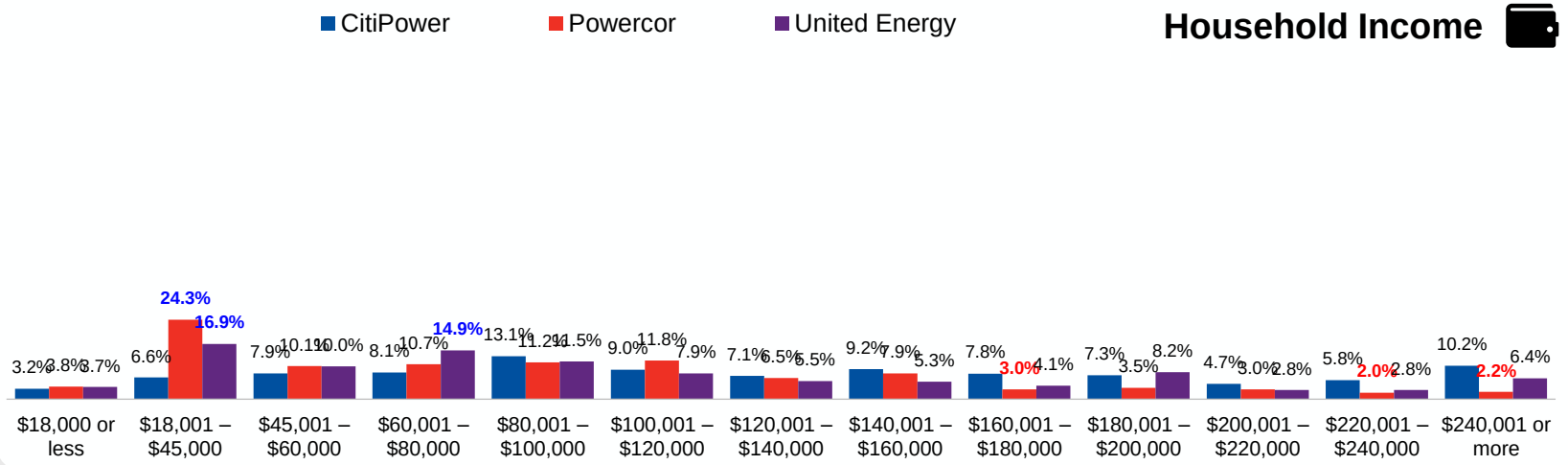
Note: Shaded bars indicate results based on small sample sizes where significance testing could not be conducted. A minimum sample size of n=30 is recommended for an indicative result.
Percentages may not sum to 100% due to rounding.
Note: Income references personal income, not including business revenue or turnover.

Profile of **residential Non- Solar** (included in this study)

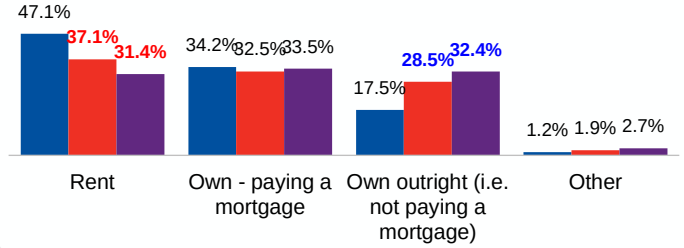
Age



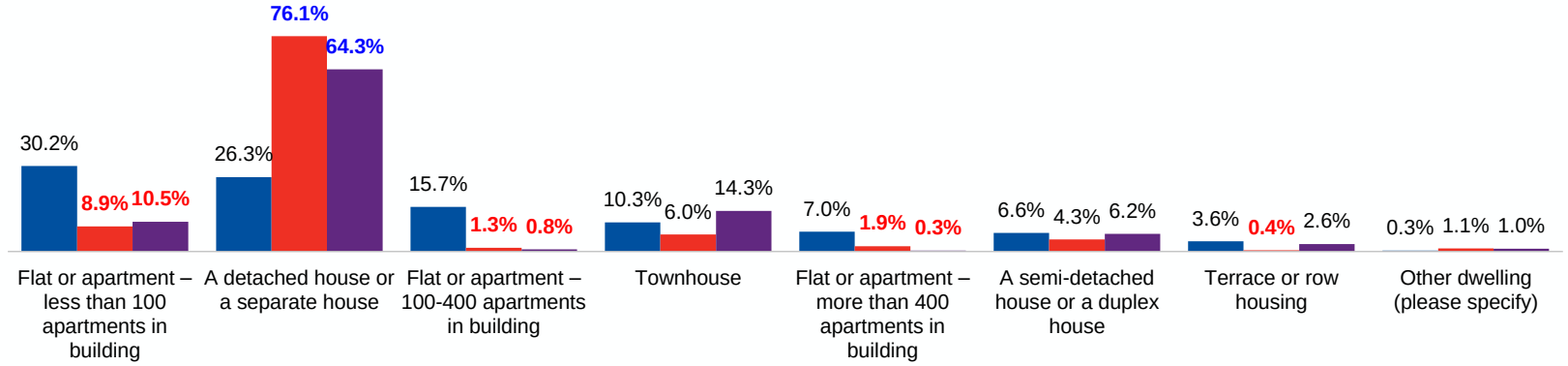
Household Income



Home Ownership



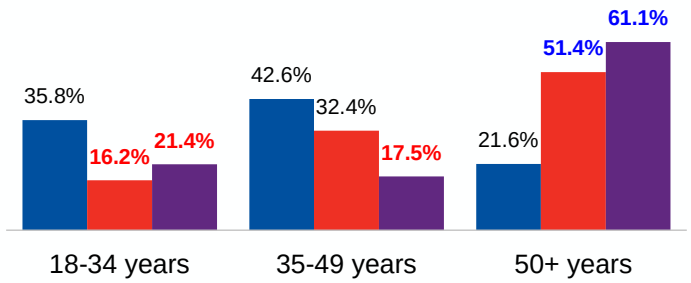
Dwelling Type



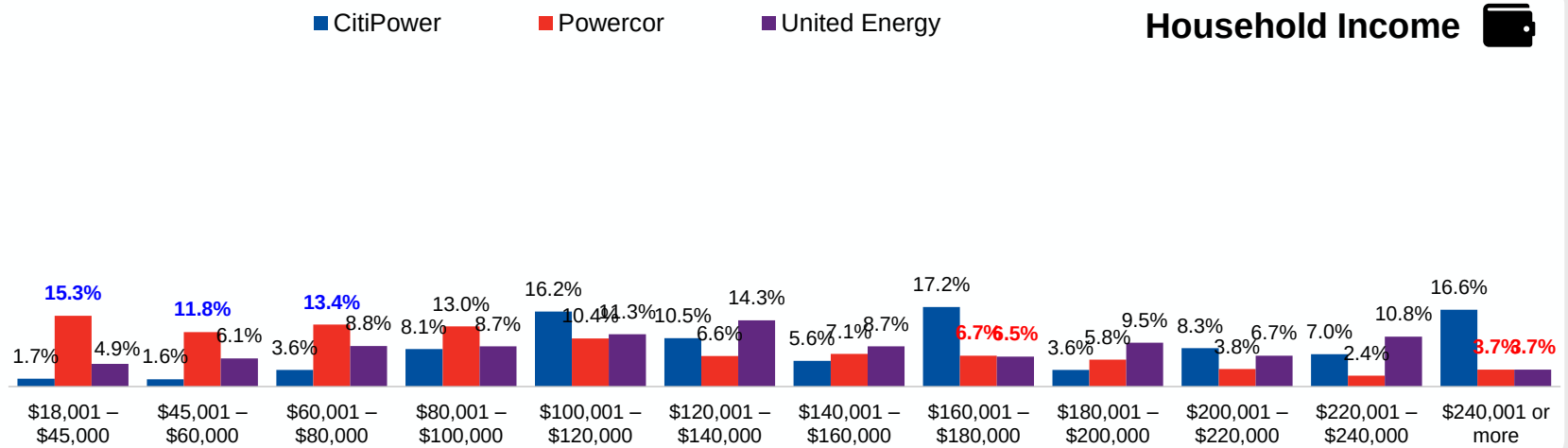
Note: Significance testing was conducted between CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the CitiPower result, and red indicates it was significantly lower. Percentages may not sum to 100% due to rounding.

Profile of **residential Solar** (included in this study)

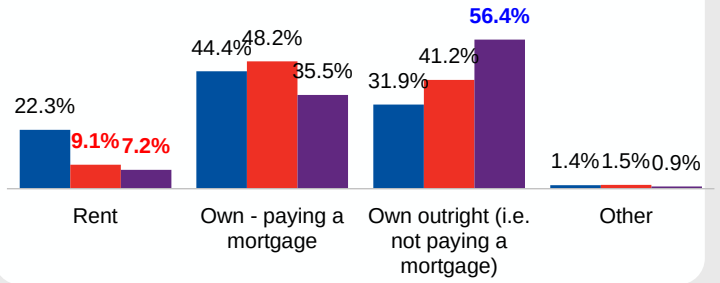
Age



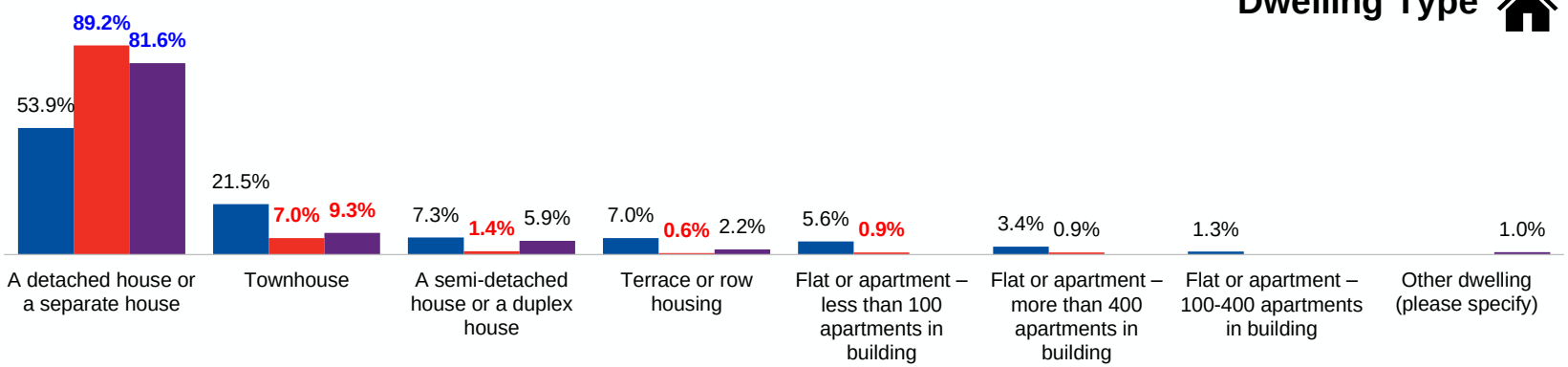
Household Income



Home Ownership



Dwelling Type



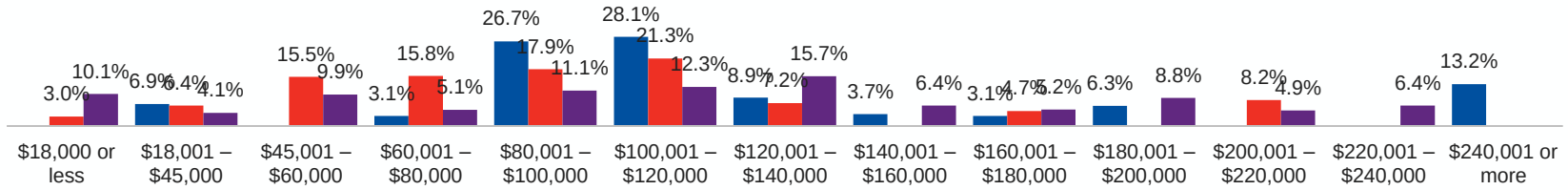
Note: Significance testing was conducted between CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the CitiPower result, and red indicates it was significantly lower. Percentages may not sum to 100% due to rounding.

Profile of **SMB Solar** (included in this study)

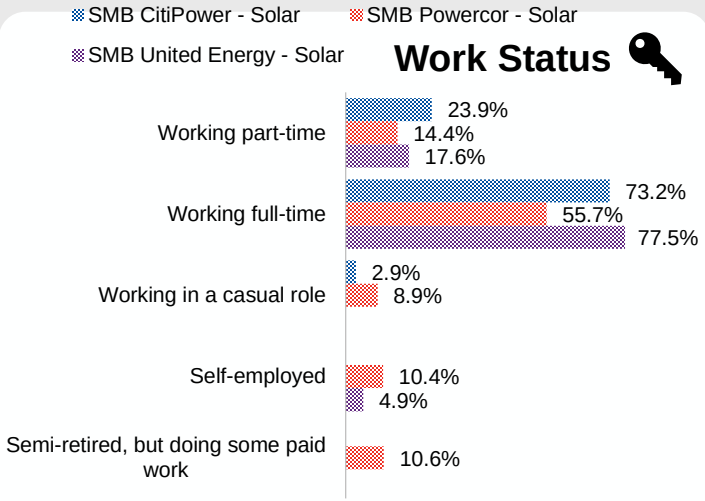
Business Size

1 – 200

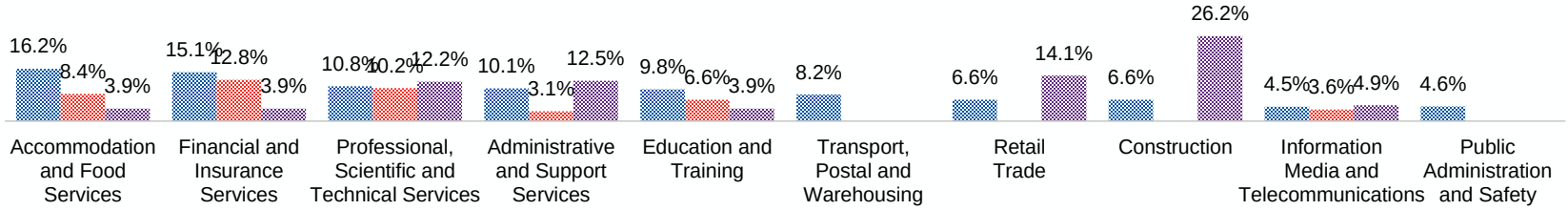
Income



Work Status



Type of Business (Top 10)



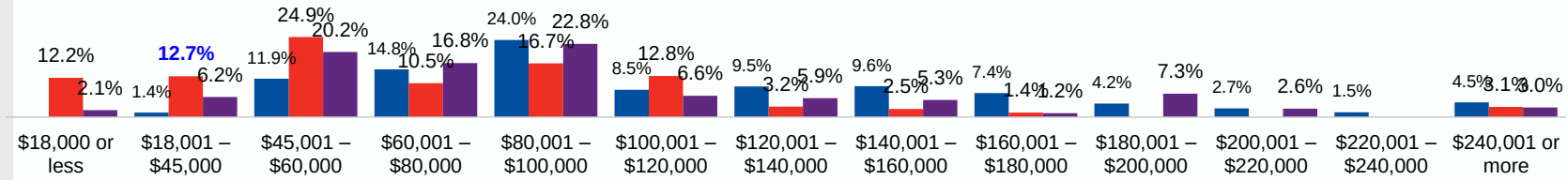
Note: Significance testing was conducted between CitiPower and the other suppliers at the 5% level of significance. No significant differences were found.
Shaded bars indicate results based on small sample sizes where significance testing could not be conducted. A minimum sample size of n=30 is recommended for an indicative result.
Percentages may not sum to 100% due to rounding.
Note: Income references personal income, not including business revenue or turnover.

