Flexible Service Offer Optimisation Research Report

Prepared for:

Ellen Lukin
Senior Regulatory Analyst

Brent Cleeve
Head of Regulation

11th August, 2022

Contents

CitiPower Powercor Australia united energy Forethought Outcomes

Objectives, Approach and Overview

Program Objectives

Business objectives

Develop and communicate a flexible export product that is aligned with customer values and preferences that will:

- **Optimise the performance of the networks**;
- **Enhance the autonomy that customers** have over their electricity use; and
- **Maximise reputational benefits to, and the social license to operate** of CitiPower, Powercor and United Energy.

Research Objectives

Develop and refine a Flexible Service Offering that will maximise uptake by:

- **Identifying** a hierarchy of importance of product attributes
- **Develop and optimise communications** to increase understanding and uptake of the new product by:
- **Identifying the concepts, language and visuals that increase understanding of the product** and it's benefits for customers and the network.
- **Quantification of how preferences differ by customer type** including differences by solar vs non solar, location, income level, age, business vs residential etc.; and
- **Quantification of customer perceptions of their network and** the impact of the new product on this perception.

Overview of methodology: A qualitative phase was used to build context and inform the quantitative phase where choice for product attributes, communications considerations and trust were validated

PHASE 2: QUANTATIVE

Online **quantitative research** to determine the optimal bundle of product attributes to be trialled and associated communications with customers of each network.

PHASE 1: QUALITATIVE

Online **qualitative** research to explore and understand perceptions and comprehension of potential products, product attributes communications and associations.

Identifying who customers trust and expect to manage the flexible export products: Customers ranked energy distributors, the Victorian Government, retailers and solar installers according to who they trusted most, resulting in a detailed map of aspects of trust: capability, benevolence and ethics.

Gaging who customers would trust to manage flexible export products: We explored customers trust levels towards energy distributors, the Victorian government, solar installers and retailers

Customers attitude towards power and solar: Customers were asked about their attitudes and values relating to power and solar to determine how they informed overall reception of flexible export products and potential uptake

Exploring customers' reactions to flexible export product attribute options and incentives, and addressing their concerns in product communications: We asked customers whether they would uptake a flexible export product, and what attributes and incentives they would prefer

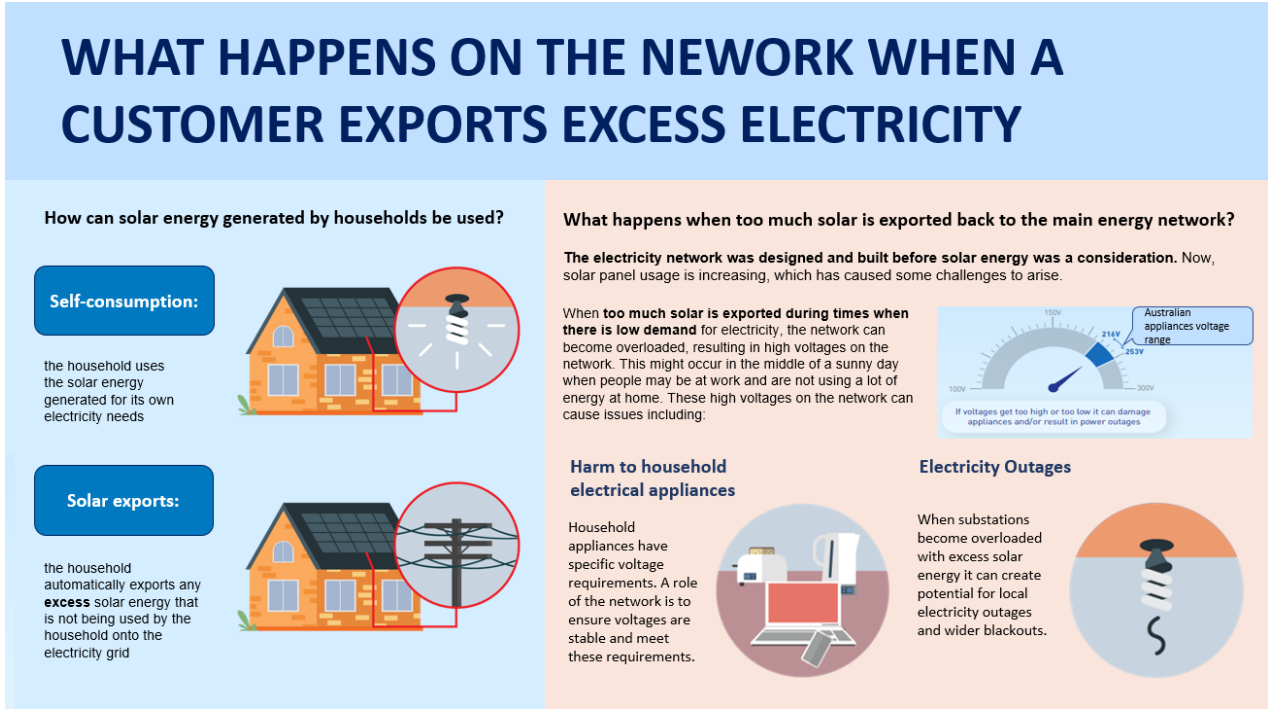
Testing customers understanding of excess solar export impacting the grid: Customers were given background information on the problem the network businesses are facing, and the possibility of introducing a new product to assist with the solution. We then explored customers reactions to flexible exports as a potential solution

Identifying top attributes and perceived benefits of DOEs: Customers ranked product benefits and undertook a max-diff trade-off task to identify which product were most important to them and produce an inferred hierarchy.

Final report outlining top product benefits and attributes and detailed understanding of customer trust contextualised with findings from qualitative phase

Overview of Quantitative Questionnaire (Phase 2)

Section	Why
Challenge Introduction	This section understood people's awareness and understanding of the challenge, also providing context for those who are unaware.
Solar and Exports	Provided context on feed-in tariff and additional context to the challenge. Gained further understanding of motives for solar and non-solar customers.
Intro to DOEs	Provided context of DOEs and captures awareness of solar export limits.
Choice Model	Participants see a range of options presented side-by-side and select their preferred option. This evaluates the trade-offs that individuals make by studying the joint effect of multiple attributes simultaneously, to uncover the relative importance of each attribute.
Trust	Captured an in depth understanding of how consumer trust varies between different entities
Max Diff exercise	Participants were shown a series of attributes, selecting which were most and least important, to determine a hierarchy of importance of the tested aspects.
Demographics	Final questions to understand the audience's personal background - who are they, household, and home information.
Firmographics	Final questions to understand the audience's role within their business and their business' background – industry, size, premise, expenditure

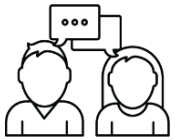


Challenge introduction presented to customers.

Who we spoke to

Approach: 15-minute online survey with main or joint household and Small to Medium Business (SMB) energy decision makers in the CitiPower, Powercor and United Energy Networks.

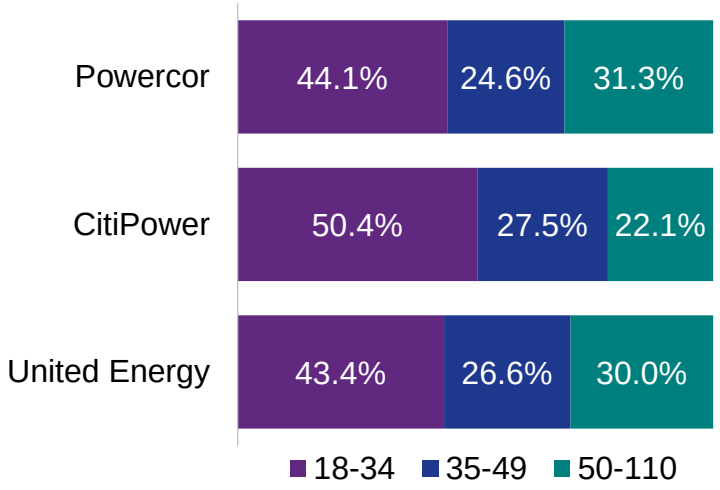
Solar Uptake/ Networks	CitiPower	Powercor	United Energy	Total
Solar	198	202	199	599
Considering uptaking solar in the next 12 months	193	203	147	533
Total customers	391	405	346	1142



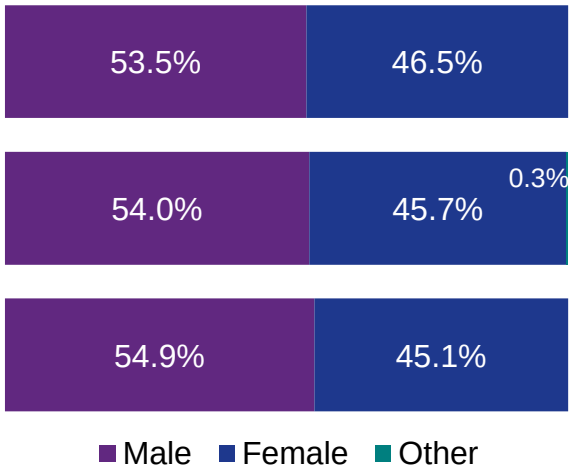
A total of n=774 SMB consumers and n=368 residential consumers were surveyed

Demographic profile of customers surveyed

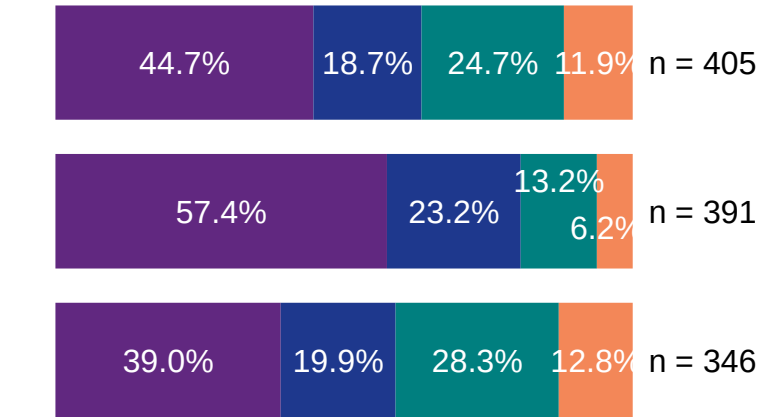
Age



Gender



Do you have a main or joint role in making decisions relating to electricity for a business with less than 200 employees?



Executive Summary

Executive Summary

A strong preference for a variable product (over a fixed product) was expressed by customers across all cohorts, including solar, non-solar, SMB customers and customers from all SEIFA rankings.

The strong preference for a variable product reflects both broad pre-existing positive associations with the attributes of flexibility, and is also driven by customers' attitudes towards solar captured in the qualitative data, such as a belief in the right to 'own' and manage ones own solar power, and viewing solar as aspirational, leading to desire to individually use the product in innovative and dynamic ways.

Whether an export product was variable and whether customers were charged extra per quarter for staying on a fixed product were the leading drivers of choice across the three networks.

