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Part of Energy Queensland

Queensland Household Energy Survey 2022

Foreword

We are witnessing unprecedented times in Australia's energy sector, as technical and commercial complexities from the energy transformation and global impacts unfold.

The electricity industry is being challenged in its response to these rapid changes and a key input is the valuable customer insights gathered in the Queensland Household Energy Survey (QHES).

The rapid rise in wholesale electricity prices in the months following the survey is an example of just how quickly the environment is changing. We are acutely aware of the potential adverse impacts this presents for our customers and are committed to working together across the supply chain, with government and industry to minimise price rises and support all our customers.

Understanding our customers' views and behaviours regarding the big issues facing our industry, including cost and reliability, minimum demand, solar PV, battery storage, electric vehicles and tariffs is essential for us to make the right decisions now.

The information garnered from the QHES feeds into our network and distribution planning reports and helps our network operators to deliver a power system that meets the energy needs of Queenslanders now and into the future.

It's also about creating a power system and supporting information to help customers make the best and most informed decisions about their energy usage and providing them with a wider range of more accessible and flexible options.

We are pleased to present the high-level findings, which will be important as we transition to a low carbon energy future.

Paul Simshauser,

Chief Executive, Powerlink Queensland

Rod Duke

Chief Executive Officer, Energy Queensland
(incorporating Energex and Ergon Energy Network)

Our Brands

Energex and **Ergon Energy Network** are Energy Queensland's poles and wires distribution businesses and deliver electricity across Queensland. Through our 200,000 kilometres of electricity networks, and 33 stand-alone microgrids, we energise the lives of more than five million Queenslanders, supplying electricity directly to 2.3 million residential and business customers from the Tweed River to Torres Strait and from Brisbane to Birdsville.

Part of Energy Queensland

Powerlink Queensland is a Government Owned Corporation (GOC) that owns, develops, operates and maintains the transmission network in Queensland. We connect Queenslanders to a world-class energy future, providing electricity to five million Queenslanders and 238,000 businesses via the state's distribution networks. We are also responsible for connecting large-scale renewable energy developments, including wind and solar, and providing electricity to large industrial customers in the rail, mining and LNG sectors.

Methodology

Objectives

To understand:

- Consumers' views of the energy sector, particularly in relation to electricity services
- How consumers are managing household electricity bills
- How households are consuming and using energy, in particular electricity
- Perceptions and uptake of new technologies such as solar PV, battery storage, electric vehicles
- Propensity to go off-grid

The Queensland Household Energy Survey has been conducted annually since 2009, however due to changes in planning and a refresh of the survey content no survey was conducted in the 2021 calendar year.

Methodology

- Online survey ~20 minutes duration
- Sample size of 4278* (n=3651 from research panel and 627 from Energex, Ergon Energy Network and Powerlink social media, customer and community stakeholder lists)
- Fieldwork: 14 March – 11 April 2022
- Where possible, 2022 data has been compared to previous survey results.
- The survey was programmed and hosted by Dynata, an international online sampling and data collection organisation.

*Please note that whilst the respondents to the survey provide a good indication of customer sentiment and behaviours, the results are based on the responses of those respondents, which may not reflect the actual situation for the whole of the Queensland population. For example, in the survey 39% of respondents declared they have a digital meter, when actual industry figures show that less than 20% of households in Queensland have a digital meter installed.

Sampling regime

- To ensure representation of customer views from across Queensland in the survey the following minimum locational sampling size requirements were adhered to:

276	Cairns
276	Townsville
133	Mackay – Isaac – Whitsunday
199	Central Queensland
102	Darling Downs
176	Toowoomba
306	Wide Bay
32	Outback*
700	Brisbane
400	Gold Coast
200	Ipswich
200	Logan – Beaudesert
250	Moreton Bay
250	Sunshine Coast
3500	**TOTAL**

*Outback respondents were identified by the following postcodes:
4470, 4478, 4480, 4492, 4725, 4726, 4728, 4735, 4821, 4825, 4871, 4874, 4875, and 4895.

1. Executive summary

Consumers' relationships with their electricity supplier have never been stronger.

Over the previous four years, customers' satisfaction with their electricity supplier has reached highest ever levels, as agreement with all measures of reliability, trust, affordability and security increasing since 2018. There is also a growing belief that the suppliers have struck the correct balance between cost and reliability of electricity supply.

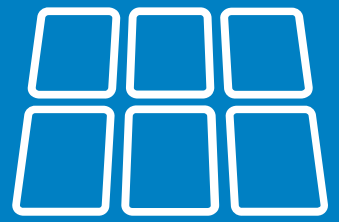
Just over half of all households indicated that they'd had a power outage in the six months prior to the survey, during a very challenging time when many residents were impacted by flooding. Of those who had experienced an outage, the majority were generally satisfied with the time taken to restore electricity to their home, however satisfaction with communications from Energex and Ergon Energy Network in relation to the outages was much lower.

Despite indications that higher electricity prices are starting to impact households, the desire to reduce electricity consumption is generally waning.

The estimated average quarterly household electricity bill increased for the first time since 2016, rising to an average of $338 per quarter. There is an increased expectation of future electricity price increases, with more than half of survey respondents expecting a 5%-15% increase in electricity bills over the next three years.

Nevertheless, households place less emphasis than ever on making an effort to reduce their energy consumption. That is not to say that households are not engaging in other bill-reducing behaviours (such as changing tariffs, changing time-of-day behaviour or greater use of self-consumption from solar panels).

The most effective way to communicate the need to make changes to how households use electricity to help manage peak and minimum demand would be to demonstrate the personal benefits to households and promote both time-of-use tariffs and the uptake of automated appliances.



Uptake and demand for household energy generation, storage and management technology is growing, which brings new challenges for suppliers.

Intention to purchase solar PV increased in 2022, with the main reasons cited as '*lower electricity bills*', '*better for the environment*', and '*concern about future electricity prices*'. Renting rather than owning a property is a major barrier for many who do not already have solar PV.

Battery storage is gaining interest among households with solar PV and these potential buyers are willing to pay more for batteries than previous survey results have indicated. Interest is greatest among those with higher incomes. There is also growing awareness of other storage alternatives, with 34% of survey respondents aware of community batteries.

Queensland's Electric Vehicle (EV) market is maturing with growth in uptake and interest, but the challenges of buying an EV have shifted from lack of information and knowledge to others, such as the perceived lack of charging infrastructure and lack of suitable EV models. New issues are emerging, such as environmental concerns about battery life and sustainability.

There is evidence of growing interest and uptake of energy management solutions. Just under half of survey respondents indicated they are interested in purchasing a home energy management system (HEMS) in the next 3 years. Interest in HEMS is higher among younger people, those in full-time employment and with dependent children in the home. The main appeal of the HEMS is the ability to remotely and automatically control appliances and access information to help reduce energy use.

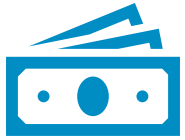
Report highlights the audiences disenfranchised from energy decisions and emerging trends.

Throughout this report, we have identified several themes which point to certain cohorts of Queenslanders who have different attitudes, behaviours and experiences towards energy, in particular their household's electricity supply and use.

These findings point towards people being detached from many important energy developments due to their lack of agency – that is the ability, means or mechanisms to manage their energy use, purchase new technology or change electricity tariffs.

Some of the disenfranchised cohorts are highlighted opposite. Often there is overlap with these factors (e.g., renting, living in an apartment and having lower income), which can further exacerbate the issues.

Identifying these differences is key to ensuring the energy market works for all Queenslanders and the challenges facing the industry are implemented equitably across all sections of the population.



Lower income

Those on lower incomes often have less ability to make major energy purchases, such as solar PV, batteries or EVs. They are more likely to have a higher proportion of their income spent on energy bills and more sensitive to price increases.

Renters

There are a number of factors why those in rental accommodation are restricted from fully participating in the energy decisions for their property. These include their limited ability to make changes to properties, the type of property (more likely to be apartments/units), short-term leases and lower incomes.

Apartments and multi-dwelling buildings

Living in properties without the facilities to install technologies such as solar PV or household storage batteries (without the collaboration of a body corporate) means these energy solutions are not an option for these Queenslanders. Often there are tariff restrictions on multi-unit buildings which can further reduce energy control for this cohort.

Regional Queensland

Regional Queensland has a largely regulated market, with Ergon Retail being the primary electricity retail service provider. This gives a perception of limited product and tariff choice for residents in these areas and can affect sentiment and attitudes.

2. Electricity Sentiment

2. Electricity Sentiment

Positive sentiment towards energy suppliers is increasing with record-high results for all attribute measures.

Customer sentiment across all measures has reached record-high positive results. Since 2018, positive sentiment has increased for the attribute statements – reliability, security, trust and affordability.

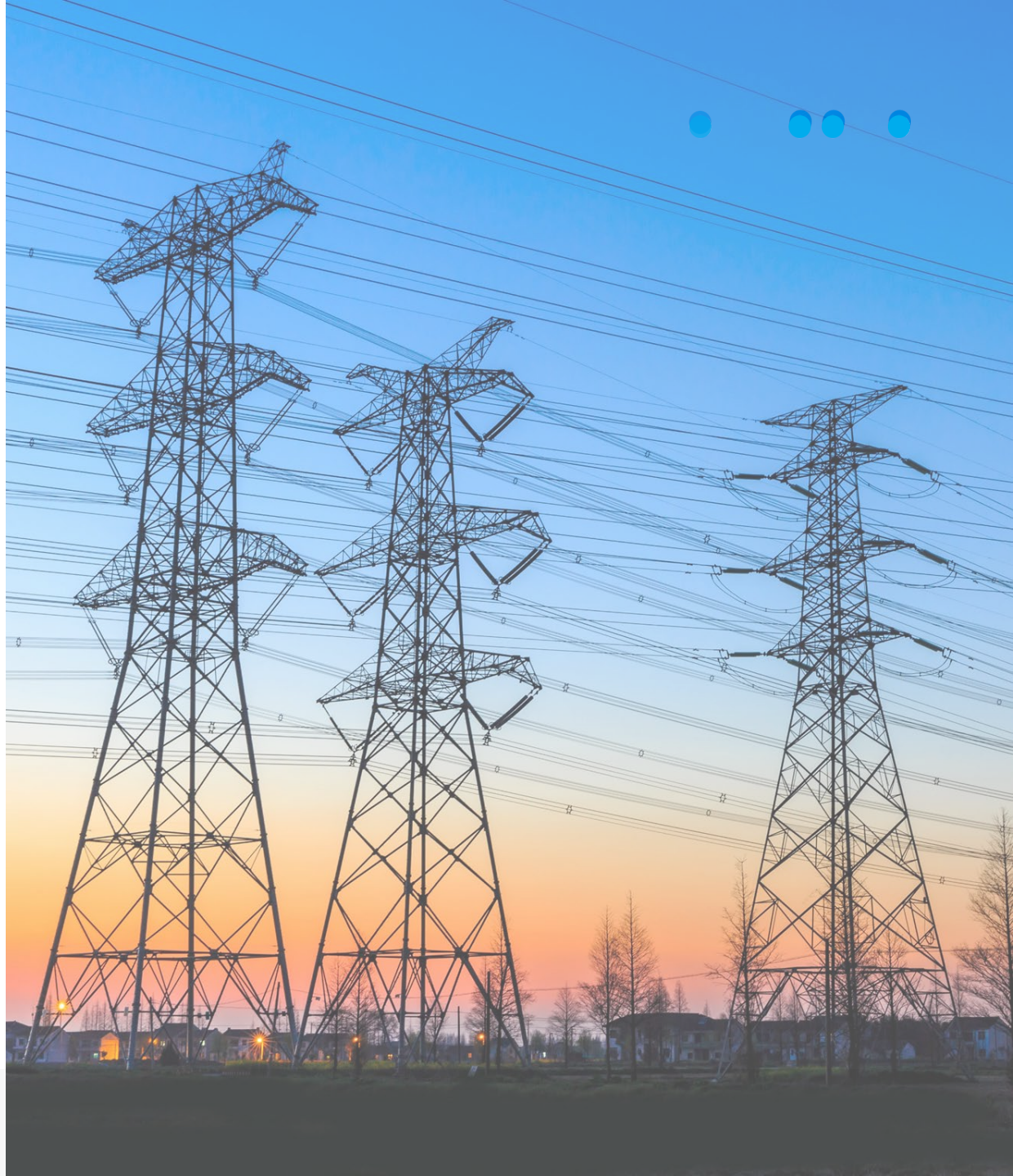
There is also a growing belief since 2018 that the balance is right between the cost and reliability of electricity supply, with a large majority content with the current balance.

Over half of households said that they'd had a power outage in the six months prior to the survey being undertaken. This was evidently during a time when many areas of Queensland (particularly the state's south-east) were affected by significant rainfall and flooding, predominantly caused by the La Niña cyclic oceanic and atmospheric phenomenon.

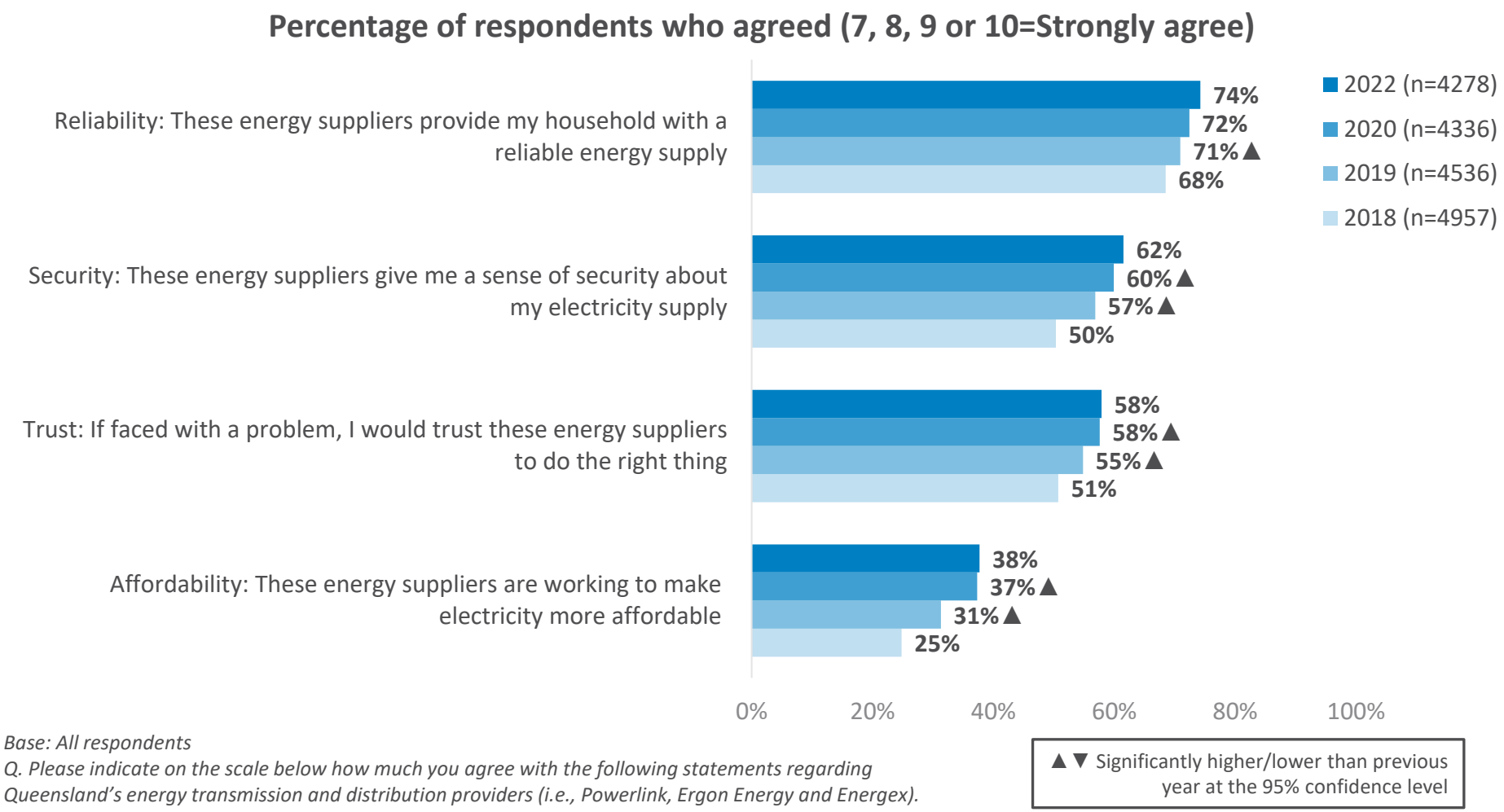
However, in general, households in Regional Queensland were more likely to have been affected by power outages than those in South East Queensland, highlighting the differences in network topologies and area geographics between the two regions.

Of those who had experienced power outages there was general satisfaction with the power restoration timeframe. Households affected by outages in South East Queensland had a higher satisfaction with restoration timeframes than those in Regional Queensland.

However, satisfaction with communications during those power outages was lower than satisfaction with the restoration timeframe, pointing to an area of improvement for providers.



Sentiment measures – positive sentiment has generally increased since 2018.

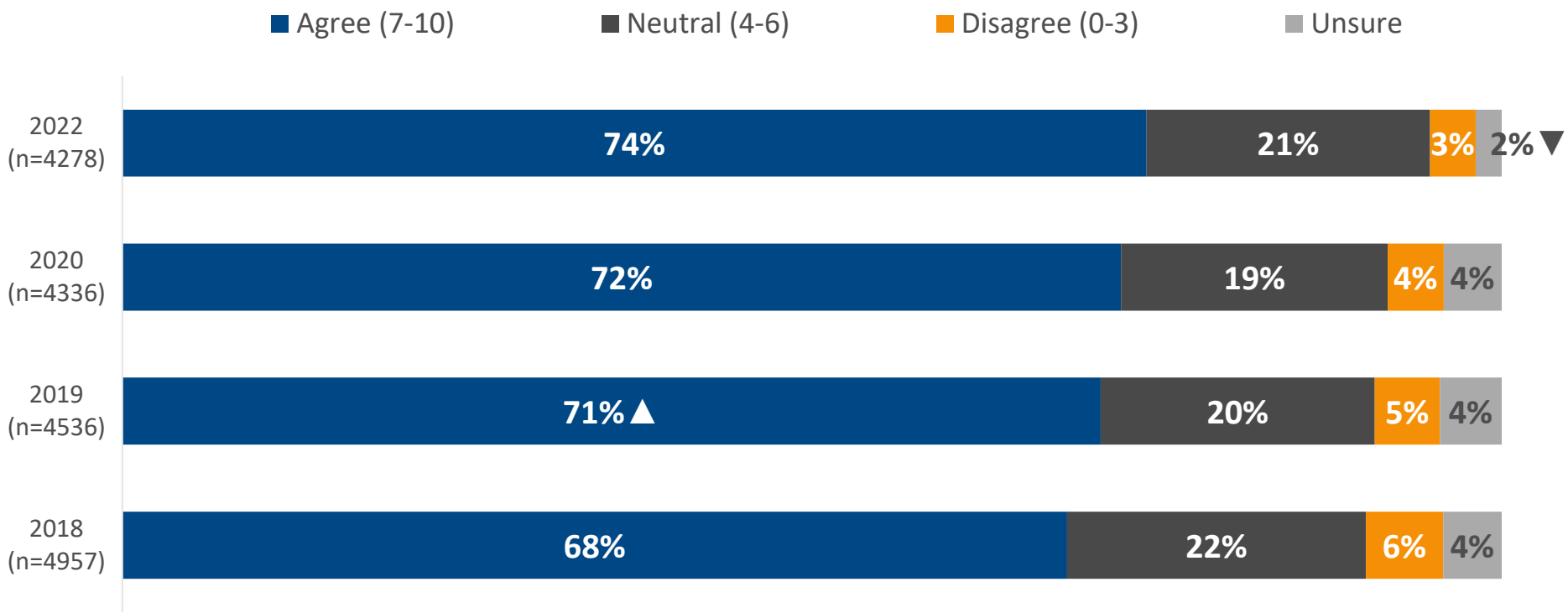


Base: All respondents
Q. Please indicate on the scale below how much you agree with the following statements regarding Queensland's energy transmission and distribution providers (i.e., Powerlink, Ergon Energy and Energex).
[0=Strongly disagree 1 2 3 4 5 6 7 8 9 10=Strongly agree Unsure]

- Regional differences:
  – Central more likely to trust (65%)
  – Northern less positive towards energy providers working to make electricity more affordable (29%)
- Those with solar PV provided more positive sentiment than those without solar PV.
- Those aware of their current tariff were more positive in their sentiment towards energy providers.
- Homeowners or those with a mortgage were more positive than those renting.
- Younger respondents (18-34) were less positive than those aged 55+

Reliability – Positive perception of energy providers continues to improve when it comes to reliability (74% in 2022 compared to 68% in 2018).

These energy suppliers provide my household with a reliable energy supply



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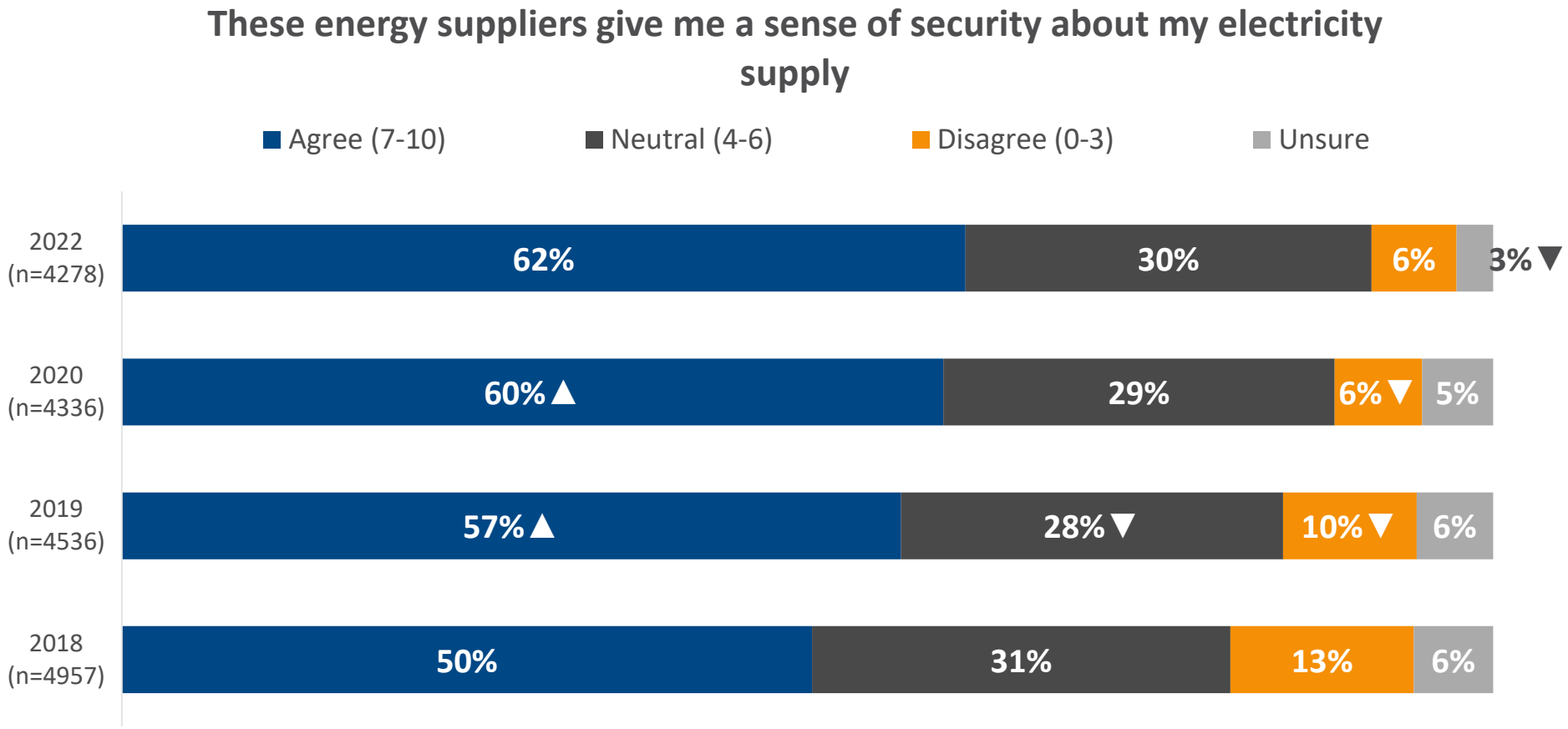
[0=Strongly disagree 1 2 3 4 5 6 7 8 9 10=Strongly agree Unsure]

▲▼ Significantly higher/lower than previous year at the 95% confidence level

- Those aware of their current tariff were more positive towards energy providers than those not aware or unsure. (82% of those aware of their tariff agreed, compared to 70% of those not aware or unsure).
- Those with solar PV were more positive than those without (77% vs. 72%), likewise, EV owners were more positive than non-EV owners (83% vs. 74%).
- Younger respondents were less positive than those aged 55+ (69% of those aged 18-34 agreed, compared to 78% of those aged 55+).

Security of Supply – When asked about security of supply customers are now much more positive than in 2018 (62% in 2022 compared to 50% in 2018).



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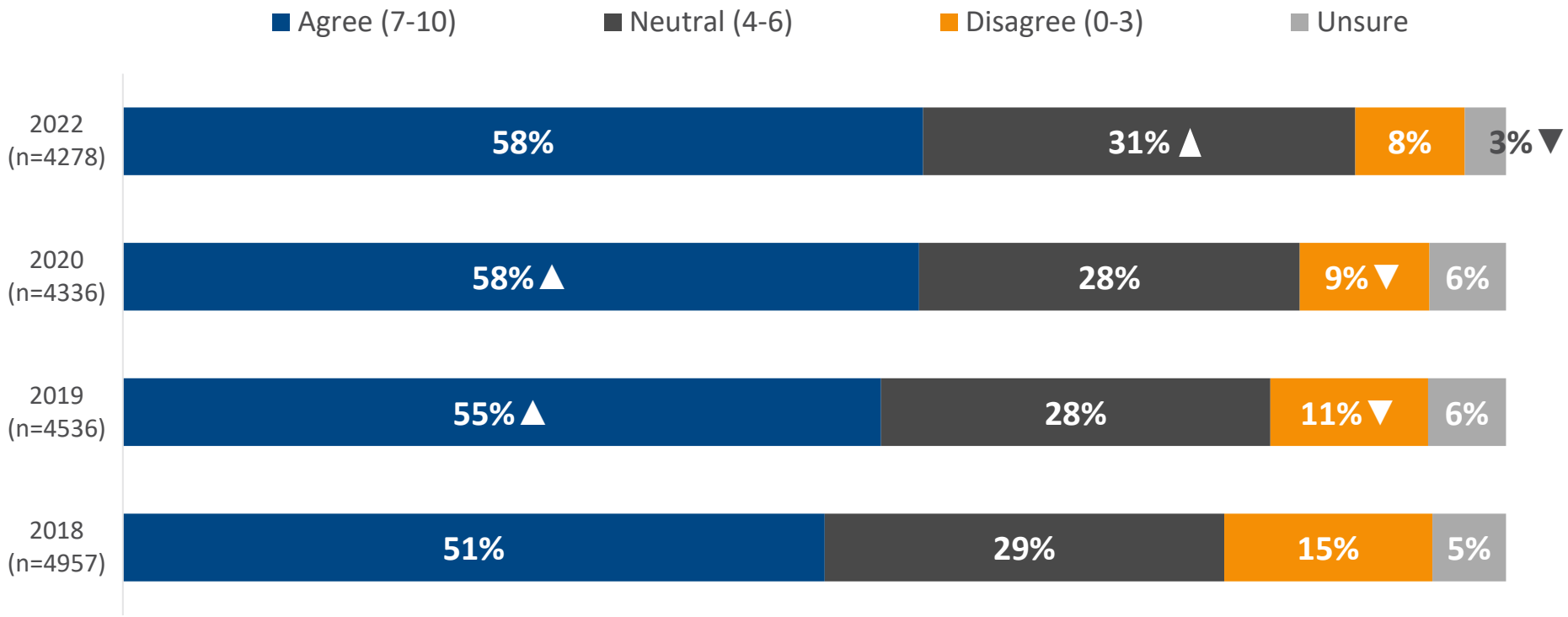
[0=Strongly disagree 1 2 3 4 5 6 7 8 9 10=Strongly agree Unsure]

▲▼ Significantly higher/lower than previous year at the 95% confidence level

- Those aware of their current tariff were more positive towards energy providers than those not aware or unsure. (70% of those aware agreed, compared to 57% of those not aware or unsure).
- Those with solar PV were more positive than those without (66% vs. 58%) and those with battery storage were more positive than those without (77% vs. 64%). EV owners were more positive than non-EV owners (75% vs. 61%).
- Older respondents were more positive than younger respondents (65% of those aged 55+ agreed, compared to 58% of those aged 18-34).