Profile of **SMB Non-Solar** (included in this study)

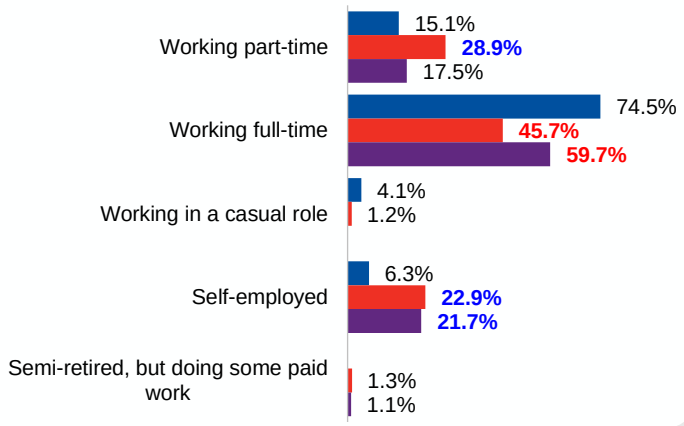
Business Size

1 – 200

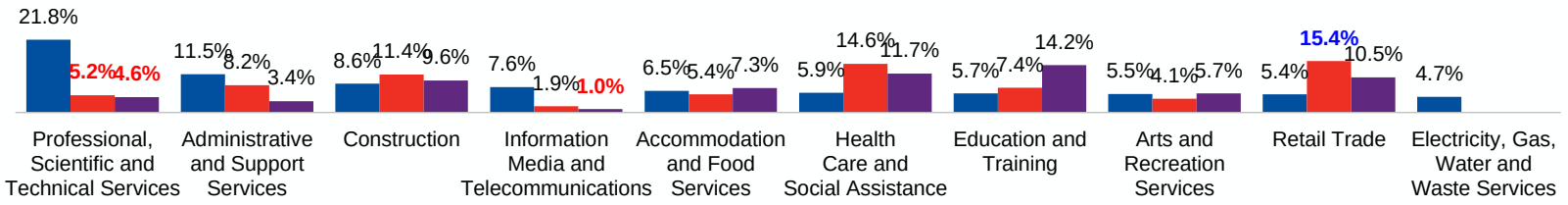
Income



Work Status



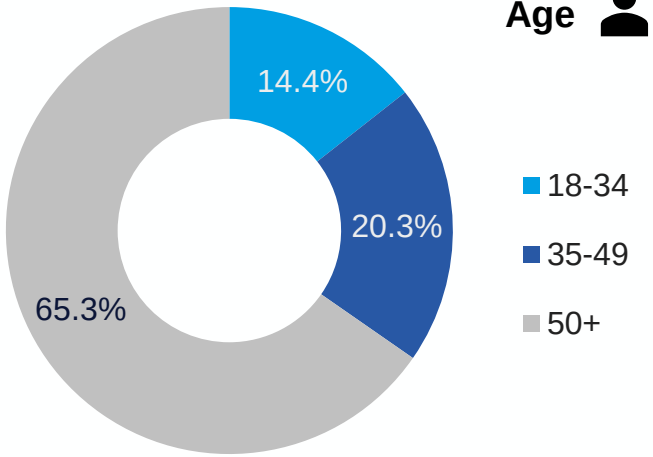
Type of Business (Top 10)



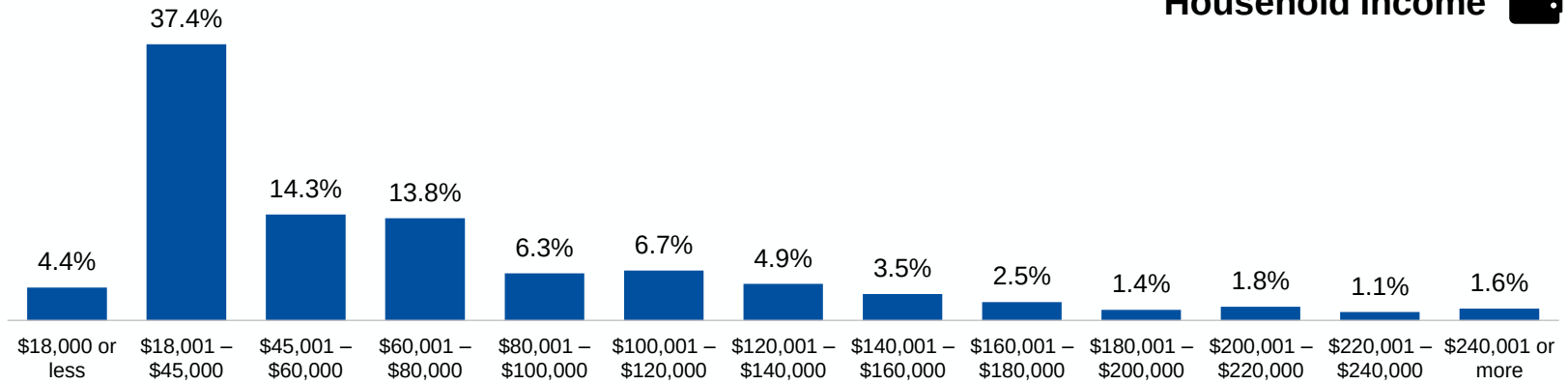
Note: Significance testing was conducted between CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the CitiPower result, and red indicates it was significantly lower. Percentages may not sum to 100% due to rounding.
Note: Income references personal income, not including business revenue or turnover.

Profile of Overall residential **Vulnerable Customers** (included in this study)

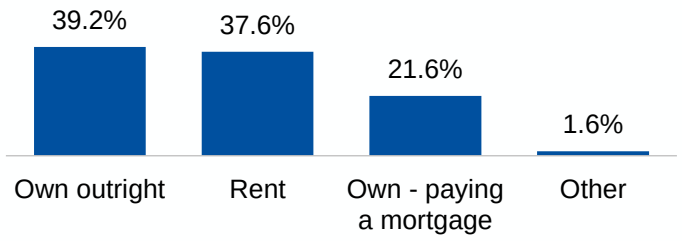
Age



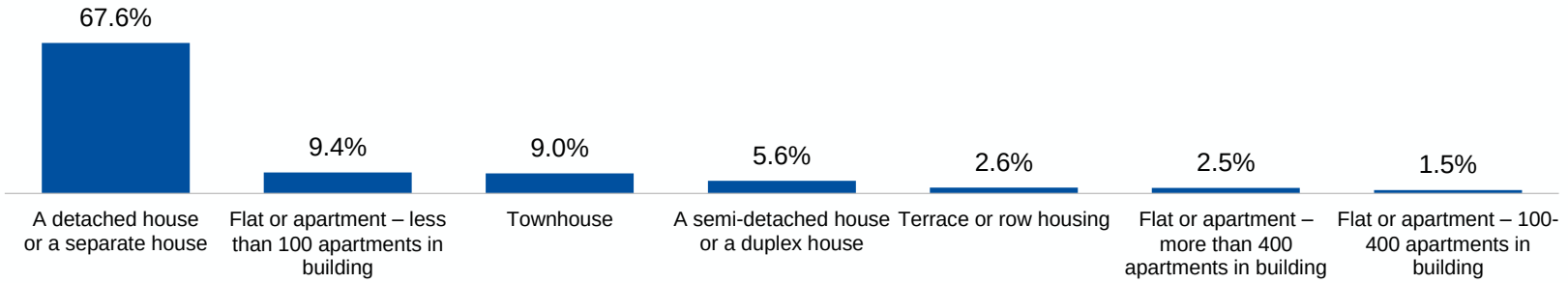
Household Income



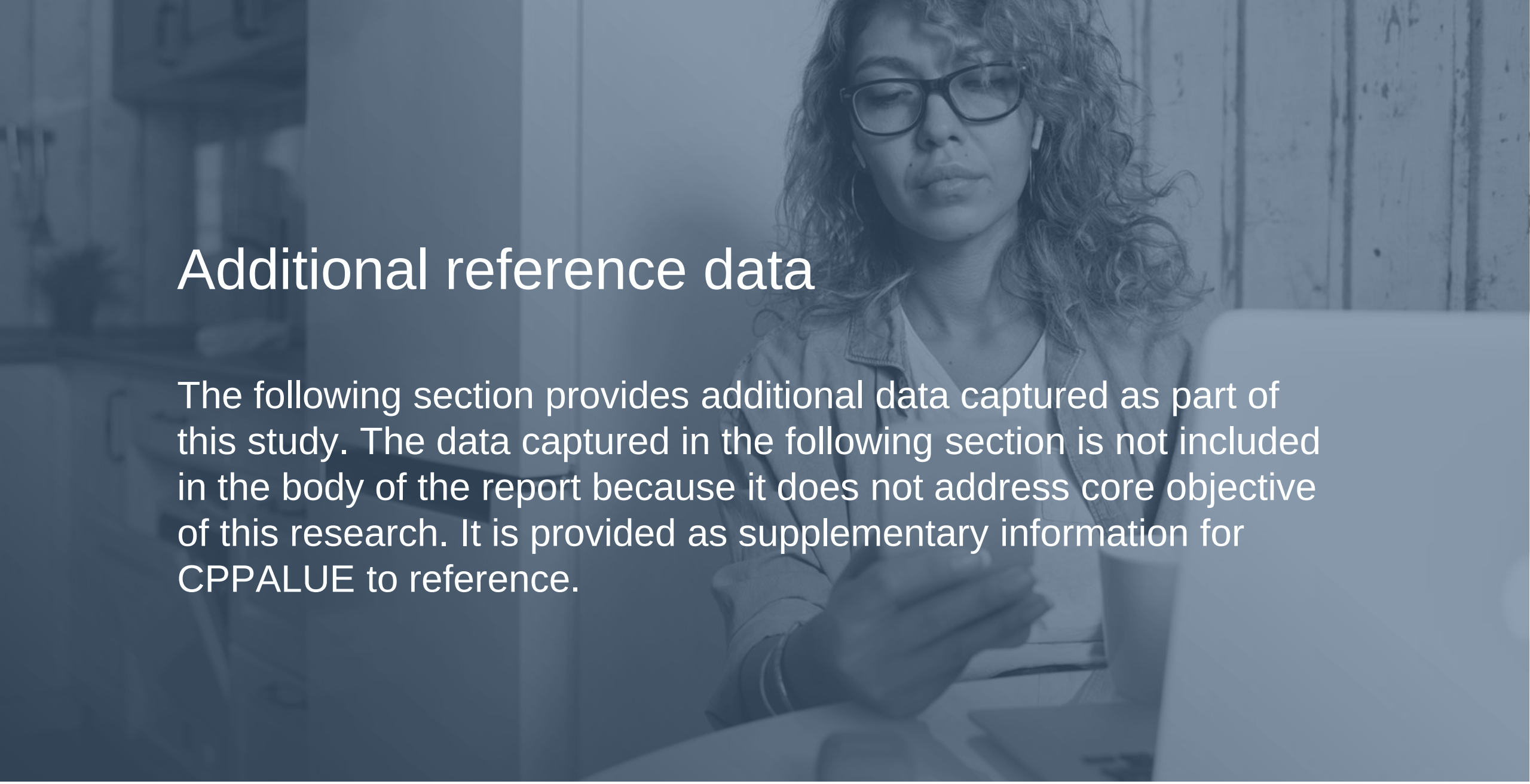
Home Ownership



Dwelling Type



Note: Percentages may not sum to 100% due to rounding.