The choice of both residential and SMB customers was influenced more heavily by additional costs for staying on a fixed product rather than incentives for switching to a variable product. This mentality aligns with the "loss aversion" principle in behavioural economics. Consideration should be given to the amount that customers are incentivised for shifting to a variable product, as behaviour change is not as effective with a financial incentive.

SMB Customers were more motivated by financial deterrents than if the product was fixed or variable.

SMB customers also expressed more concern about the unpredictability of the new product, demonstrating the need to mitigate any concern that financial returns or exports may be lower for Flexible Service Offerings. This may be in the form of further information and clarity to SMB customers about expected returns from a flexible service offering.

Executive Summary

Whilst not as important in driving choice as financial deterrents or system capacity, the Victorian Government and Distributors taking responsibility for managing flexible export products was the most likely combination to drive uptake of a product.

Retailers and solar installers lacked the trust of customers to roll the product out across the three networks. The Powercor brand elicited more trust in customers than any other industry stakeholder however there was a lack of trust in CitiPower and United Energy's ability to behave ethically and act in the best interests of customers relative to the Victorian Government.

The perceived benefits of a flexible service offerings across all networks were shaped by a desire for decarbonisation, network efficiency and cost savings. Specifically, customers highlighted that the greatest benefits were:

- More renewable energy on the network
- Receiving greater income from solar export
- Protecting integrity of the network

Across the three networks, the potential impact of environmental factors and unpredictability of the product, ongoing work and maintenance, and the retailers and installers involved with the new product were of the greatest concern.

The unpredictability of the product was a particular concern for SMB customers, who were more likely (12.8%) to rate this higher as a concern than residential customers (4.4.%), signaling the need to ensure financial returns to small business customers.

Key Product and Communications Recommendations

Communicate the benefits:

A more efficient and less wasteful network, helping drive decarbonisation and greater potential of financial returns to customers.

Communicate the incentives:

The variable product will give customers greater flexibility and avoid additional costs associated with staying on a fixed product (if possible to do so).

Mitigate and address concerns:

Address concerns around lack of stability and security of the product by communicating that the product as a safe, financially secure product, particularly to SMB customers.

Maximise product uptake by leveraging Trust in Victorian Government across the CitiPower and United Energy Networks:

Manage perceptions that CitiPower and United Energy are actively addressing concerns around ethics and acting in customers best interests or partner with the Victorian Government in the roll out of this product.

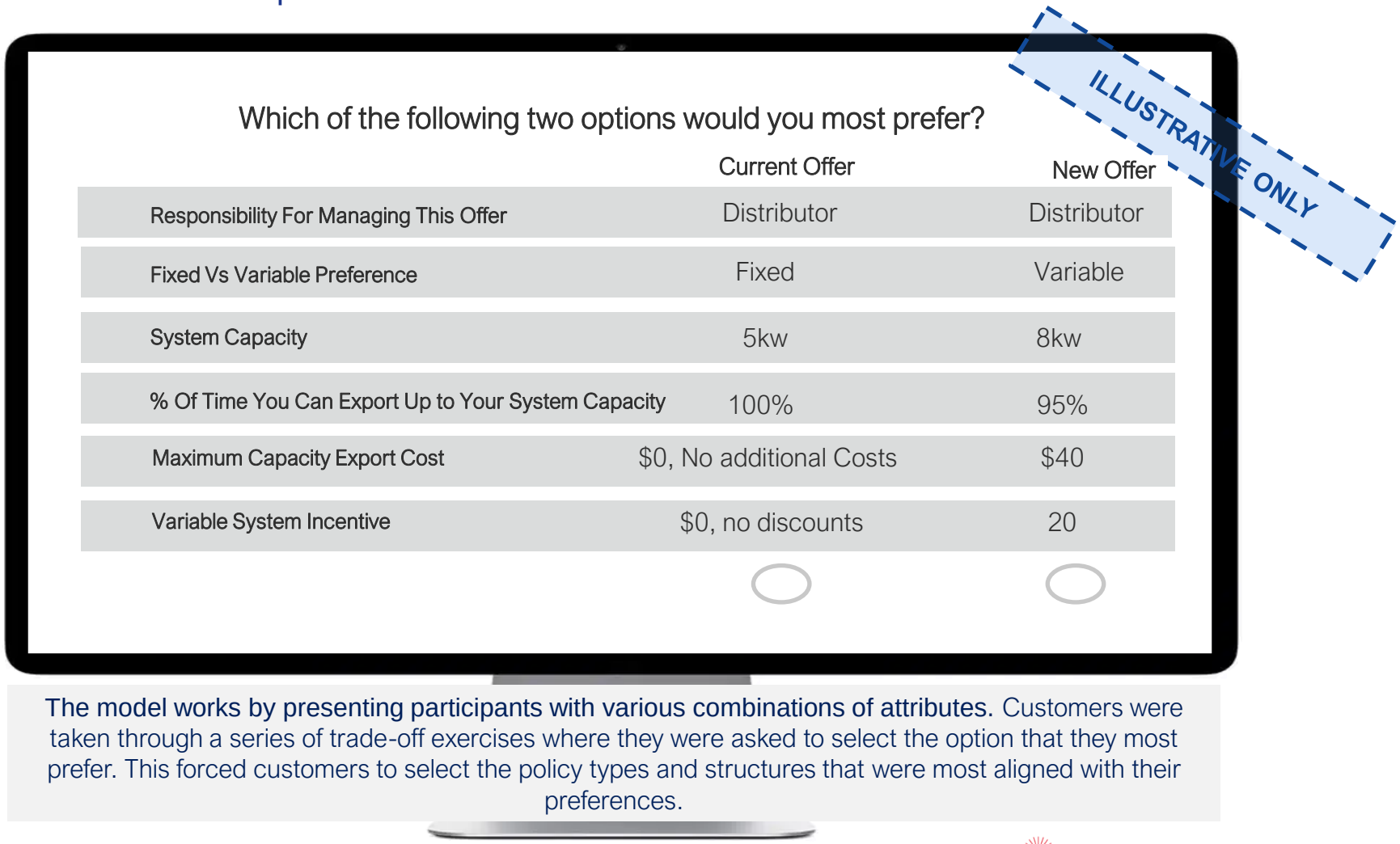
Optimising the Flexible Service Offering

A choice model was designed with the purpose of testing customers' preference for different attributes of the potential DOE product

Why we used choice modelling

It is often observed that a customer's stated intentions and actual behavior do not match. The use of inferential analytics result in a much truer indication of customer preferences.

Choice modelling reveals customer preferences through action. – i.e. making trade-offs – rather than relying on statements. Ignoring customers' stated preferences and measuring their actual choices results in a much truer indication of customer preferences.



The model works by presenting participants with various combinations of attributes. Customers were taken through a series of trade-off exercises where they were asked to select the option that they most prefer. This forced customers to select the policy types and structures that were most aligned with their preferences.

The following assumptions were present to ensure a robust choice modelling exercise

Choice Modelling Assumptions

It must be noted that the key assumptions related to the Choice Modelling methodology are:

a) All competitive markets conditions remain the same;

b) Perfect knowledge exists within the market (100% awareness);

c) Choice attributes are based only on those specified in the Choice Modelling design,

d) All choice attributes in the design are assumed to be significant drivers of choice, and

e) Choice modelling estimates Preference Share, which is not Market Share

The following attributes were tested with customers of the three networks within the choice modelling exercise

Attribute	Definition	Levels and Options Tested with Customers
Responsibility For Managing This Offer	This refers to the provider who is responsible for managing this product.	**The Victorian Government:** Government bodies such as Solar Victoria **Network distributor:** Distributors that operate and maintain the energy infrastructure, including the poles, wires and stations **Energy retailer:** Companies that provides energy services to end-use customers (e.g. manages your account and sends you your energy bill) **Solar installers:** Installers that come to assemble, set up and maintain rooftop or other systems that convert sunlight into energy.
Fixed Vs Variable Preference Variable product	This refers to how export limits should be restricted.	**Fixed limit:** a fixed maximum capacity of solar energy that can be exported each day **Variable limit:** the maximum export limit changes hourly
System Capacity	This refers to the capacity of the rooftop solar system. (i.e. the maximum amount of energy that your system can export up to) kW is a measure of electrical capacity, kilowatt.	3kw, 5kw, 6kw, 7kw, 8kw
% Of Time You Can Export Up To Your System Capacity	This refers to the percentage of time you can export the full capacity of your rooftop solar system.	100% (fixed only), Variable only: 95%, 90%, 85%, 80%
Variable System Incentive (*Variable Products Only*)	This refers to the discount you will receive off your quarterly electricity bill if you choose this variable limit system.	$0 (no incentive), $20, $40, $60
Additional Cost to Stay on Fixed Product *(Fixed Products Only)*	This refers to the additional cost on your quarterly electricity bill if you choose this fixed limit system.	$0 (no additional cost), $20, $40, $60

Across all three networks, two key factors influenced choice for an export product overall: product being variable and the costs (a deterrent to staying on a fixed product) associated with staying on a fixed product.

This demonstrates that the nature of the variable product alone is influencing choice for a product, whilst the financial deterrent of staying on a fixed product is the most potent lever that can be pulled to influence switching to a variable product.

Graph shows "preference share", or attributes with highest impact. If someone had 100 points to distribute across attributes, percentages indicate importance

