

Simply Energy – Lesson Learnt Report

Date: October 2020



Acronyms

ARENA	Australian Renewable Energy Agency
DER	Distributed Energy Resources
ESS	Energy Storage System
NEM	National Energy Market
SA HBS	South Australia Home Battery Scheme
SE	Simply Energy
VPP	Virtual Power Plant

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1 Executive Summary

VPPx is an ARENA funded project which commenced in March 2018 and has been working to build the first virtual power plant (VPP) that will integrate with a distributed energy market platform. The project is led by Simply Energy and involves a consortium of project partners including technology vendor GreenSync and distribution network service provider SA Power Networks (SAPN).

At completion, the VPP was aiming to host 1,200 home battery storage systems which would deliver 6.5 MW of flexible capacity to the South Australian (SA) electricity grid. GreenSync's Decentralised Energy Exchange (deX) platform has been developed as part of the project with the objective of being utilised to support the transaction of value from this flexible capacity in the provision of wholesale energy services, frequency control and ancillary services (FCAS), and potentially network support services, whilst maintaining network security and stability for the local distribution network.

Although there was considerable innovation in the new technology applied to this project, one of the main knowledge sharing objectives was focussed on how customers would respond. Of particular interest was the sensitivity of customers to the costs of VPP participation, principally driven by the cost of residential battery storage systems and how varying product offers, Government subsidies and broader economic factors impacted uptake of VPP products.

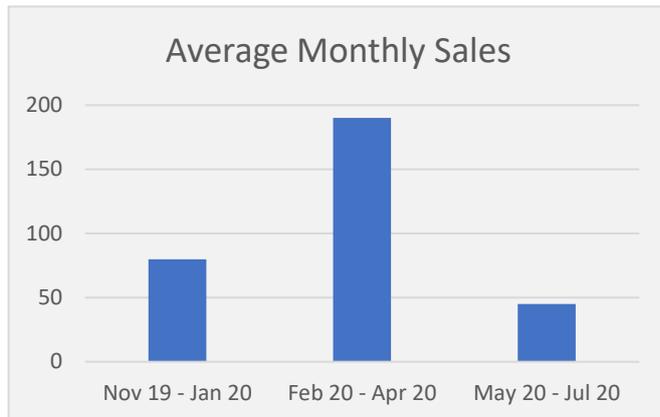
To explore this topic Simply Energy has trialled a number of product designs and subsidy structures, monitored consumer response as external factors such as the levels of subsidies available through the South Australian Home Battery Scheme (SA HBS) and the impact of the COVID-19 pandemic. A customer survey was conducted as well as analysis of sales across the lifetime of the project to date. The results of this assessment are included in this Lessons Learnt Report.

The key findings include:

- The main factor in influencing consumer uptake of residential home battery systems and participation in VPP programs is price. Or more specifically, the level of subsidy available to reduce the price of a battery storage system over its lifetime.
- COVID-19 did not have a material impact on the level of demand for home battery storage systems and VPP participation.
- Changes to the level of subsidy available for residential home battery systems, both from the SA HBS and the VPPx Project, had a material impact on consumer uptake. The most pronounced spike in demand immediately preceded a \$2000 reduction in the level of the SA HBS and the announcement that Simply Energy's \$5,100 VPP subsidies had limited offers remaining. The imminent withdrawal of a benefit proved to be a far greater incentive than the initial announcement of a benefit, as the SA HBS and Simply Energy VPP subsidies had been in market for well over a year prior to this spike in demand.
- Applying different levels of VPP benefit payments, based on the size of the energy storage system's inverter and reflecting the benefit of the battery type to a VPPs trading activities, is an effective way to drive uptake in preferred technology and tailor the composition of the VPP fleet.

2 Survey Results

2.1 VPP Participation



Participation rates in the Simply Energy VPP had been steadily increasing in the latter part of 2019 and this was attributed to the introduction of a new referrer based sales channel, a new VPP Commodity Offer including \$7 per day VPP Access Credits up to the value of \$5100 as well as the introduction of the SA HBS in November 2018. By November 2019 through to January 2020, the project was receiving an average of 80 new VPP customers per month.

On the 6th of March the South Australian government announced a reduction in the HBS subsidy effective 15th April 2020. Around the same time Australians began to experience the impacts of COVID-19 as parts of the economy began to shut down and restrictions on gatherings began.