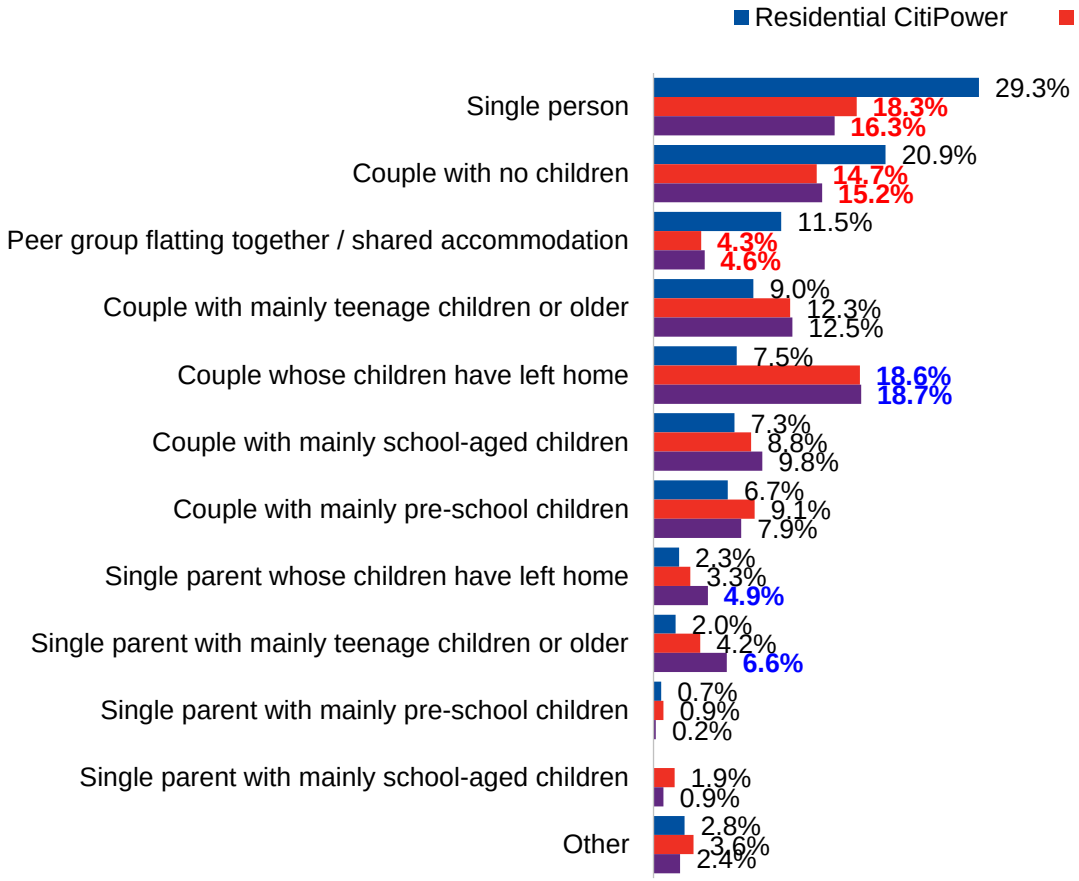


Additional reference data

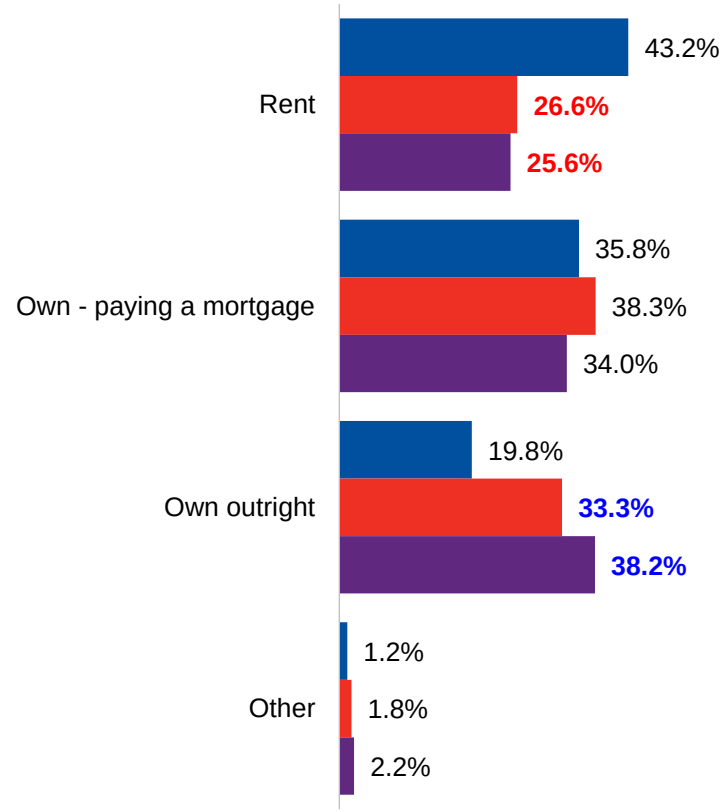
The following section provides additional data captured as part of this study. The data captured in the following section is not included in the body of the report because it does not address core objective of this research. It is provided as supplementary information for CPPALUE to reference.

Household structure for residential customers across networks

Which of the following best describes your household structure?



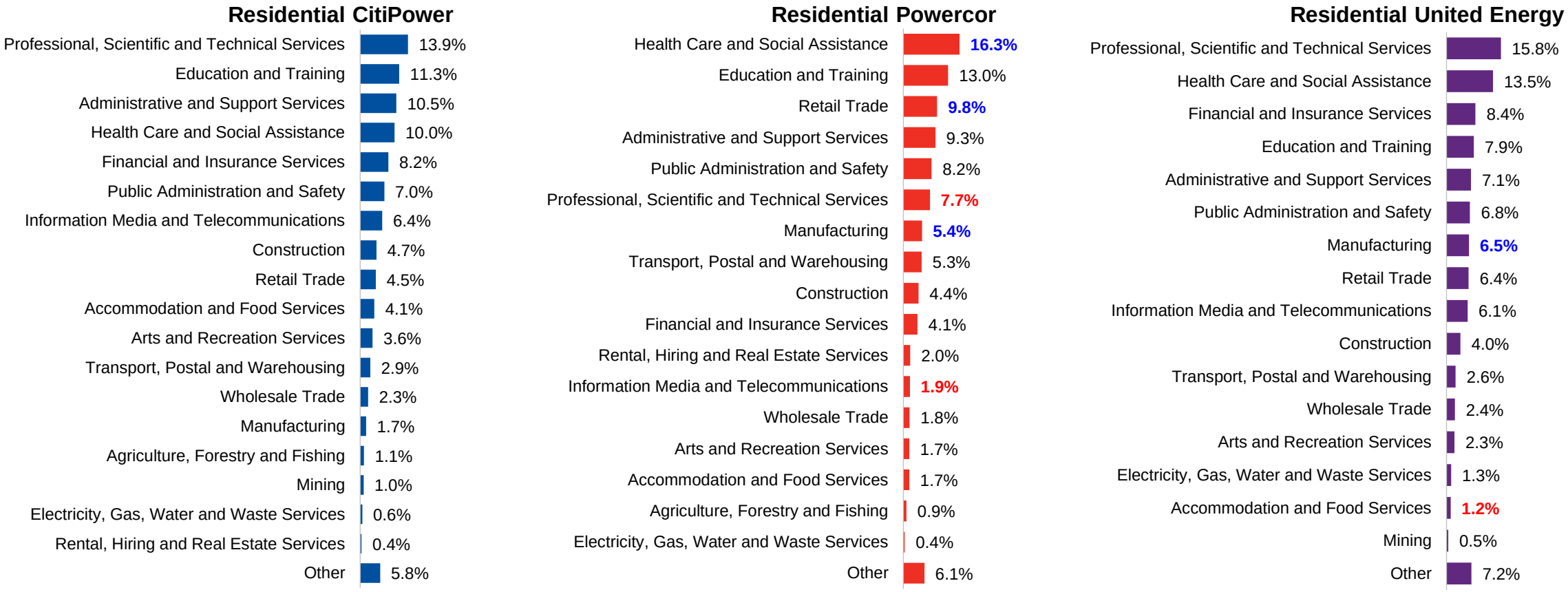
Do you rent or own your current home?



Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the residential CitiPower result was significantly higher than the other supplier result, and red indicates it was significantly lower.

Industry of work across networks for residential customers

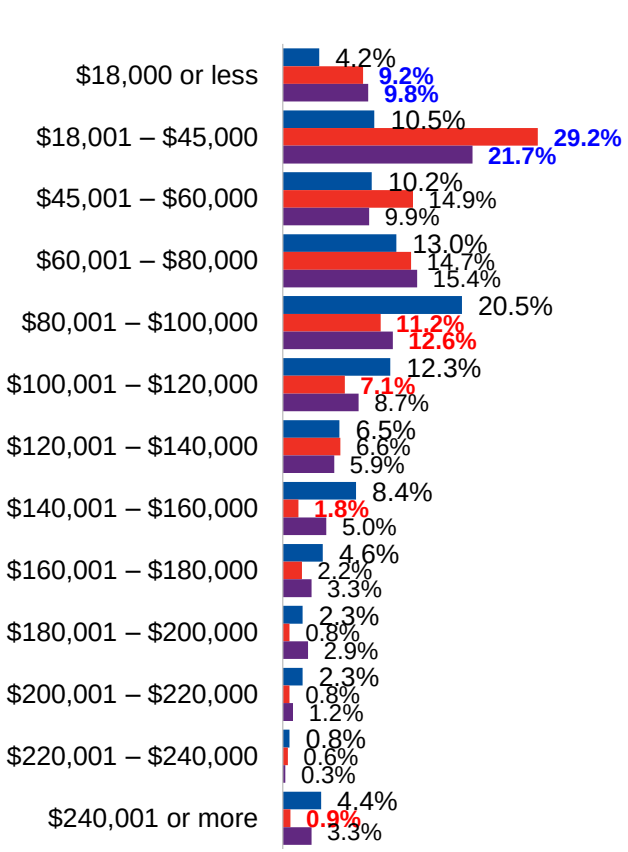
Which of the following best describes the industry you work in?



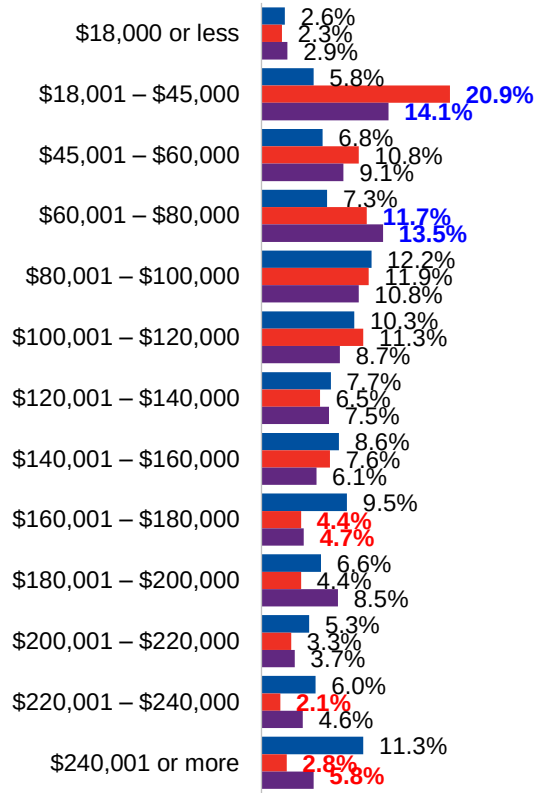
Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the residential CitiPower result was significantly higher than the other supplier result, and red indicates it was significantly lower.

Personal and household income across networks for residential customers

To the best of your knowledge, which range does your annual personal before-tax income fall into?



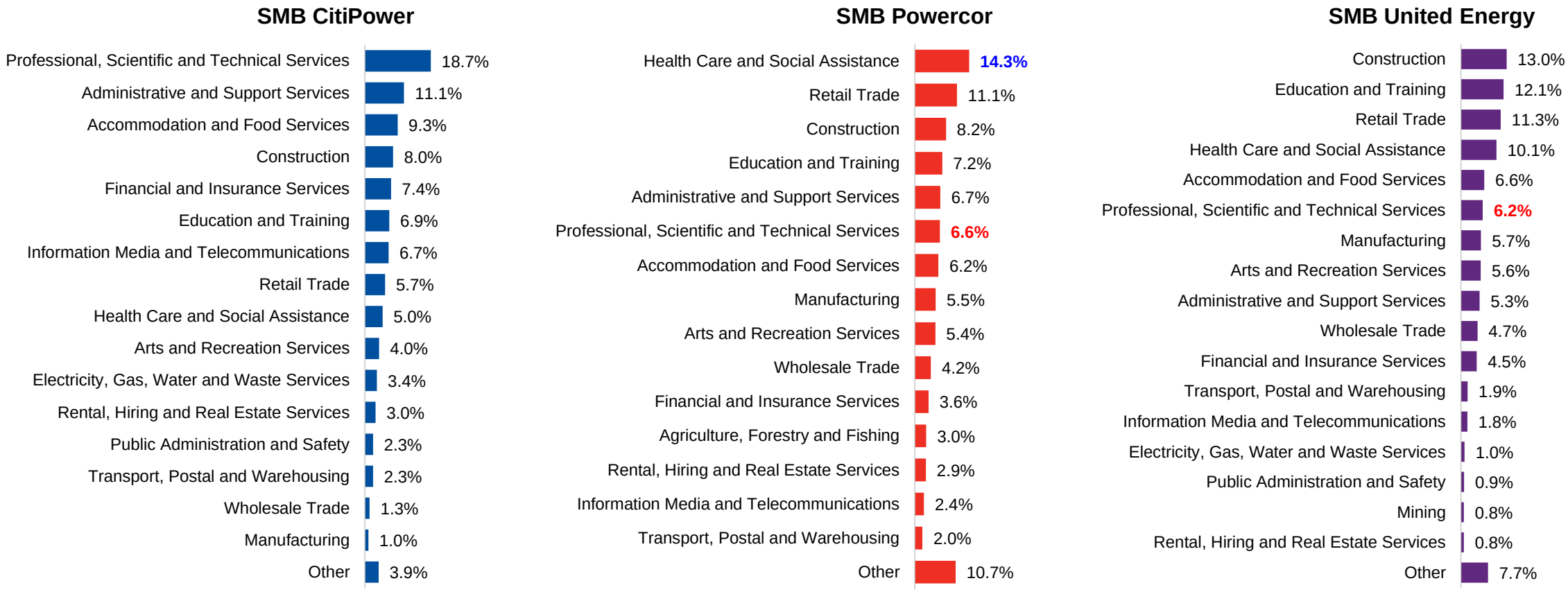
What is your annual household before-tax income?



Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the residential CitiPower result, and red indicates it was significantly lower.