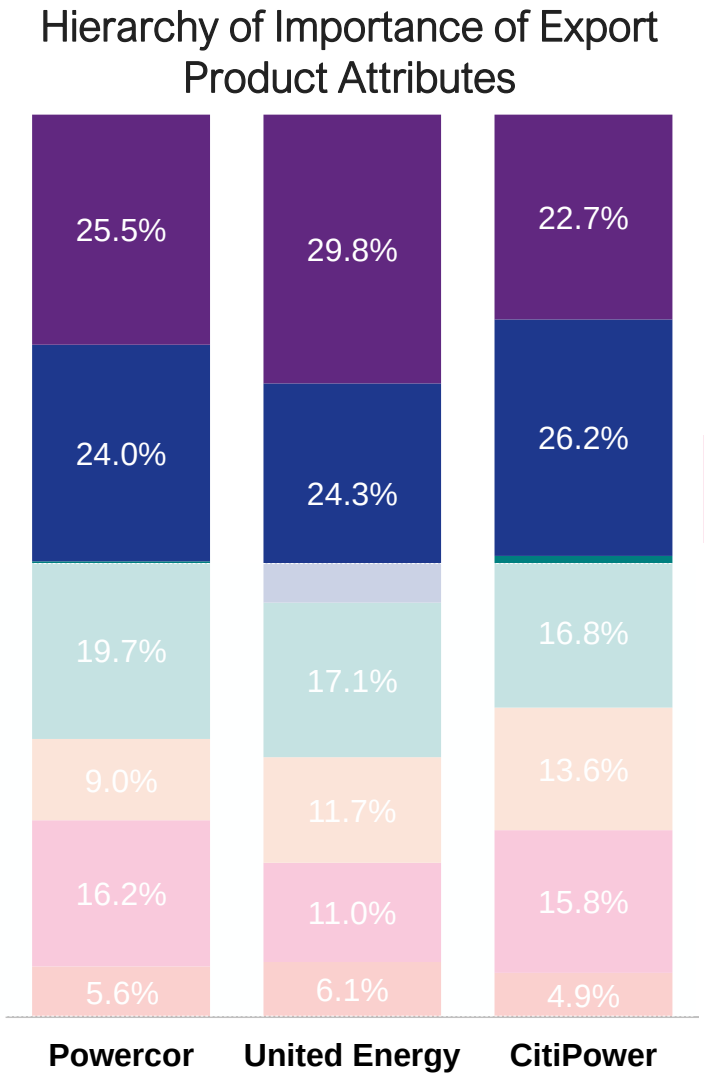


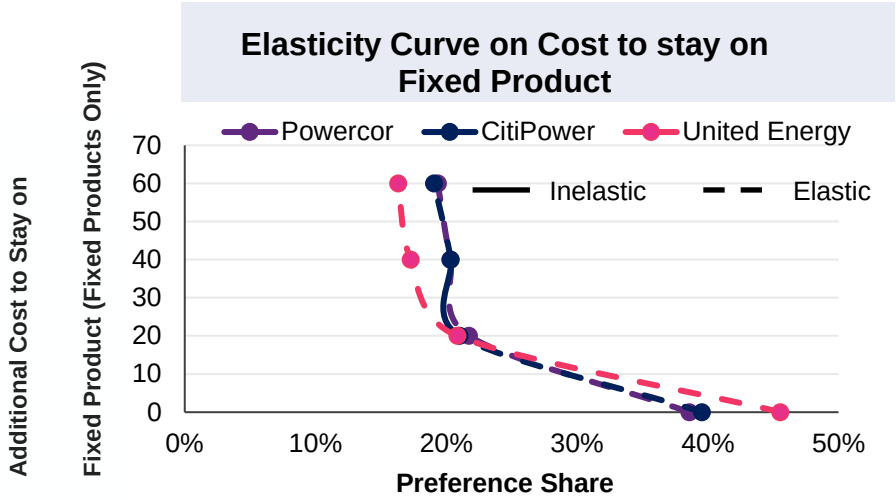
Table shows preference for Variable vs Fixed across networks

Fixed vs Variable	Powercor	United Energy	CitiPower
Fixed	32.5%	22.1%	34.7%
Variable	67.5%	77.9%	65.3%

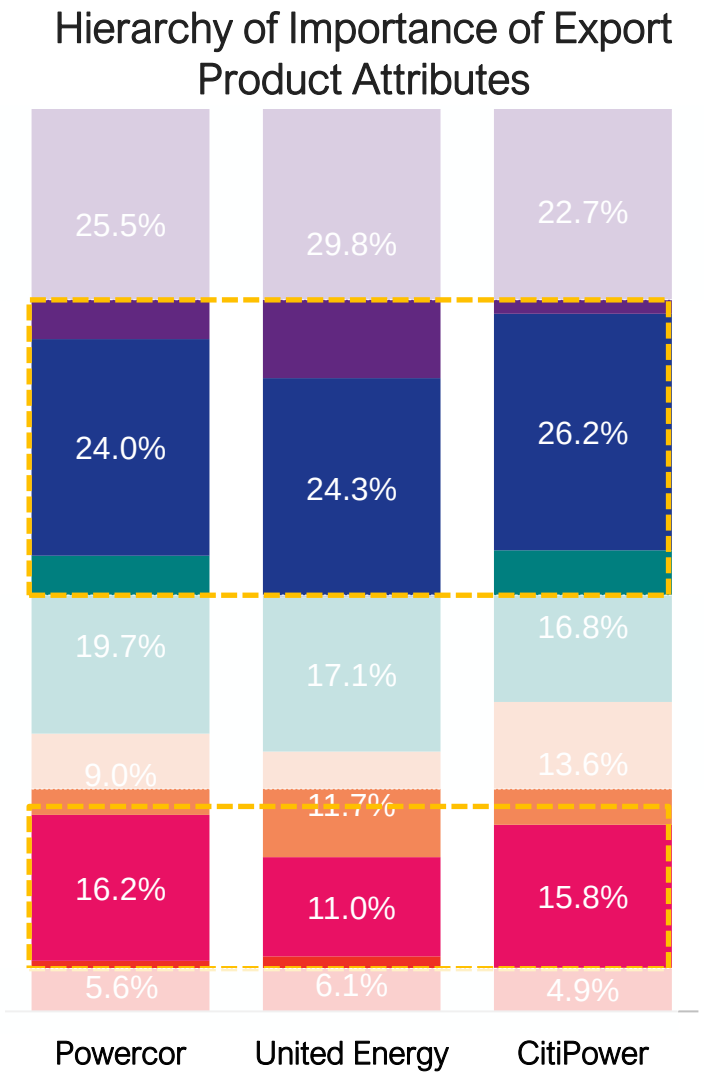
Elasticity Curves Explained

Elasticity curves measure the change in a good's demand when the price (or another relevant variable) changes.

The example to the right demonstrates the change in demand to stay on a fixed product (x-axis) when the customer is charged more to stay on the fixed product (y-axis)

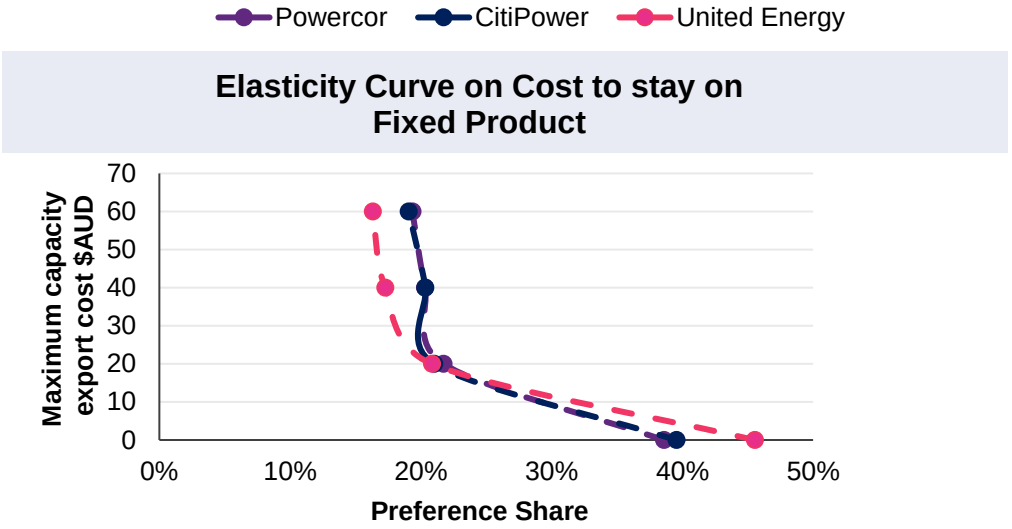


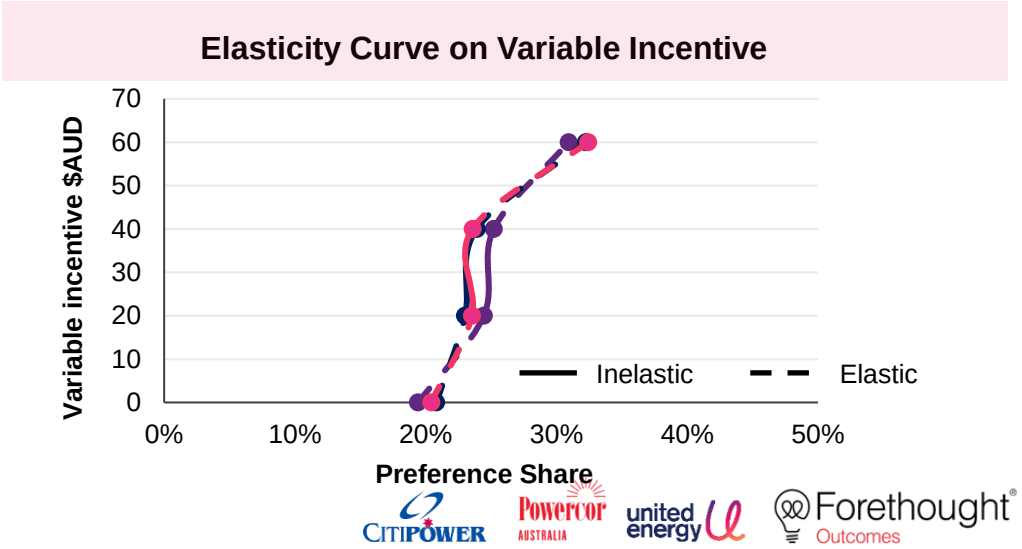
Being charged extra for staying on a fixed product influenced choice more than being incentivised to shift to a variable product



This mentality aligns with the "loss aversion" principle in behavioural economics, and therefore a charge to consumers would be more effective than a discount in changing behaviour in this context.

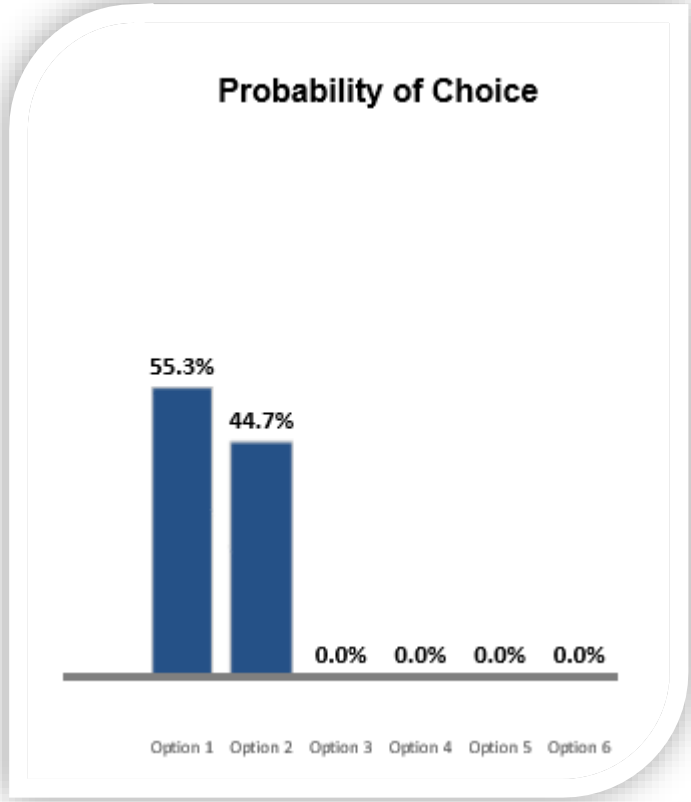
If a financial incentive is to be used to increase uptake of variable products, the incentive would likely need to be greater than $70 per quarter.