Trust – Even though positive sentiment for trust remained unchanged from 2020, those indicating neutrality increased to 31% (from 28% in 2020).

If faced with a problem, I would trust these energy suppliers to do the right thing



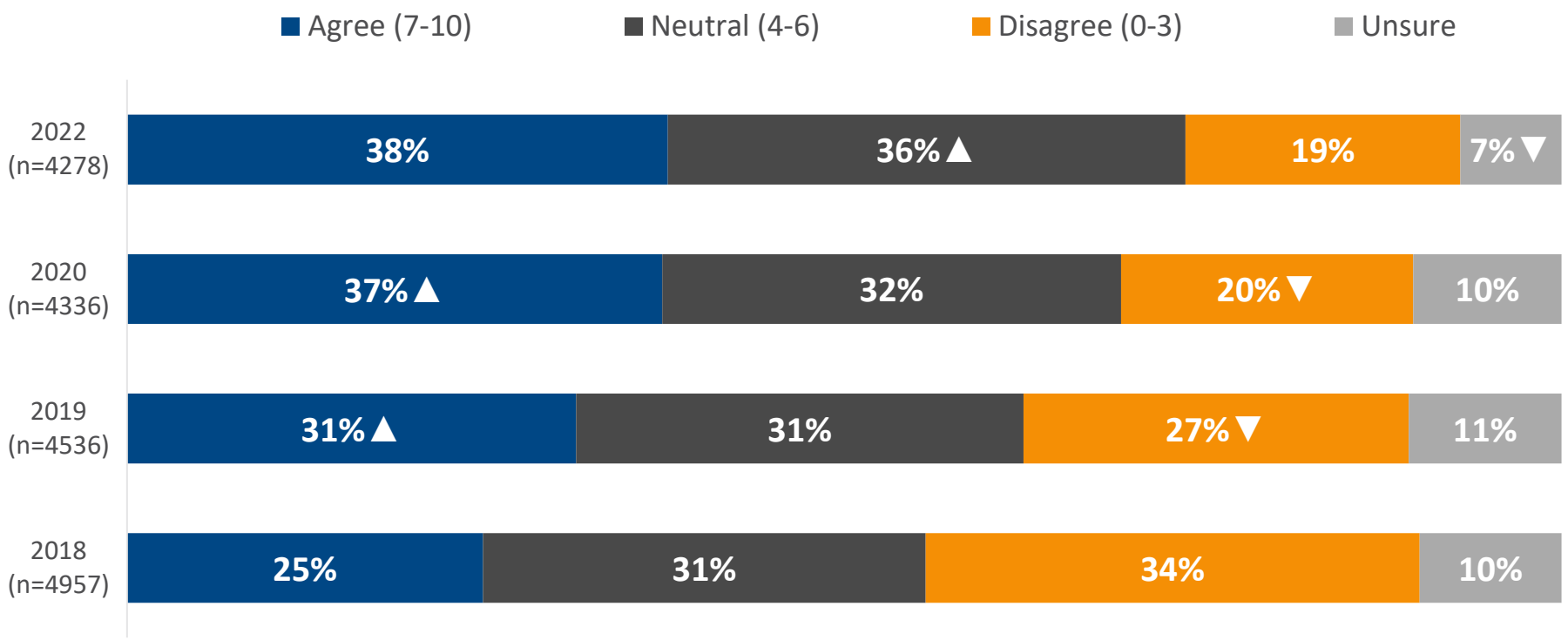
Base: All respondents
Q. Please indicate on the scale below how much you agree with the following statements regarding Queensland's energy transmission and distribution providers (i.e., Powerlink, Ergon Energy and Energex).
[0=Strongly disagree 1 2 3 4 5 6 7 8 9 10=Strongly agree Unsure]

▲▼ Significantly higher/lower than previous year at the 95% confidence level

- Those aware of their current tariff were more positive towards energy providers than those not aware or unsure. (65% of those aware agreed, compared to 54% of those not aware or unsure).
- Those with solar PV were more positive than those without (62% vs. 55%) and those with battery storage were more positive than those without (71% vs. 60%). EV owners were more positive than non-EV owners (67% vs. 57%).
- Older respondents were more positive than younger respondents (62% of those aged 55+ agreed, compared to 54% of those aged 18-34).

Affordability – there has been a small increase in positive sentiment when asked about affordability. However, the percentage of neutrality has increased significantly (from 32% in 2020 to 36% in 2022).

These energy suppliers are working to make electricity more affordable



Base: All respondents
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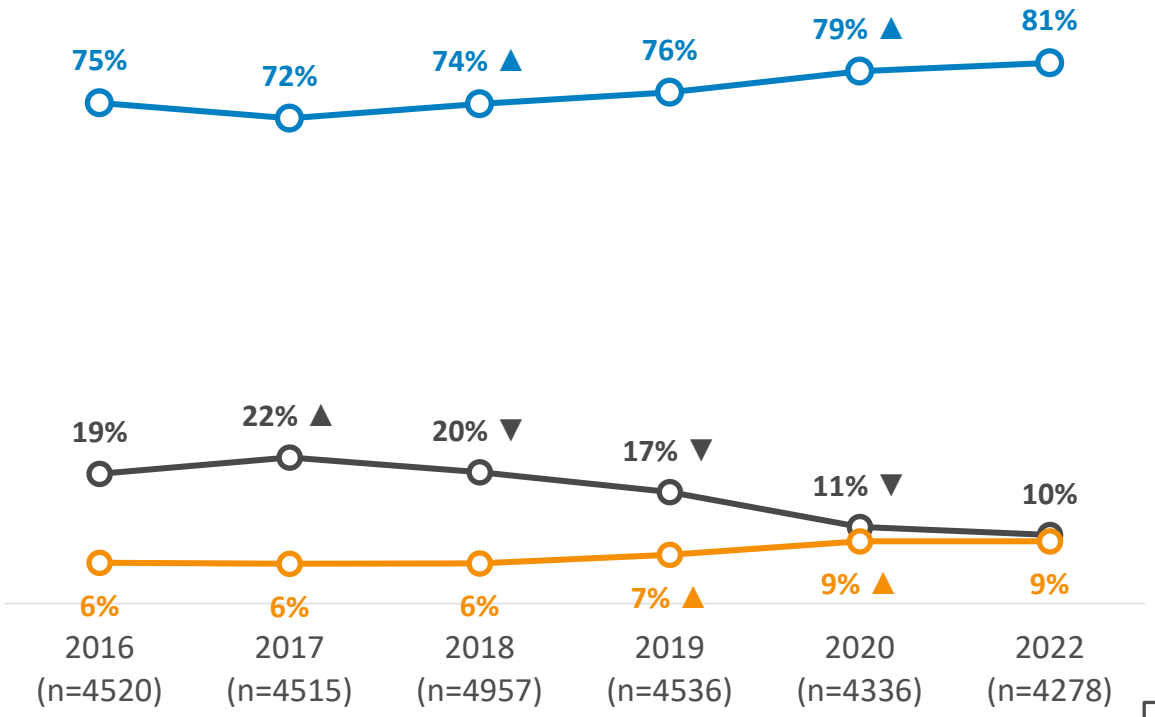
[0=Strongly disagree 1 2 3 4 5 6 7 8 9 10=Strongly agree Unsure]

▲▼ Significantly higher/lower than previous year at the 95% confidence level

- Those aware of their current tariff were more positive towards energy providers than those not aware or unsure. (43% of those aware agreed, compared to 35% of those not aware or unsure).
- Those with solar PV were more positive than those without (41% vs. 35%) and those with battery storage were more positive than those without (56% vs. 38%). EV owners were more positive than non-EV owners (54% vs. 37%).
- Older respondents were more positive than younger respondents (41% of those aged 55+ agreed, compared to 35% of those aged 18-34).

Survey respondents felt that the existing balance between cost and reliability is about right, with this sentiment increasing over time.



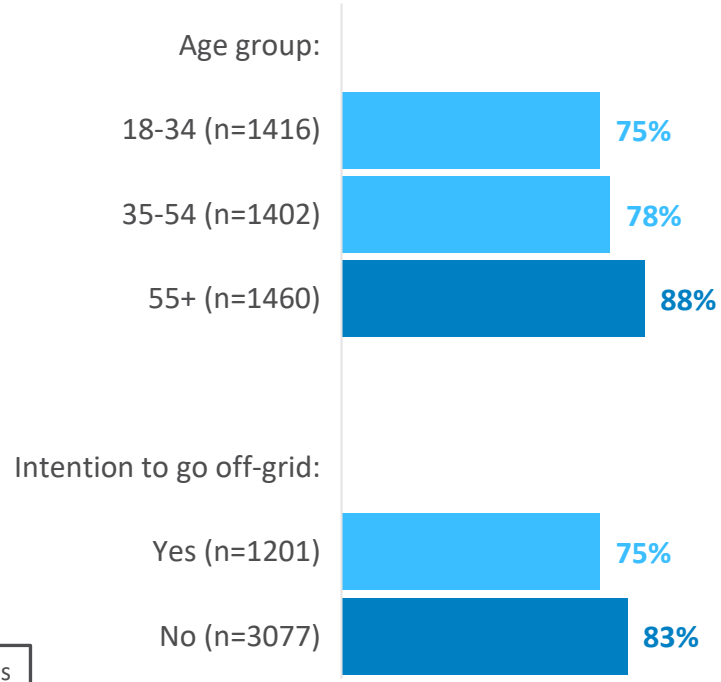
The existing balance between cost and reliability is about right

I would be prepared to accept poorer reliability to reduce my bill

I would be prepared to pay more to have higher reliability

▲▼ Significantly higher/lower than previous year at the 95% confidence level

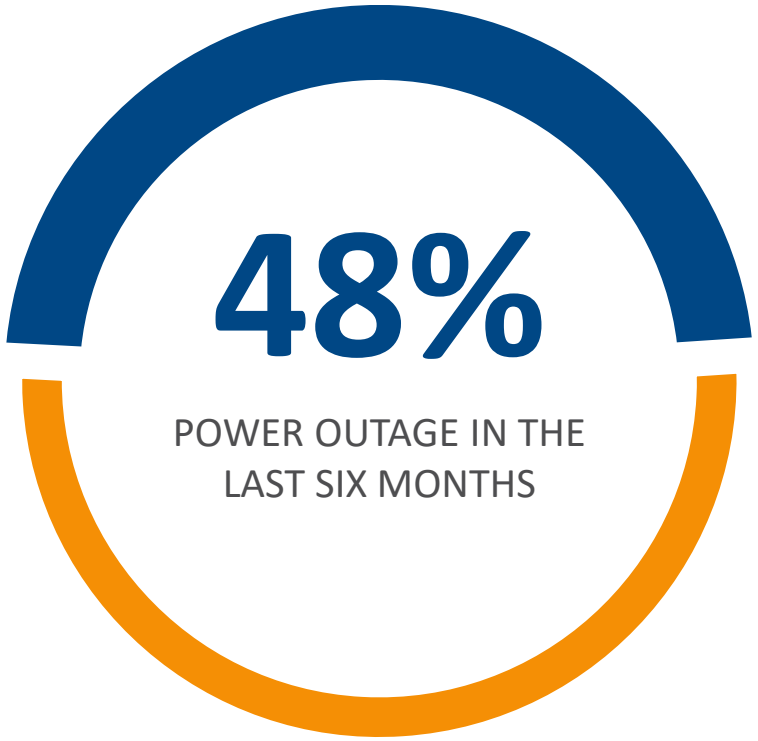
Existing balance between cost and reliability is about right



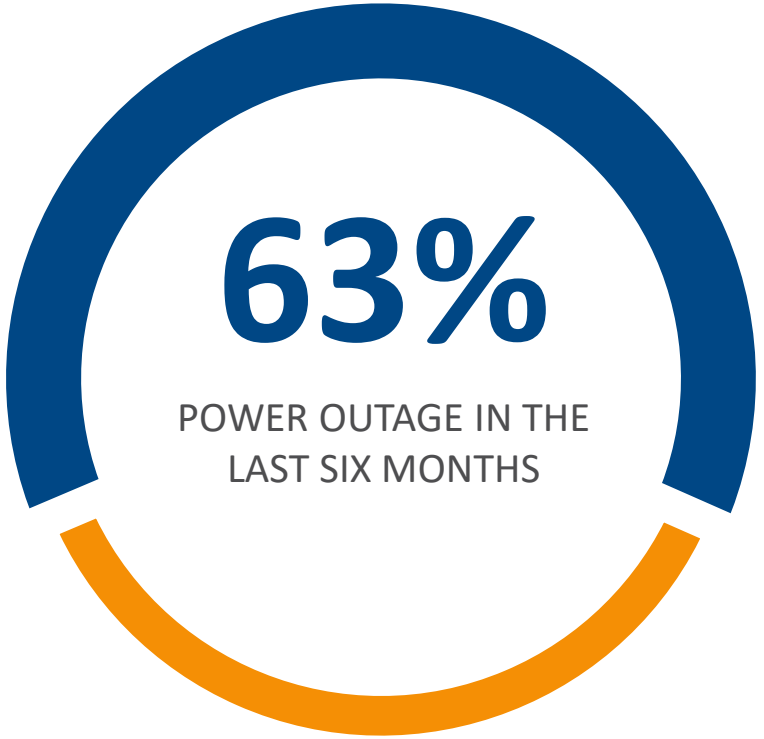
Base: All respondents
Q. When planning the electricity network, there is a need to balance the reliability of electricity supply with the cost of providing that supply. This means that higher costs result in improved supply (i.e., fewer blackouts) and lower costs result in a poorer supply (i.e., more blackouts).
Which of the following statements best reflects how you feel about the balance between the cost of electricity and the reliability of the electricity supply?

More than half (53%) of respondents indicated that they had experienced a power outage in the six months prior to the survey (approx. timeframe Oct '21 – Mar '22). The percentage reporting a power outage in Regional QLD compared to South East QLD is significantly higher (63% vs. 48%).

SOUTH EAST QLD (n=2456)

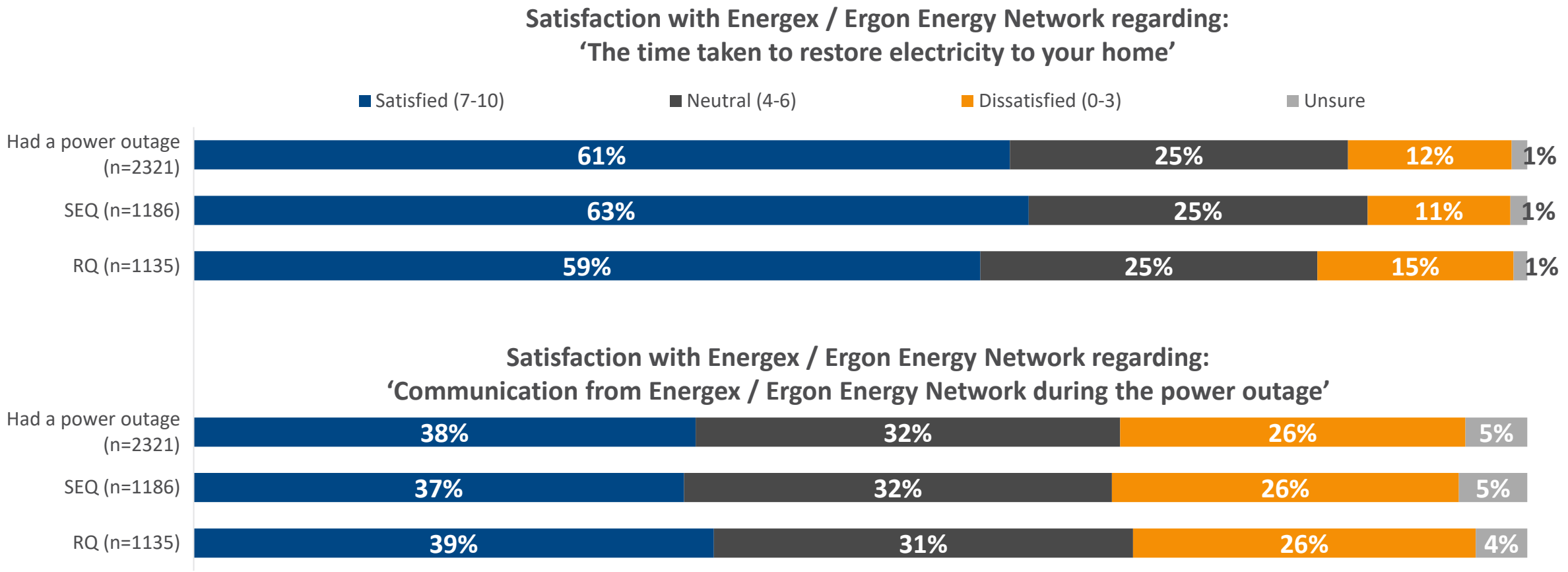


REGIONAL QLD (n=1822)



Base: All respondents
Q. In the last six months, have you experienced any power outages?

Of those who had experienced power outages, there was greater satisfaction with restoration times than with communications around the outages.



Base: Those who experienced an outage
Q. How satisfied you were with Ergon Energy Network regarding the following? (Regional Queensland)
Q. How satisfied you were with Energex regarding the following? (South East Queensland)
[0=Very dissatisfied 1 2 3 4 5 6 7 8 9 10=Very satisfied Unsure]

3. Managing household bills

3. Managing household bills

The reported average quarterly bill size has increased for the first time in five years, with increasing concern about being able to pay the electricity bill.

The average quarterly electricity bill identified by survey participants was $338 in 2022. This is higher than 2020 and the first increase in bill size recorded by QHES survey respondents since 2016. Households have immediately recognised this and, accordingly, the proportion with a high concern for their ability to pay their electricity bill is now at 41% (compared to 39% in 2020).

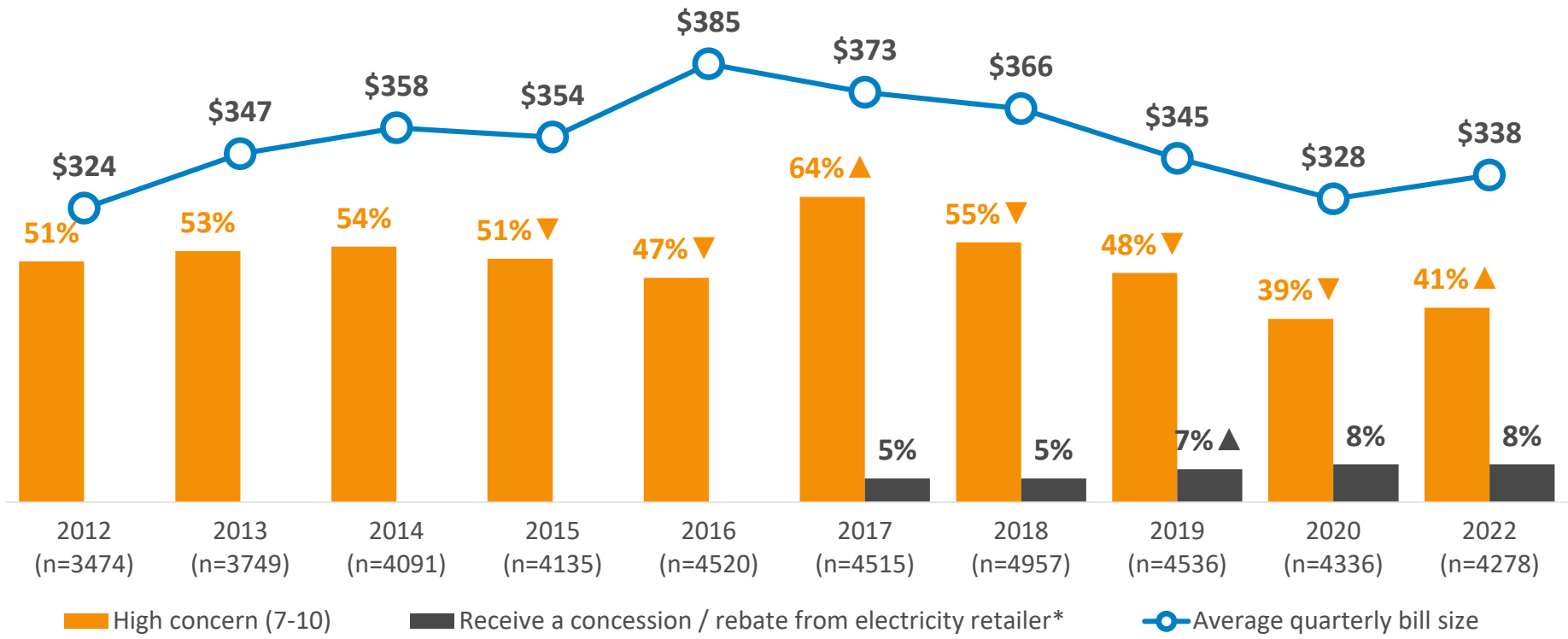
This concern is likely to grow, as there is increased expectation of future price increases, with over half expecting a 5%-15% increase in electricity bills over the next three years. Regional Queensland is more expectant of greater price increases in the future than South-East Queensland.

Those in Regional Queensland had greater concern for paying their electricity bill than in South-East Queensland and were also expecting greater price increases in the future.

Despite both bill size and concern increasing, less than one-in-five respondents said they had changed their energy provider in the last 12 months. Switching providers was more common in South East QLD than Regional QLD – a behaviour known to be affected by the different regulated retail markets.

Changing providers is more common among those aged 18-34, those living in unit/flats or townhouses and renters.

Both the average quarterly bill size and concern about paying the electricity bill increased in 2022, while those receiving a concession / rebate remained unchanged.



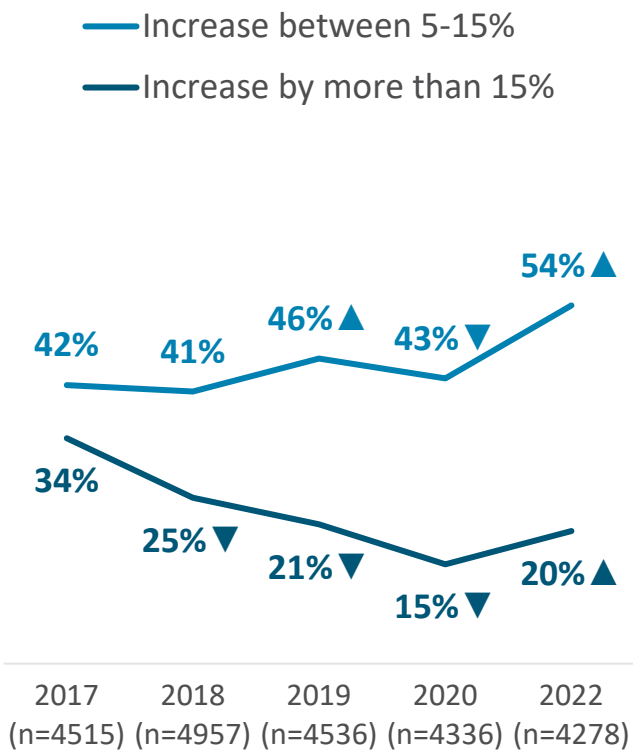
- Those with solar PV have a significantly lower quarterly bill than those without solar PV ($297 vs. $363)
- Those residing in Regional Queensland were more concerned about their ability to pay their electricity bill than those from South East Queensland (47% vs. 38% respectively).
- As household income increased, concern about the ability to pay decreased. 51% of lower income households (those earning less than $31k) were concerned, while 27% of higher income households (those earning $151k or more) were concerned.

Base: All respondents
Q. On average how much is your fortnightly/ monthly/ quarterly] electricity bill?
(Average quarterly bill size estimated from question with ranges)
Q. How concerned are you about your ongoing ability to pay your electricity bill?
**'Receive a concession / rebate' data only available from 2017 onwards*

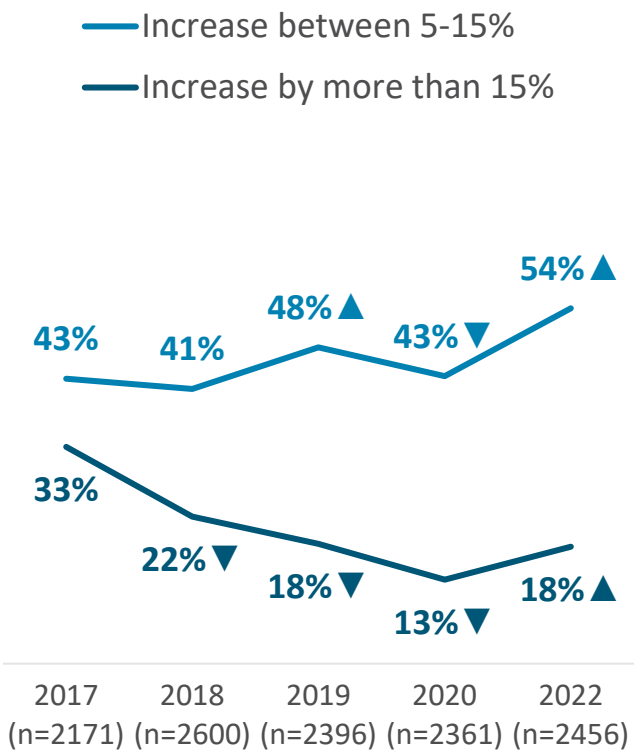
▲▼ Significantly higher/lower than previous year at the 95% confidence level

Expectations for price increases for electricity have significantly increased in 2022 with over half (54%) expecting price increases between 5%-15%, and one-fifth expecting price increases of more than 15%.