Industry of work across networks for SMB customers

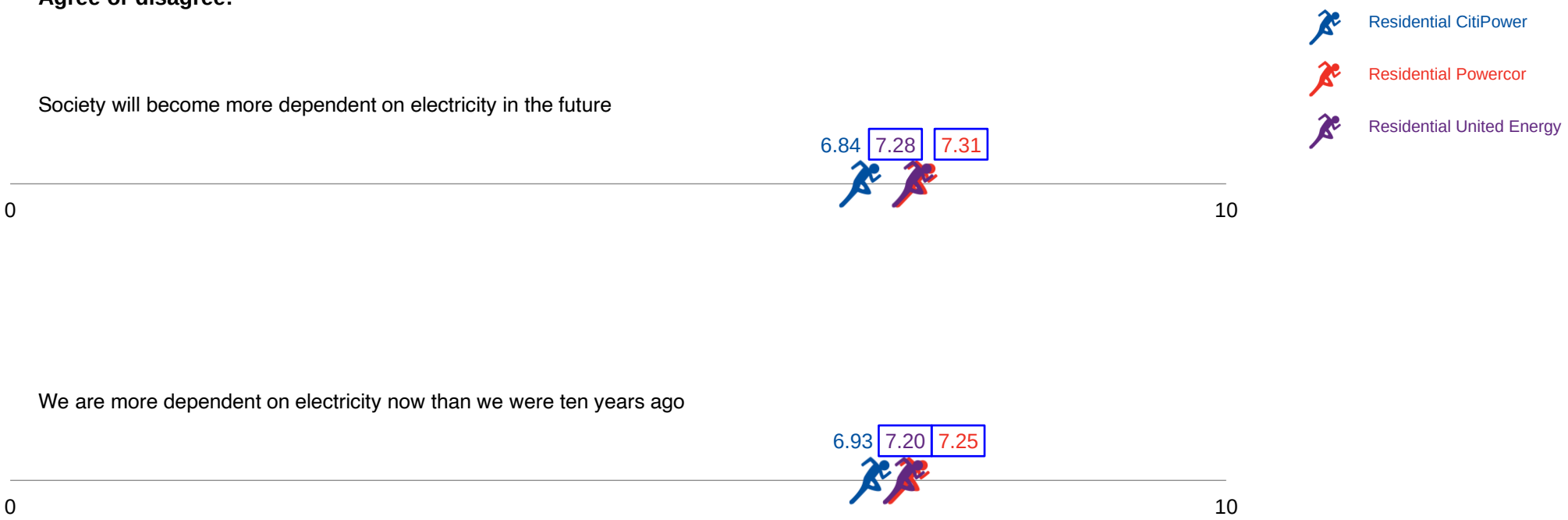
Which of the following best describes the industry you work in?



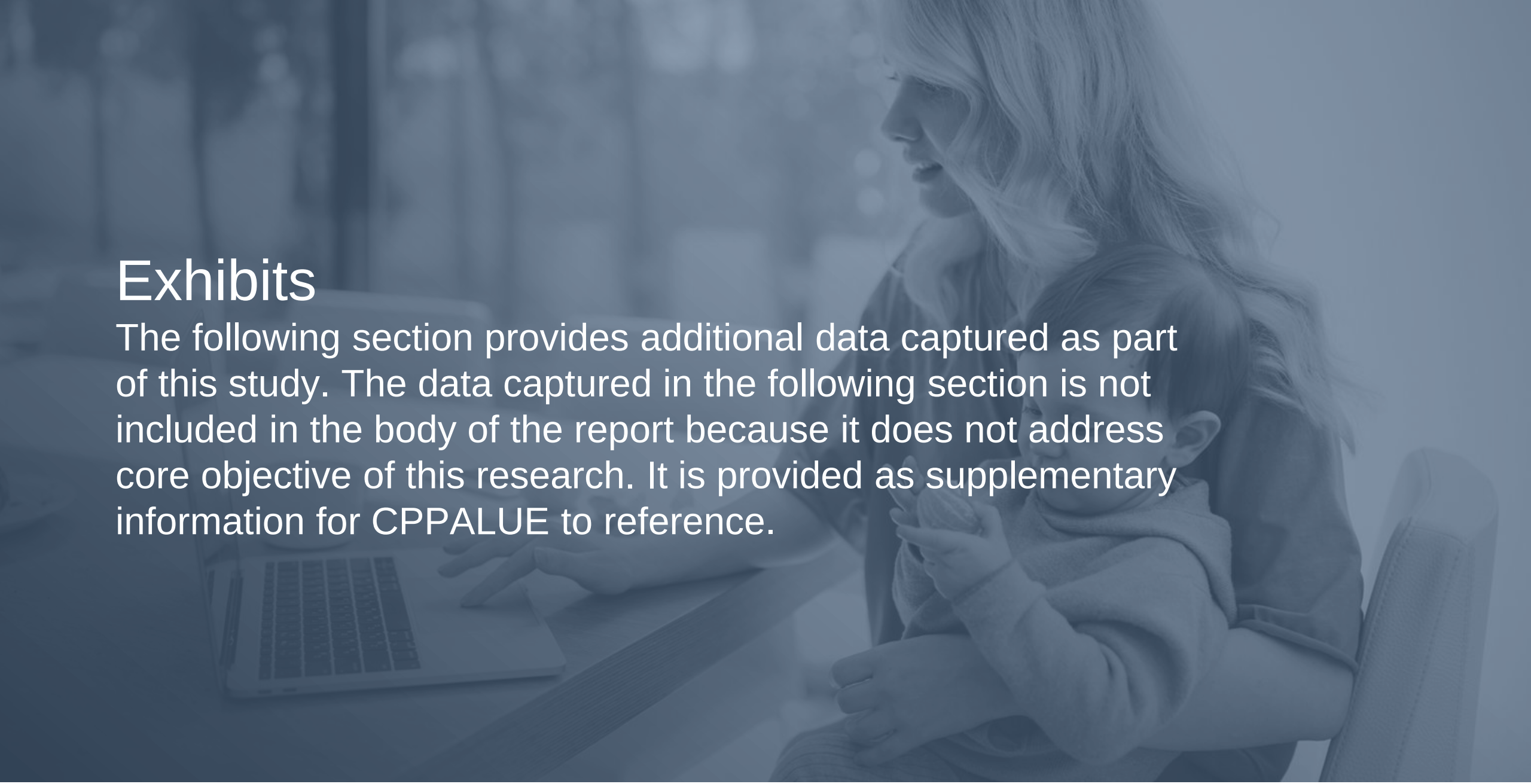
Note: Significance testing was conducted between CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the CitiPower result, and red indicates it was significantly lower.

Consistently across networks, residential customers believe our society is increasingly reliant on electricity

Agree or disagree:



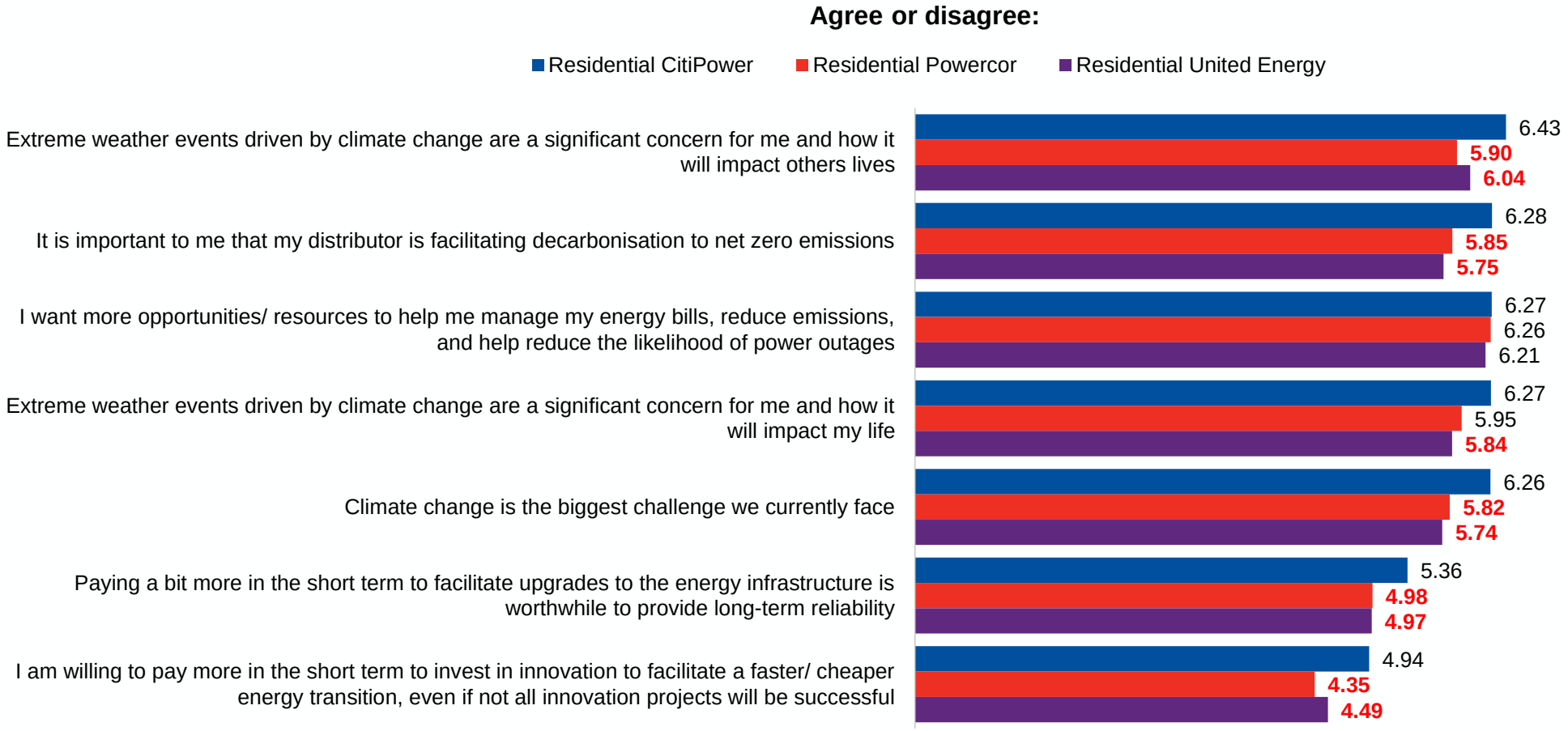
Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. A blue box indicates that the other supplier result was significantly higher than the residential CitiPower result.



Exhibits

The following section provides additional data captured as part of this study. The data captured in the following section is not included in the body of the report because it does not address core objective of this research. It is provided as supplementary information for CPPALUE to reference.

Generally, CitiPower customers tend to be more environmentally conscious

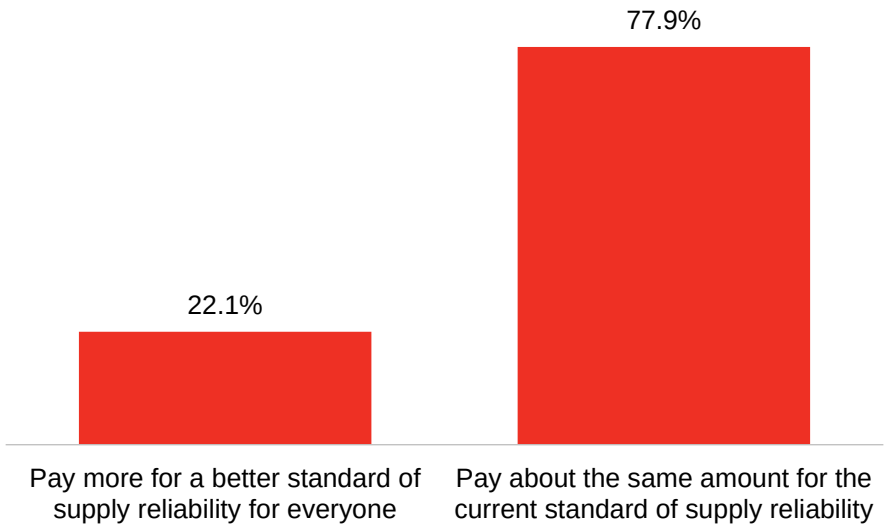


Note: Significance testing was conducted between CitiPower and the other suppliers at the 5% level of significance. Red indicates that the other supplier result was significantly lower than the CitiPower result.

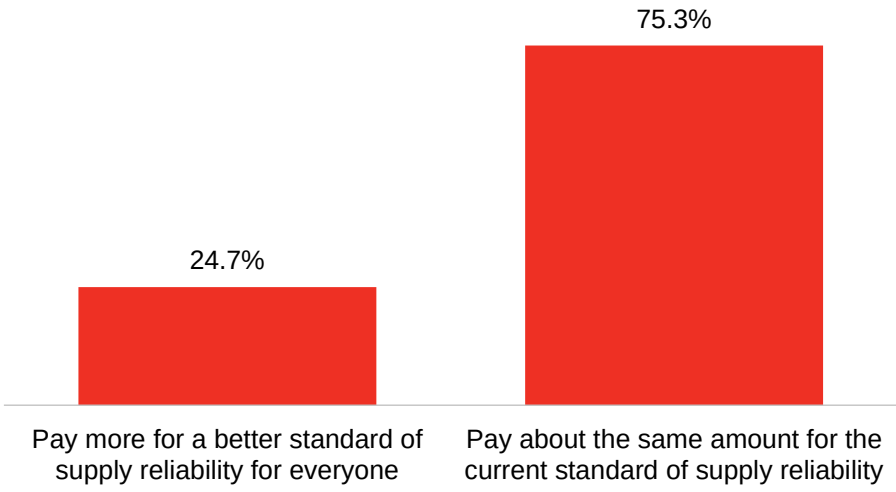
There's little difference in willingness to pay for improvements to **others'** service between those who have experienced an extreme weather event and those who haven't

Customers were told that "some rural communities experience more than 8 hours of power outages per year, compared to the average metro customer who experiences 2 hours.". They were then asked the following question (see right)

If you were given the choice, which of the following would you most likely do?
(residential Powercor)



If you were given the choice, which of the following would you most likely do? –
(residential Powercor Impacted by extreme weather)



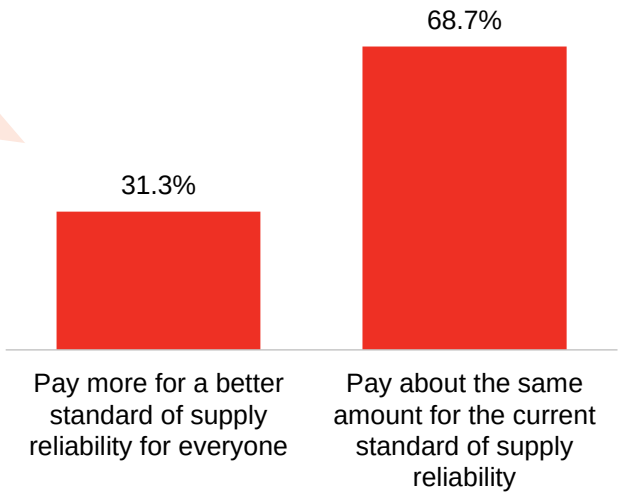
Note the fieldwork for this research was conducted prior to the mass outages experienced by Victorians in February 2024.