In this example in the Powercor network, despite a $40 quarterly discount to shift to a variable product, the base offer of greater export capacity (5kw vs 3kw) and a greater proportion of time you can export (95% vs 80%) had greater preference, highlighting the relative lack of importance of discounts

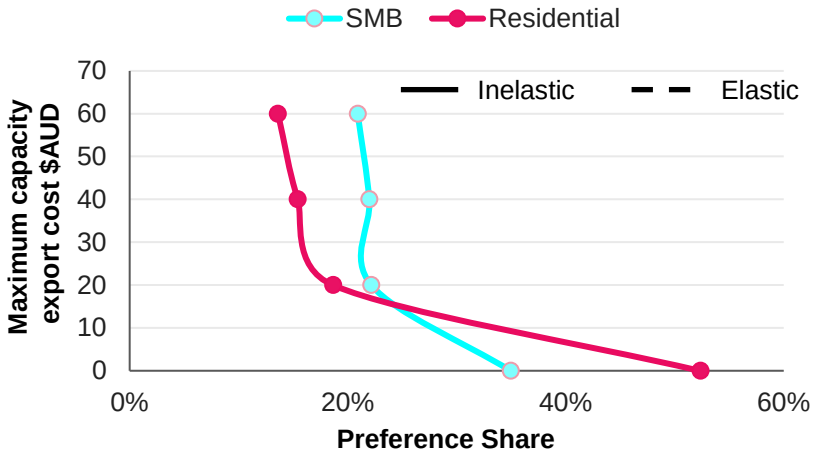
Sample Group:	Powercor	Option 1	Option 2
9.0%	Responsibility	Network Distributor	Network Distributor
25.5%	Fixed vs. Variable	Variable	Variable
19.7%	System Capacity	5kW	3kW
5.6%	% of time you can export	95%	80%
16.2%	Variable incentive	$0, no discounts	40
24.1%	Maximum capacity export cost	$0, no additional costs	$0, no additional costs



In this example, the variable attribute remained constant while the system capacity and % of time you can export was adjusted. Results showed that Option 1 (the previous example) was preferred.

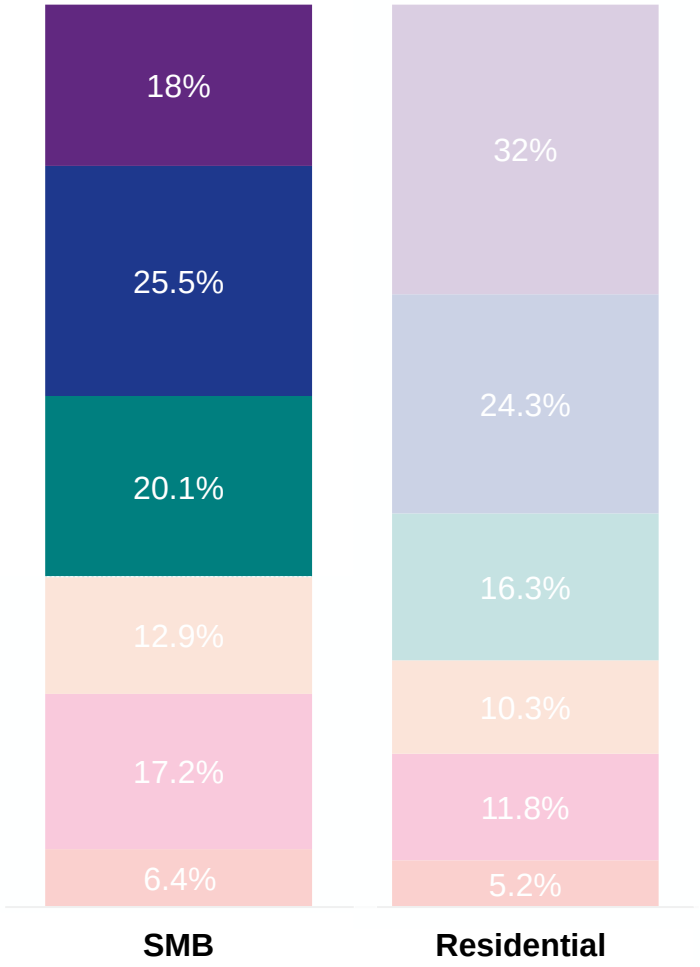
Across all networks, small business customers were more risk-averse than residential customers and were less driven by the type of export product and more so by financial deterrents and the ability to export more.

Elasticity Curve on Cost to stay on Fixed Product - SMB



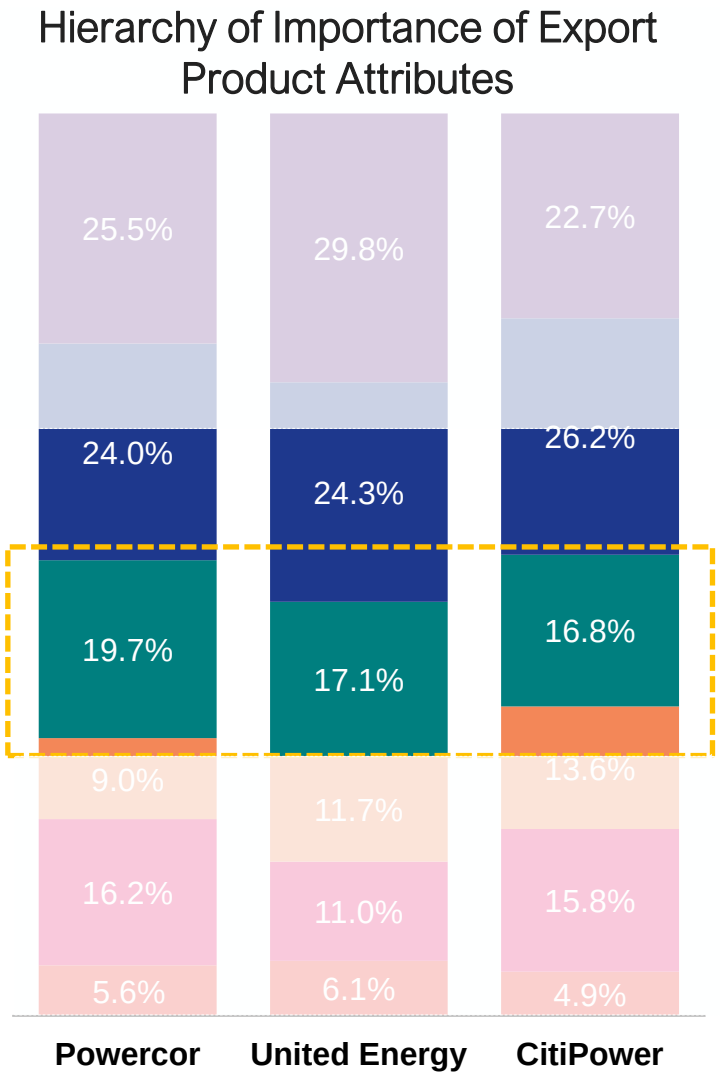
Note: SMB customers already have a lower preference share and therefore impact on preference share is lower

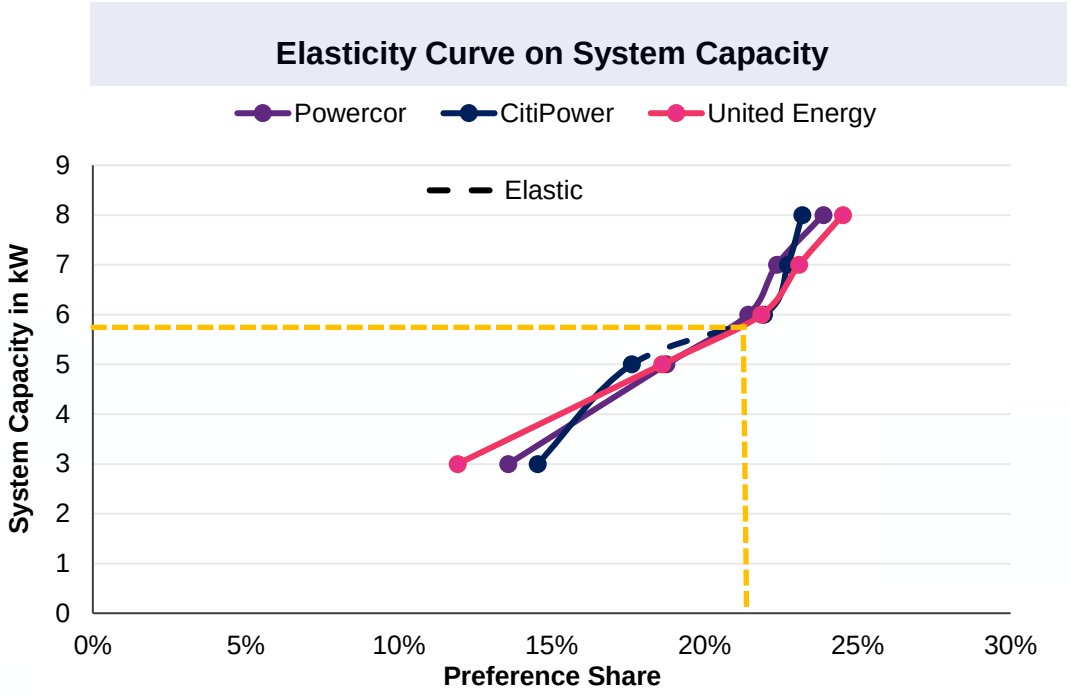
Hierarchy of Importance of Export Product Attributes – SMB Customers



Fixed vs Variable	SMB	Residential
Fixed	41.08%	14.41%
Variable	58.92%	85.59%

Customers indicated they have a strong preference for extra export capacity, however this was mediated by concerns about extra capital outlay for further solar panels if capacity increases above 5kw





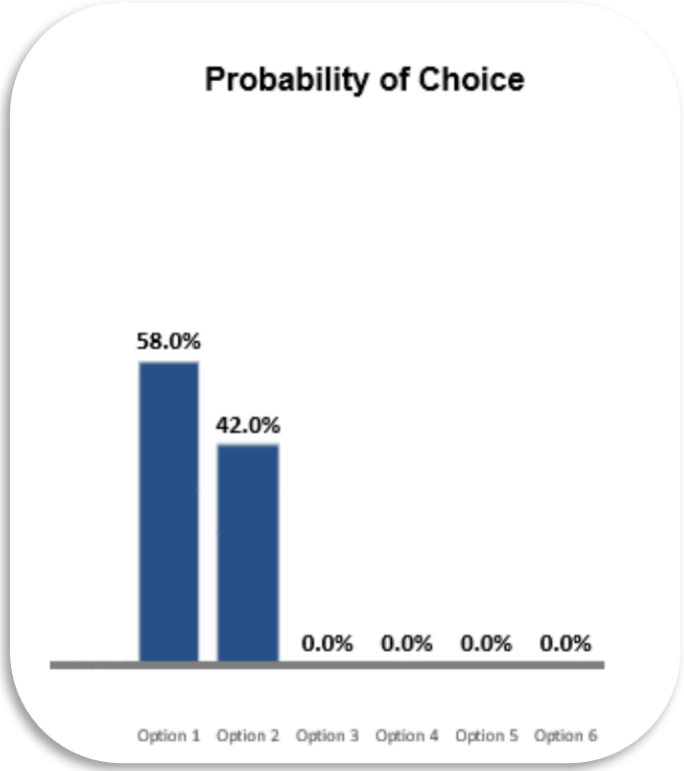
System capacity

Preference for extra export capacity decreases when customers are given the option of increasing capacity from 5kw to 6kw. This indicates that while customers wanted extra capacity they didn't want to invest in more solar panels to get it.