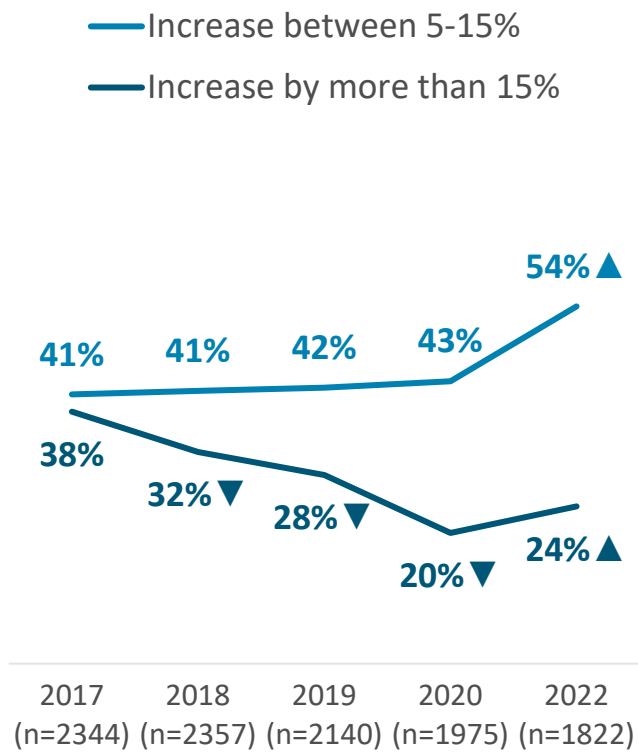
Expected Price Changes Total Queensland



Expected Price Changes South East Queensland

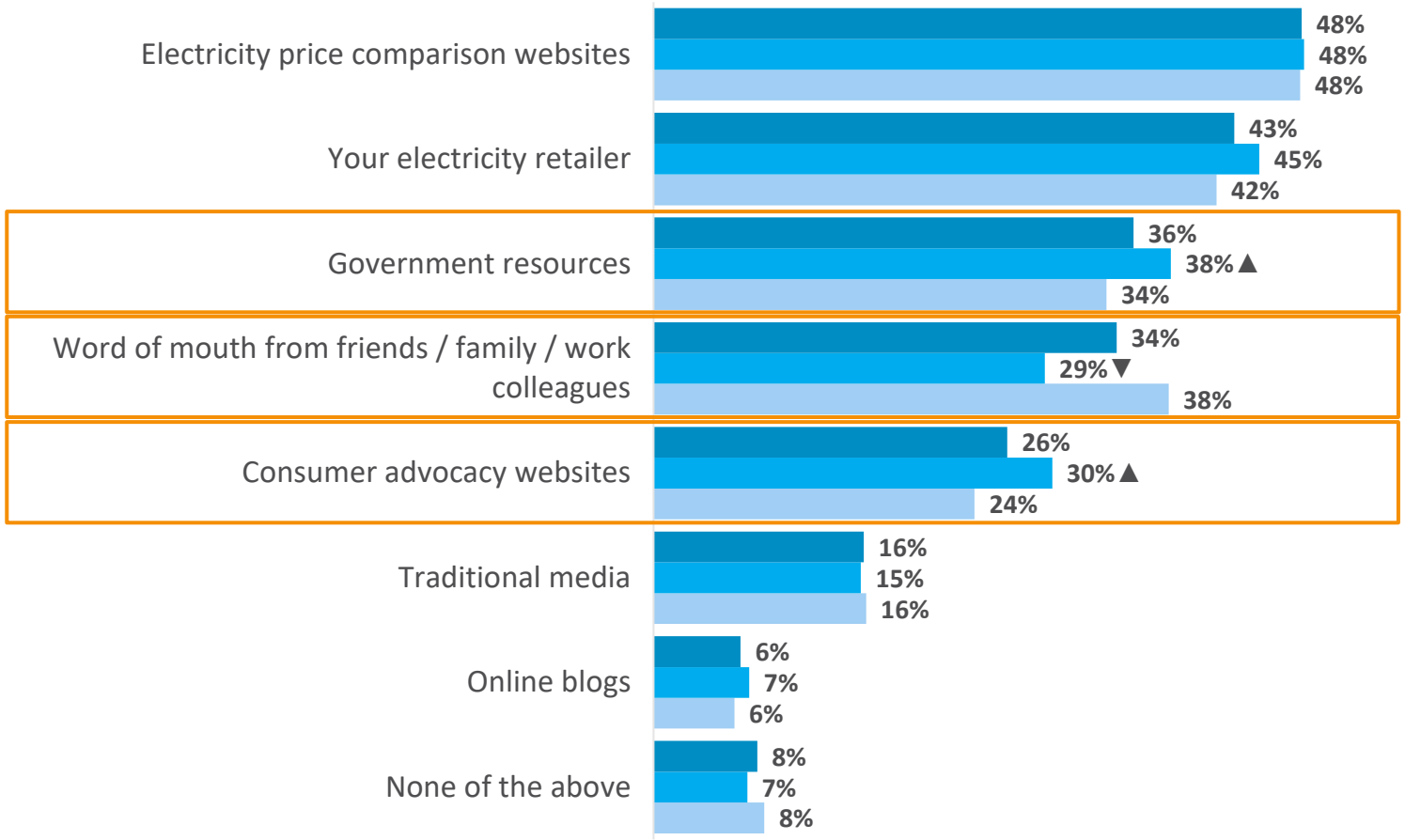


Expected Price Changes Regional Queensland



Base: All respondents
Q. Over the next three years, do you expect the price you pay for electricity to.....

Overall, the commonly most trusted medium for electricity price comparisons was electricity price comparison websites.

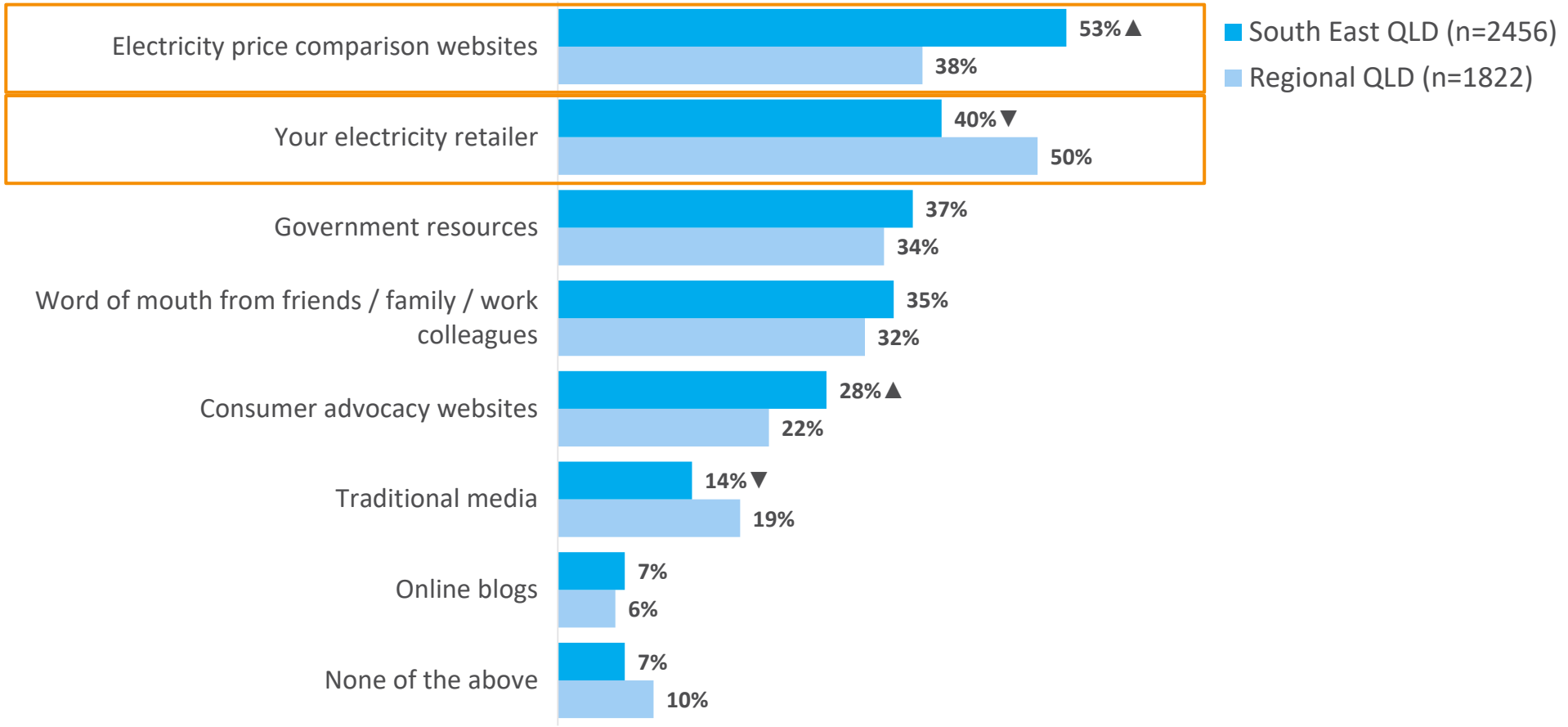


Base: All respondents
Q. When looking for information about electricity such as the latest news and pricing, which of the following sources are you most likely to trust?
(Respondents could select up to three from the list)

▲▼ Significantly higher/lower than those who do not have solar PV

- Those with solar PV were more likely to trust:
  - Government resources and consumer advocacy websites
  - Those with battery storage (n=213) were less likely to trust electricity price comparison websites (41%) and their electricity retailer (36%).
- Those without solar PV were more likely to trust:
  - Friends, family or work colleagues

Regional Queensland respondents were more likely to trust their electricity retailer and less likely to trust price comparison websites.

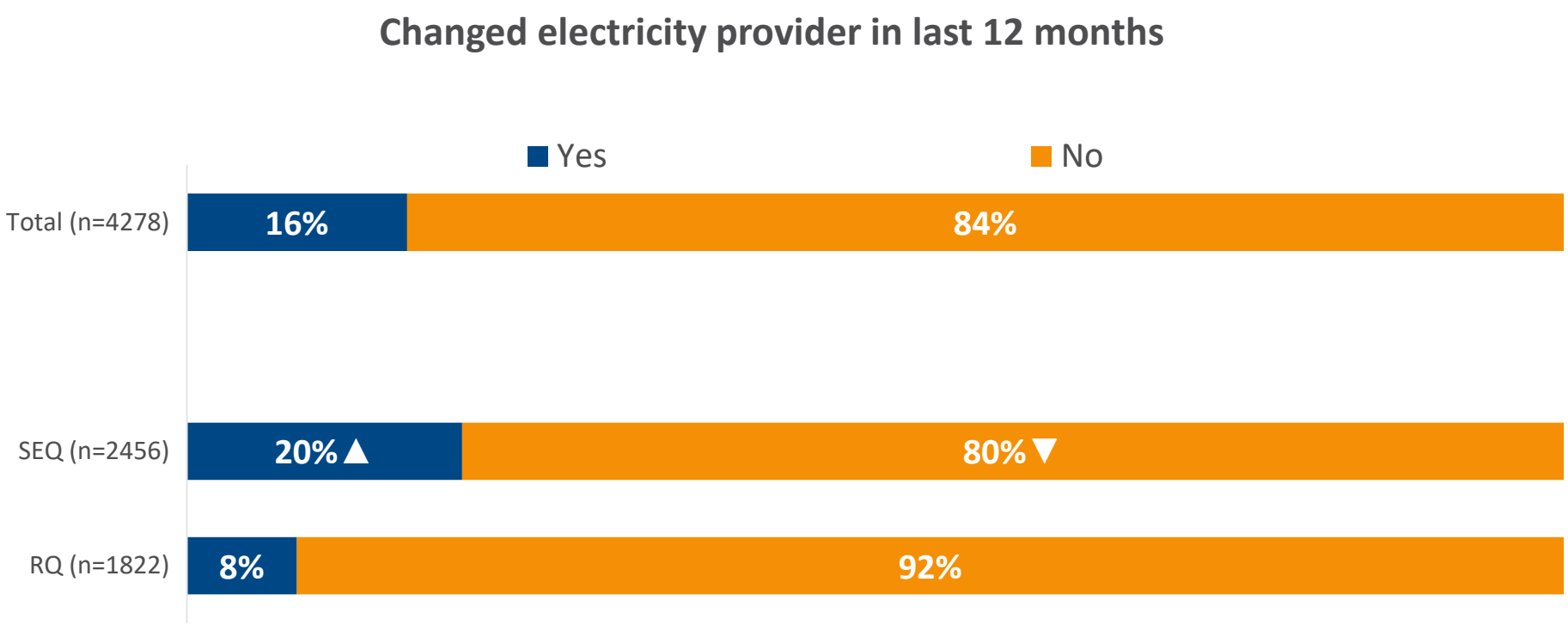


- South East Queensland respondents were more likely to trust:
  - 'Electricity price comparison websites' (53%)
- Regional Queensland respondents were more likely to trust:
  - 'Your electricity retailer' (50%)

Base: All respondents
Q. When looking for information about electricity such as the latest news and pricing, which of the following sources are you most likely to trust?
(Respondents could select up to three from the list)

▲▼ Significantly higher/lower than Regional Queensland

Only 16% of respondents indicated that they had changed their electricity provider in the last 12 months.

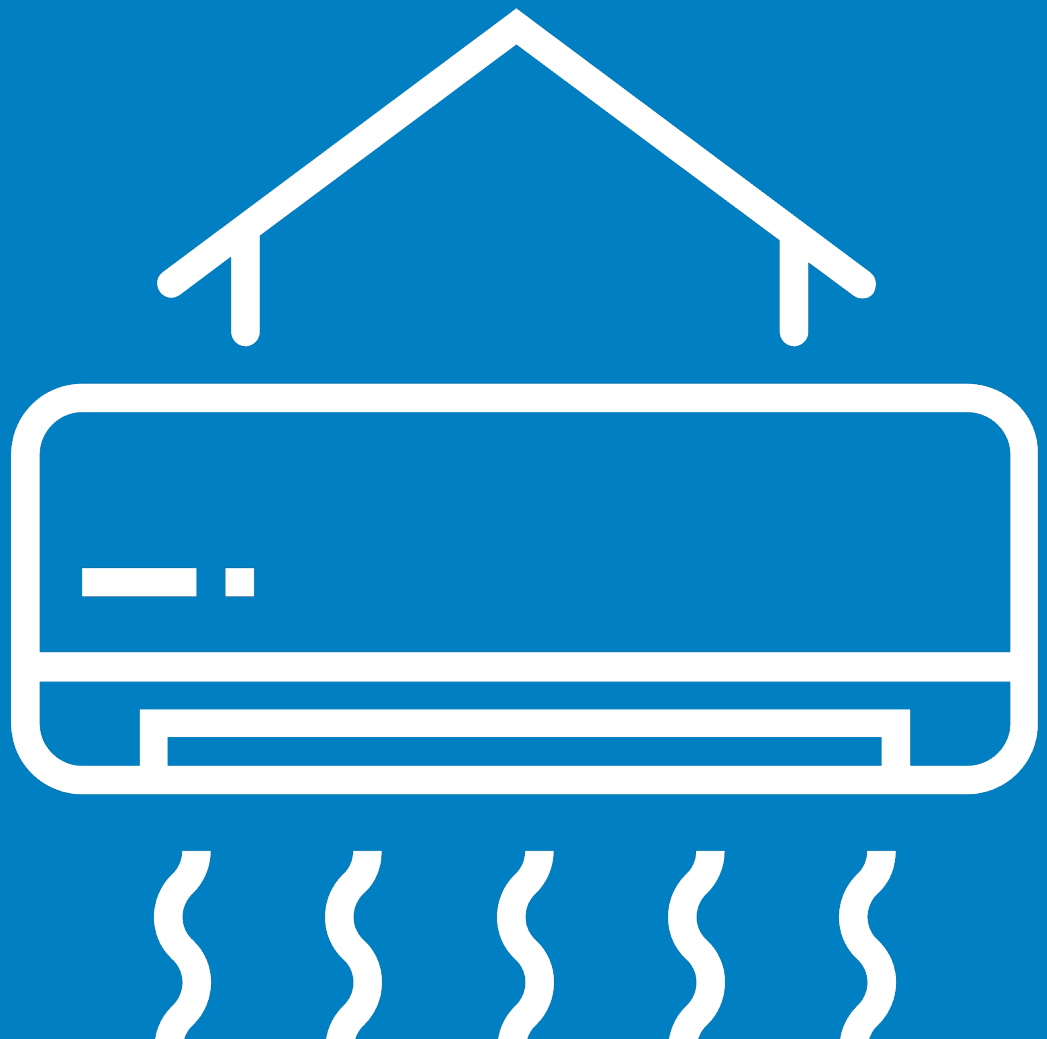


▲▼ Significantly higher/lower than Regional Queensland

- Those residing in South East Queensland were more likely to have changed than those in Regional Queensland. Most likely due to greater choice.
- Those more likely to have changed were those aged 18-34 (23%), those in unit/flats (23%) or townhouses (24%) and renters (19%).

Base: All respondents (n=4278)

Q. Have you changed to [ELECTRICITY PROVIDER] in the last 12 months?



4. Household Energy Usage

4. Household Energy Usage

Households are placing less emphasis on energy-reducing behaviour than ever before.

Based on the results form survey respondents, there is a decreasing trend in the number of households consciously trying to reduce their electricity consumption.

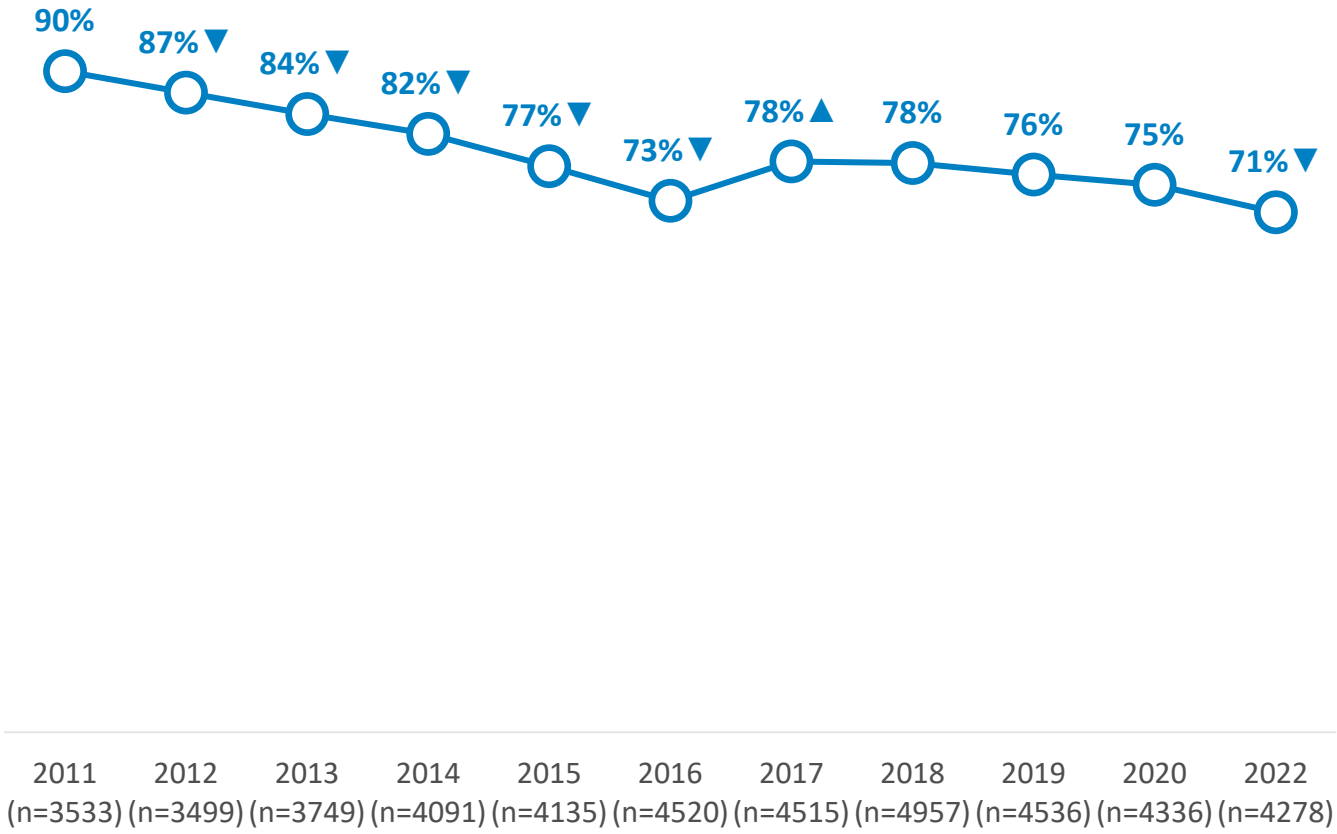
Awareness of the need for electricity distributors to manage peak demand on the grid is high, with almost three-quarters saying they know about this issue, but there was lower knowledge about the need for electricity distributors to manage minimum demand on the grid. Awareness of both issues is unchanged from 2020.

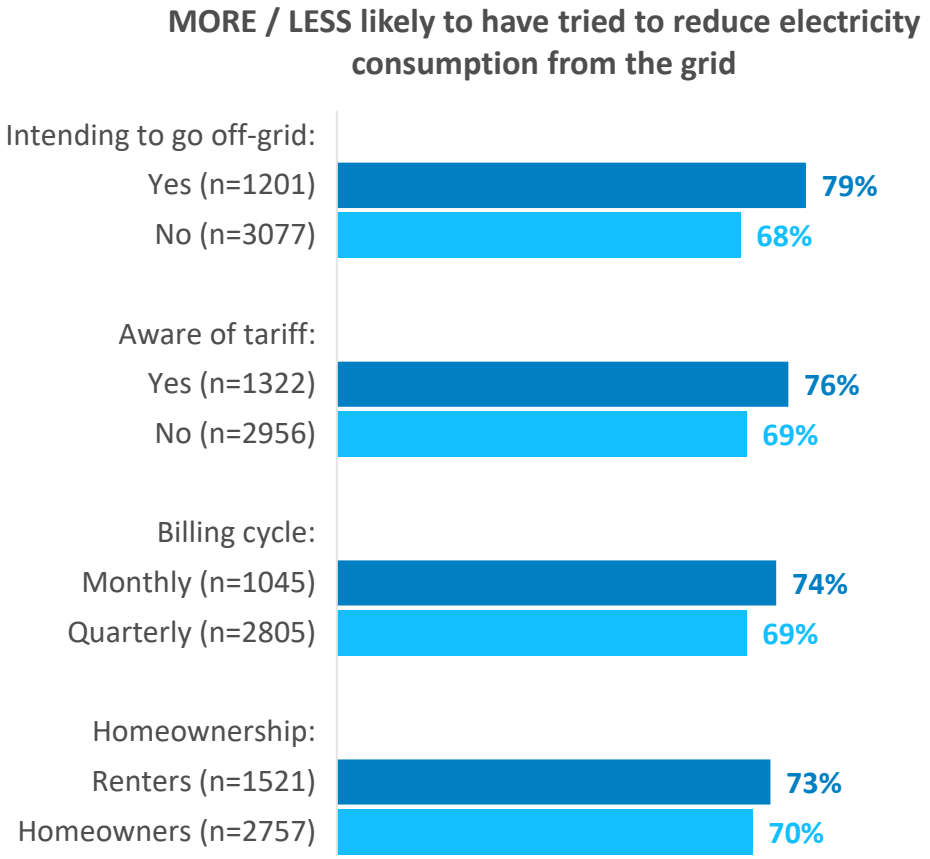
Awareness of minimum demand was higher among those with solar PV than without. An encouraging result given these households are contributing to the minimum demand challenges facing the network and are key households to communicate with on this issue.

The most effective way to communicate the need for changing consumption behaviour to manage peak and minimum demands would be to demonstrate the personal benefits to households, and the promotion of both time-of-use tariffs and uptake of automated appliances.

The introduction of dynamic connections was not met with widespread enthusiasm - more people were neutral (rated 4-6) than positive (7-10). However, importantly, households that would be most impacted by the introduction of dynamic connections (those with/intending to purchase solar PV or household storage batteries) were more positive about dynamic connections than others.

Fewer people are consciously trying to reduce their electricity consumption with a significant decline since 2011. 71% believe they have tried to reduce their electricity consumption from the grid.

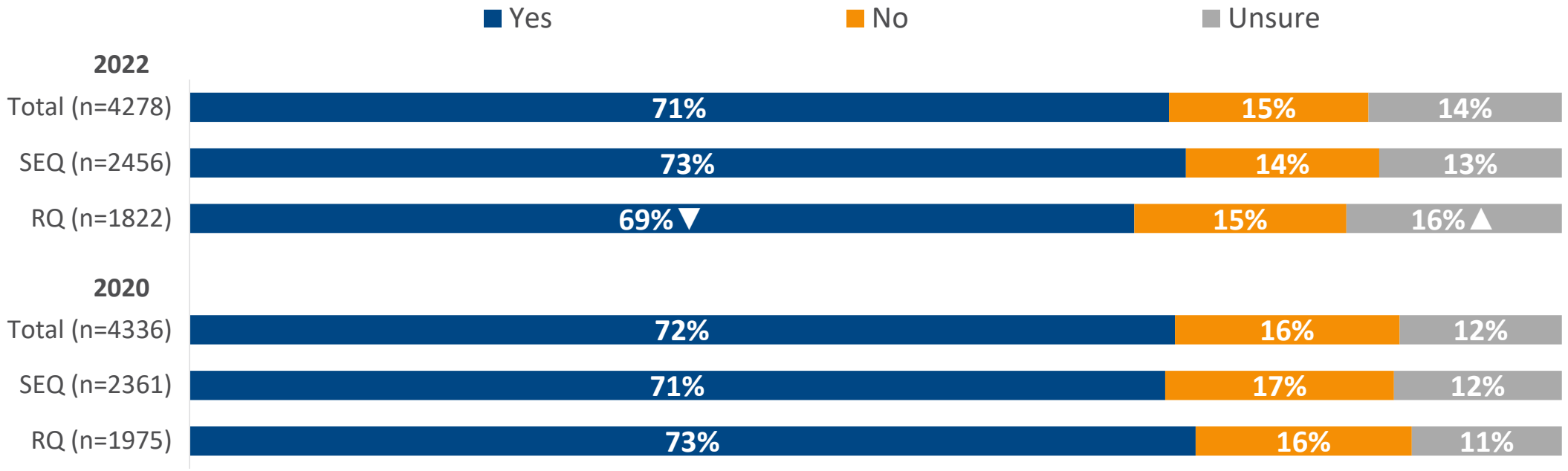




Base: All respondents
Q. Have you consciously tried to reduce your electricity consumption (from the electricity grid) in the past 12 months?

Overall, respondents' awareness of peak demand remained stable (71% in 2022 down 1% from 2020). However, Regional QLD saw a decrease of 4% to 69% in the same period.