Powercor SMB customers were asked about reliability for everyone in their network. The majority preferred to pay the same for no change in their network reliability

Customers were told that "some rural communities experience more than 8 hours of power outages per year, compared to the average metro customer who experiences 2 hours.". They were then asked the following question (see right)

A higher percentage of SMB Powercor customers compared to residential Powercor customers (22.1%) were willing to pay more for better reliability **for all** customers on their network.

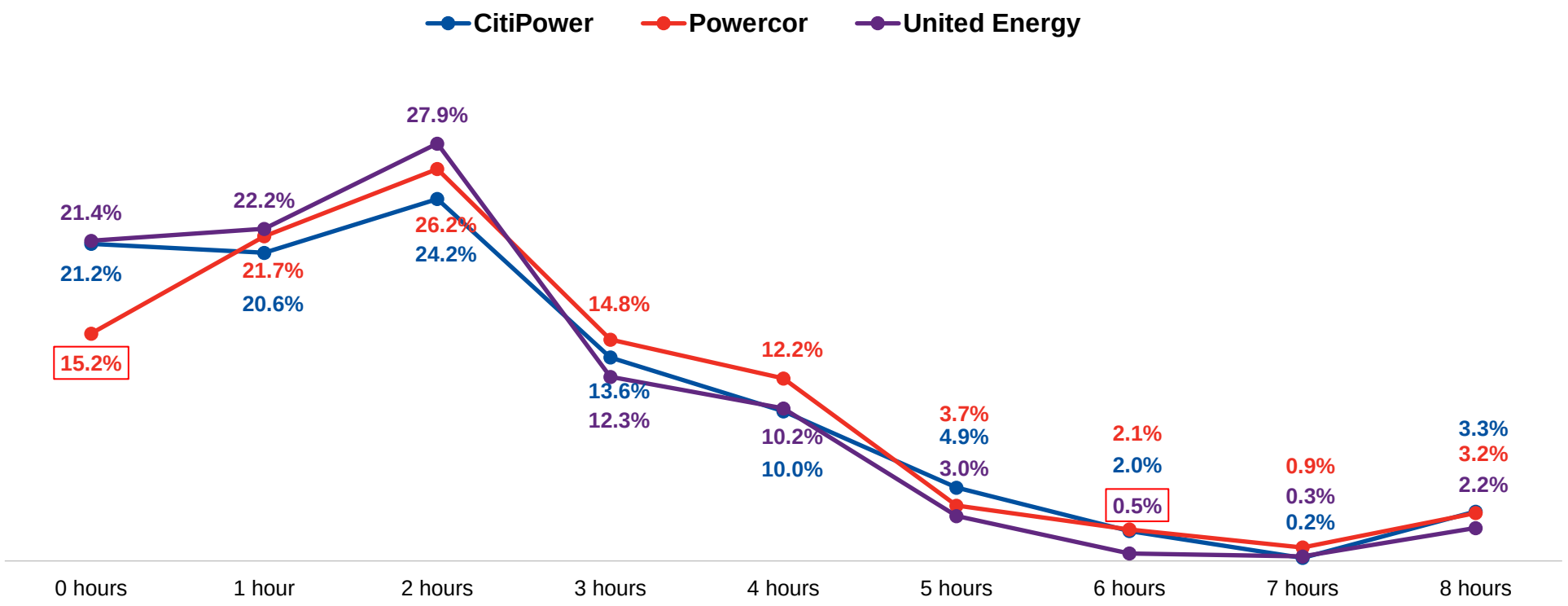
If you were given the choice, which of the following would you most likely do? (SMB Powercor)



The longest acceptable average outage duration for most residential customers **is approx. 2 hours total**

Following the question outlined on slide 90, which stated "some rural communities experience more than 8 hours of power outages per year, compared to the average metro customer who experiences 2 hours." customers were then asked *"considering the* trade-off between reducing electricity outage durations for these communities and the resulting increase in electricity bills, what is the highest acceptable average outage duration for customers to *experience?"*

What is the highest acceptable average outage duration (in hours) **for customers to experience?**

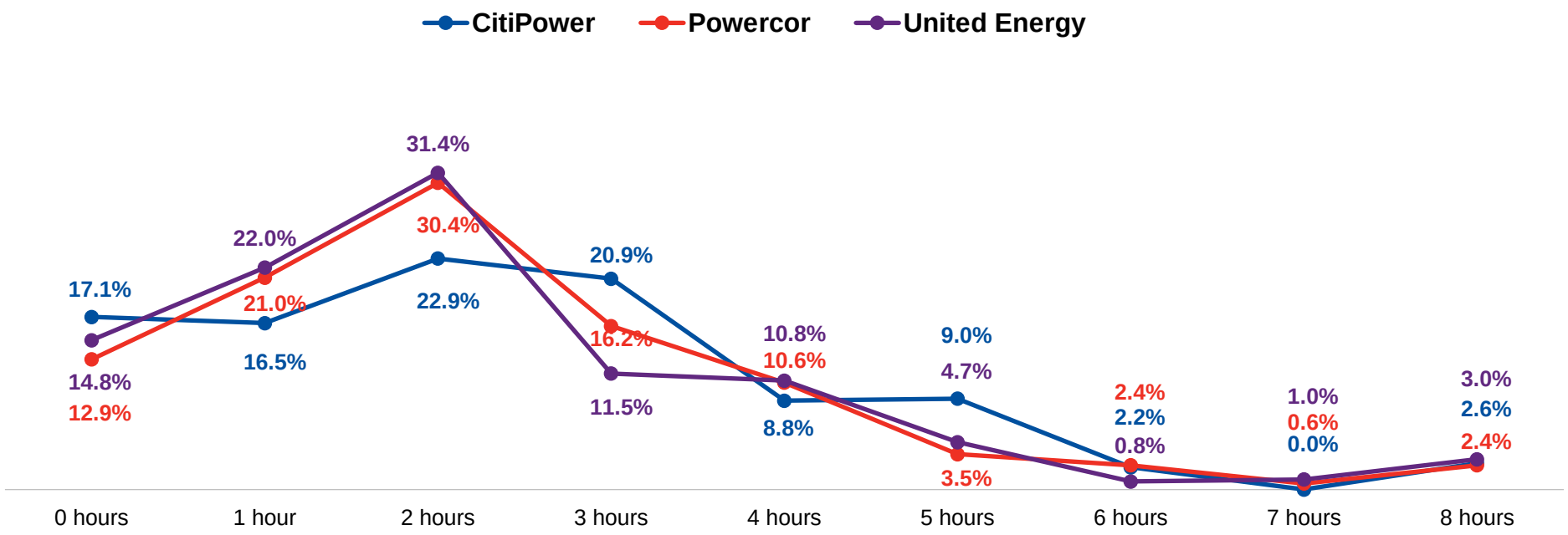


Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance.
A red box indicates that the other supplier result was significantly lower than the residential CitiPower result.
Note the fieldwork for this research was conducted prior to the mass outages experienced by Victorians in February 2024.

The longest acceptable average outage duration for residential customers who have been recently impacted by extreme weather remains **approx. 2 hours total**

Following the question outlined on slide 90, which stated "some rural communities experience more than 8 hours of power outages per year, compared to the average metro customer who experiences 2 hours." customers were then asked *"considering the* trade-off between reducing electricity outage durations for these communities and the resulting increase in electricity bills, what is the highest acceptable average outage duration for customers to *experience?"*

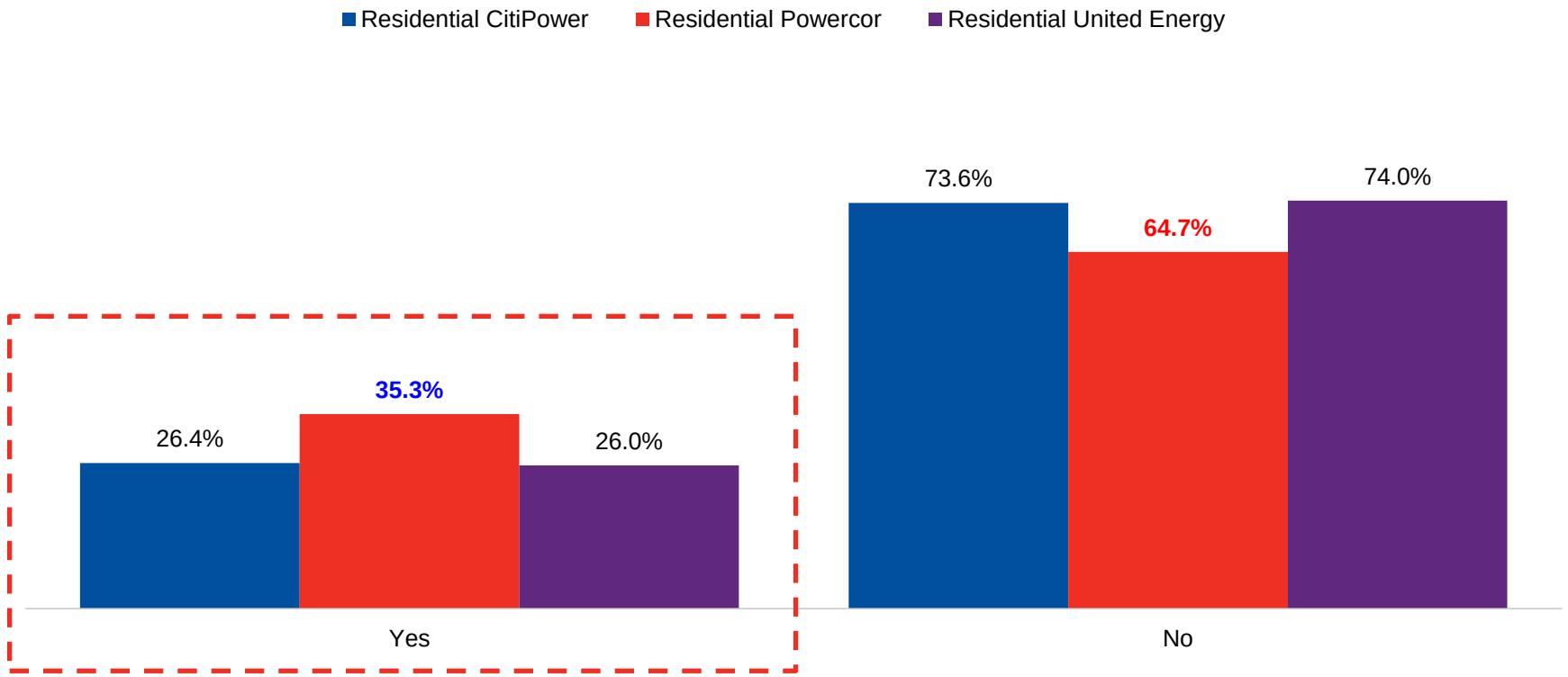
What is the highest acceptable average outage duration for customers to experience? – residential
(Impacted by extreme weather)



Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. No significant differences were found.
Note the fieldwork for this research was conducted prior to the mass outages experienced by Victorians in February 2024.

Residential Powercor were more likely than CitiPower to have experienced a prolonged outage from weather

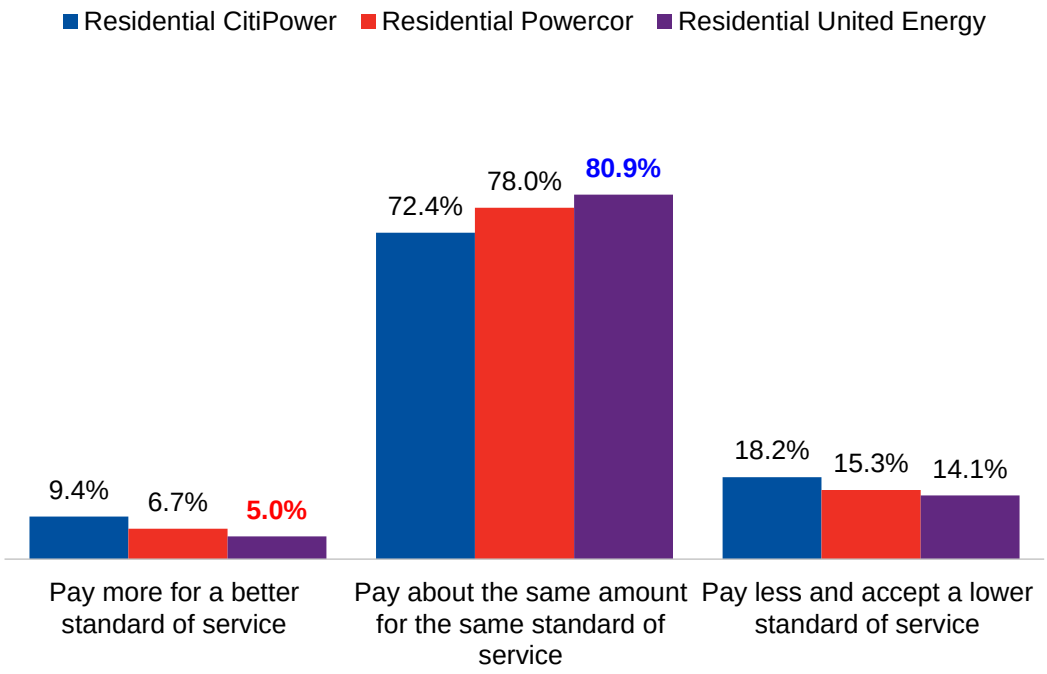
Have you ever experienced an extreme weather event that has impacted your power supply to experience a prolonged outage?