Between February 2020 and April 2020 VPP participation numbers increased by 140% to an average of 190 VPP sales per month (273 if you include the oversubscription customers). As a result, the VPP 1200 allocated offers were fully subscribed by the end of March and the project had received an additional 250 applications from customers who had expressed interest in signing up to the offer. To accommodate for the additional customer interest in VPP participation Simply Energy released a reduced subsidy offer of \$2550 in VPP Access Credits for eligible energy storage systems with larger 5kVA inverters and \$1275 for smaller 3.3kVA or less inverters. The following months from May 2020 to July 2020 the project experienced a sharp decrease in participation down to an average of 45 sign ups per month.

In response, Simply Energy then released a final offer of \$3550 in VPP Access Credits for eligible energy storage systems with larger 5kVA inverters, which resulted in a final increase in sales to approximately 70 sales in the final month of offers available under the trial.

2.2 VPP Survey

In order to better understand how the above factors influenced customers purchasing behaviour, as well as other potential factors the project conducted a survey which was issued on 20th June 2020. The survey was issued to over 800 people including;

- Simply Energy customers who had signed up to the VPP offer between February 2020 and April 2020
- Customers who had signed up to a waiting list, and
- Customers who had decided not to proceed.

In excess of 100 customers responded to the survey. Of those who responded, overwhelmingly survey participation came from customers who had signed up to the Simply Energy offer and this skew should be considered when reviewing the survey results. Of the participants, 73% were male and 26% female.

The survey included a mix of questions regarding customers response to the SA HBS subsidy reduction, impacts COVID-19 had on purchasing decisions as well as a range of questions regarding other potential drivers.

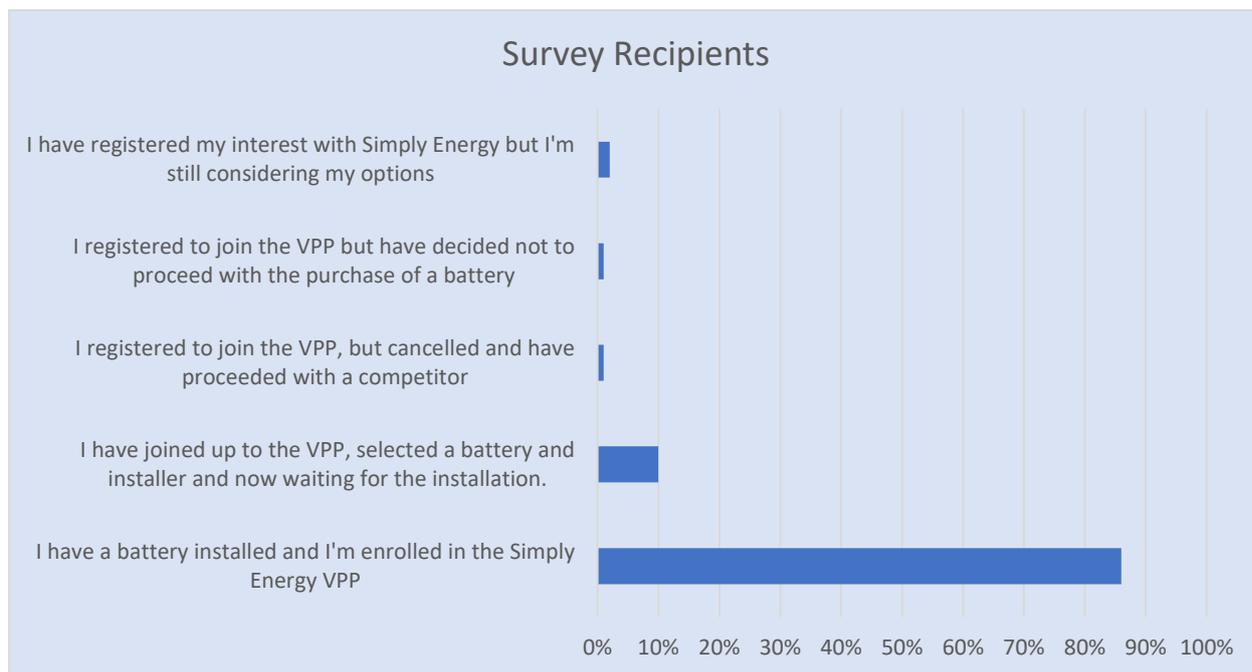


Figure 1: **Question:** Please select a statement which describes your current situation with Simply Energy in regard to the Virtual Power Plant (VPP).