Aware of the need for electricity distributors to manage peak demand on the grid

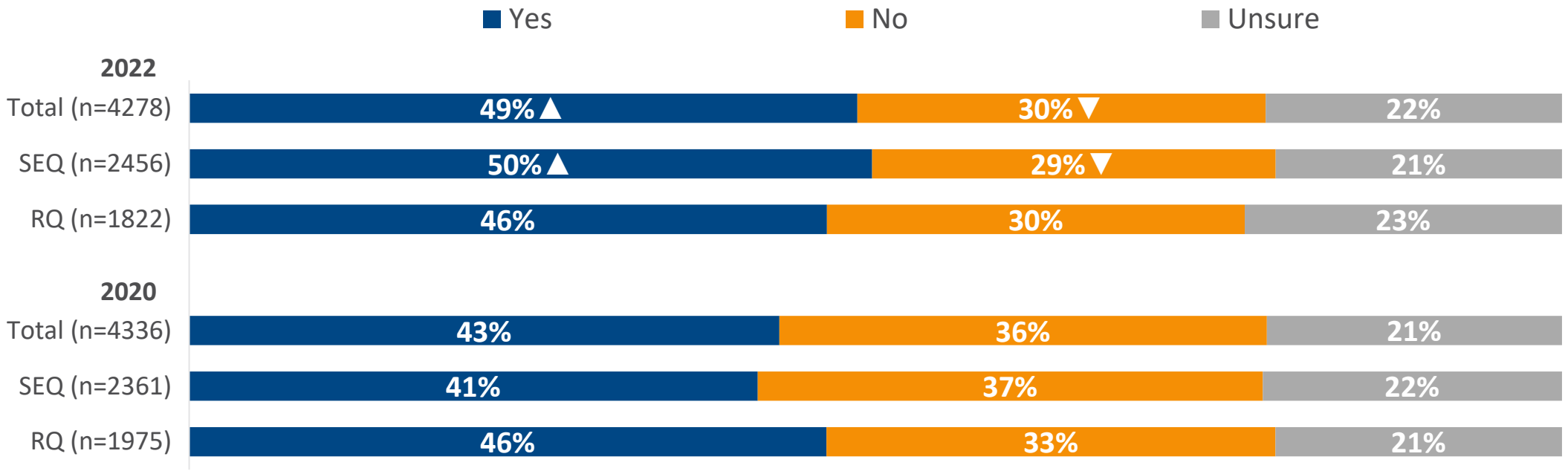


Base: All respondents
Q. Most households use more electricity between 4pm and 9pm than other times of the day. This is known as peak demand. Are you aware of the need for electricity distributors to manage peak demand on the grid?

▲▼ Significantly higher/lower than previous year at the 95% confidence level

Respondents' declared awareness of minimum demand increased to 49% (from 43% in 2020), the uplift came from the higher awareness among those residing in South East Queensland (41% to 50%).

Aware of the need for electricity distributors to manage minimum demand on the grid

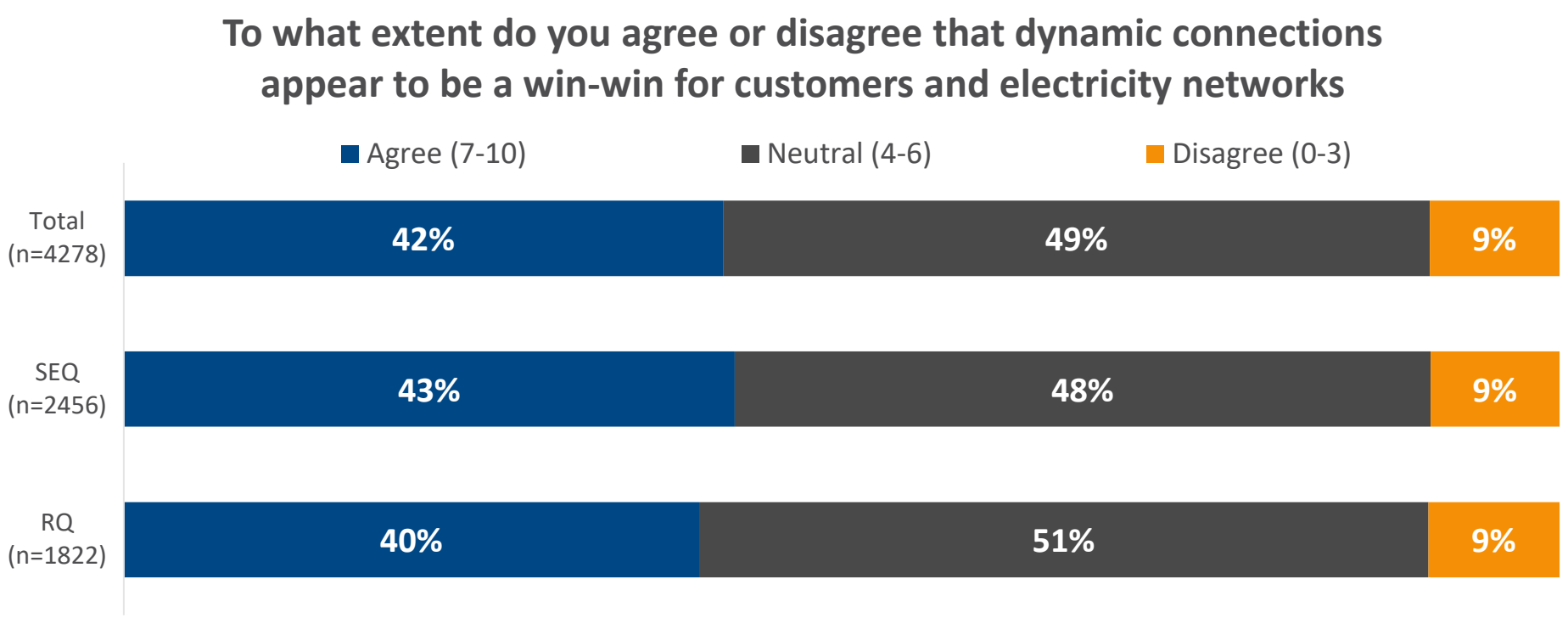


Base: All respondents

Q. Due to the high take up of rooftop solar PV systems, this creates high export of electricity to the grid and households using less electricity from the grid between 9am and 3pm than other times of the day. This is known as minimum demand. Are you aware of the need for electricity distributors to manage minimum demand on the grid?

▲▼ Significantly higher/lower than previous year at the 95% confidence level

Close to half were neutral about dynamic connections being a ‘win-win’ for customers and networks, while 42% agreed and less than one in ten (9%) disagreed.



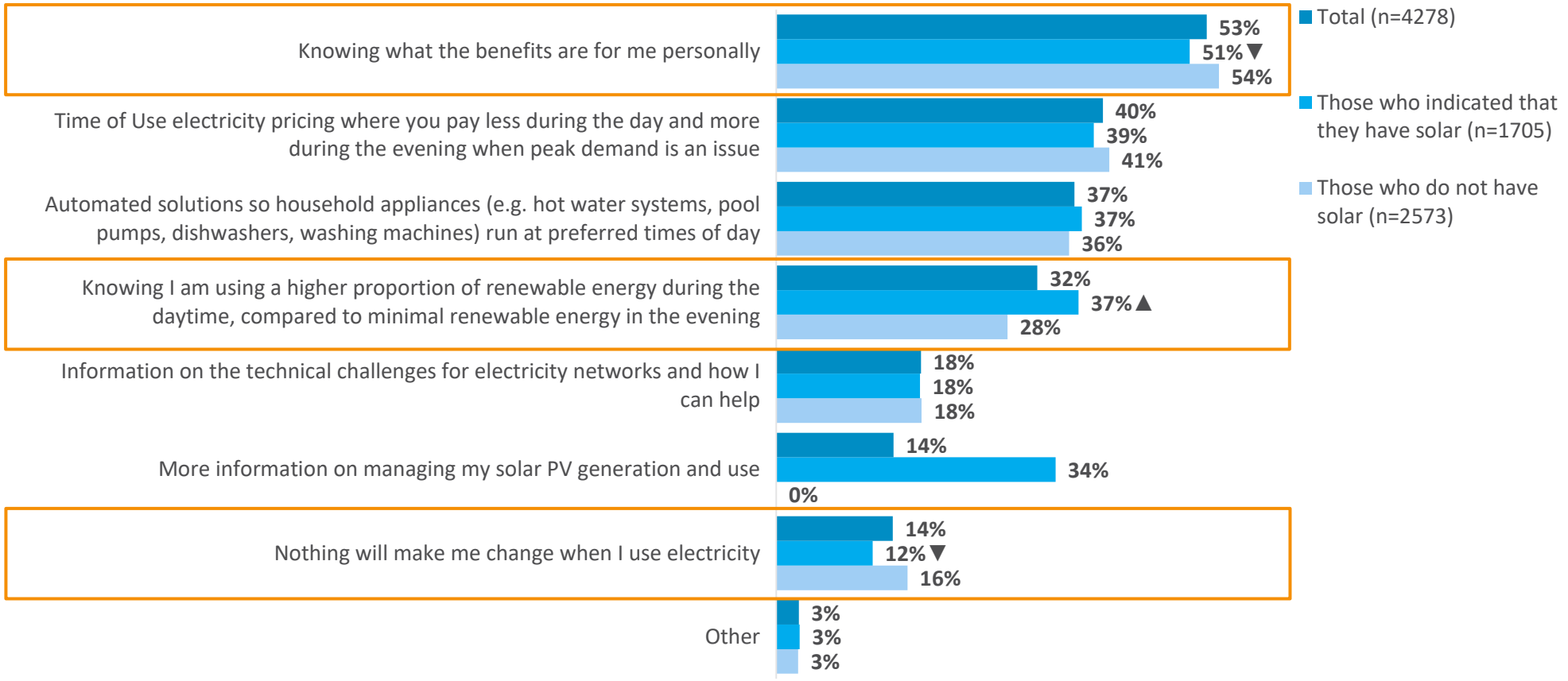
More likely to agree:

- Those intending to purchase solar PV than those who aren’t (53% vs. 38%).
- Those with solar PV and a battery system than those with solar PV without a battery system (51% vs. 41%).
- Those intending to go off-grid at some point in the future than those who have no intention (48% vs. 39%)

Base: All respondents

Q. Currently, solar PV connected to the network may require a fixed export limit, regardless of how electricity demand on the network changes. In the future, customers may be able to connect their solar PV to the network with a dynamic connection. This means that most of the time, greater export will be available, maximising benefits for customers. However, when demand is low and there is a substantial surplus of generation, the dynamic connection may lower the amount of export permitted. This will reduce the need for network investment driven by these technologies and upward pressure on electricity prices. To what extent do you agree or disagree that dynamic connections appear to be a win-win for customers and electricity networks? [0=Strongly disagree 1 2 3 4 5 6 7 8 9 10=Strongly agree Unsure]

In order to encourage households to change their energy use to help manage demand, they would like to know how they would personally benefit.



- Older respondents were more likely to select 'Knowing what the benefits are' than younger respondents (56% recorded for 55+ vs. 49% recorded for 18-34 year olds).
- 'Time of Use' and 'Automated solutions' were more likely to be selected by those aged 18-34 (43% and 44%) vs. 37% and 30% recorded for those aged 55+.

Base: All respondents
Q. Which of the following would encourage you to make changes to how you use electricity to help manage peak and minimum demand?
(Respondents could select multiple items from the list)

▲▼ Significantly higher/lower than those that DO NOT have solar PV

5. Solar PV

5. Solar PV

Intention to purchase solar PV has increased due to its potential to lower bills, environmental credentials and wider economic benefits.

The proportion of households intending to upgrade or replace existing solar PV or purchase a solar PV system significantly increased from 2020. Those most likely to want to buy solar PV are aged 18-34, households with dependent children and those with a higher household income.

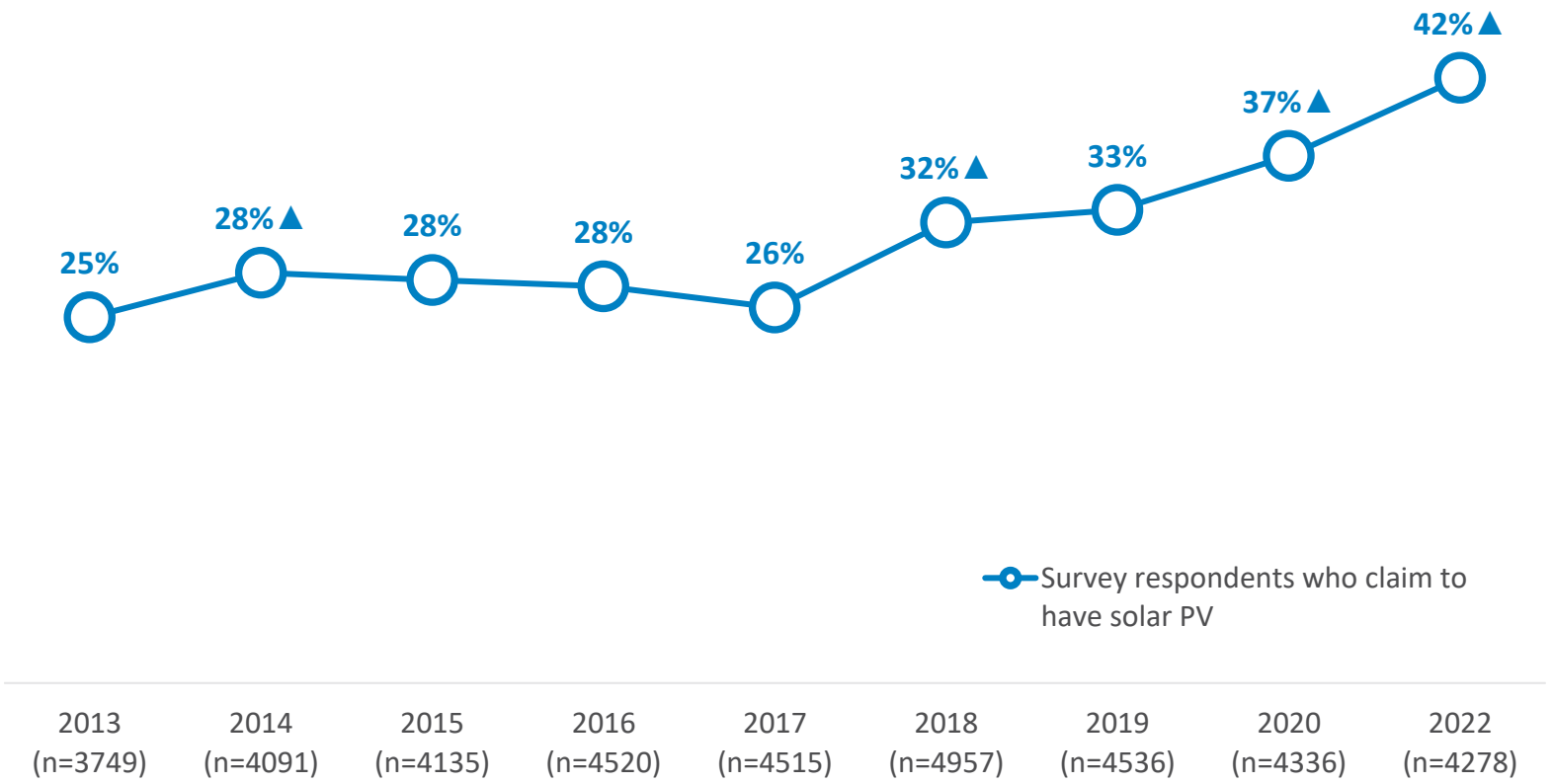
The main motivation for purchasing solar PV continues to be bill reduction. As the population becomes more climate aware with a desire to do more to tackle climate change, more people want to purchase solar PV for environmental reasons than in 2020. Electricity price uncertainty is less of a concern for solar PV buyers than in previous years.

Motivations vary for those who have already purchased solar PV and are different for those intending to purchase. Those intending to purchase solar PV are more motivated by protection from future electricity prices increases, a desire to be more self-sufficient and to increase the value of their home than those who have already purchased.

Renting is the main barrier for not having solar PV, followed by cost.

Those with solar PV are unlikely to downsize or remove their solar PV if their current system needed replacing.

In 2022 42% of survey respondents indicated that they have solar PV installed showing a steady increase over time. Note that industry figures show that the true percentage of Queensland households with solar PV is 33%*.

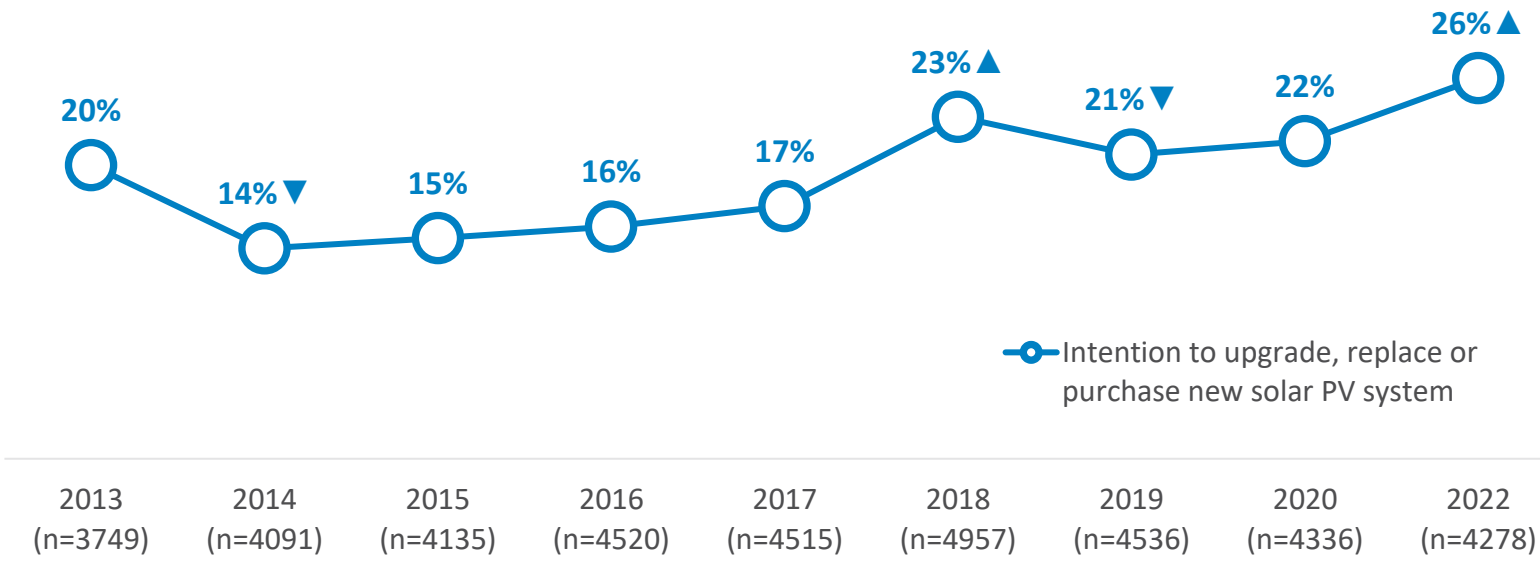


Results from the 2022 QHES analysis show the following households are most likely to have solar PV:

- Receive a higher household income ($151k or more per year) (51%)
- Reside in a house (not a townhouse, duplex, unit, flat or apartment) (51%)
- Own the property with or without a mortgage (58%)
- Aged 55+ (52%)

Data supplied by Energy Queensland

Intention to upgrade or replace existing solar PV or purchase solar PV significantly increased to 26% in 2022 (up 5% since 2019).

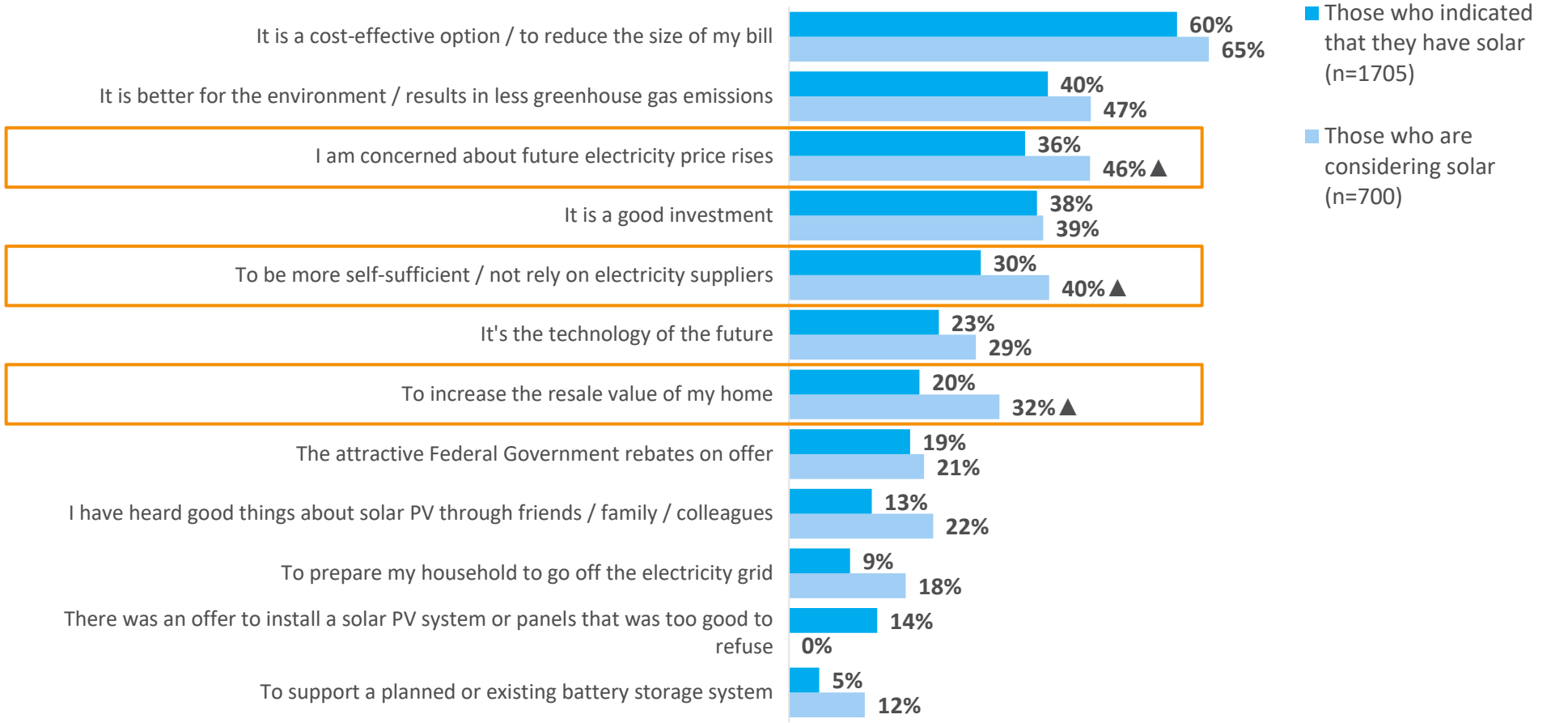


Solar PV	Currently have (n=1705) %	Don't have (n=2521) %
Purchase within next 3 years	**25 (n=382)**	**27 (n=700)**
Within these groups, those more likely to purchase within the next 3 years were:		
18-34	**31**	**48**
35-54	**42**	35
55+	27	17
$71-$111k	**28**	**29**
$111-$151k	**22**	**19**
$151k or more	24	**23**
Own home with / without a mortgage	89	**67**
5-10 year old home	**21**	18
11-20 year old home	**29**	22
Intend to purchase battery storage within next 3 yrs	**24** (36% already own)	n/a
Intend to go off-grid at some point	**53**	**44**

Base: All respondents
Q. [Those who have Solar PV] Do you intend to upgrade or replace your solar panels (solar PV system) for your home within the next three years?
Q. [Those who don't have Solar PV] Do you intend to purchase solar panels (solar PV system) for your home within the next three years?

▲▼ Significantly higher/lower than previous year at the 95% confidence level

Bill reduction is the main motivation for having purchased or intending to purchase solar PV, followed by environmental reasons

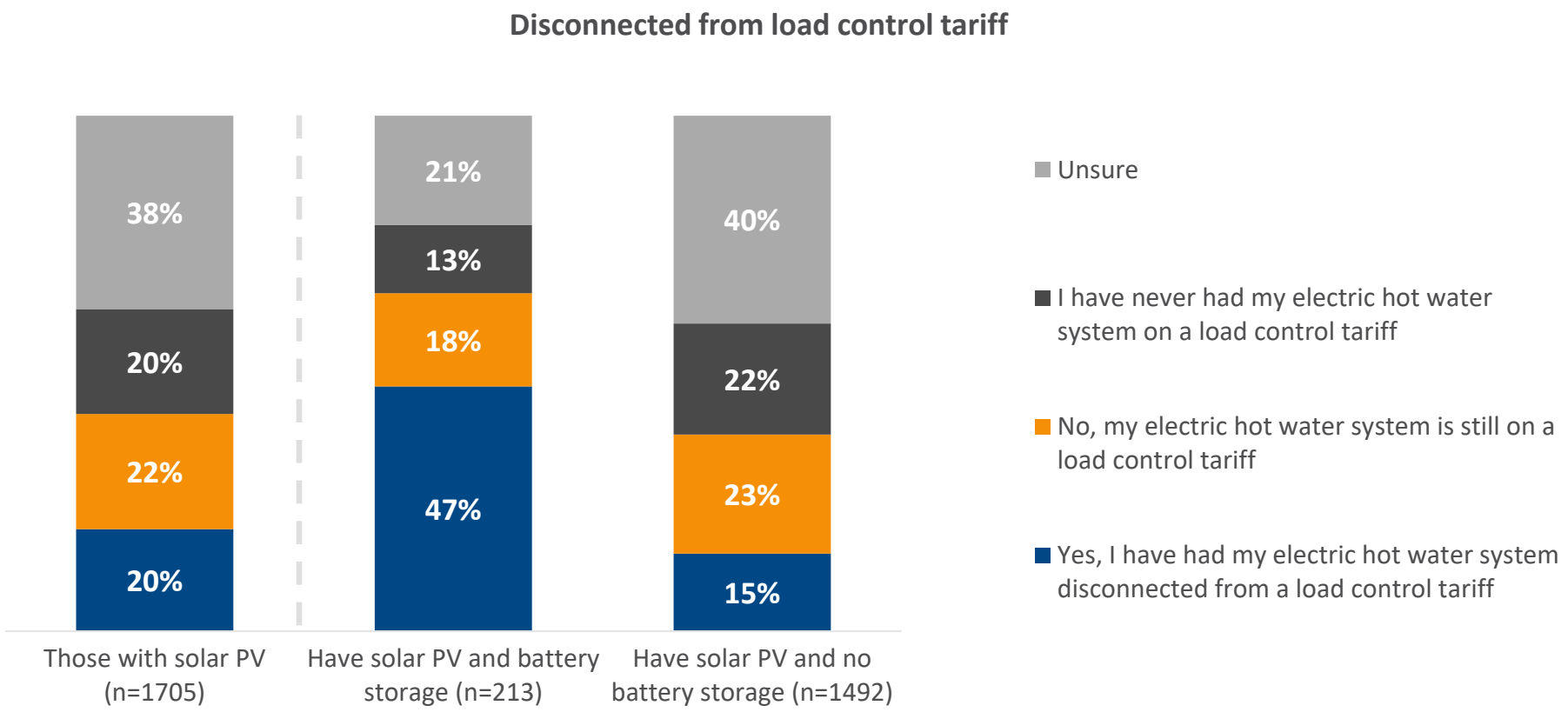


- The largest differences between those who already have solar PV and those who are considering solar PV were:
  - Future electricity prices
  - To be more self-sufficient
  - To increase the value of their home

Base: Those who have purchased solar PV, or are considering purchasing solar PV (n=2405)
Q. Why did you originally decide to purchase a solar PV system for your home?
Q. Why did you purchase a solar PV system?
Q. Why are you considering purchasing a solar PV system for your home?

▲▼ Significantly higher/lower than those that have solar PV

1 in 5 customers with solar are disconnecting their hot water systems from load control tariffs – those with battery storage are even more likely to do so.