Customers were aware of potential barriers with their current inverter sizes, and concerned about potential cost outlays involved with increasing their capacity.

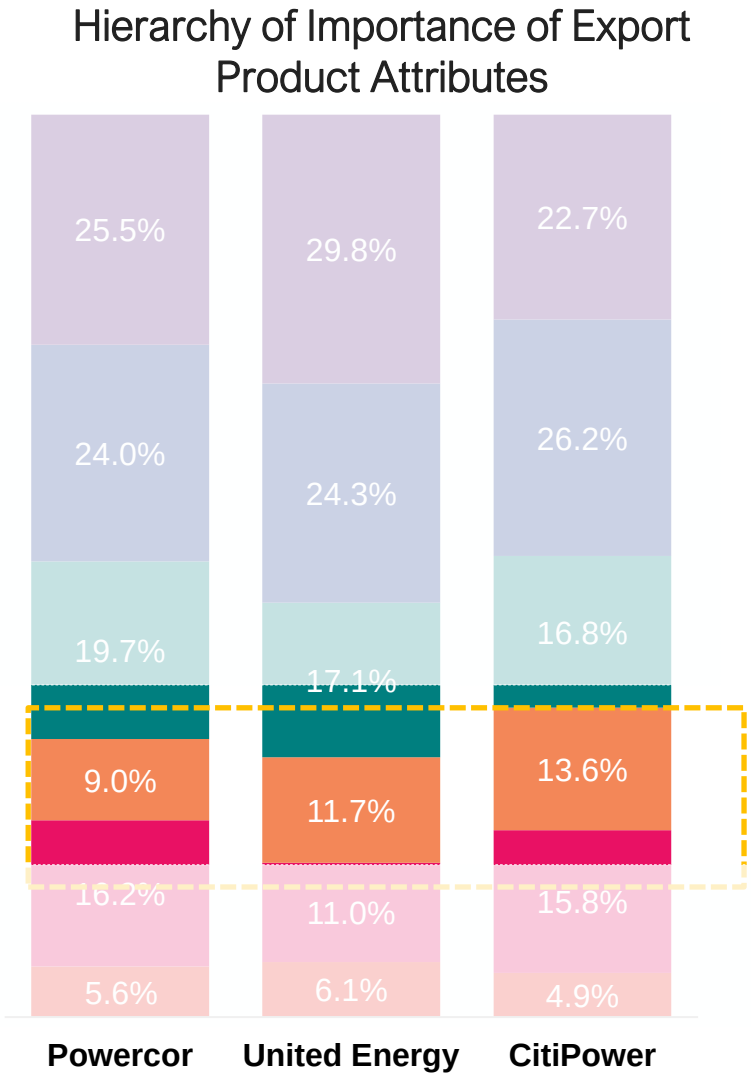
Greater export capacity is a lever that can be pulled in order to drive uptake of the variable product

Sample Group:		Powercor	
		Option 1	Option 2
9.0%	Responsibility	Network Distributor	Network Distributor
25.5%	Fixed vs. Variable	Variable	Variable
19.7%	System Capacity	5kW	3kW
5.6%	% of time you can export	95%	95%
16.2%	Variable incentive	$0, no discounts	$0, no discounts
24.1%	Maximum capacity export cost	$0, no additional costs	$0, no additional costs



In this example (Powercor only), the variable attribute remained constant, while the system capacity was adjusted. On the right, it can be seen that the base offer was preferred, as there was greater export capacity.

Whilst not as important in driving choice as financial deterrents or system capacity, the Victorian Government and Distributors taking responsibility for managing flexible export products was the most likely combination to drive uptake of a product



Responsibility	Powercor	United Energy	CitiPower
Victorian Government	28.0%	30.6%	30.1%
Network Distributor	25.3%	26.2%	25.5%
Energy Retailer	25.1%	24.5%	23.7%
Solar Installers	21.6%	18.7%	20.7%

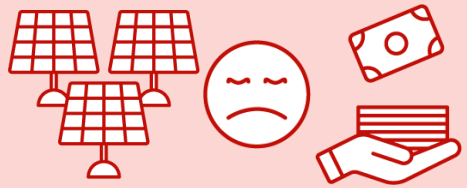
A key task in maximising uptake of a flexible service offering is to ensure that the part that is responsible for rolling out the product is Trusted by customers.

The Role of Industry Stakeholders in Optimising Uptake

Customers had a broad disillusionment with solar and lack of trust in the industry due to various previous experiences and perceptions of the utility of solar and industry players. The contextual understanding of DOE's needs to be considered when communicating new products.

Over the past 20 years solar has been 'sold' to optimistic consumers in Victoria, many of whom now feel it has not delivered on its promises of return on investment, good value, or real impact on renewable energy futures. Hence, many customers feel like they have been 'taken for a ride'.

This has lead to a broad lack of trust in solar delivered by energy providers in Victoria that impacts prospective solar customers' decisions to uptake solar and existing solar customers' likelihood to trust in new solar products and offers.



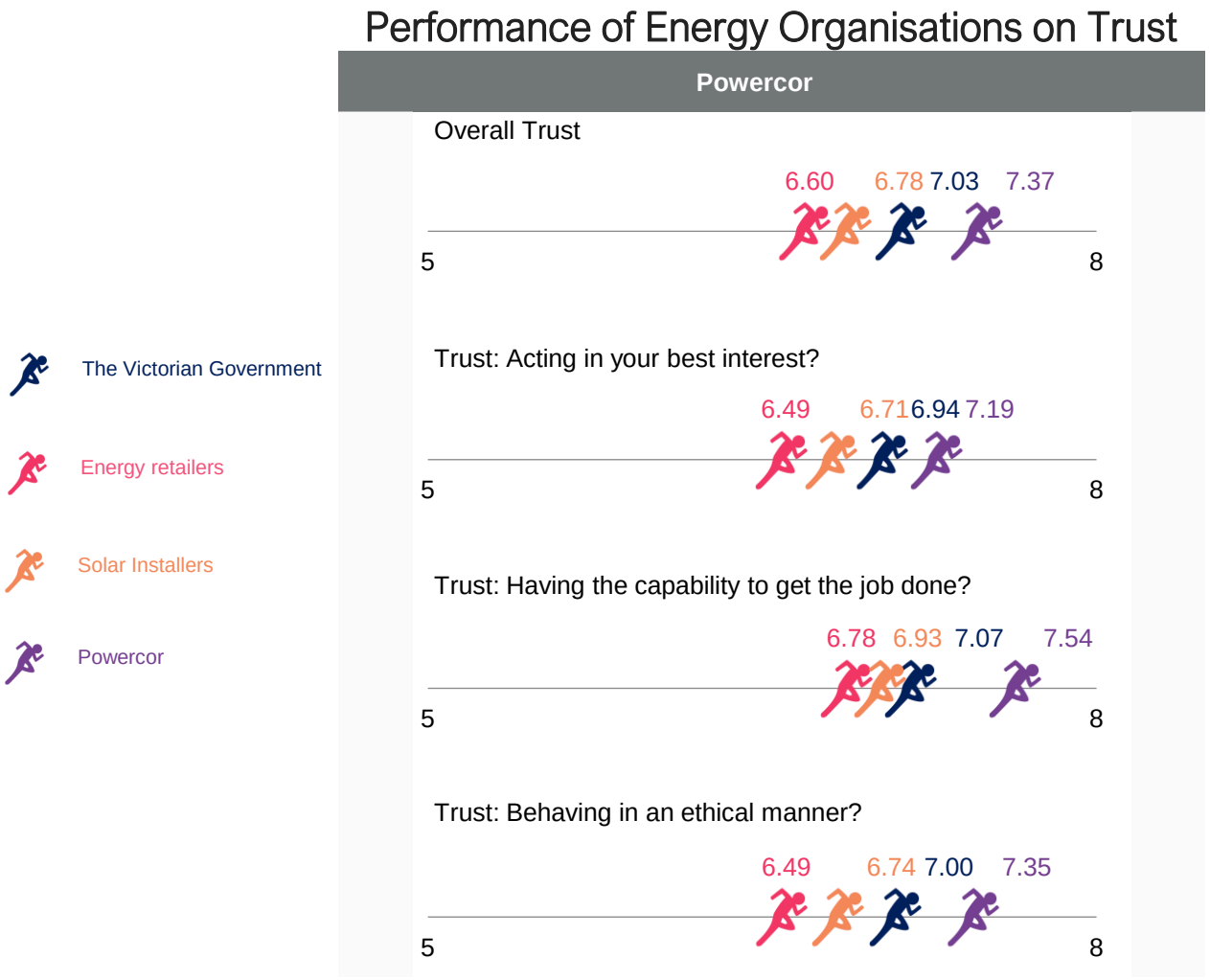
In order to build Trust, first we must deconstruct it…

Deconstructing Trust:
Forethought's trust framework conceptualises three components of trust, which can be mapped onto customers trust in the new solar product offers in order to understand where to address product communications messages to build trust.

Success in building trust in the networks' capability to rollout DOE's will be determined by the degree to which customers believe the networks:

- Are Capable managing the export problem as they say claim to
- Are Benelovent: are acting in customers' best interests
- Are Ethical