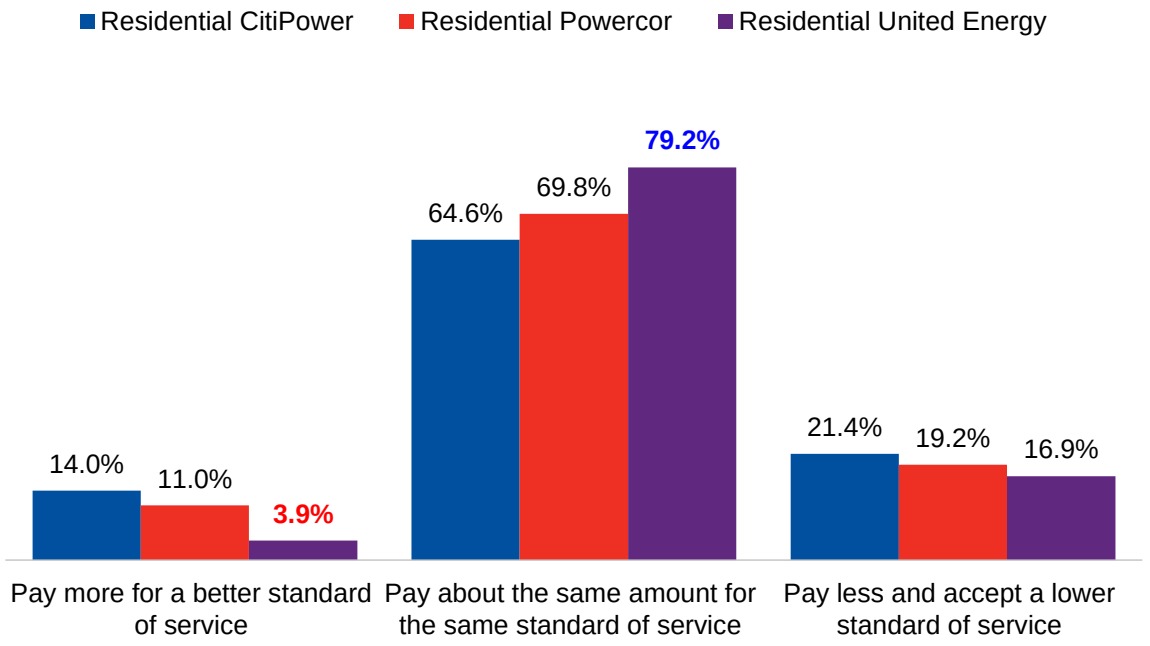
Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the residential CitiPower result, and red indicates it was significantly lower.

CitiPower and Powercor who have experienced impacts to power supply from weather are **marginally more** likely to pay more for improvements to service

If you were given the choice, which of the following would you most likely do? – residential

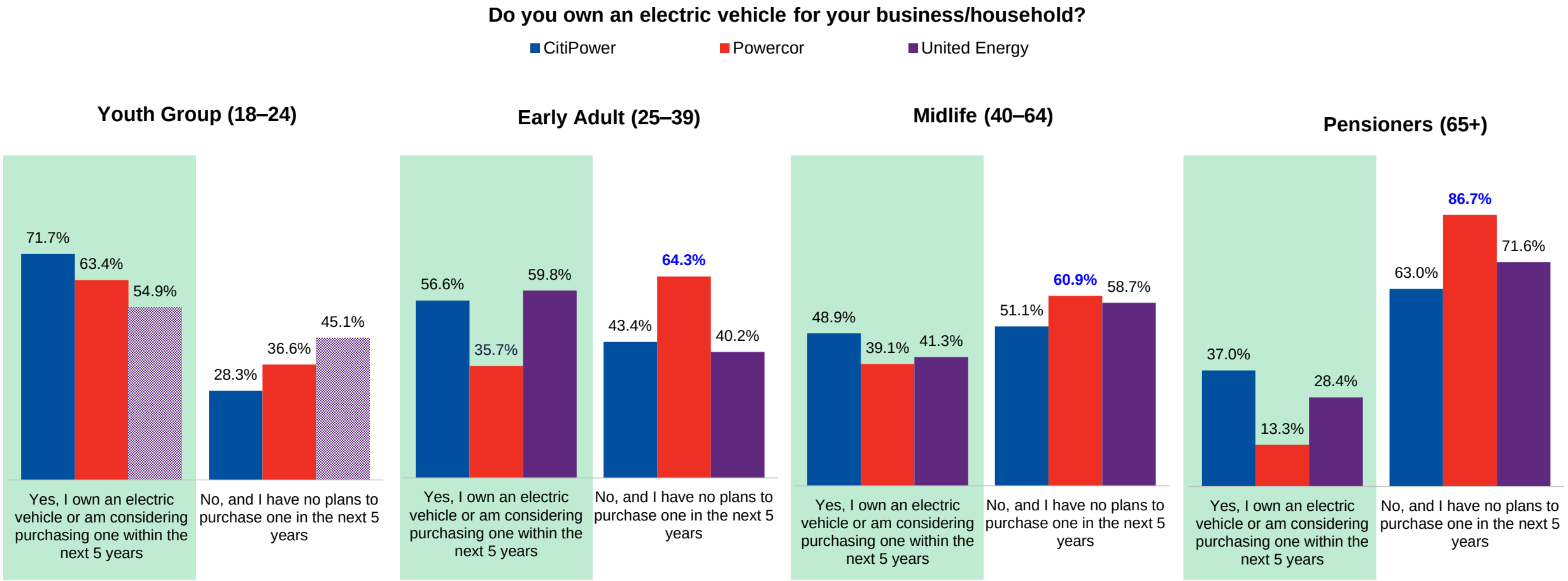


If you were given the choice, which of the following would you most likely do? – residential (Impacted by extreme weather)



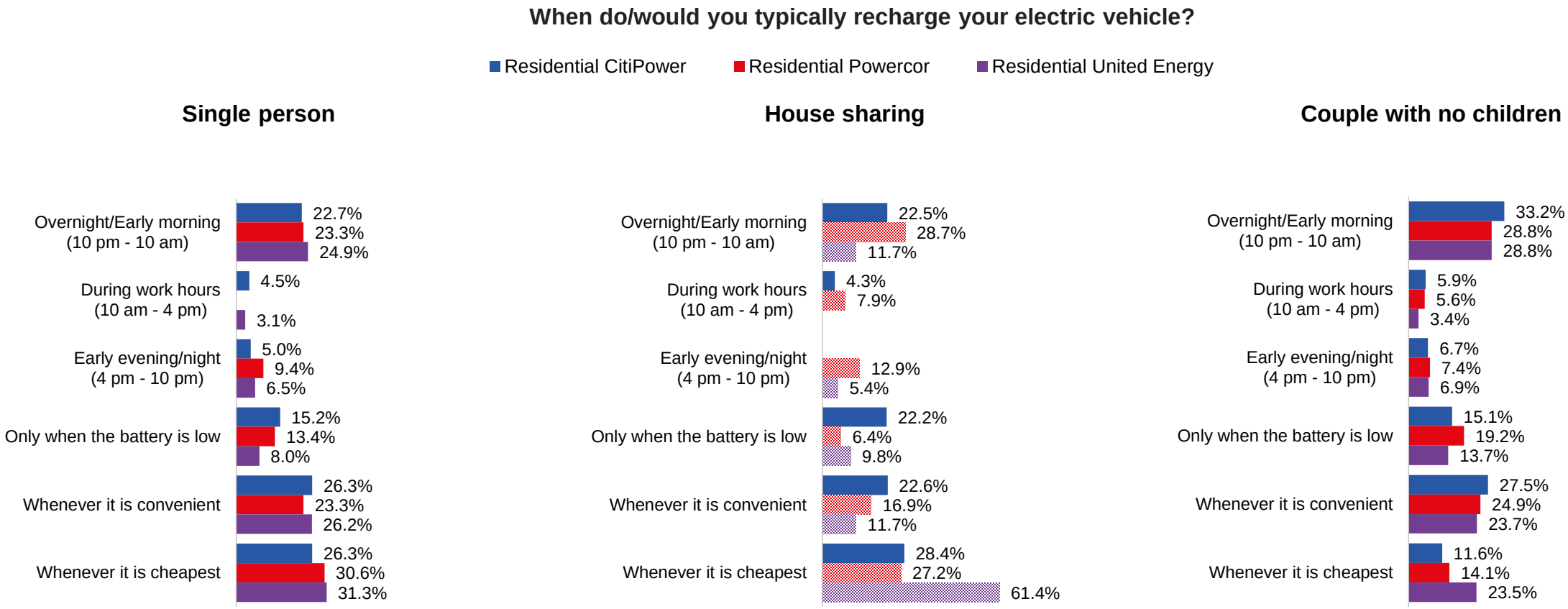
Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the residential CitiPower result, and red indicates it was significantly lower.

EV owners and considerers tend to skew towards younger and midlife in regional areas



Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. Blue indicates that the other supplier result was significantly higher than the residential CitiPower result. Shaded bars indicates results based on small sample sizes where significance testing could not be conducted. A minimum sample size of n=30 is recommended for an indicative result.

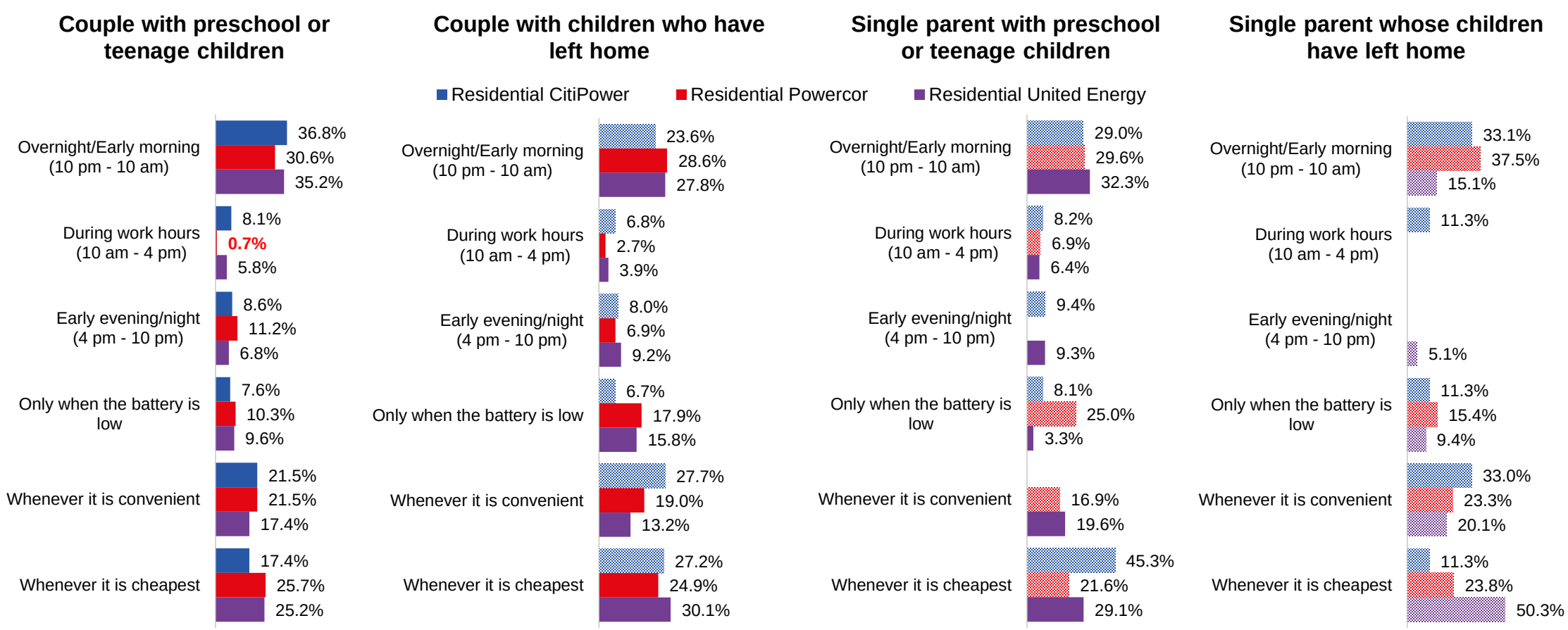
Preferences for **convenience** and **price sensitivity** are stronger among single person and households with children when it comes to EV charging



Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. Red indicates that the other supplier result was significantly lower than the residential CitiPower result. Shaded bars indicate results based on small sample sizes where significance testing could not be conducted. A minimum sample size of n=30 is recommended for an indicative result. Multiple responses were allowed for this question, so these results may not sum to 100%.

Preferences for **convenience** and **price sensitivity** are stronger among single person and households with children when it comes to EV charging

When do/would you typically recharge your electric vehicle?