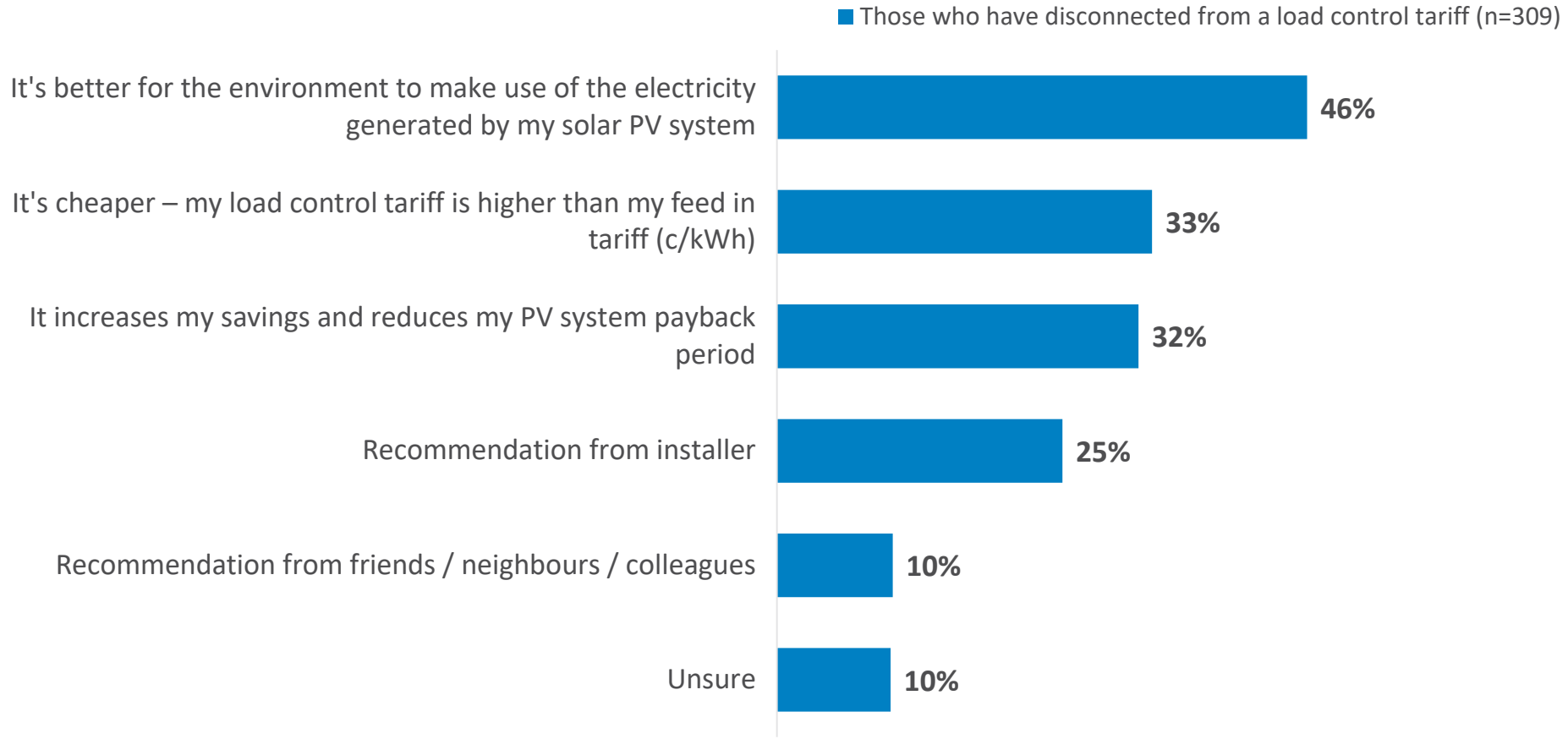


- Those with solar PV who were receiving 40-49 cents per kWh or 50 cents or more per kWh were more likely to still have their hot water on a load control tariff (34% and 33% respectively).
- Those with batteries are even more likely to disconnect their hot water from a load control tariff (47%)
- Among those who have disconnected their hot water from a load control tariff (n=309), 81% believed it was important to maximise consumption of electricity when their solar PV system is generating it. While those who are still on a load control tariff (n=380), 65% believed it was important.

Base: Those with solar PV

Q. As far as you're aware, has your electric hot water system been disconnected from a load control tariff (e.g., Tariff 31 and/or Tariff 33)?

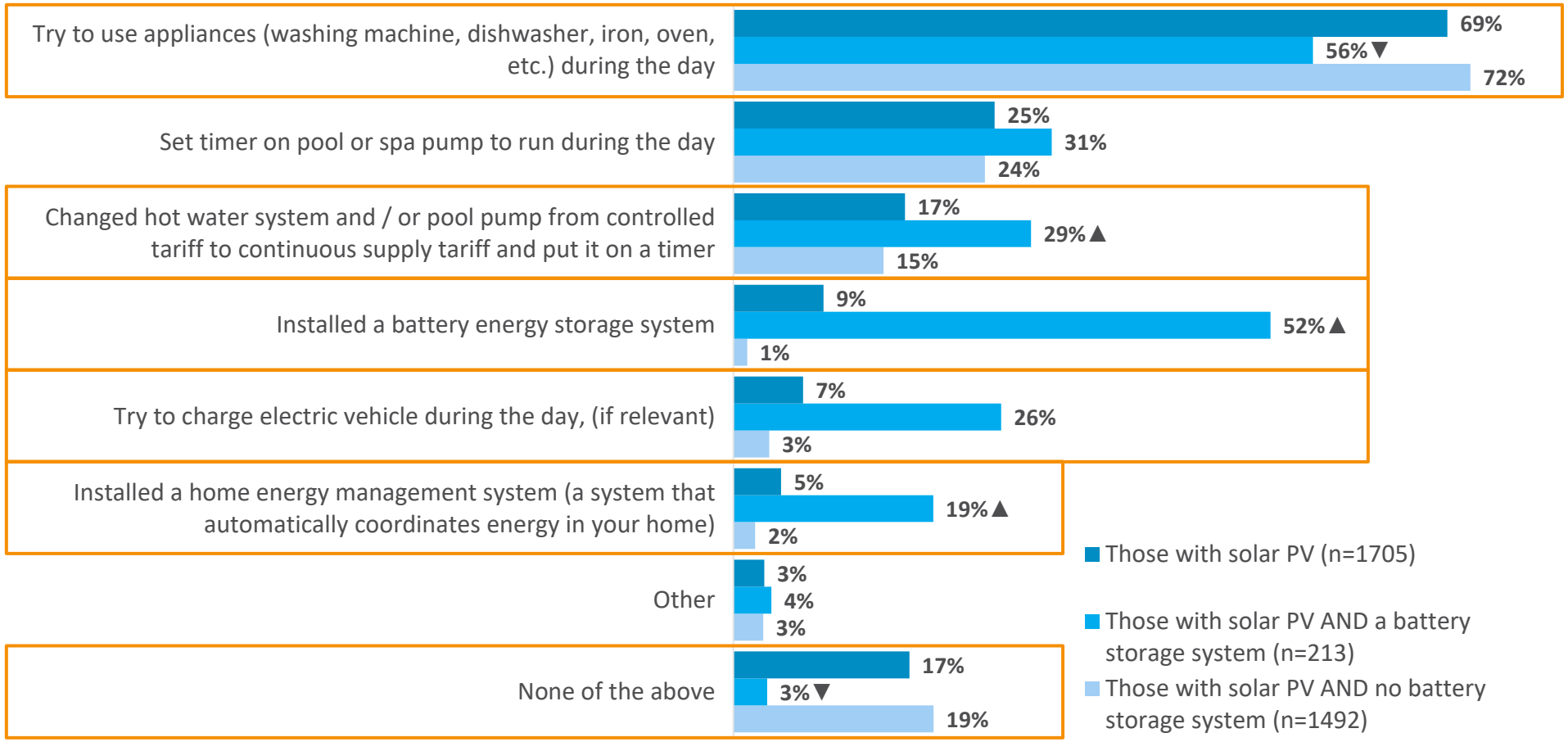
Making use of electricity self-generated by solar PV, within the context of being better for the environment, was the most common reason selected among those who have disconnected their electric hot water from a load control tariff.



- Of those who selected 'better for the environment', 84% believed it was important to maximise consumption of the electricity at the time their solar PV system generates .

Base: Those with have changed from a load control tariff
Q. Why have you changed from a load control tariff?
(Respondents could select multiple items from the list)

Respondents with solar PV take a number of actions to use electricity during the daytime while their solar PV system is operating.

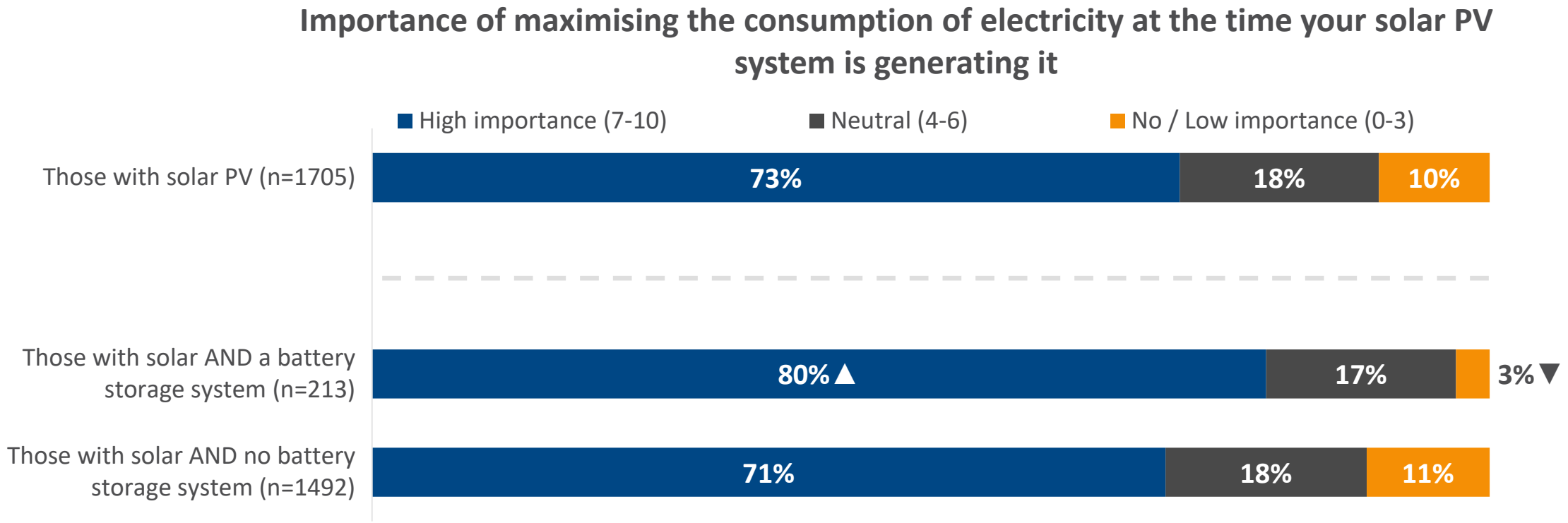


- Actions differed among those with and without a battery system:
  - Those with a battery system were less likely to try to use appliances during the day (56% vs. 72% among those without a battery system).

Base: Those with solar PV
Q. Which of the following do you do to shift more of your electricity use to the daytime when your solar system is operating? (Respondents could select multiple items from the list)

▲▼ Significantly higher/lower than those with solar PV and no battery storage system

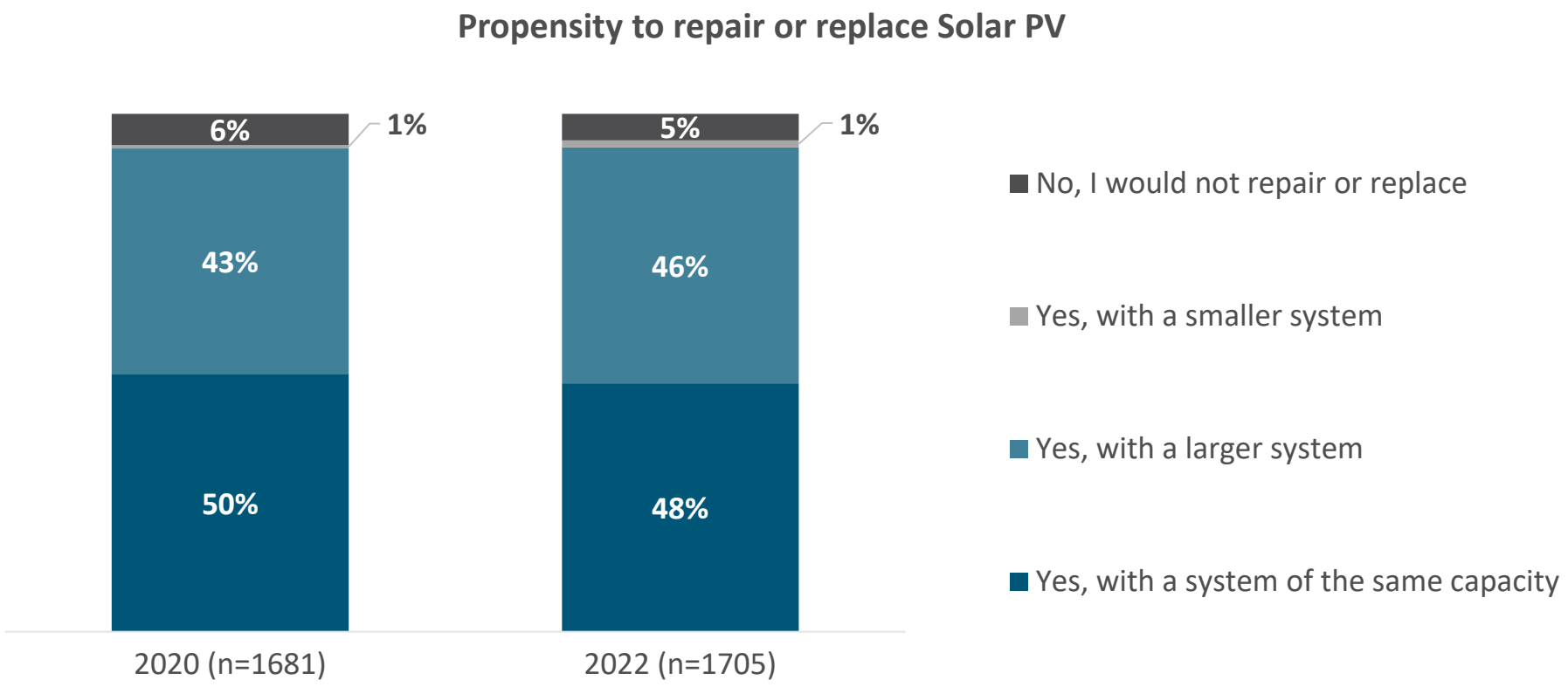
Those with solar PV AND battery storage were more likely to see the importance of maximising consumption of electricity when their solar PV is generating it, than those without battery storage.



Q. Overall, how important is it to you to maximise consumption of the electricity at the time your solar PV system generates it? [0=Not important at all 1 2 3 4 5 6 7 8 9 10=Very important]

▲▼ Significantly higher/lower than those with solar PV and no battery storage system

Those with solar PV would repair or replace their existing solar PV system (no significant difference to 2020).

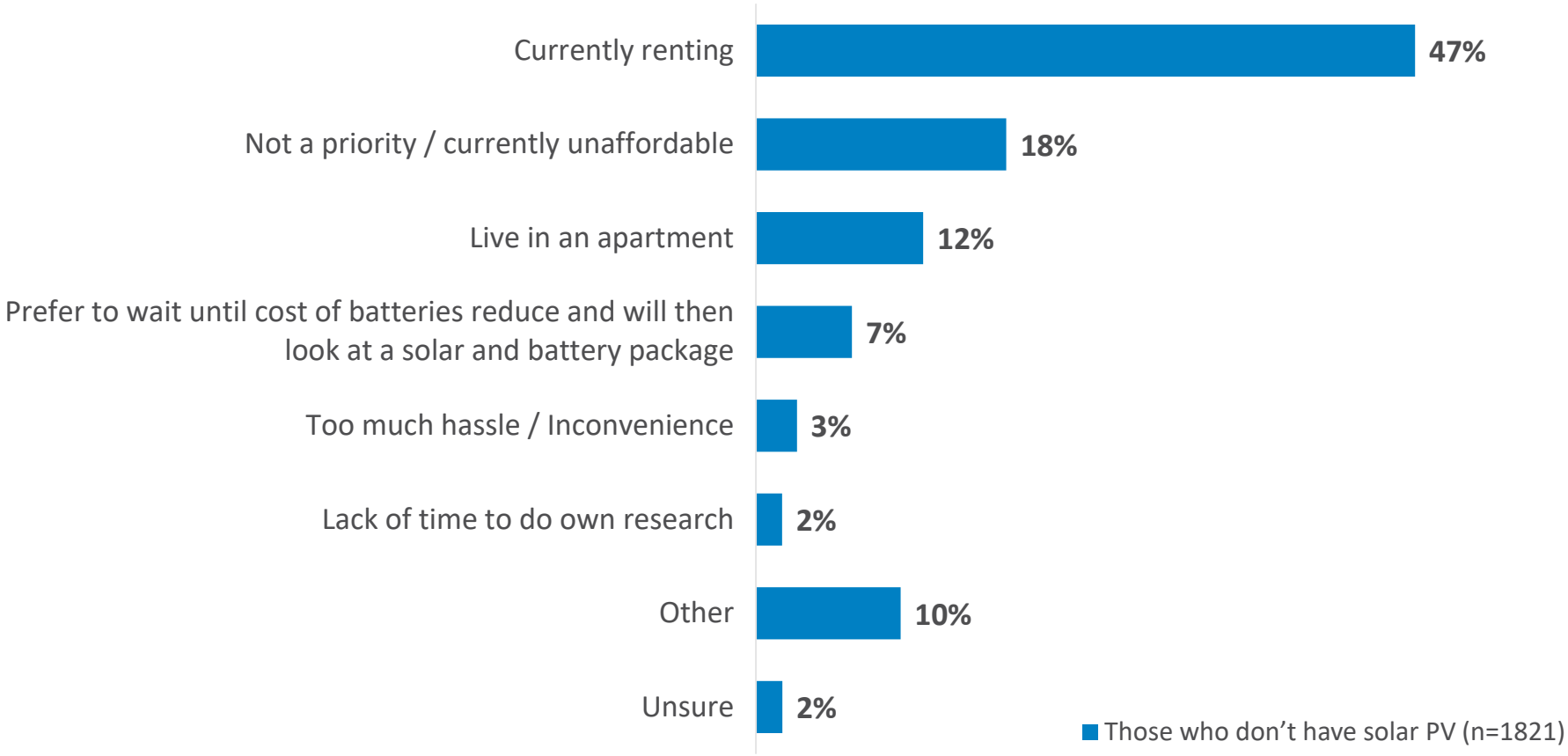


▲▼ Significantly higher/lower than previous year at the 95% confidence level

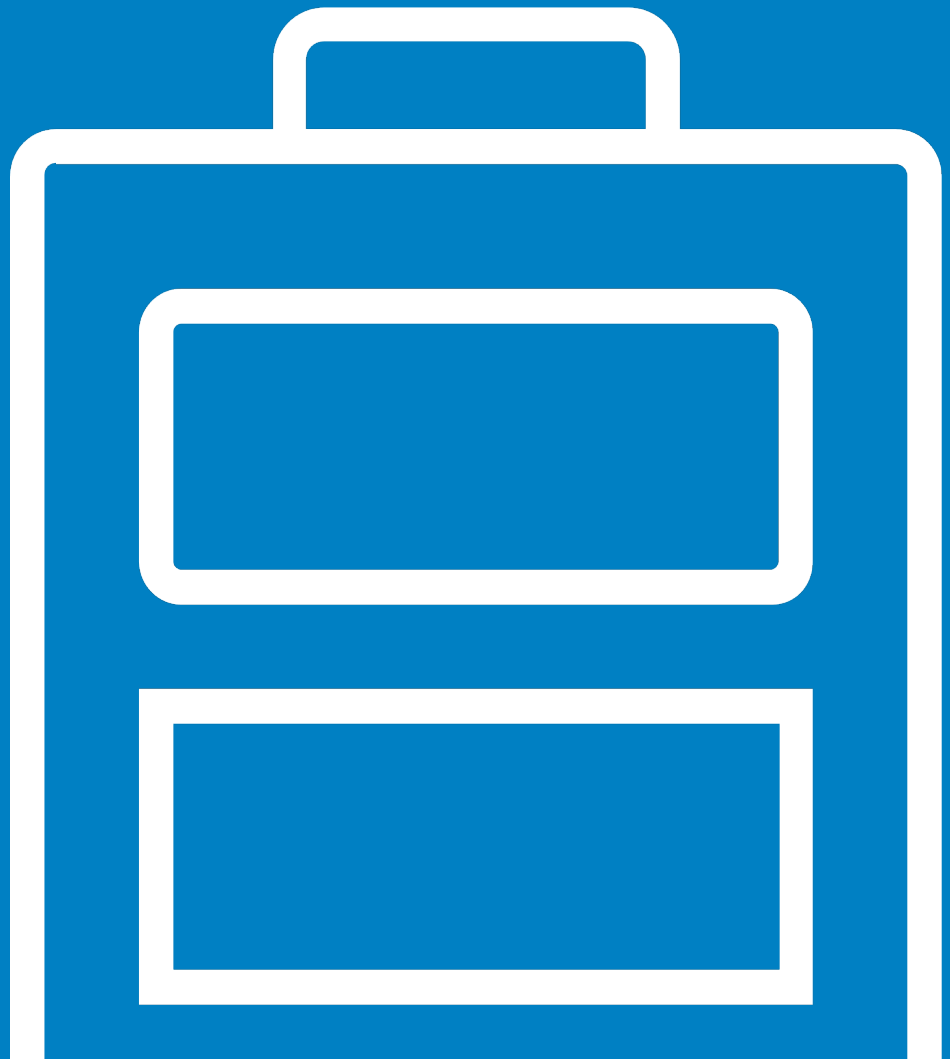
- Solar PV owners with no intention of purchasing a battery storage system were more likely to repair or replace their existing solar PV system with a system of the same capacity (58%).
- Solar PV owners intending to go off-grid were more likely repair or replace their existing solar PV system with a larger system (54%).

Base: Those with solar PV
Q. If your current solar PV system failed today, would you repair or replace your solar PV system?

Renting is the main barrier for not having solar PV, followed by unaffordability



Base: Those without solar PV
Q. What is your MAIN reason for not having solar?
(Respondents could select only ONE item from the list)



6. Battery Storage

6. Battery Storage

Battery storage is gaining interest among households with solar PV and those in the market are willing to pay higher amounts for battery storage technology.

Awareness of battery storage has been established among those with solar PV for several years with a large majority aware, in line with previous years.

The market for household battery storage is growing, with a significant increase in both the number of survey respondents indicating they already have battery storage, and who intend to purchase in the future.

Households most interested in purchasing battery storage include those with higher household incomes (over $111k).

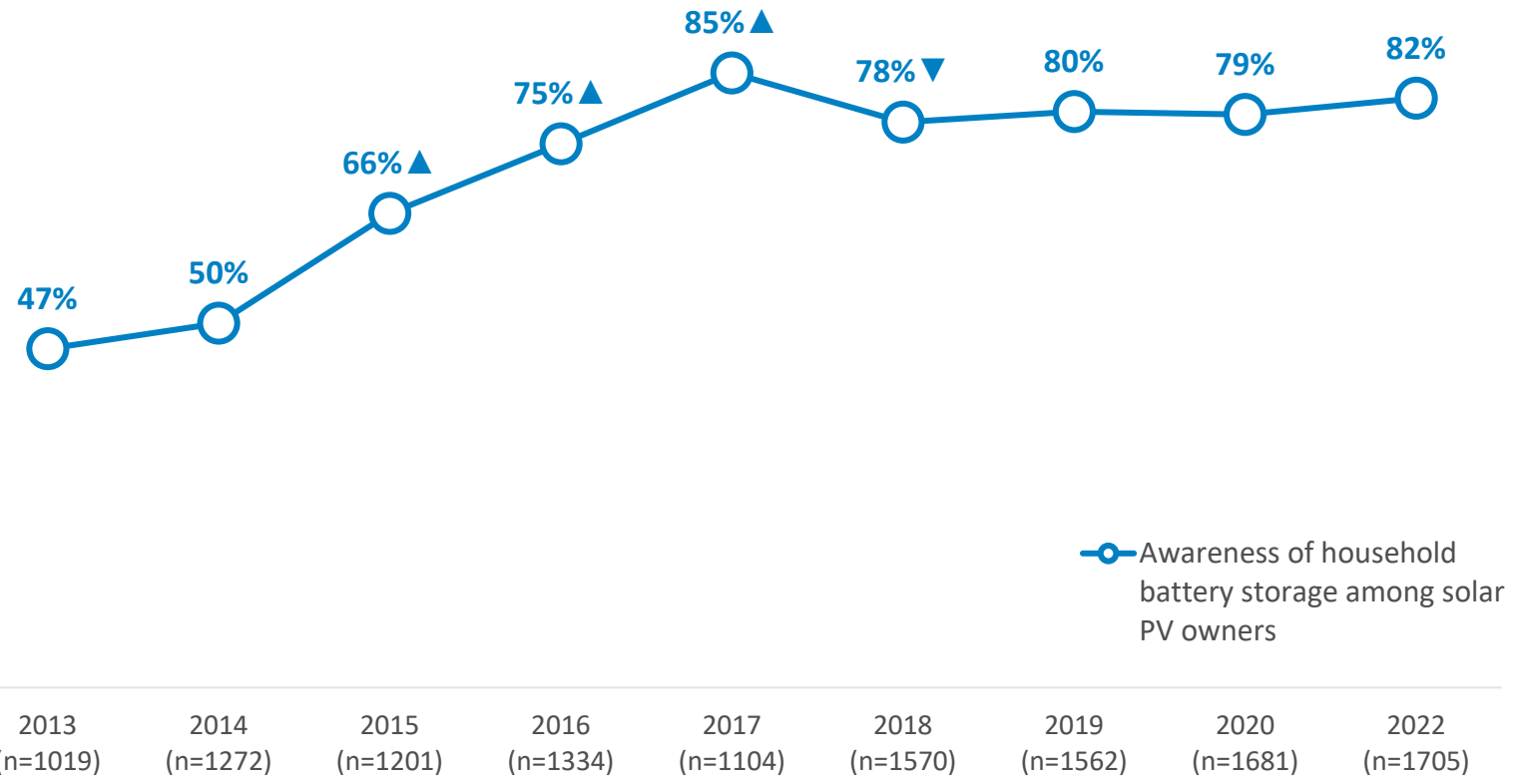
The main motivators to purchasing battery storage were to reduce usage of grid electricity, reduction of bills and to provide back-up during outages.

Survey respondents are more willing in 2022 to spend more for battery storage than in previous years, with a $15k+ system becoming increasingly popular.

Awareness of community batteries has increased from 2020 as this storage solution is rolled out among communities. Awareness of community batteries is highest among those with solar PV who are most likely to have the capacity to contribute excess electricity to these programs.

In 2022, 5% of all survey respondents claimed to have battery storage at home. (Note - Industry data indicates that just under 2% of Queensland homes have a battery)

Awareness of household battery storage is rising, and increasingly on the radar of home-owners and those intending to go off-grid.