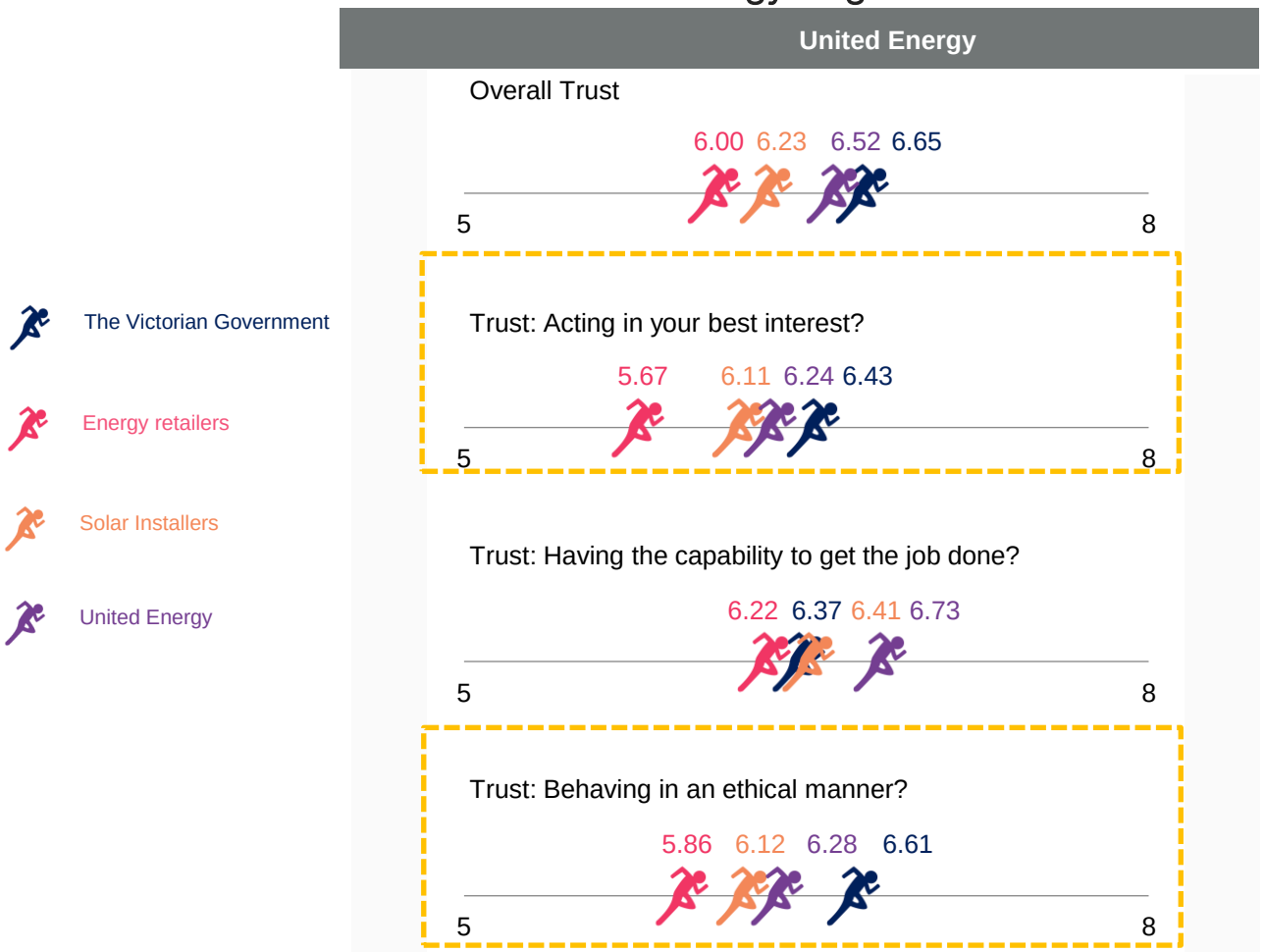
Customers in the Powercor Network rated Powercor higher than all other industry stakeholders on trust



Powercor were trusted more than any other industry stakeholder to roll out the product. This strong brand Trust should be leveraged in communications regarding the new product to customers.

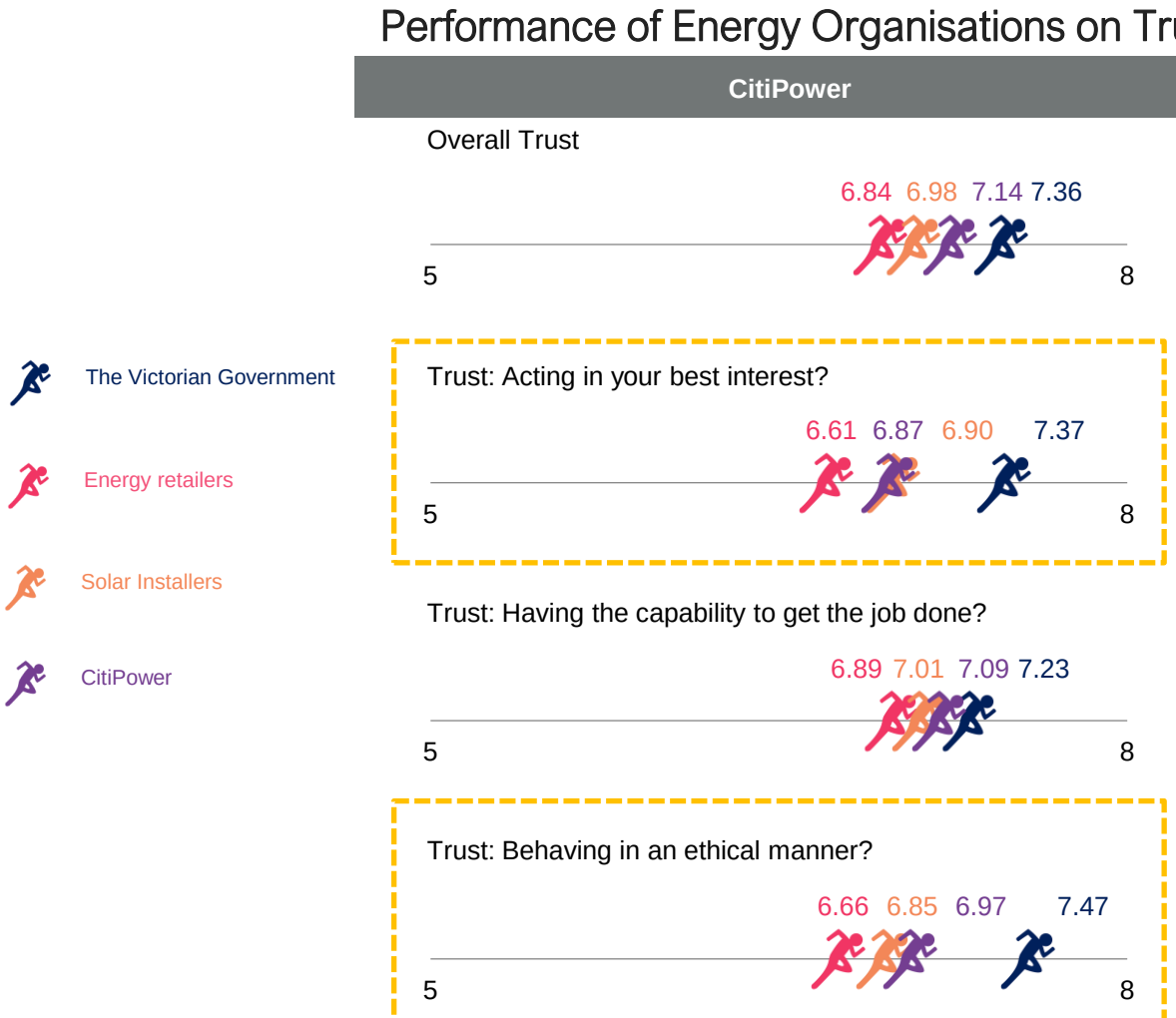
There was an opportunity to build perceptions of acting in customers best interests and behaving in an ethical manner in the United Energy network, or leverage the Trust in the Victorian Government to roll out the product

Performance of Energy Organisations on Trust



United Energy was trusted to have the technical capability to roll out the flexible services offering but trailed Government in being perceived to behave ethically and act in customers best interests.

This was consistent with customers in the CitiPower network, who had far greater trust in the Victorian government on ethics and acting in customer's best interests



There was an opportunity for CitiPower to leverage a partnership with the Victorian Government to roll out the product as there was not high trust in the distributor to act in customers best interests or behave in an ethical manner.

Customers trusted the government more than energy providers to act in their best interests and behave in an ethical manner across the United Energy and CitiPower networks and had varying levels of trust about energy distributors capabilities to find and implement solutions.

	Benevolence Who customers trust to act in their best interests in managing regulation of solar exports	**Ethics** Who customers trust to act ethically and for the greater good	**Capability** Who customers trust to come up with solutions that work
Higher Trust	Government and energy distributors working together *"I think this would need to come from higher up, such as a national government initiative working with industry leaders and experts to manage and solve. Potentially with some involvement from major energy companies that are heavily investing in green energy."* *"There should be an authorised agency from government who should get involved as a third party to help us transfer the extra energy which is generated."*	Energy distributors *"I would more likely trust purchasing solar via a network distributor recommended install. It would instil a layer of confidence."* Energy distributors *"They are really all influenced by the coal industry at a corporate and government level anyway, so none of them can be trusted."*	Energy distributors *"I place my trust in the hands of the energy provider, because I assume that they are professionals who understand their field well and are prepared for the various different scenarios which can occur."* *"I could trust them to have some sort of equipment that would prevent the voltage getting too high, but I am not sure if that technology exists."*
Lower Trust	Retailers *"Retailer installers are just sharks waiting to cash in wherever they can. They don't care whether their work is quality."*	Retailers *"No definitely not. I believe the solar industry is cashing in on consumers concerns for climate change more than having genuine long-term solutions that are sustainable and economically viable* *"Nope. I already got ripped off once buy a solar installer. Won't trust any installer again."*	Solar Installers *"I would hope that a solar installer would have some knowledge as they are setting up the product so would have to have a knowledge of how the grid works. I think they should be responsible for providing some sort of solution."*

There was clear evidence of a need to manage trust surrounding questions of new solar product installers and retailers in flexible product offer communications

As many potential solar customers and some existing solar customers lacked trust in solar installers and retailers this was a potential stumbling block, as many customers saw flexible export products as requiring them to deal with external installers. Ways to address this risk should be implemented.

"We got ripped off by the solar installers, there is no way we're going down that road again" ~ Solar customer, CitiPower

Maintain trust by:

- Partnering with government approved retailers and installers for flexible export products
- Emphasise government regulation in any communications surrounding installation of products or technology
- Consider strict supervision of any installation or product retailers and communicate this

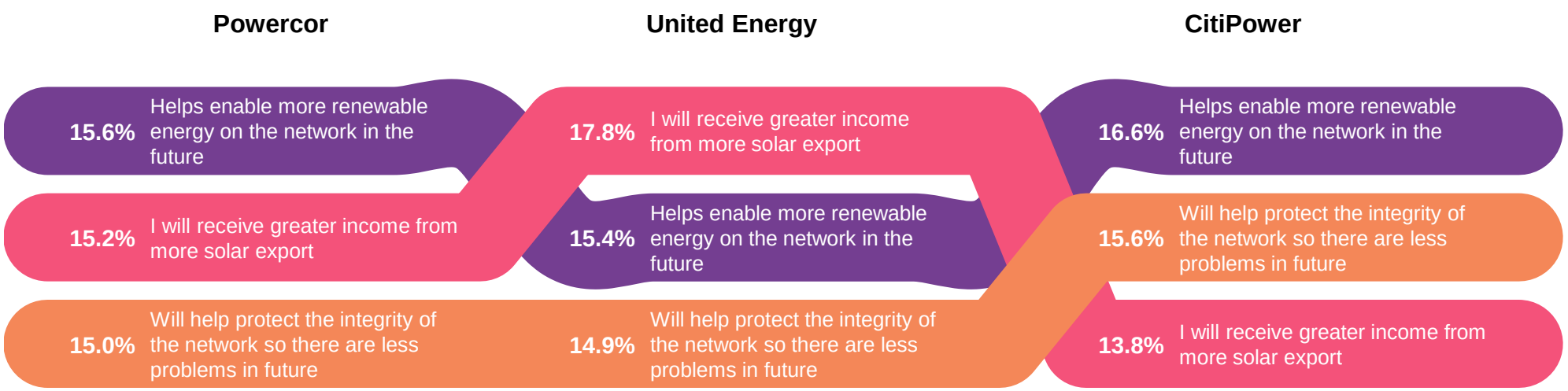
Risk losing trust if:

- No reassurance is given about who will develop, sell, and install and new products
- There is no indication that new product retail and installation will be regulated and supervised

Product Communication Considerations: Product Benefits and Concerns

More renewable energy on the network, receiving greater income from solar export, and protecting integrity of the network were seen as top benefits of Flexible Service Offerings across all 3 networks

Hierarchy of the Benefits of a Flexible Service Offering

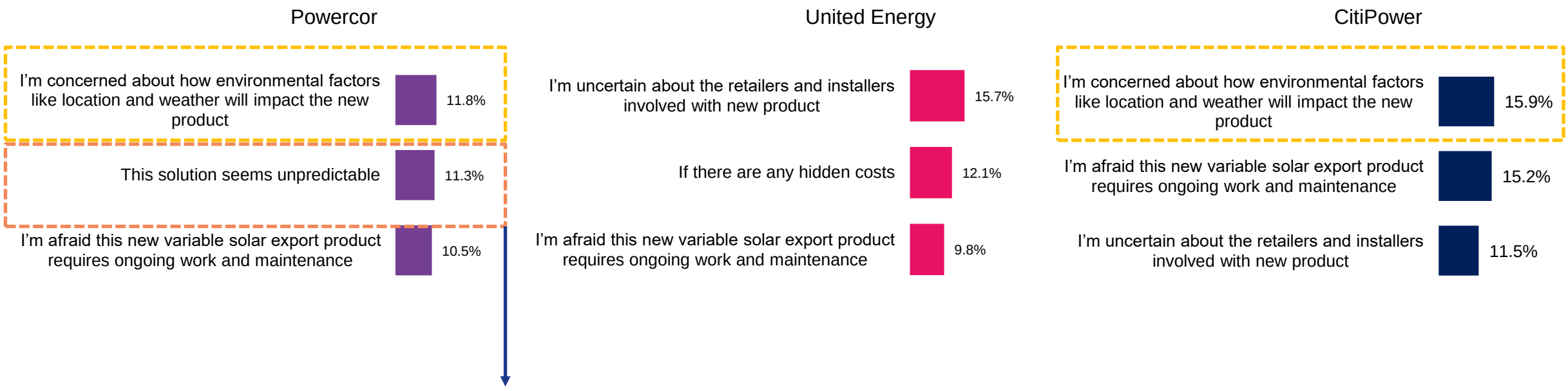


These benefits were connected to the value of providing means to decarbonisation, efficiency and cost savings for customers

Perceived Benefits	**Protecting the integrity of the grid** Protecting the integrity of the grid was a top benefit of the proposed product offers, which appealed to customers as a way of ensuring resilience of networks in the future and reducing outages. It also shows customers morally positioning themselves as caring and loyal, as well as their desire to make their energy source as reliable as possible.	**Ability to export more solar onto the grid** The ability to export more solar onto the grid was a benefit chosen by customers that appealed to their desire to be resourceful, efficient and productive in their use of solar. It also tied in with the moral intuition of sanctity and purity in creating more 'clean', 'pure' solar energy.	**Ability to earn greater income from solar** The ability to earn more from solar export was a clear benefit of adopting a new solar export product as it appealed to customers' desire to get better value from their solar by earning and saving more dollars.
Perceived value	**Being resourceful and productive**	**Better future with more renewable energy**	**Saving money**
Moral drivers	Care/ Harm *"Protecting the integrity of the network is also important, because consumers need to have a certain level of trust in the product."* ~ Solar customer, CitiPower	**Sanctity/ Degradation** *"If we cannot export all the power we generate from solar it will be wasted. We'd like to export as much as possible. If we make it, we should be able to use it."* ~ Solar customer, CitiPower	**Care/ Harm** *"Looking at the ever increasing cost of living at the moment it is vitally important to me to save as much as I can. Receiving greater income from more exports will obviously help me to achieve this."* ~ Solar customer, United Energy

Across the three networks, the potential impact of environmental factors, the unpredictability of the product, ongoing work and maintenance, and the retailers and installers involved with the new product were of the greatest concern

Concerns around the proposed Variable Solar Export Product? (Ranking)

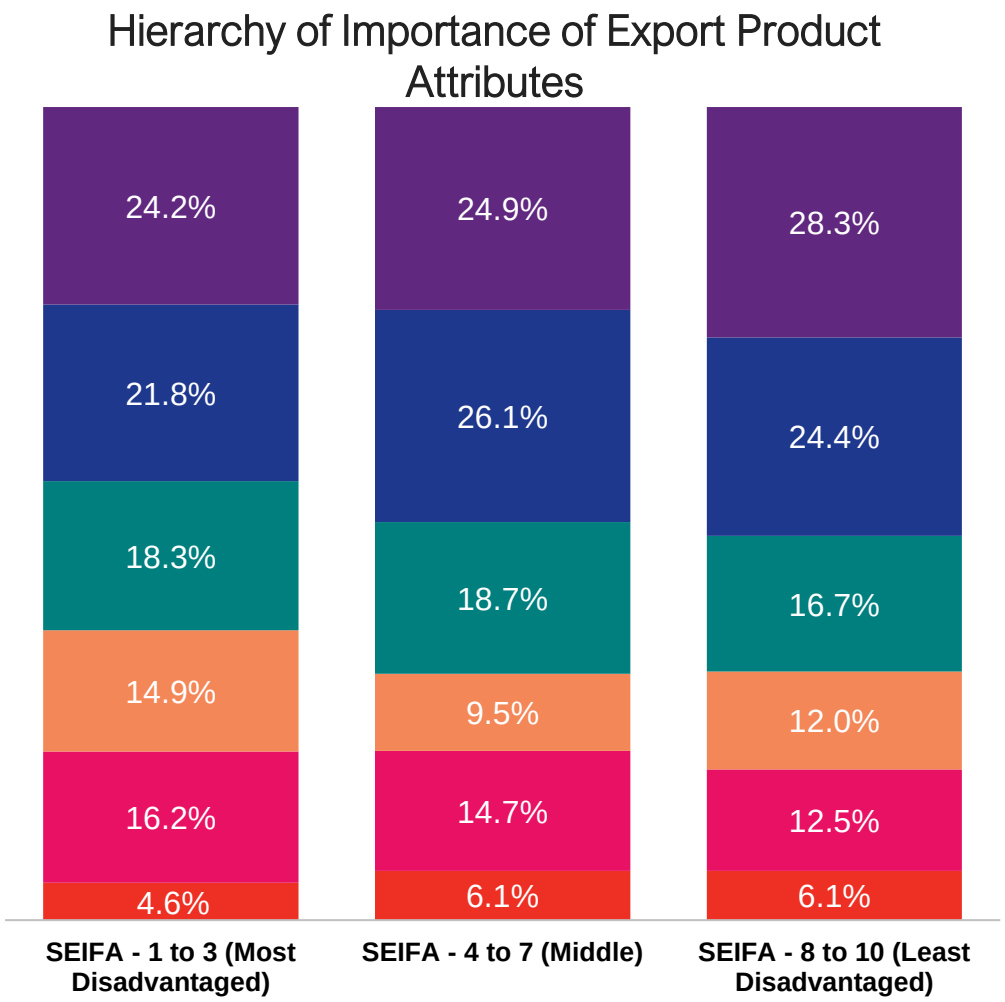


SMB customers (12.8%) were more likely to rate this higher as a concern than residential customers (4.4.%), signaling the need to ensure financial returns to small business customers.

Assurance of the security of financial returns Flexible Service Offerings needs to be communicated to manage concerns about the perceived unpredictability of the product and the perceived extra effort and cost that is involved in maintaining the product.

Appendix

There were no significant differences in preferences across socio-economic groups



Graph shows preference according to participants Social-Economic Indexes for Areas (SEIFA) score rankings

- Fixed vs Variable
- Maximum capcity export cost
- System Capacity
- Responsibility
- Variable incentive
- % of time you can export

Full Hierarchy of the Benefits of a Flexible Service Offering

Hierarchy of the Benefits of a Flexible Service Offering

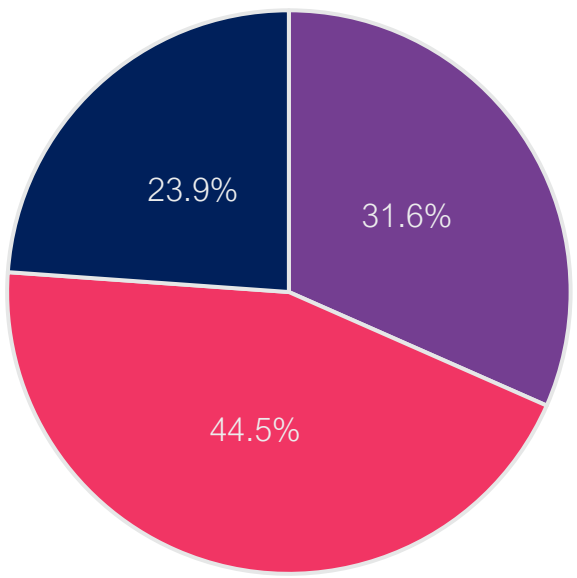
Powercor		United Energy		CitiPower	
15.6%	Helps enable more renewable energy on the network in the future	16.6%	Helps enable more renewable energy on the network in the future	17.8%	I will receive greater income from more solar export
15.2%	I will receive greater income from more solar export	15.6%	Will help protect the integrity of the network so there are less problems in future	15.4%	Helps enable more renewable energy on the network in the future
15.0%	Will help protect the integrity of the network so there are less problems in future	13.8%	I will receive greater income from more solar export	14.9%	Will help protect the integrity of the network so there are less problems in future
13.3%	Greater control and flexibility over my electricity supply	13.4%	Greater control and flexibility over my electricity supply	12.9%	Greater control and flexibility over my electricity supply
12.3%	Less likelihood of power outages	12.0%	Less likelihood of power outages	12.8%	Less likelihood of power outages
11.3%	Able to export more solar onto the network	11.4%	Able to export more solar onto the network	10.5%	Able to export more solar onto the network
8.9%	Will enable more people to uptake solar	8.8%	Will enable more people to uptake solar	8.2%	Will enable more people to uptake solar
8.4%	Will mean that I can install more solar panels than I currently do	8.4%	Will mean that I can install more solar panels than I currently do	7.5%	Will mean that I can install more solar panels than I currently do

Customers' top concerns regarding their future energy supply

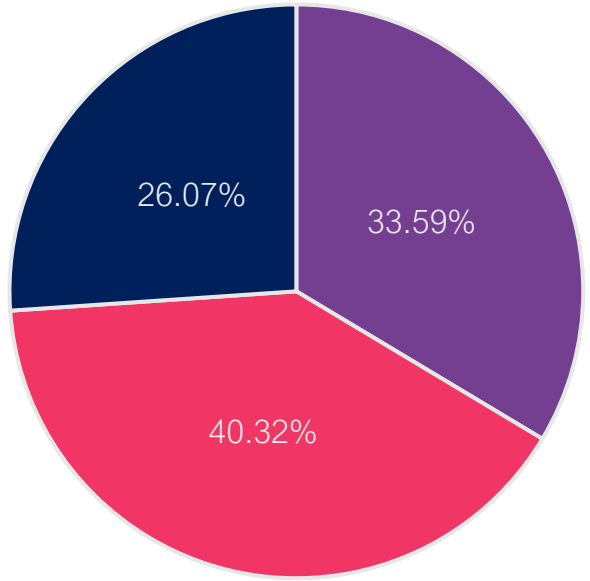
Thinking about energy in the future, please allocate which of the following are important issues for yourself:

- Reliability of electricity supply
- Affordability of electricity
- Increasing the amount of renewables in my electricity supply

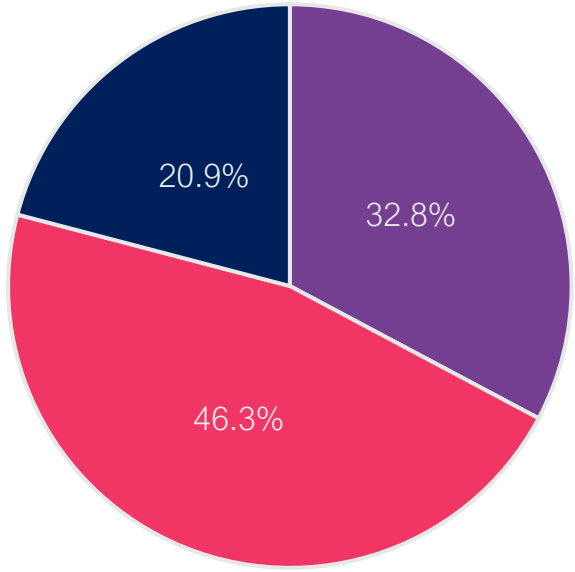
Powercor



United Energy

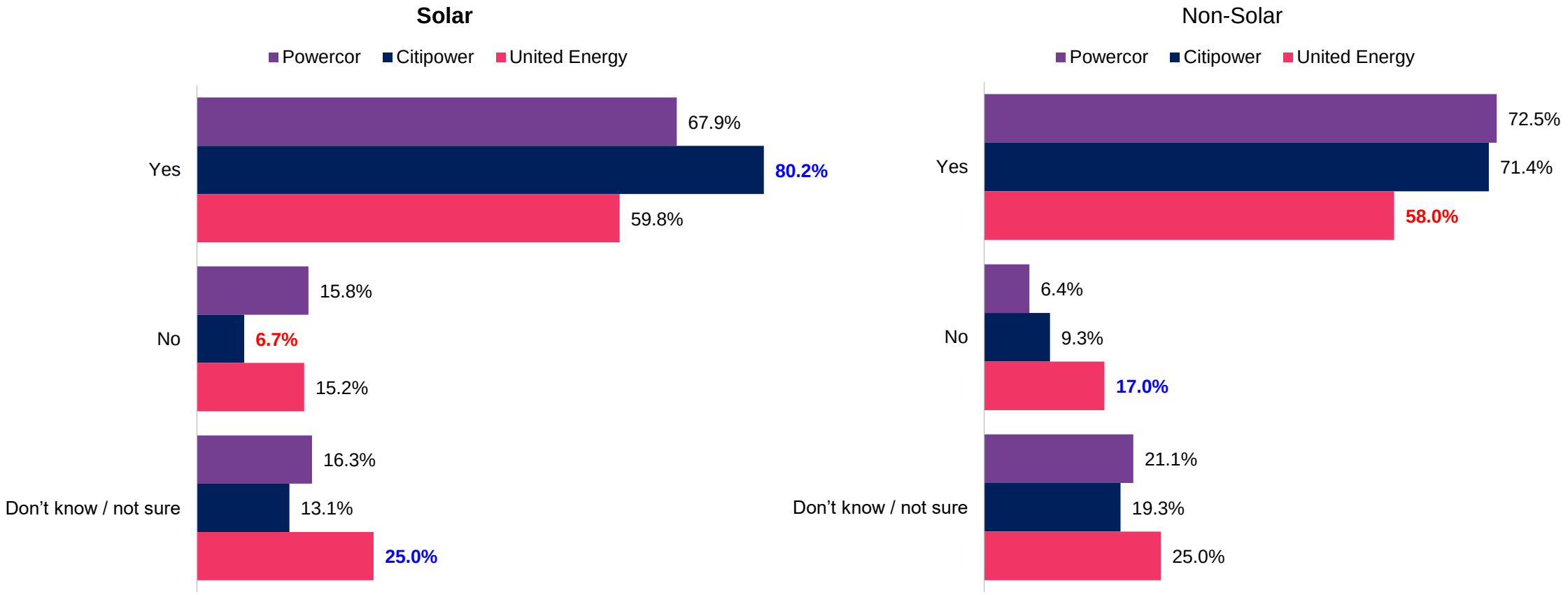


CitiPower



A majority of customers across both solar and non-solar groups agreed that electricity distributors face challenges when managing solar exports

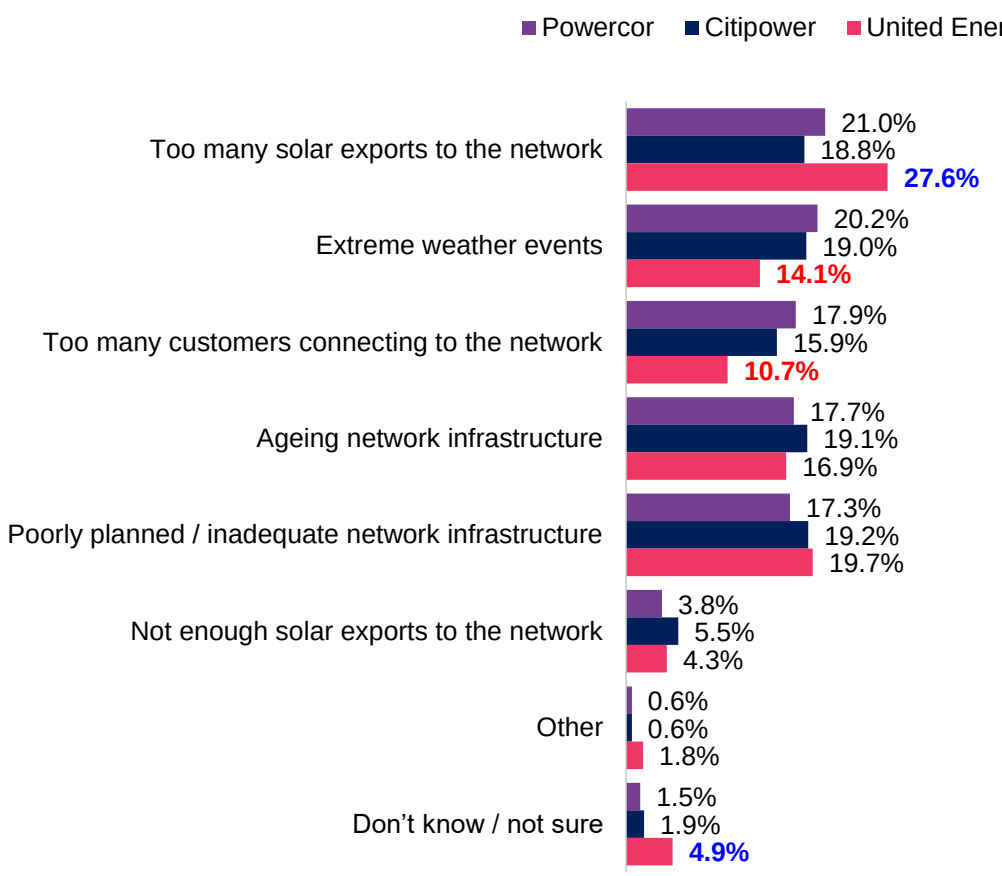
Do you think there are any challenges that are faced by electricity distributors when connecting and managing solar energy?



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

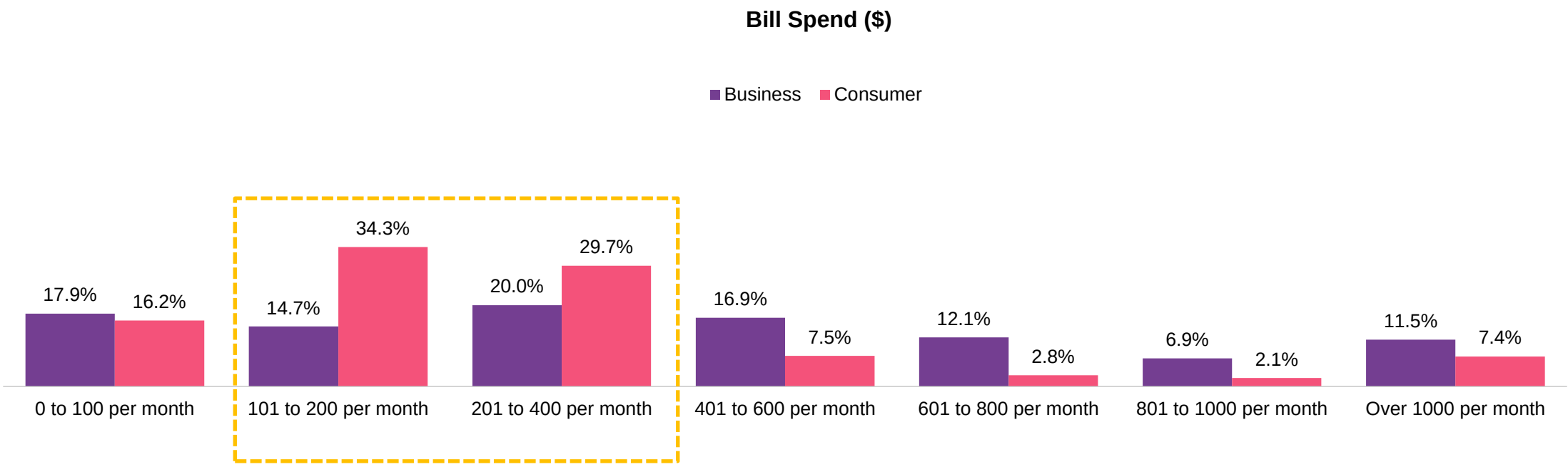
Post being presented with information on the challenges faced by distributors due to excess solar on the network, there was still confusion as to main cause of challenges faced by electricity distributors

Now, thinking about the information presented in the previous screen, what is the main cause of the current challenges faced by electricity distributors?



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

Graph shows break down of residential and SMB participant demographics per bill spend



The majority of residential customer participants were in the 100 – 400 bill spend per month bracket, and a significant amount of SMB customers were also in this range

Marketing Advisory, Strategy and Analytics

Brand Strategy
Creative Efficacy ™
Customer Experience
Offer Optimisation
Engagement
Analytics
B2B

Contact Us

Asia Pacific

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

North America

Level 5 400 Madison Av
New York NY 10017
USA
+1 929 239 3080

www.forethought.com.au

CitiPower Powercor Australia united energy Forethought Outcomes