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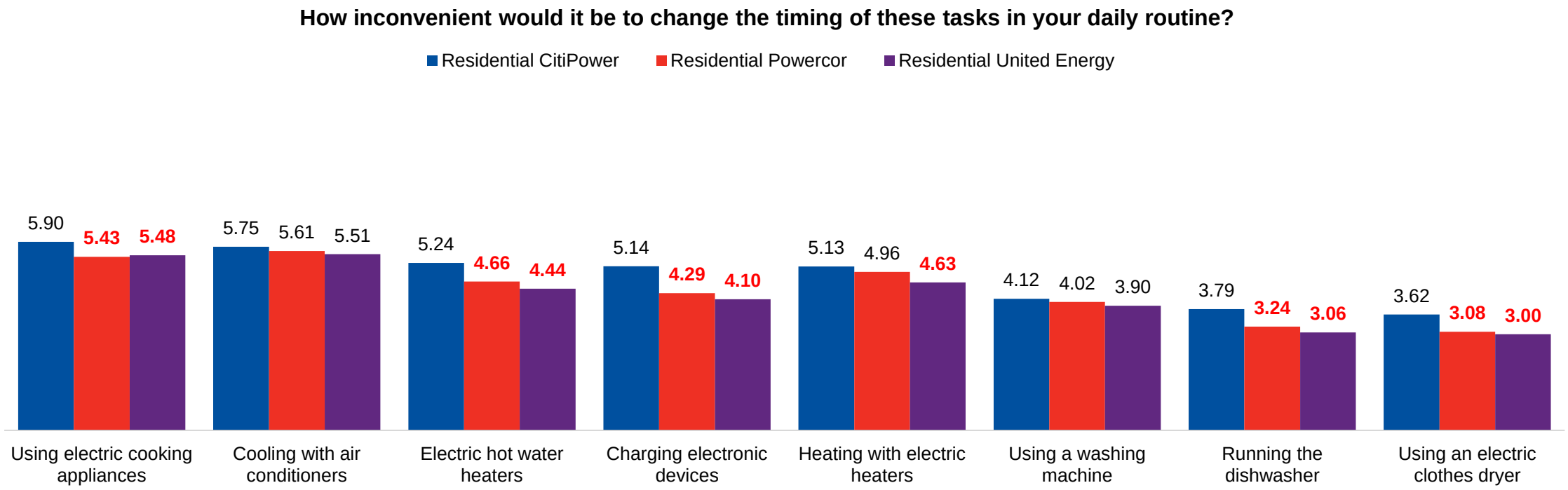
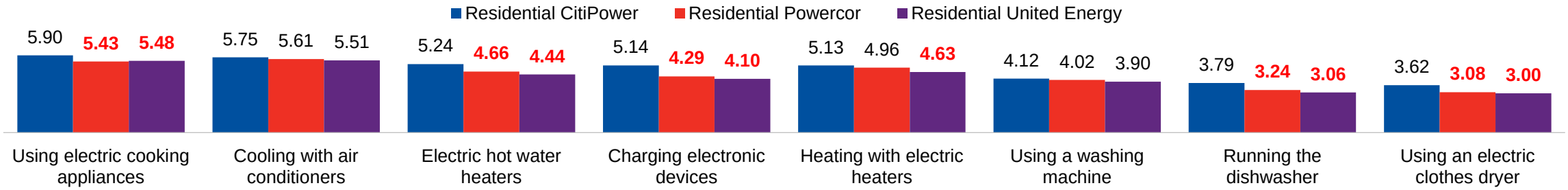
Customer behaviours around cooking, heating, and cooling would be the most difficult to influence



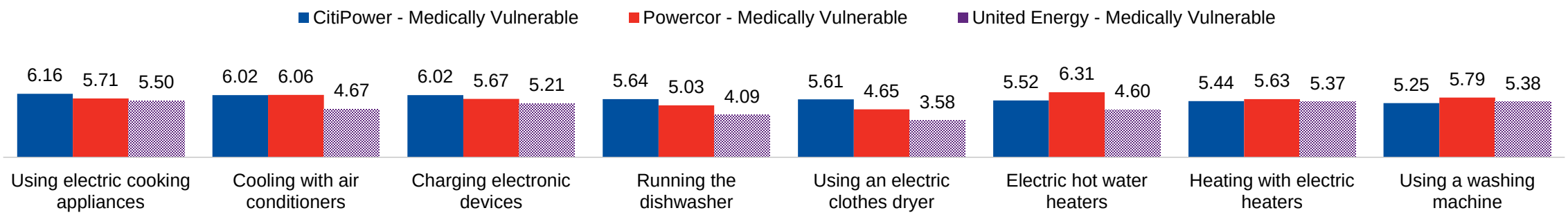
Note: Significance testing was conducted between residential CitiPower and the other suppliers at the 5% level of significance. Red indicates that the other supplier result was significantly lower than the residential CitiPower result.
Vulnerable cohorts included in the study include: financially vulnerable (income vulnerable), medically vulnerable, Indigenous Australians and Single Parents

Medically vulnerable customers rated inconvenience of changing the timing of their daily tasks as **higher** than the other **vulnerable customer cohorts**

How inconvenient would it be to change the timing of these tasks in your daily routine?



How inconvenient would it be to change the timing of these tasks in your daily routine?
(Medically Vulnerable Population)



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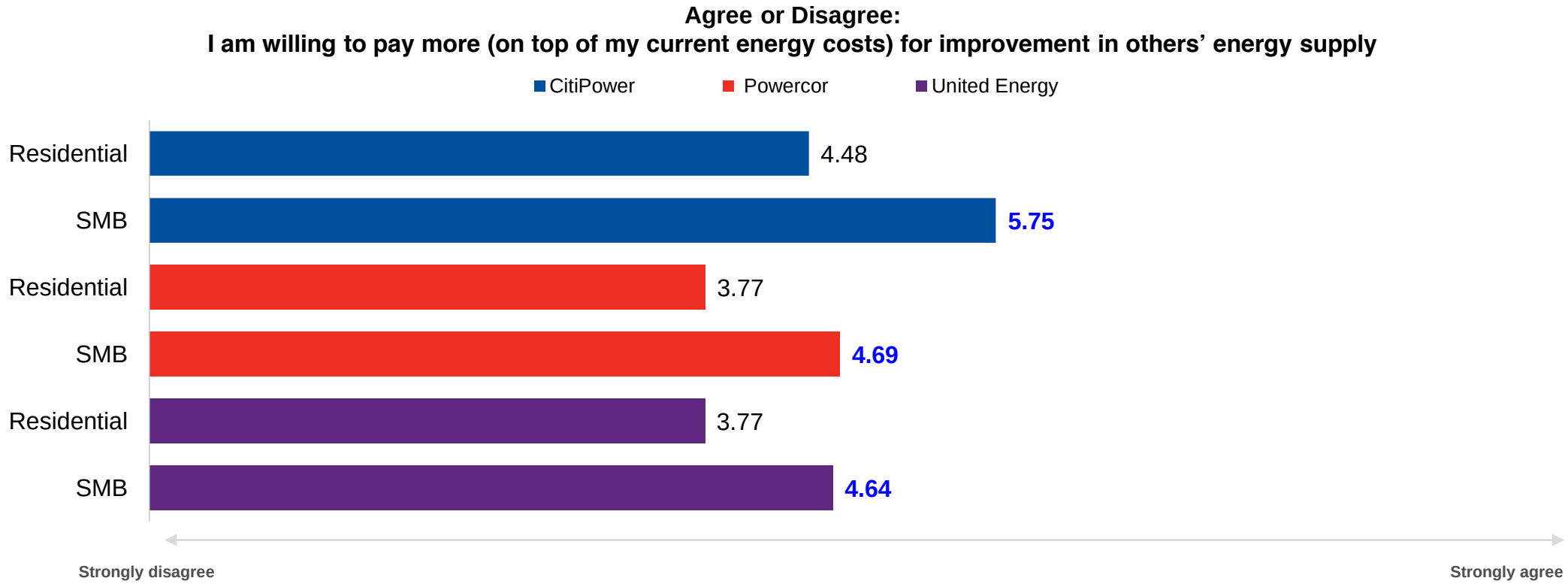
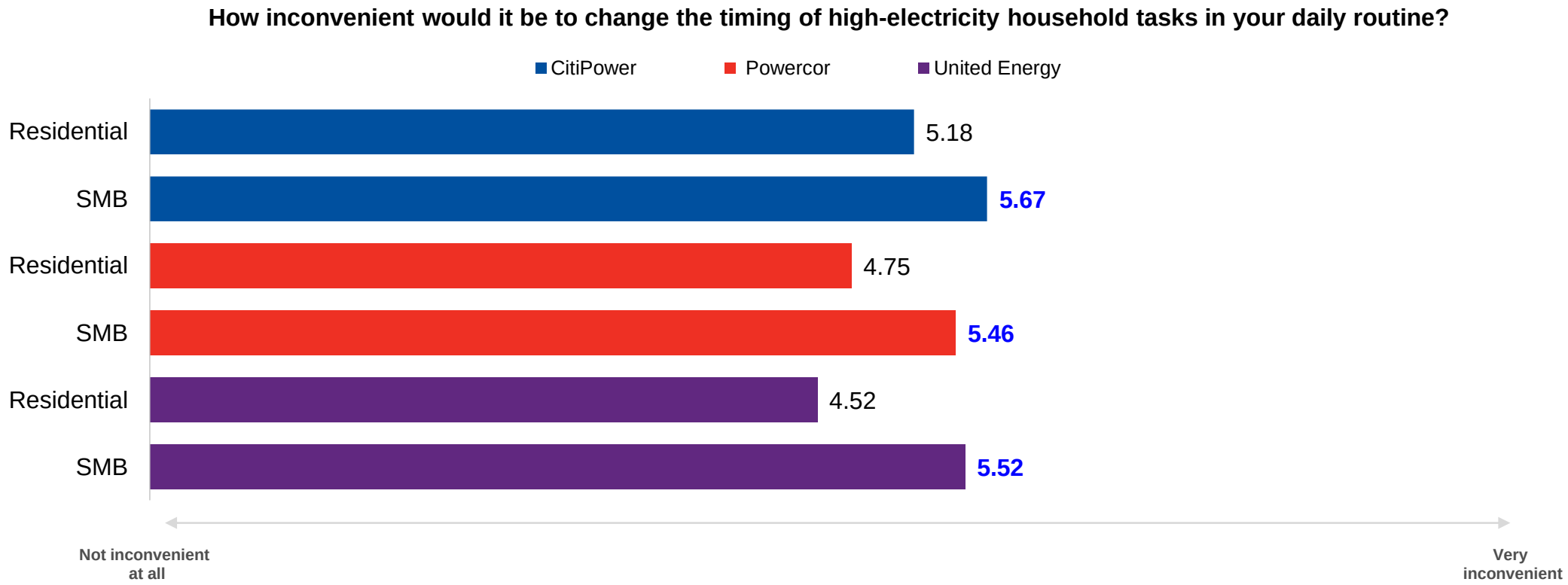
SMB customers in all networks were significantly more likely than residential customers to state they were willing to pay more for improvement in others' energy supply



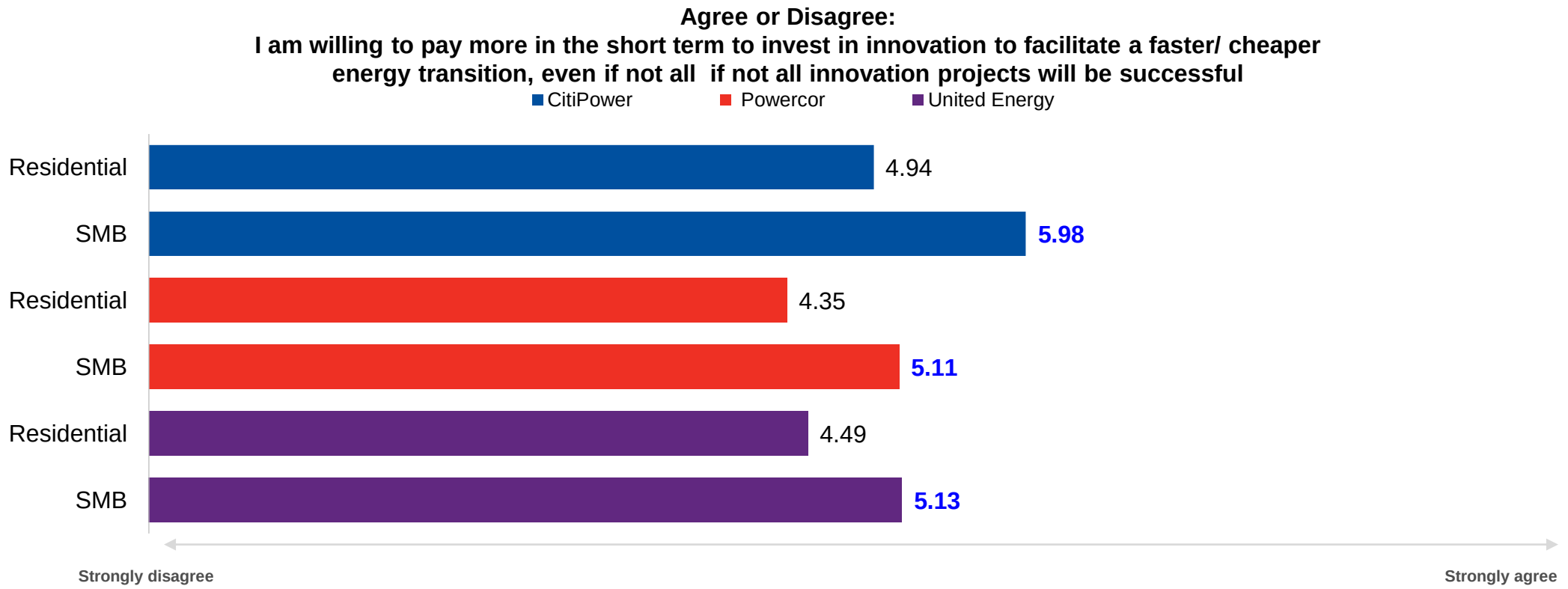
Note: Significance testing was conducted between residential and SMB at the 5% level of significance. Blue indicates that the SMB result was significantly higher than the residential result.