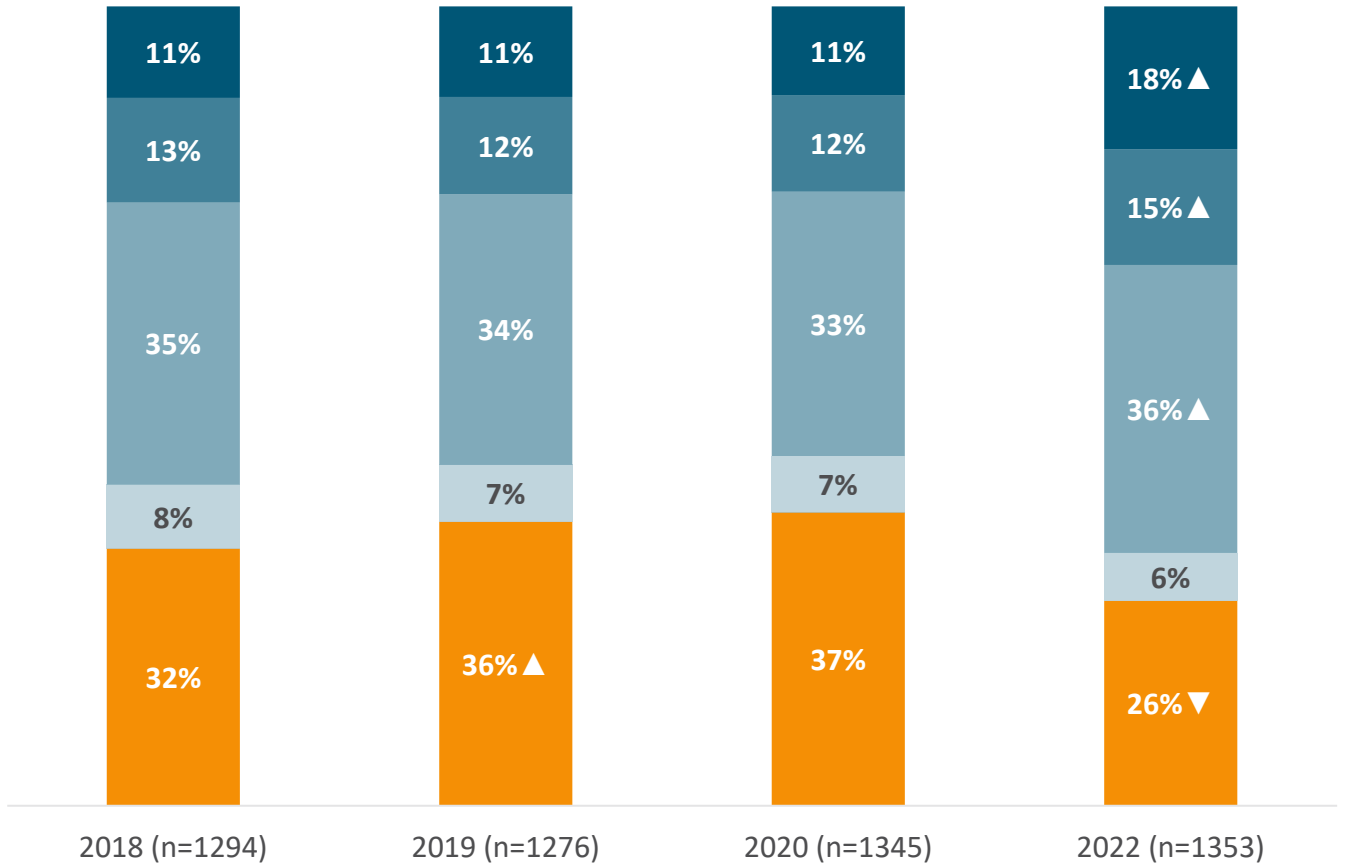


Base: Those with solar PV.
Q. Have you ever heard or seen any information about home battery storage systems? Home battery storage systems allow users to store electricity from the grid, or the electricity generated in their home (e.g. via a solar PV system) for later use, instead of feeding it back into the wider electricity network.

▲▼ Significantly higher/lower than previous year at the 95% confidence level

- Homeowners (or those with a mortgage) had a higher level of awareness than renters (84% vs. 63%).
- Those intending to go off-grid in the next 3 years recorded a higher level of awareness (91% vs. 81% of those not intending to go off the grid).

Among solar PV owners aware of home battery systems, around one-third intend to purchase a battery storage system in the next three to 10 years.

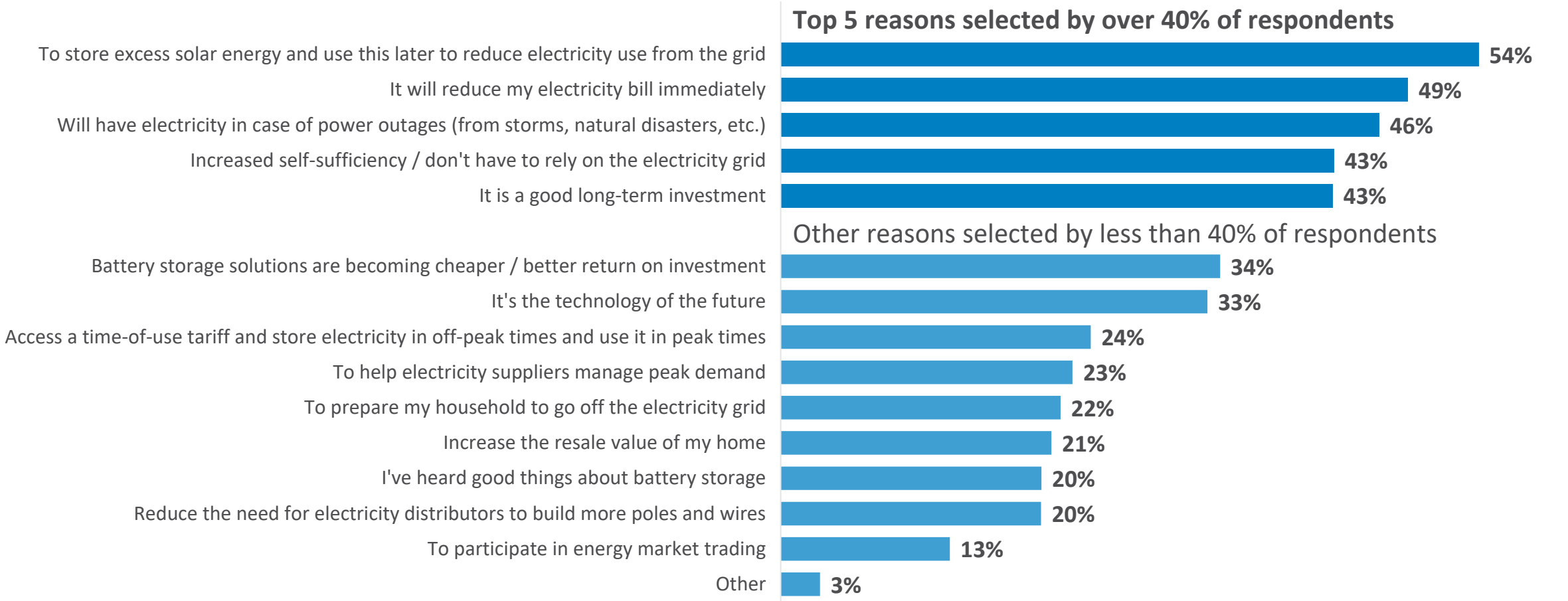


- Homeowners (or those with a mortgage) had a higher level of intention to buy over the next 3-10 years compared to renters (38% vs. 13%).
- Among those intending to go off-grid in the next 3-10 years:
  - 28% claimed to already own a battery storage system
  - 48% intend to buy a battery storage system over the next 3-10 years

Base: Those with solar PV who are aware of home battery system
*(*Note Q not asked of those who already own, this has been auto coded to show reported ownership among those aware)*
Q. Do you intend to purchase a battery storage system for your home?

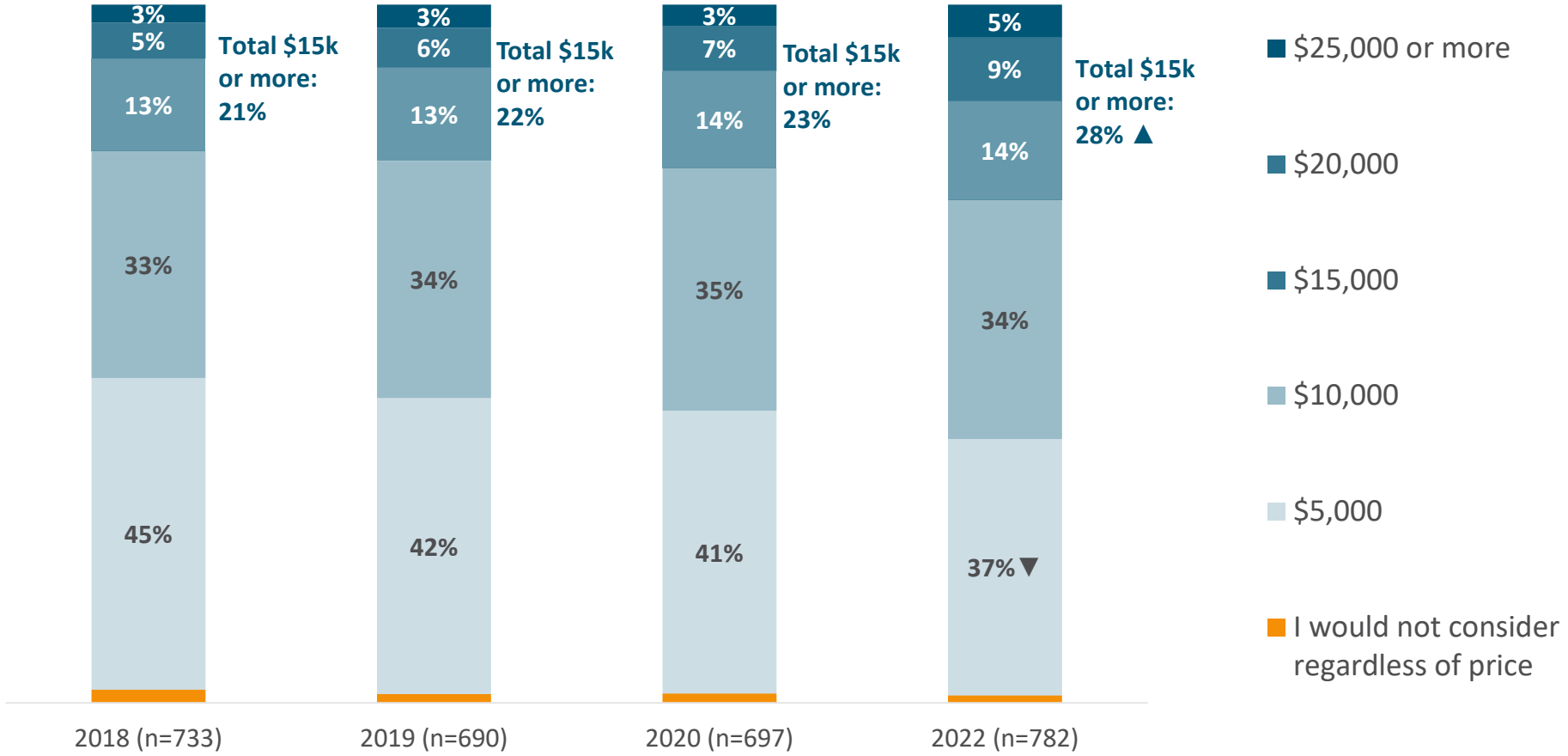
▲▼ Significantly higher/lower than previous year at the 95% confidence level

Being able to store excess solar energy was seen as the main reason for purchasing or wanting to purchase a battery storage system, followed by bill reduction and having access to electricity in the event of an outage.



Base: Those who have a battery storage system or intend to purchase one within the next three years (n=395)
Those with a battery storage system: Q. Why did you purchase battery storage for your home?
Those intending to purchase a battery storage system within the next three years: Q. Why are you considering purchasing battery storage for your home?
(Respondents could select multiple items from the list)

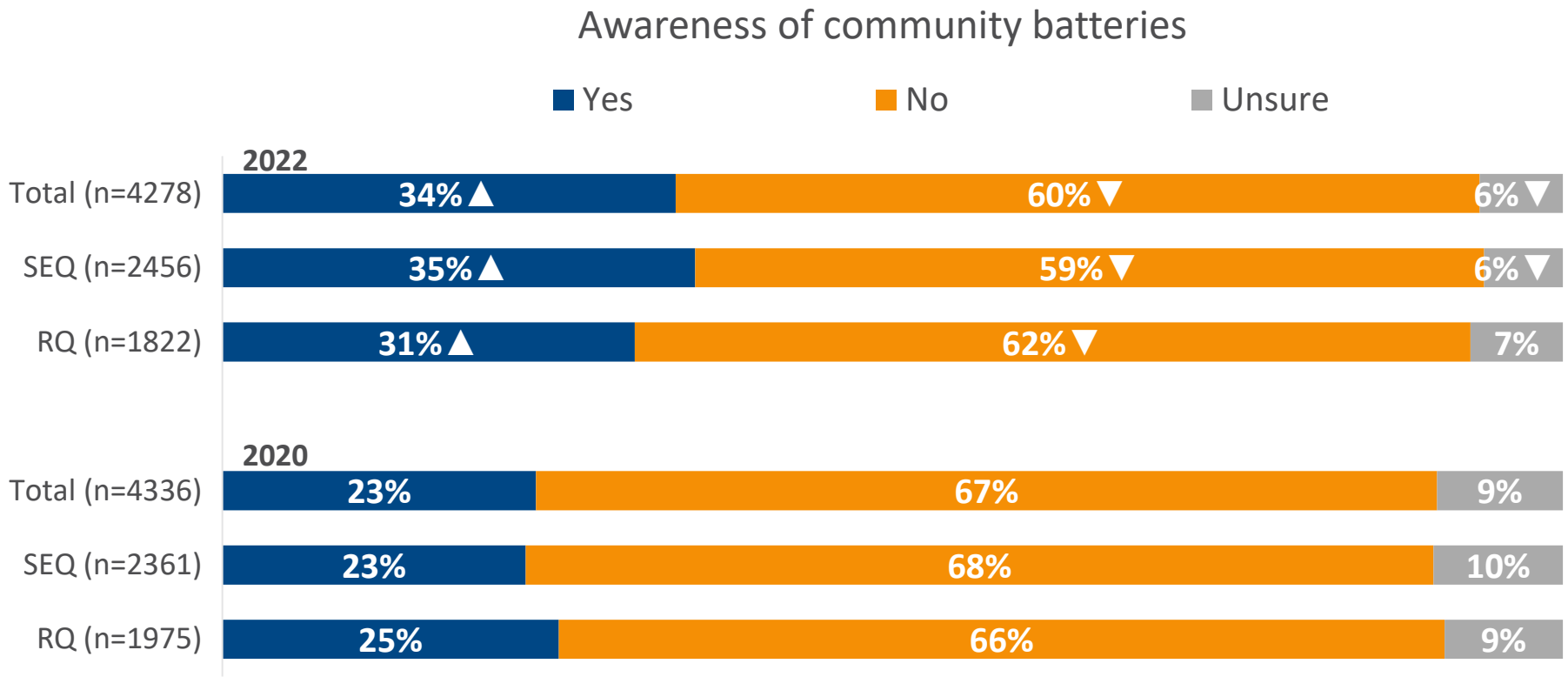
The maximum amount that solar PV owners intending to purchase a home battery system are willing to spend continues to increase.



▲▼ Significantly higher/lower than previous year at the 95% confidence level

Base: Solar PV owners intending to purchase a home battery system
Q. Approximately, what is the maximum you would be willing to spend on a home battery storage system?

In 2022, around one-third (34%) had heard about community batteries (significantly up from 23% in 2020). Awareness was higher in SEQ (35%), than in Regional QLD (31%).



- Homeowners were more aware than renters (36% vs. 30%).
- Similarly, those with solar PV also had higher awareness than those without (41% vs. 28%).
- Those intending to go off-grid in the next 3 years or within the next 3-10 years recorded higher awareness (46% and 40% respectively vs. 32% of those not intending to go off the grid).

Base: All respondents
Q. Community batteries are a neighbourhood energy storage solution, where solar PV owners can store their surplus electricity generation during the day then access it in the evening. This offers an alternative to PV owners purchasing their own battery systems, and provides a range of benefits to the network, including being able to host more solar PV systems. Eventually, even those who don't have a solar PV system may be able to access the renewable energy in community batteries. Have you heard of this concept before?

▲▼ Significantly higher/lower than previous year at the 95% confidence level

7. Electric Vehicles

7. Electric Vehicles

The electric vehicle market in Queensland is maturing, with latest estimates of more than 11,000 electric vehicles (EV) in Queensland[1]. The challenges facing those buying an EV in 2022 are significantly different to just two years ago as demand for EVs grows.

The 2022 QHES results reflect this trend for EVs becoming more mainstream, with the number of EVs on Queensland roads doubling in the last two years[1]. Of the survey respondents who are in the market for a new motor vehicle in the next three years, 71% would consider an EV – significantly up from 54% in 2020.

Environmental and economic considerations drive interest in EVs, with most saying lower emissions, lower motoring costs and home charging are their main reasons for considering an EV.

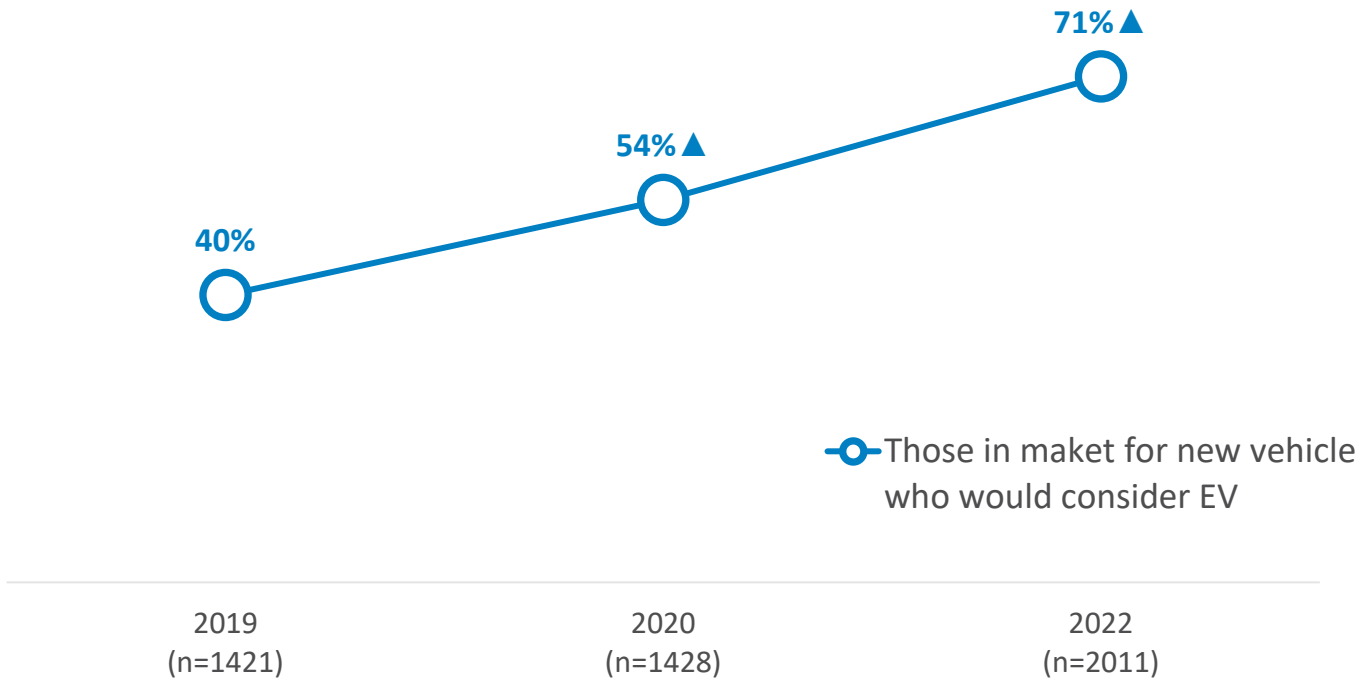
While cost remains the primary barrier for EV uptake, the lack of charging infrastructure is also a concern for respondents, as well as a lack of charging facilities at their property.

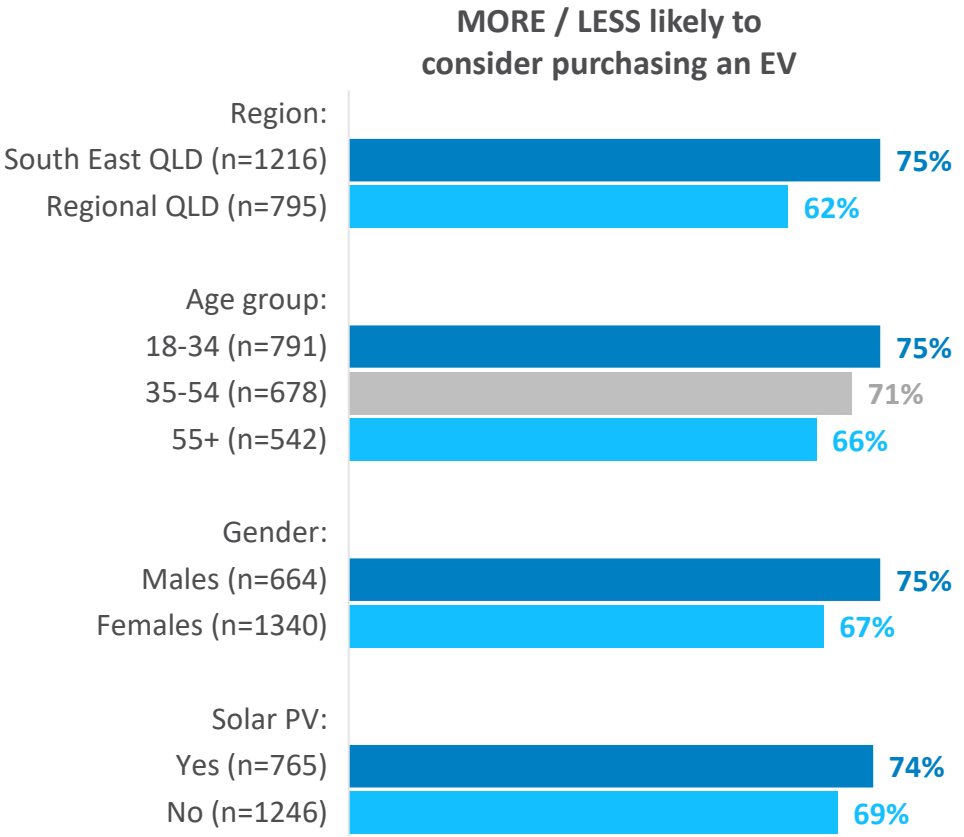
Further evidence of this growing market is seen in the challenges when buying an EV. In 2022, fewer EV owners than in 2020 said they lacked the necessary information, or the salesperson was not informed. In contrast, access to a nearby dealer and lack of financial incentives were mentioned. Just 19% of EV owners said they experienced no challenges when purchasing their vehicle.

EV owners use a range of tools to manage their charging times – in-vehicle, HEMS and manual management are all equally used. EV owners are receptive to changing their behaviour, with most EV owners likely to change charging times to avoid peak hours and half of them open to the concept of a third party managing their charging times.

[1] Data supplied by EQL

EVs are now a consideration for the majority of new vehicle buyers.



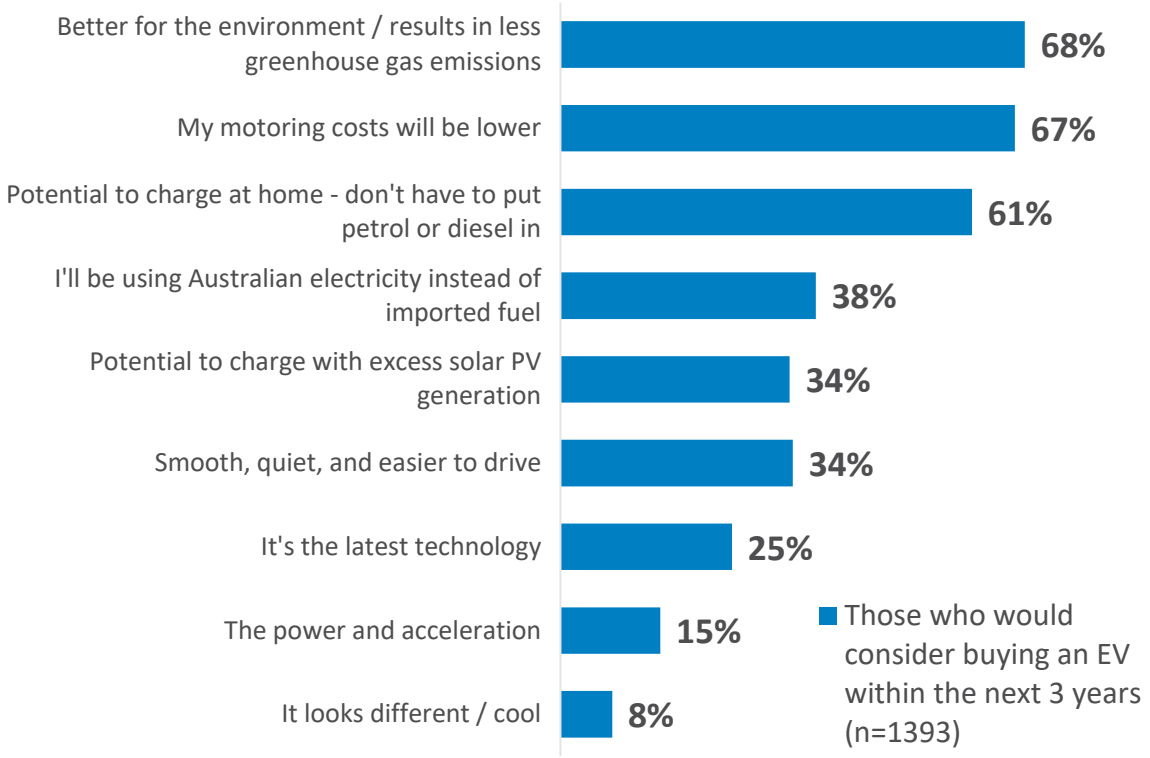


▲▼ Significantly higher/lower than previous year at the 95% confidence level

Base: Those who are considering purchasing a motor vehicle of any kind in the next three years
Q. Would you consider purchasing a battery electric car or plug-in hybrid car in the next three years?

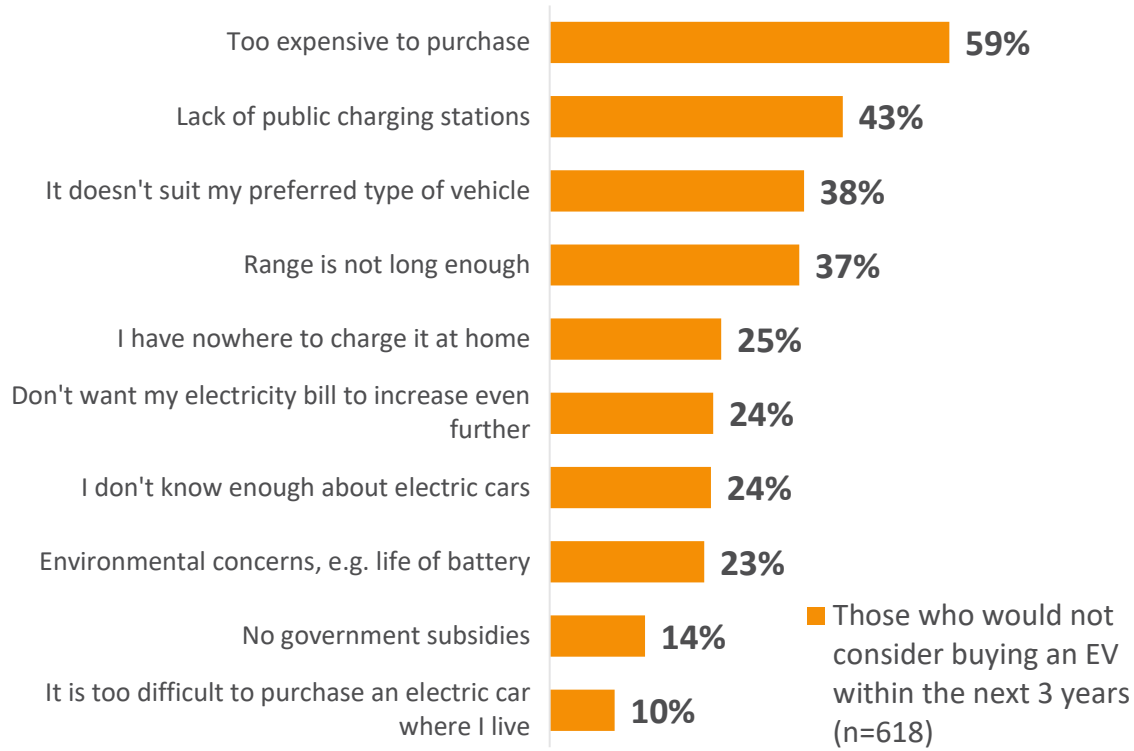
Cost and lack of infrastructure are the main barriers for buyers when considering purchasing an EV.

Motivations for EV purchase



Q. Why are you open to purchasing a plug-in electric or a plug-in hybrid car?

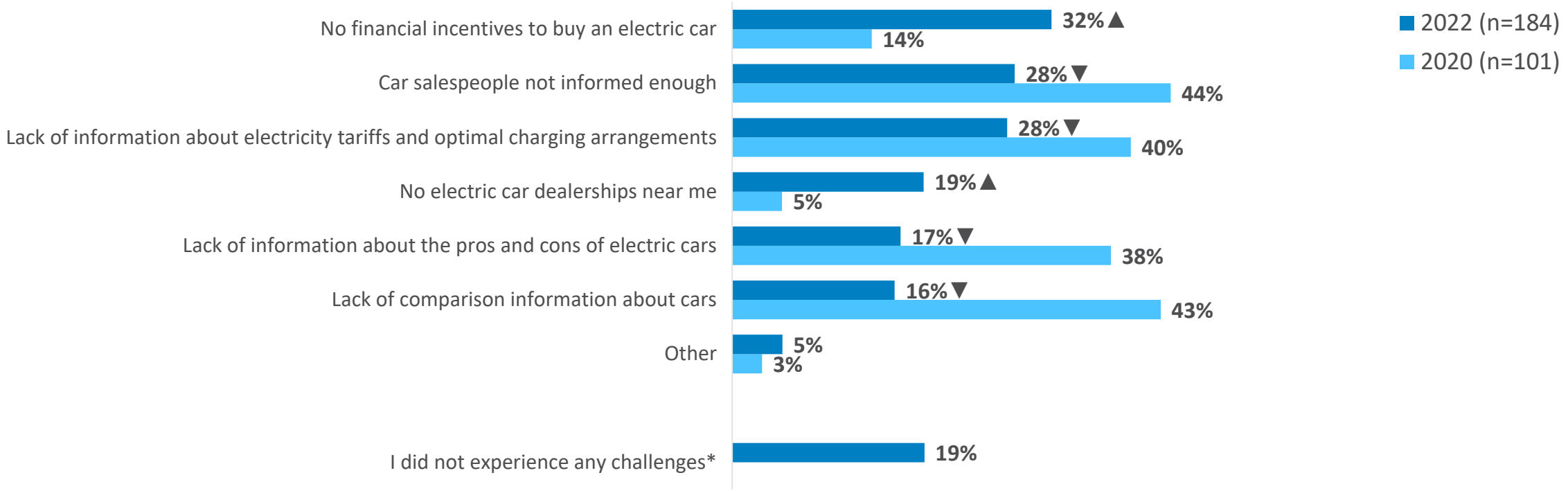
Barriers to EV purchase



Q. Why are you not considering purchasing a plug-in electric or plug-in hybrid car?

Lack of financial incentives and access to dealerships have become greater challenges when buying an EV in 2022, while information and knowledge about EVs has become more accessible.

Challenges encountered when buying an EV – Year on Year comparisons

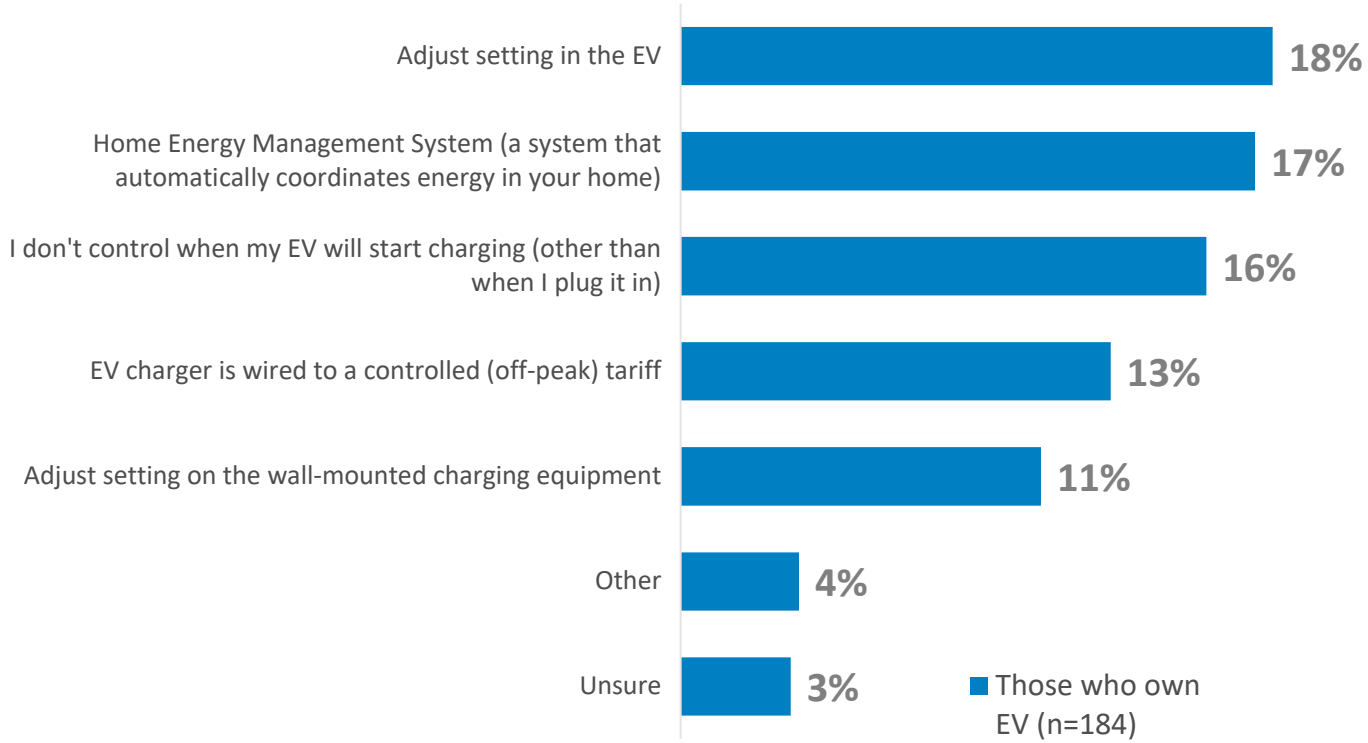


*New option included in 2022

▲▼ Significantly higher/lower than previous year at the 95% confidence level

Base: Those who currently own an EV
Q. What challenges, if any, did you encounter when purchasing your electric car?

EV owners use a range of solutions to manage their EV charging times – in-vehicle, HEMS, tariff and at the charging point. There is not one prevailing charging time method.



42% EV owners park their car at home (garage or driveway) during weekdays. This increases to 52% on weekends.

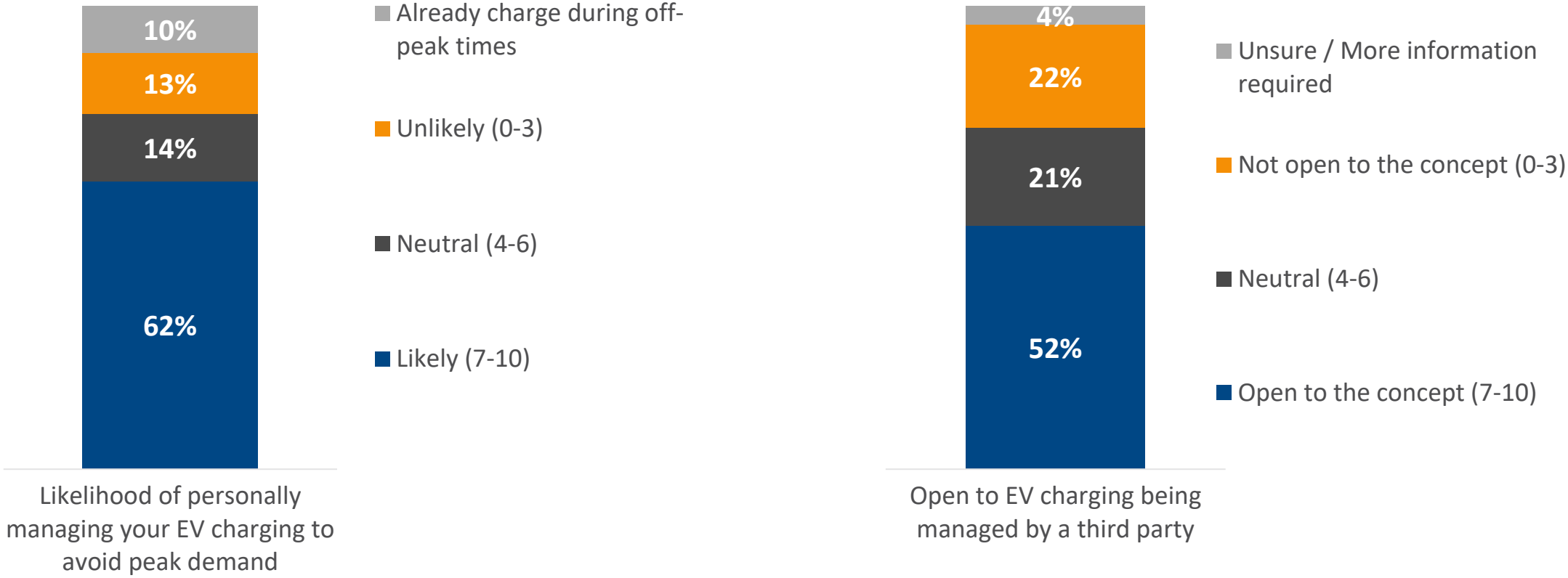
29% EV owners park their car at their workplace during weekdays. This drops to 14% on weekends.

Weekdays (9am – 3pm)
On-street parking (13%), public car parks (8%), and park 'n' ride (3%)

Weekends (9am – 3pm)
On-street parking (14%), public car parks (6%), and park 'n' ride (4%)

Base: Those who currently own an EV
Q. How do you generally control when your EV when starts charging (other than as soon as it's plugged in)?

There is high willingness among EV owners to manage their EV charging times to avoid peak demand and half would be open to third party management. *Both questions on an 11-point scale (0 to 10).*



Base: Those who currently own an EV (n=184)
Q. How likely are you to personally manage your EV charging to avoid peak electricity demand on the network (generally weekdays between 4pm and 9pm)?
Q. In order to address electricity demand on the local network, when you are charging your EV at home, how open are you to the concept of your EV charging being managed by a third party? (By third party, we are referring to your electricity retailer or your network provider).

8. Energy Management

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There is evidence of growing interest and uptake of energy management solutions, but distrust of third-party control remains a barrier to greater uptake.

34% of survey respondents are interested in purchasing a Home Energy Management System (HEMS) in the next 3 years, with 39% of respondents indicating they have a digital meter at their property (up from 33% in 2018) (Note – industry data shows that 28% of Queensland households have a digital meter installed).

Interest in HEMS is higher among those with solar PV (36%) than those without (32%). Among the smaller sub-sample of those with solar PV who claimed to have battery storage, 64% declared that they were very or somewhat likely to purchase a battery storage system. Likewise, the small sub-sample of EV owners also showed higher interest (64%). Younger people, those in full-time employment and with dependent children in the home, also showed higher interest.

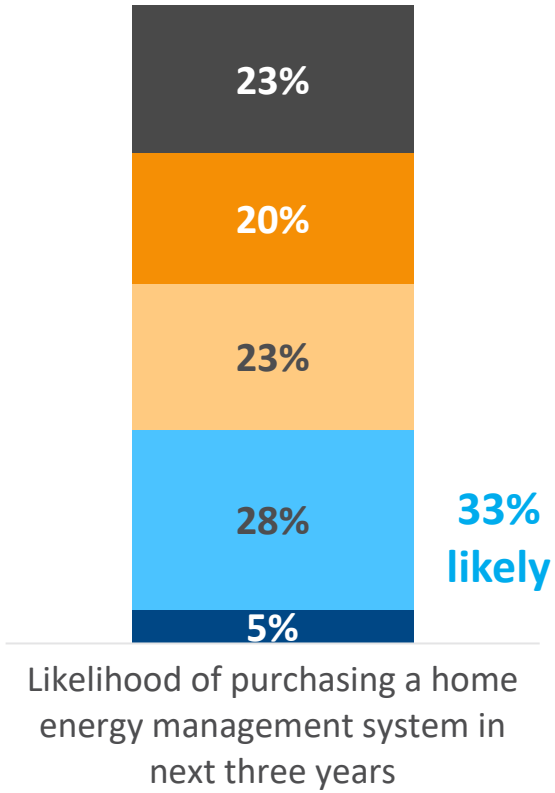
There is an increasing appeal in the value of HEMS to remotely and automatically control appliances and provide advice to reduce energy use. 53% are interested in controlling appliances remotely, 48% are interested in appliances being controlled automatically and 50% are interested in controlling other electrical devices remotely. Respondents with battery storage and/or an EV typically showed higher interest.

In general, there is lower interest in handing over control to a third party (28%)– this has not materially changed since 2018. However, there is higher interest among those with battery storage and/or an EV.

The main benefits of a digital meter are perceived to be providing accurate readings (72% highly value this benefit) and the meter communicating directly to their electricity provider (63%).

The lowest value was placed on participating in remote access programs. 48% would value this, and 21% have little or no interest.

Despite low awareness of the benefits of a Home Energy Management System, 33% of survey respondents indicated they are likely to purchase a Home Energy Management System in the next three years, while one-quarter (23%) indicated that they need more information before deciding.



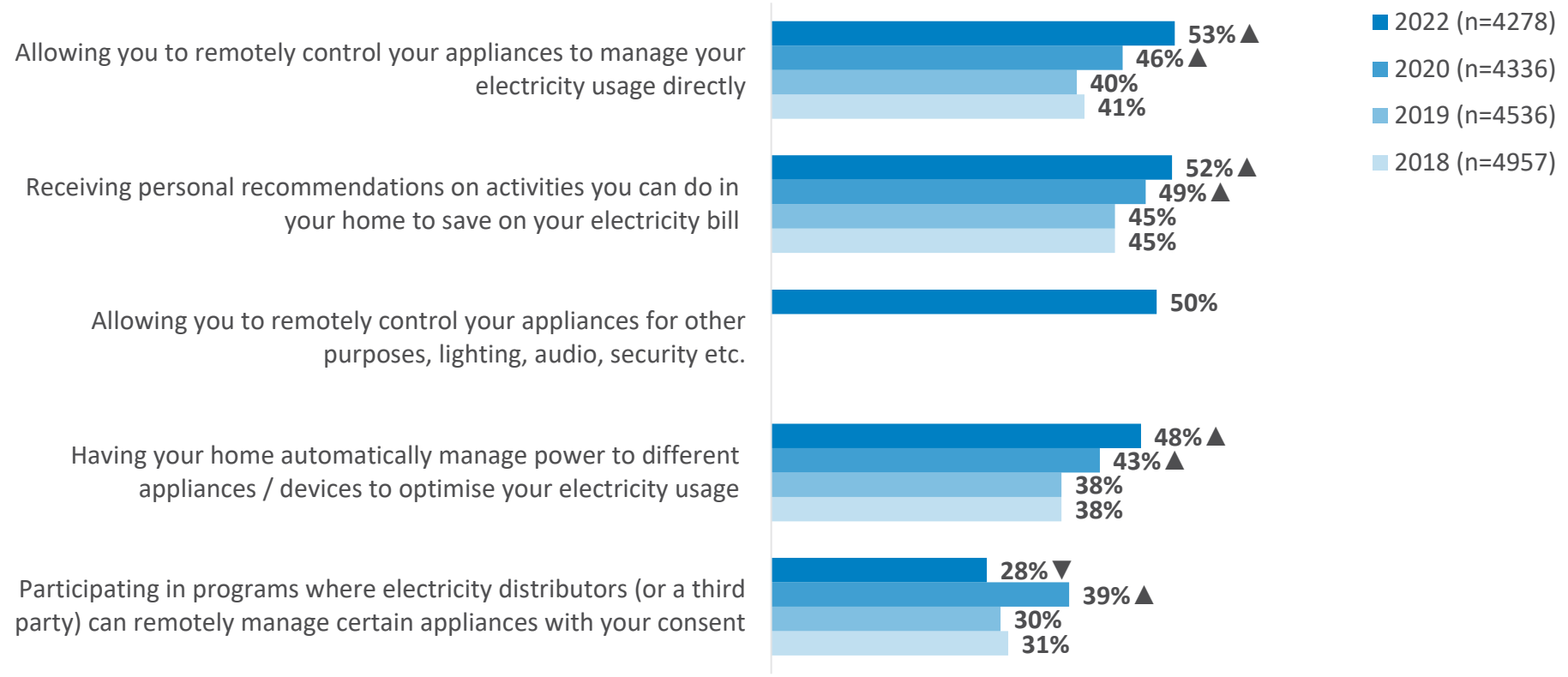
- I need more information before I can make a decision
- Not at all likely
- Not that likely
- Somewhat likely
- Very likely

Highest likelihood to purchase HEMS	Very or Somewhat likely	Very or Somewhat likely	Lowest likelihood to purchase HEMS
Aged 18-34	50%	18%	Aged 55+
Household with dependent children	42%	28%	Household with no children at home
Household income > $71k	41%	24%	Household income < $71k
Live in newer home (built in last 10 years)	45%	26%	Live in older home (over 20 years old)

Base: All respondents (n=4278)
Q. In considering your answers to the previous question, how likely are you to purchase a Home Energy Management System (a system that automatically coordinates energy in your home) within the next three years?

Interest has increased on the remote control of appliances, the automatic management of those appliances and receiving information to make informed choices. However, suspicion remains about allowing *third parties* to control appliances and electricity usage.

Percentage of respondents who are interested (7, 8, 9 or 10=Very interested)



Base: All respondents

Q. Households are increasingly becoming interconnected with a variety of electronic devices that enable automation, remote control and information on electricity usage. Below is a list of some of the services these Home Energy Management Systems (a system that automatically coordinates energy in your home) could offer. Please indicate your level of interest in the following services. [0=Not at all interested 1 2 3 4 5 6 7 8 9 10=Very interested].

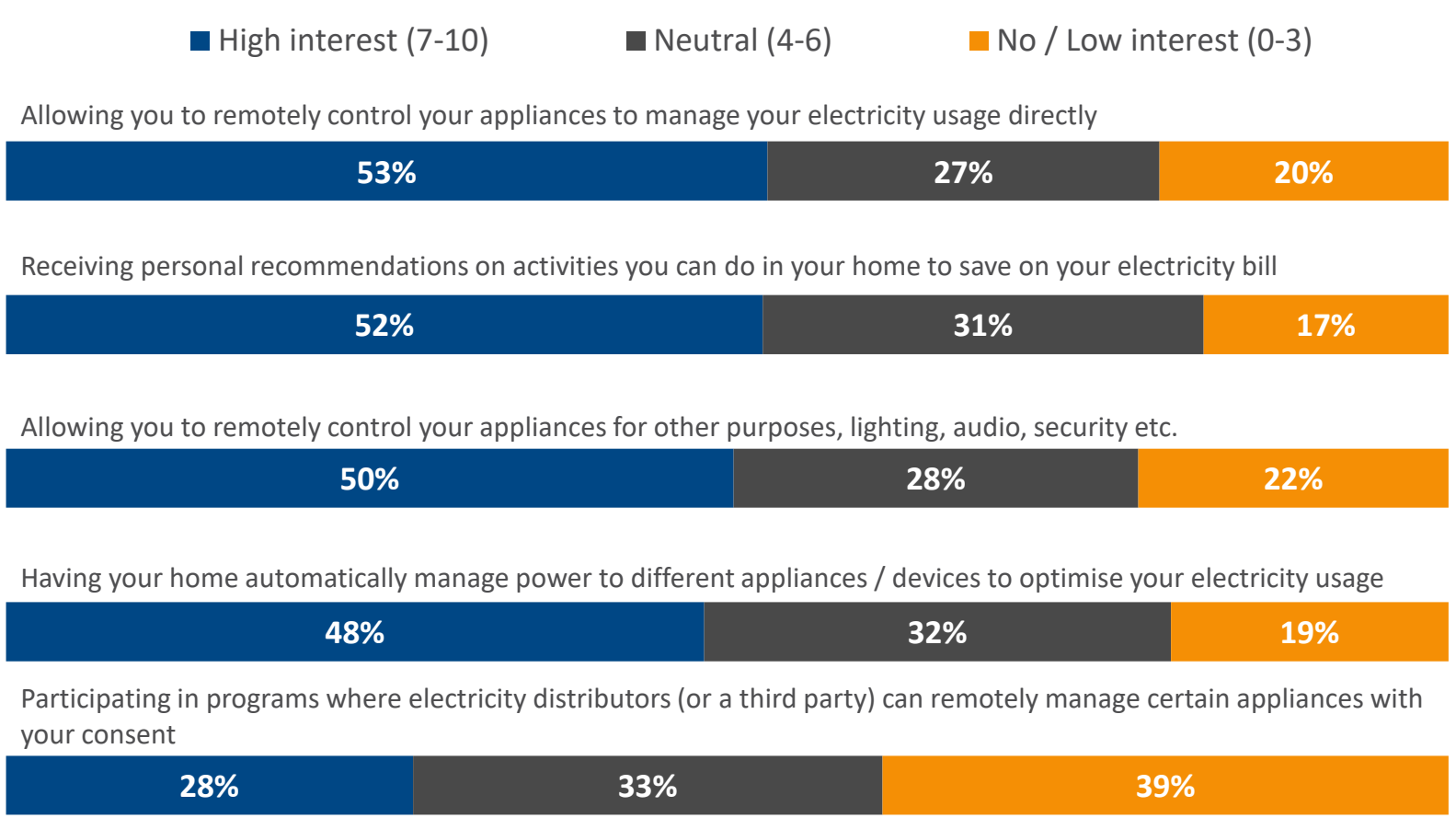
▲▼ Significantly higher/lower than previous year at the 95% confidence level

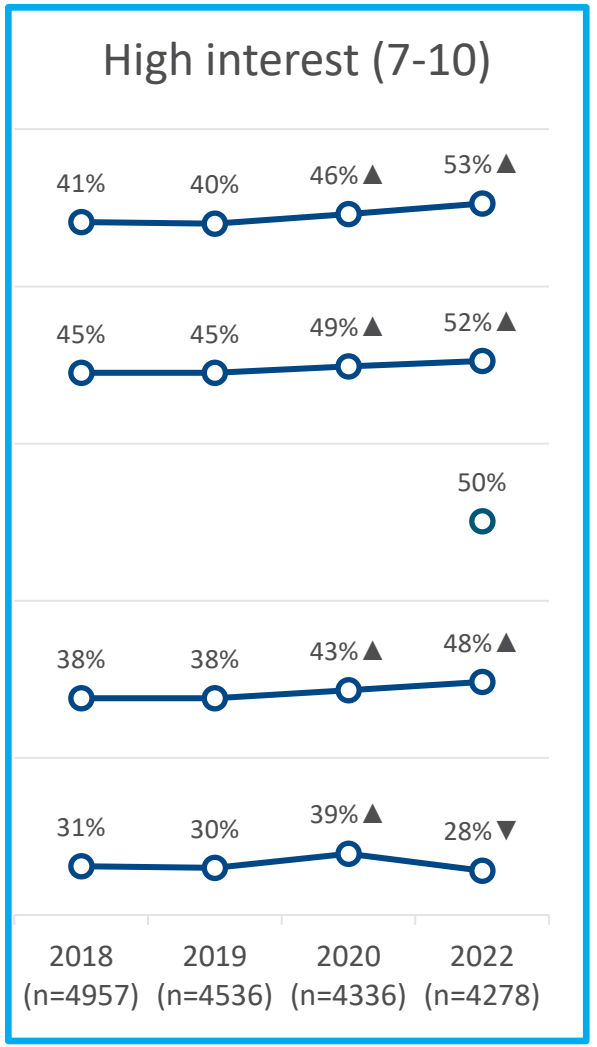
- Those residing in South East Queensland are more open to automation than Regional Queenslanders (50% vs. 46%). Similarly, they have a higher interest in participating in programs which allow third parties to manage appliances (29% vs. 26%).
- Those with solar PV also showed higher levels of interest than those without solar PV – automation (51% vs. 47%) / third party control (31% vs. 27%).

For all Home Energy Management systems:

- Younger respondents (18-34) and those aged 35-54 showed higher levels of interest than those aged 55+
- Likewise, higher income households ($71k+) showed higher interest than lower income households (<$71k).

Interest has increased for remotely controlling appliances, automatic management and receiving advice. However, suspicion remains about allowing *third parties* to control appliances and electricity usage.