SMB customers were significantly more likely than residential customers to find changing the timing of high-electricity household tasks in their daily routine inconvenient



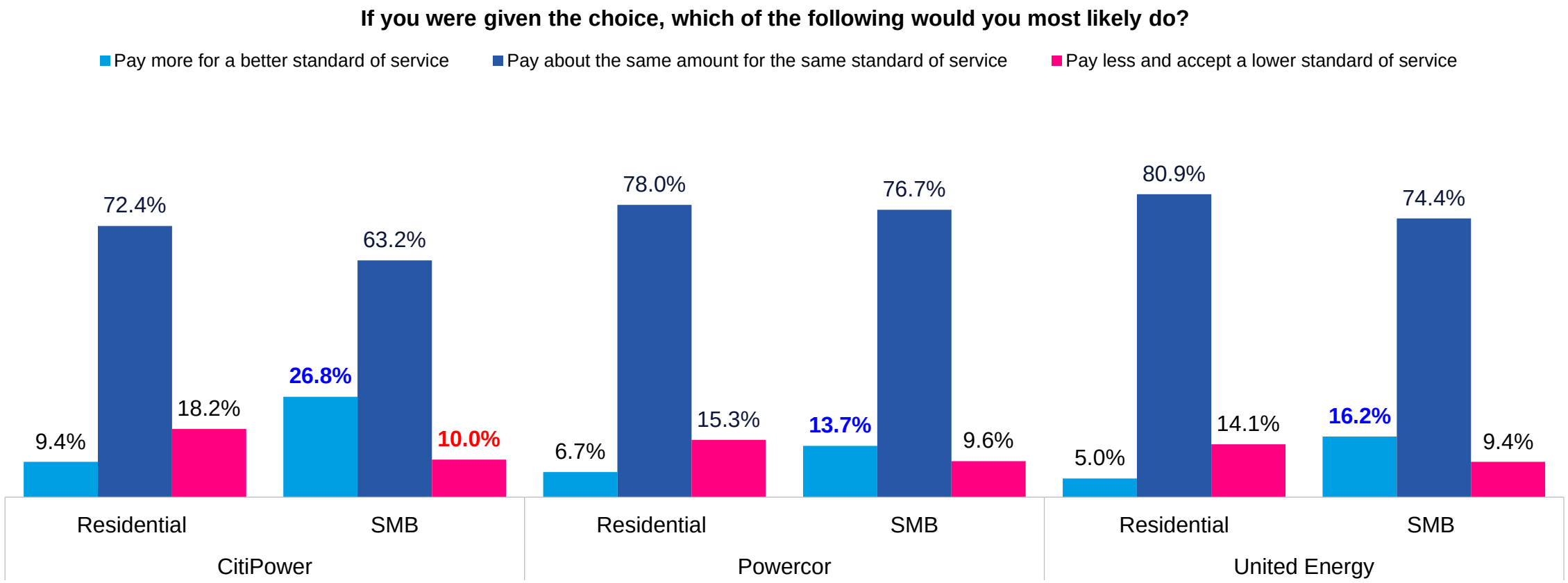
Note: Significance testing was conducted between residential and SMB at the 5% level of significance. Blue indicates that the SMB result was significantly higher than the residential result.

SMB customers were significantly more likely than residential customers to state they were willing to pay more in the short term for investment in innovation



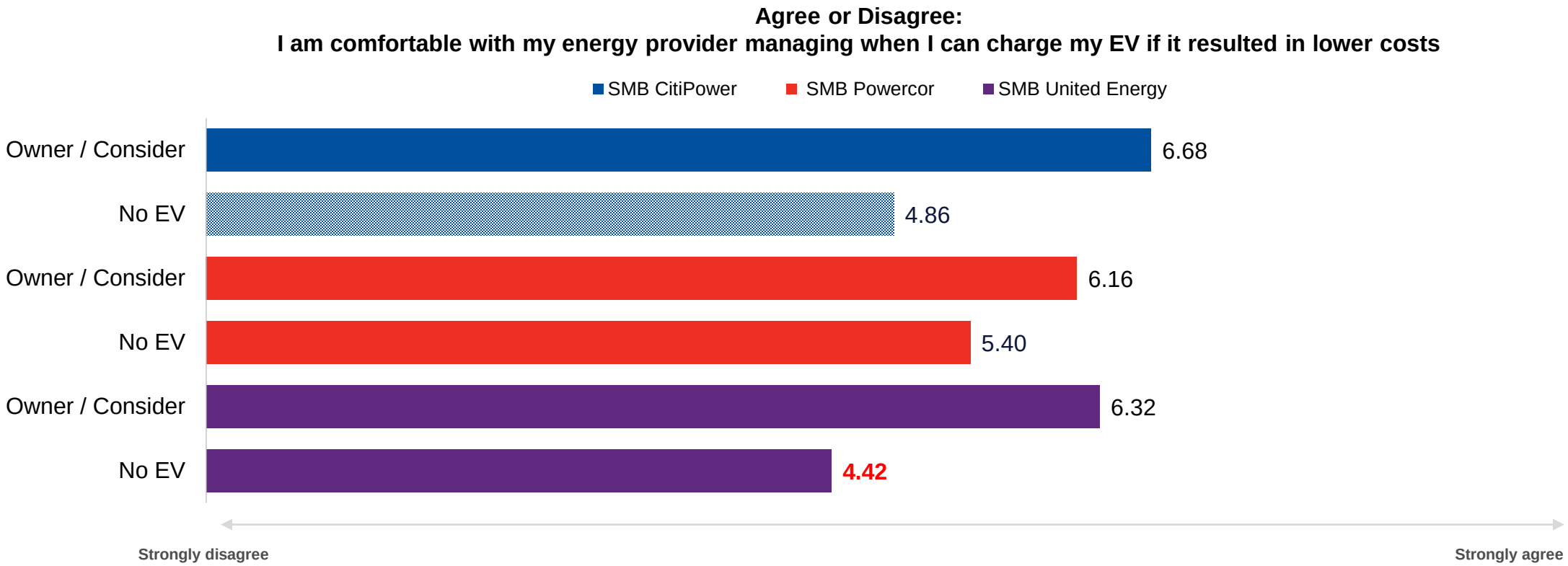
Note: Significance testing was conducted between residential and SMB at the 5% level of significance. Blue indicates that the SMB result was significantly higher than the residential result.

SMB customers were significantly more likely than residential customers to state they were willing to pay more for a better standard of service



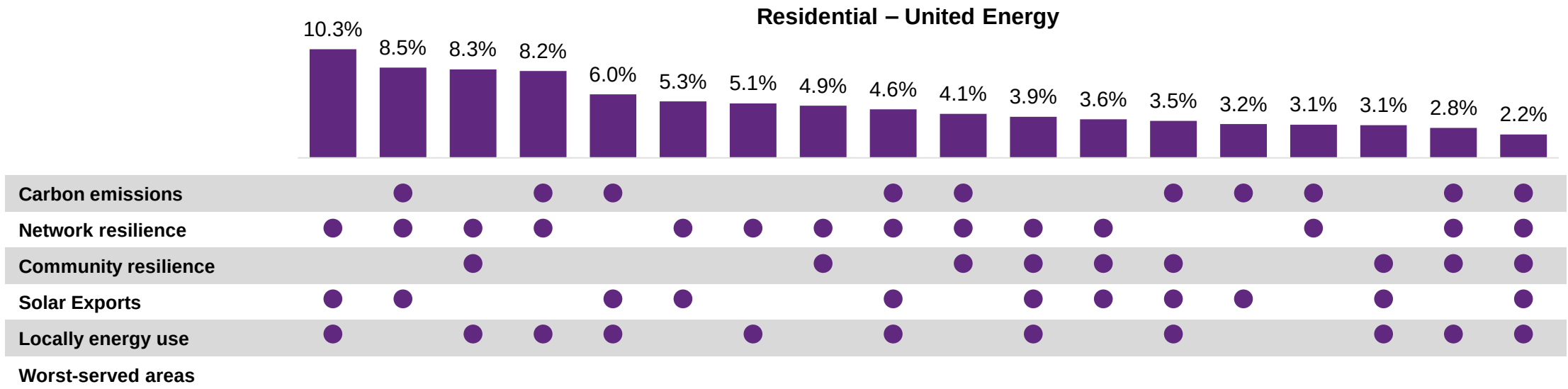
Note: Significance testing was conducted between residential and SMB at the 5% level of significance. Blue indicates that the SMB result was significantly higher than the residential result, and red indicates it was significantly lower.

SMB customers who own or are considering an EV were open to their energy provider managing EV charging



Note: Significance testing was conducted between Owner / Consider and No EV at the 5% level of significance. Red indicates that the No EV result was significantly lower than the Owner / Consider result. Shaded bars indicate results based on small sample sizes where significance testing could not be conducted. A minimum sample size of n=30 is recommended for an indicative result.

Additional analysis was conducted on prioritisation of customer values, key findings are outlined on slides 19-24



What is TURF:

- TURF or Total Unduplicated Reach and Frequency Analysis is a technique that allows you to assess which combination of priorities were selected by respondents in the MaxDiff exercise as the most important priority.
- The technique will determine which combinations were selected by respondents, as well as the frequency of each combination.
- This analysis only considers the priorities that were selected by respondents as the most important throughout their MaxDiff tasks.

How to read the TURF results:

- Rows represents the list of priorities (note that 'Worst-served areas' was not included for United Energy).
- Columns show combinations of priorities that were selected as "most important" by respondents throughout the MaxDiff exercise.
- The bar charts indicate the percentage of respondents selecting each combination.

Note: Only results >2% were published.

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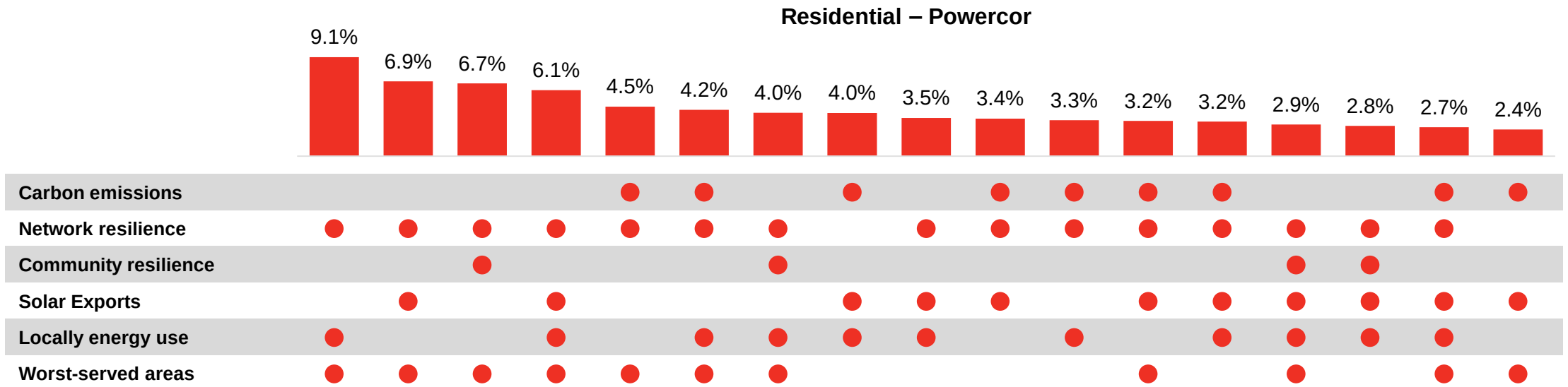

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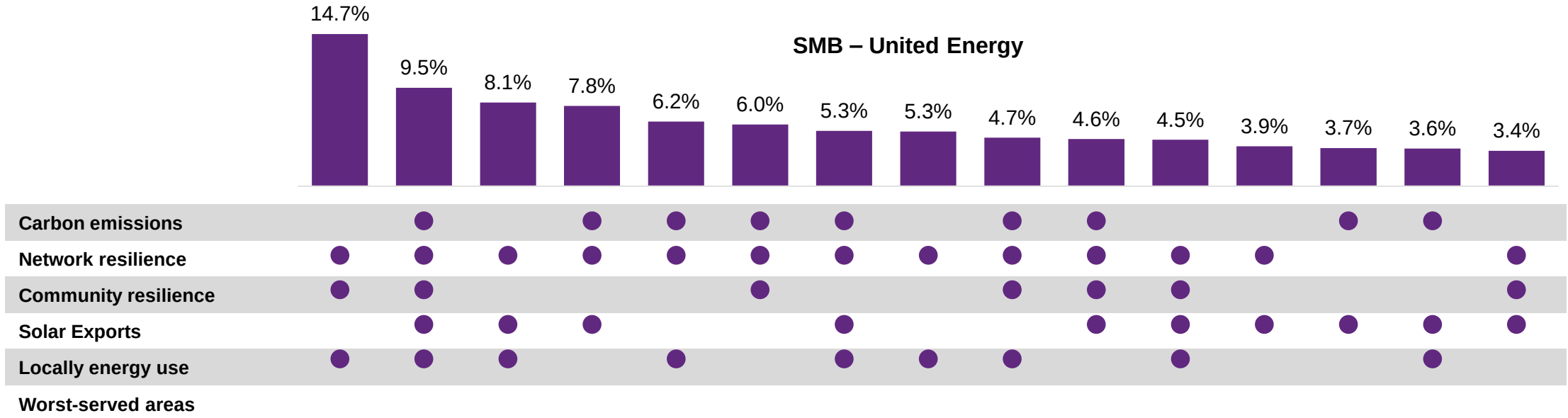

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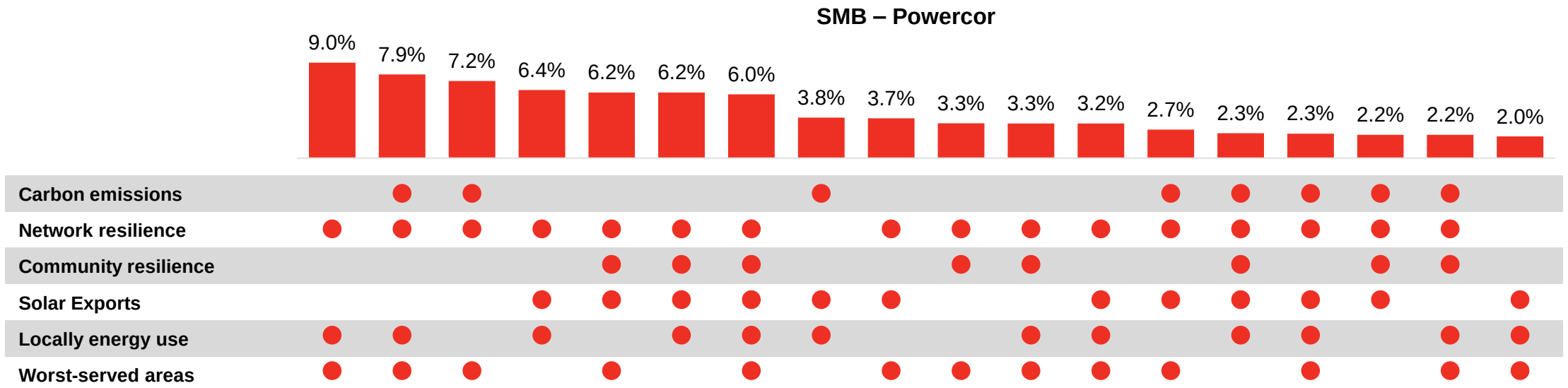

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Asia Pacific

Level 7 550 Bourke St
Melbourne VIC 3000
AUSTRALIA
+ 61 3 9614 3000

North America

Level 5 400 Madison Av
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