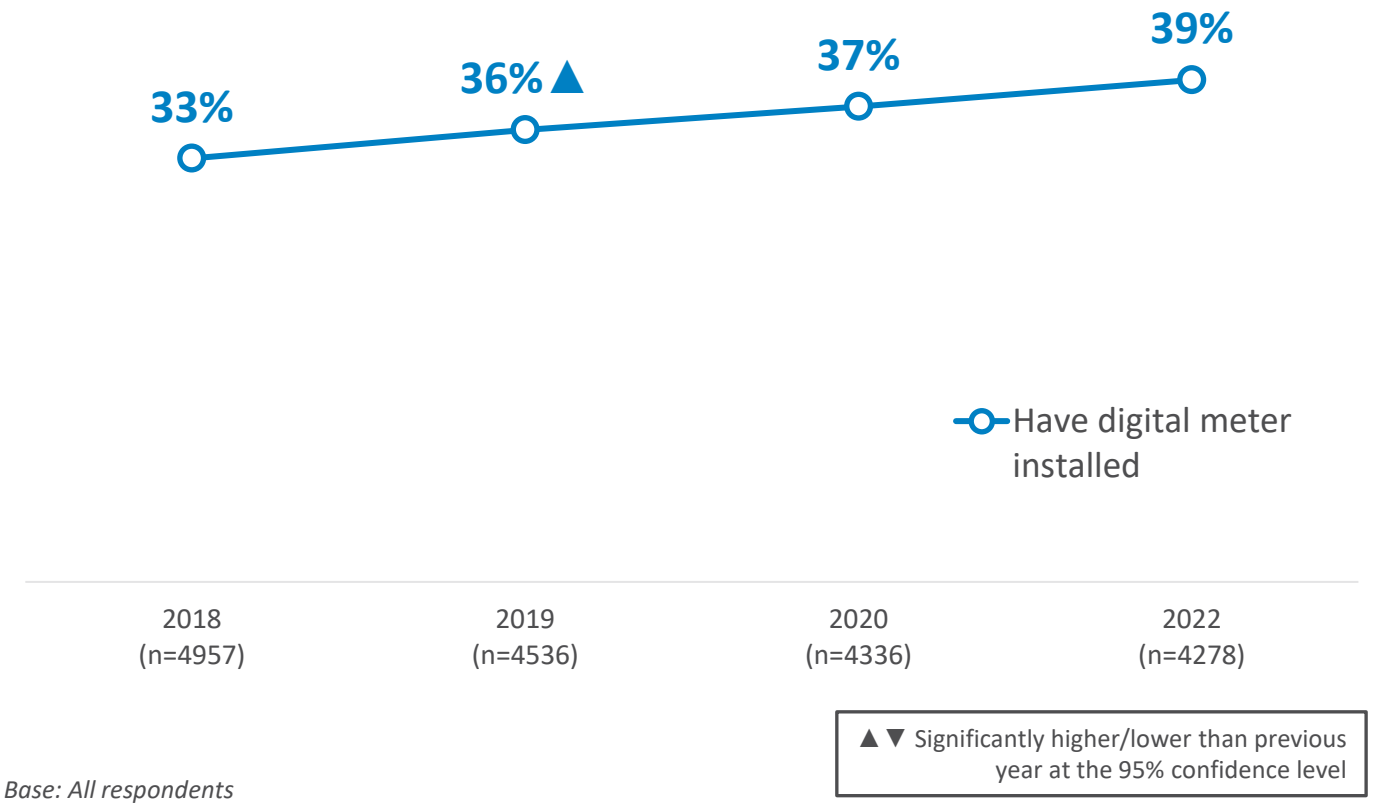




Base: All respondents

Q. Households are increasingly becoming interconnected with a variety of electronic devices that enable automation, remote control and information on electricity usage. Below is a list of some of the services these Home Energy Management Systems (a system that automatically coordinates energy in your home) could offer. Please indicate your level of interest in the following services. [0=Not at all interested 1 2 3 4 5 6 7 8 9 10=Very interested].

There has been a steady increase in the percentage of survey respondents indicating that they have a digital meter installed. (However, industry figures show that the true percentage of Queensland households with a digital meter installed is 28%).

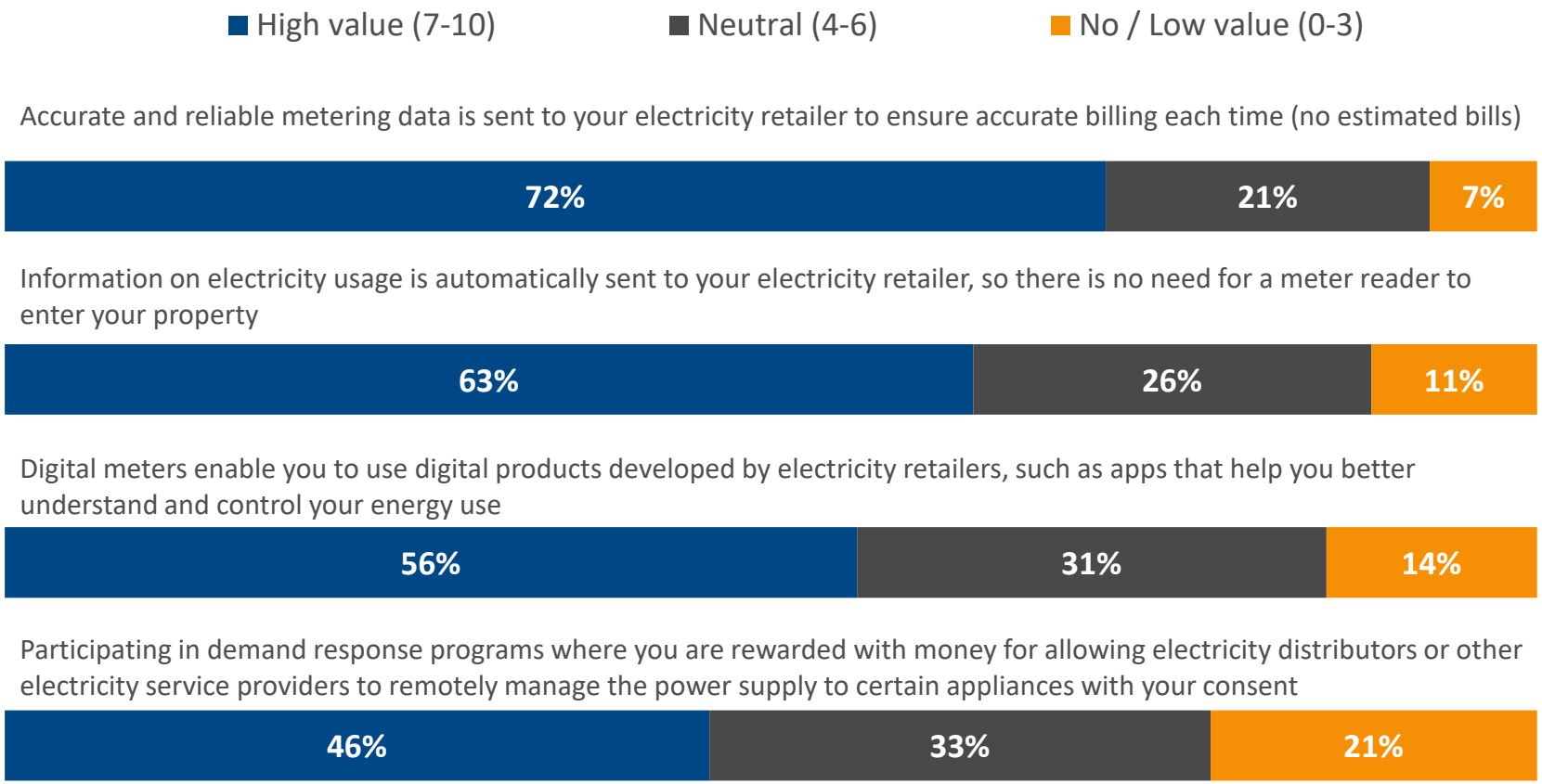


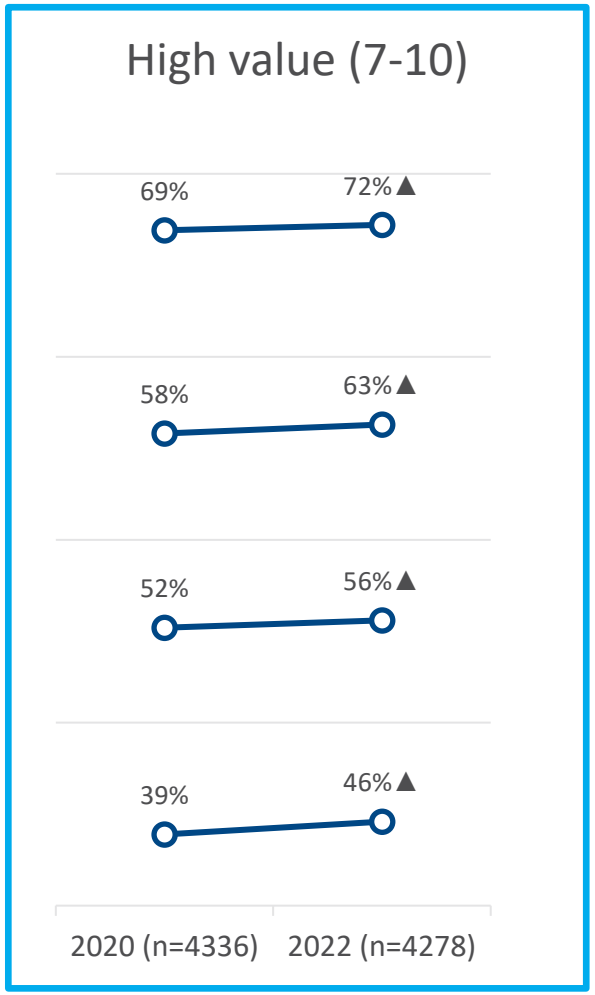
58% Of those with solar PV stated they have a digital meter at their property

32% Of those who rent their property are unsure if they have a digital meter compared to just 17% of those who own their own home.

Base: All respondents
Q. Do you have a digital meter installed in your electricity meter box?

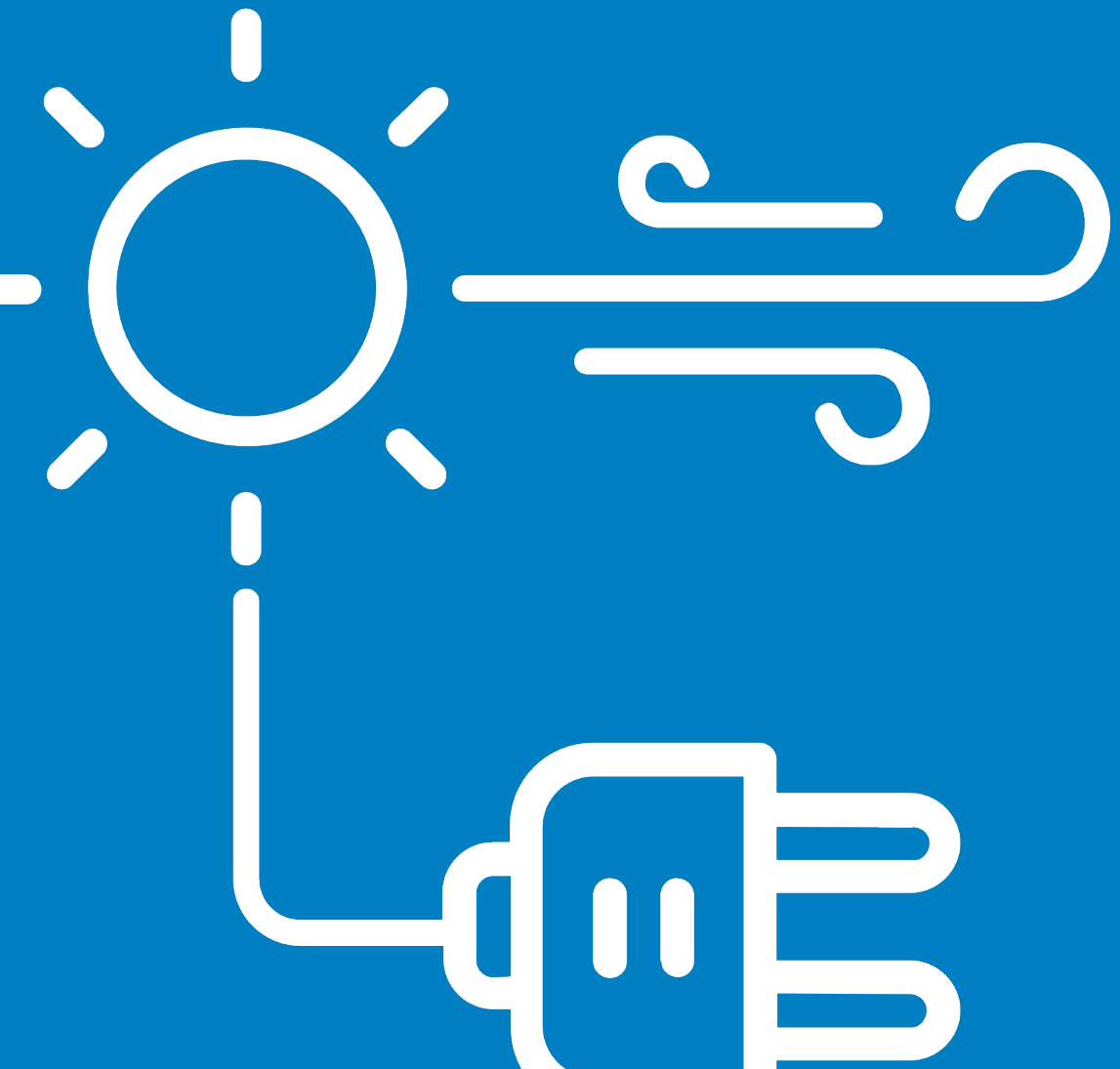
The main benefits perceived by survey respondents of a digital meter are accurate meter readings and information being automatically sent to retailers.





Base: All respondents
Q. Below is a list of some of the services a digital meter offers / Below is a list of some of the services a digital meter could offer. To what extent do you value each of the following offerings? [0=Not valued 1 2 3 4 5 6 7 8 9 10=Highly valued].

▲▼ Significantly higher/lower than previous year at the 95% confidence level



9. Going Off-grid

9. Going Off-grid

There is increasing interest in the prospect of going off-grid, with many taking the first steps in changing behaviour or researching how to achieve self-sufficiency.

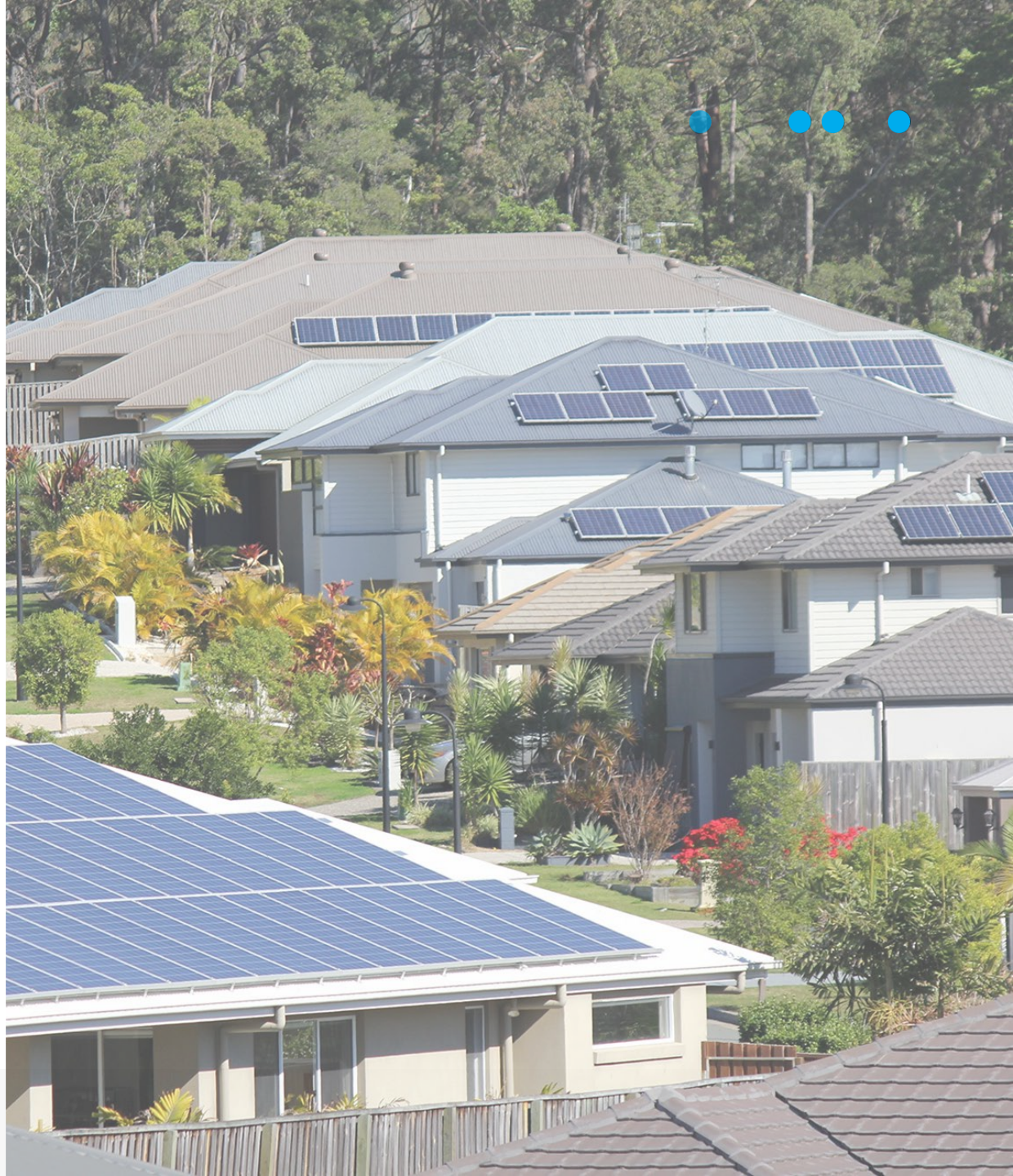
Interest in going off-grid in the future has increased since 2018 with just under a third of survey respondents indicating they are open to going off-grid at some point in the future. For many going off-grid is more of a long-term aspiration, with less than one-in-ten intending to go off-grid in the next three years.

For households which already have battery storage, going off-grid is seen as more practical, and a third of those with a household battery intend to do this in the next three years.

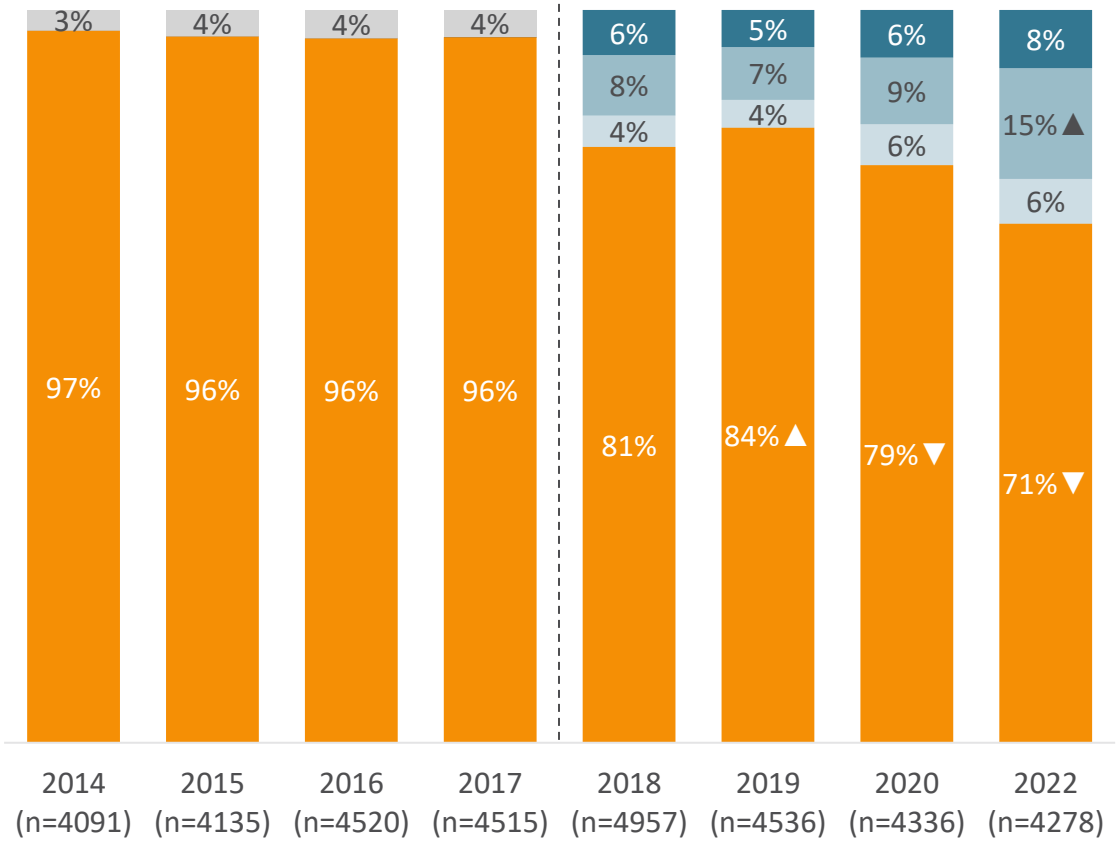
Despite having some of the necessary infrastructure to go off-grid, those with solar PV are no more likely to intend to go off-grid than those without solar PV.

Saving money is a key factor in the drive to go off-grid. The main motivations for making this change are concern with rising electricity prices and it providing a cost-effective solution.

Concerns about the network are lower, but a notable minority have a lack of trust towards electricity providers in terms of their ability to effectively manage the electricity network.



Interest in going off-grid is gradually increasing. 29% of survey respondents have some interest or intention to off-grid in the next 10 years

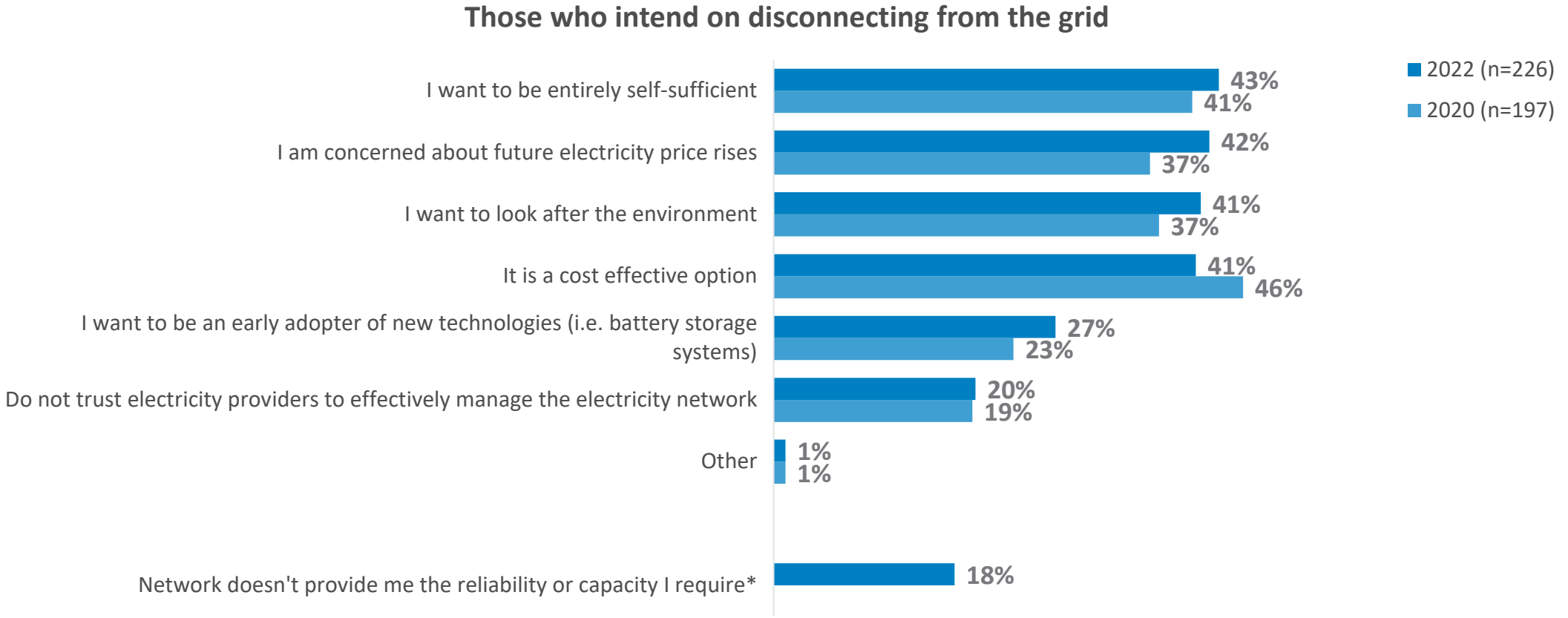


Highest likelihood to consider going off-grid	2022
Brisbane (Inner City)	42%
18-34 year olds	40%
Have household battery storage	58%

▲▼ Significantly higher/lower than previous year at the 95% confidence level

Base: All respondents
Q. Do you intend to completely disconnect from the electricity grid?
Response list changed in 2018.

The driving factors behind going off-grid are to be more self-sufficient, concerns around future electricity prices and environmental considerations (relatively consistent with responses received in 2020).



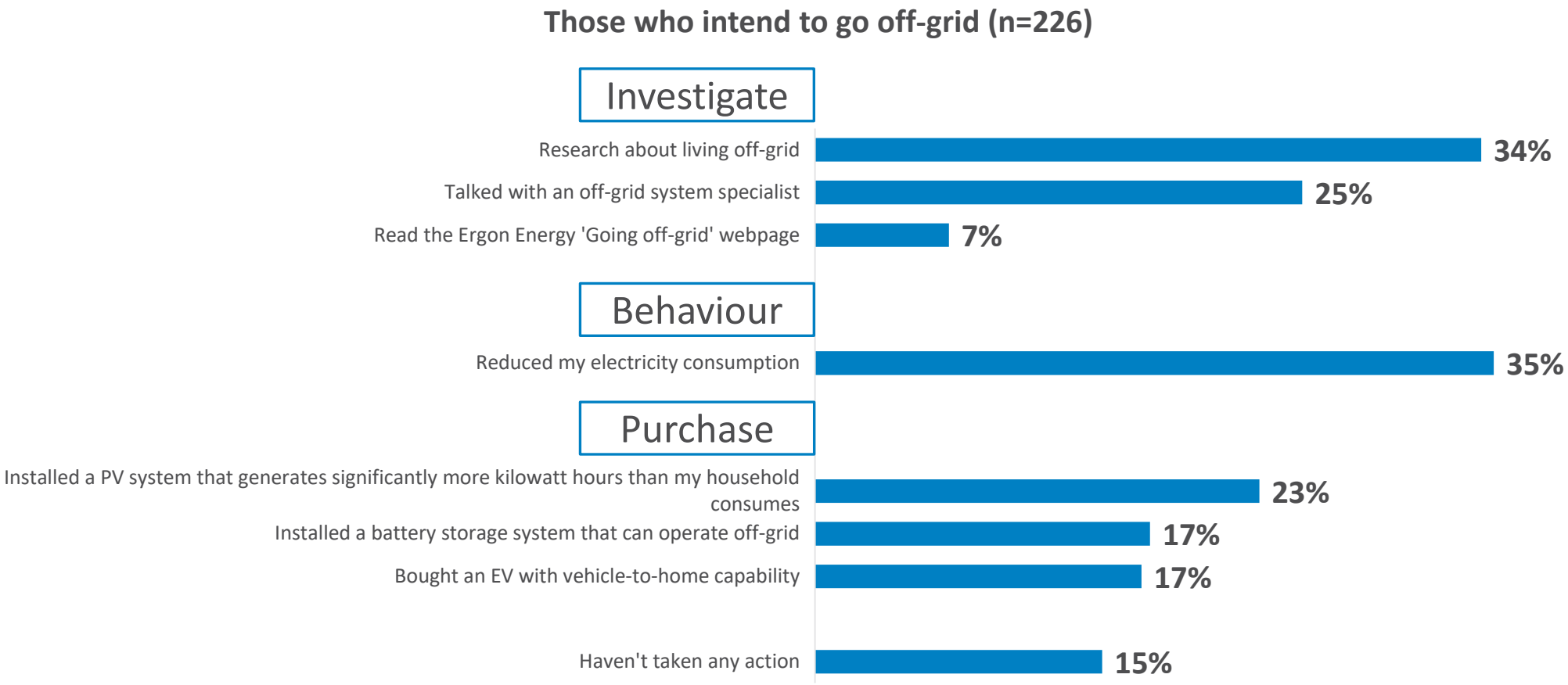
*New option included in 2022

Base: Those who intend on disconnection from the grid

Q. And why do you intend on completely disconnecting from the electricity grid?

▲▼ Significantly higher/lower than previous year at the 95% confidence level

Conducting research and reducing electricity consumption are the main off-grid preparations. 34% have researched how to live off-grid and 25% have talked with an off-grid specialist.



Base: Those who intend on disconnection from the grid
Q. Which of the following actions have you taken to be able to completely disconnect from the electricity grid?

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