2.3 COVID-19 – Impacts on purchasing decisions

Overall, the survey identified that COVID-19 did not impact on customers purchasing decisions. 85% of customers indicated that COVID-19 did not impact their decision to move forward with purchasing an energy storage system and joining the VPP. Customers did indicate that they felt positive about their purchasing decision in that they would be saving money at a time when the economy may be unstable. Other factors such as level of subsidy, return on investment, battery brand and capability were stronger influences in their purchasing decision. In considering these results the fact that most respondents had proceeded with the purchase would obviously influence the results however given the significant increase in total sales and registered interest over the 3 month period (including several weeks when COVID-19 restrictions were in place in South Australia) would indicate that a high number of customers who had been considering purchasing a battery did not change their mind over this period.

Here's what customers had to say:

“We didn't change our decision due to COVID-19. This was a big investment we had been researching and planning for months. Our main motivation to move faster with the install of a battery was the announcement of the subsidy reduction, we couldn't afford to move forward without that.”

“I decided before COVID-19, so nothing was going to change my mind.”

“I was already looking for a battery and with the help of the subsidy, it didn't feel like such a big investment.”

Customers were asked if COVID-19 influenced aspects of their purchasing decision and overwhelmingly customers indicated that COVID-19 did not impact their decision.

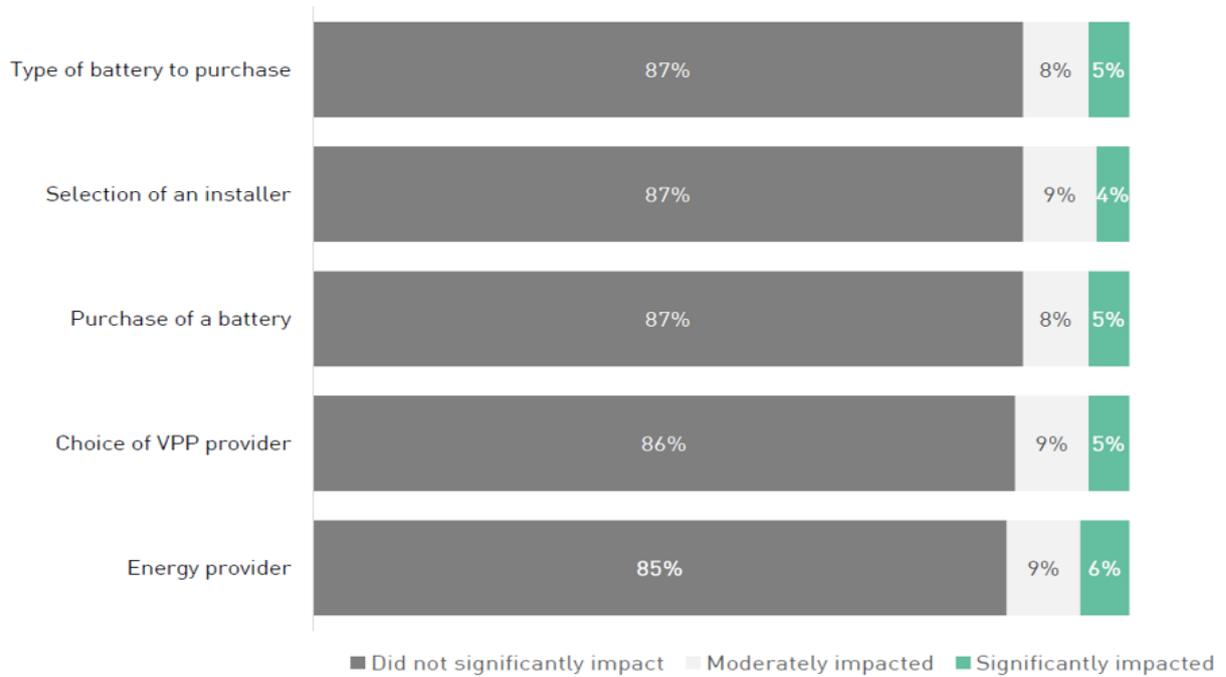
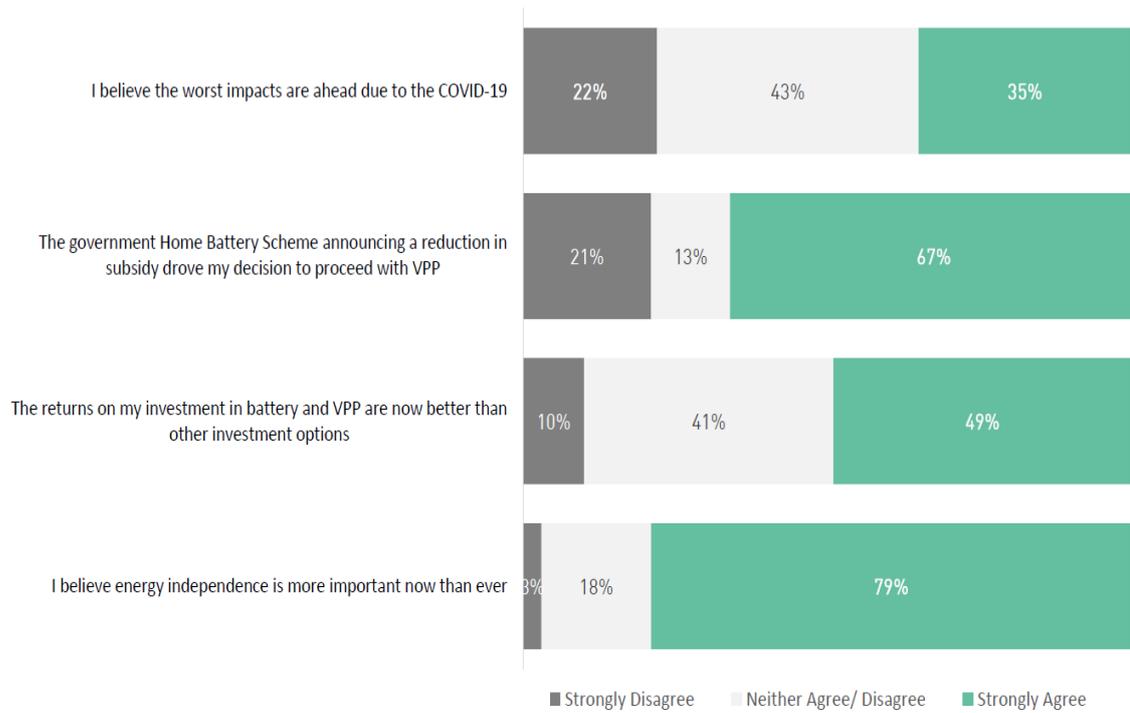
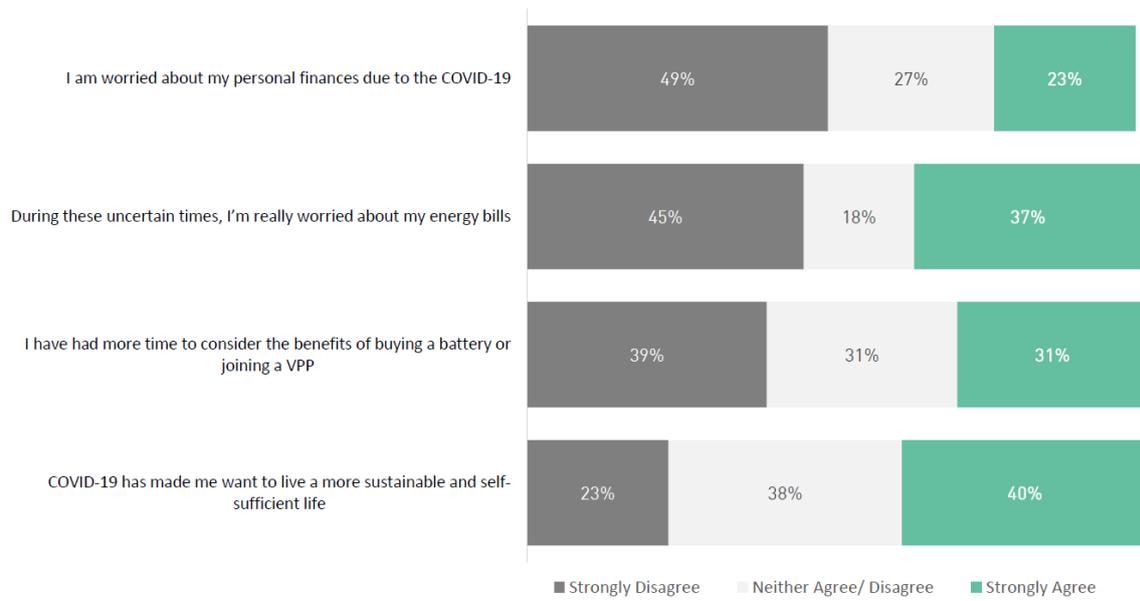


Figure 2 **Question:** Has COVID-19 impacted your purchasing decision on the following?

2.4 COVID-19 – Customers Attitudes

Customers were also asked to rate a series of questions in terms of how they felt about COVID-19 to better understand customers attitude and mindset to COVID-19. Overall, the results indicated that customers were generally not overly concerned with the impacts of COVID-19 in terms of the areas specified.



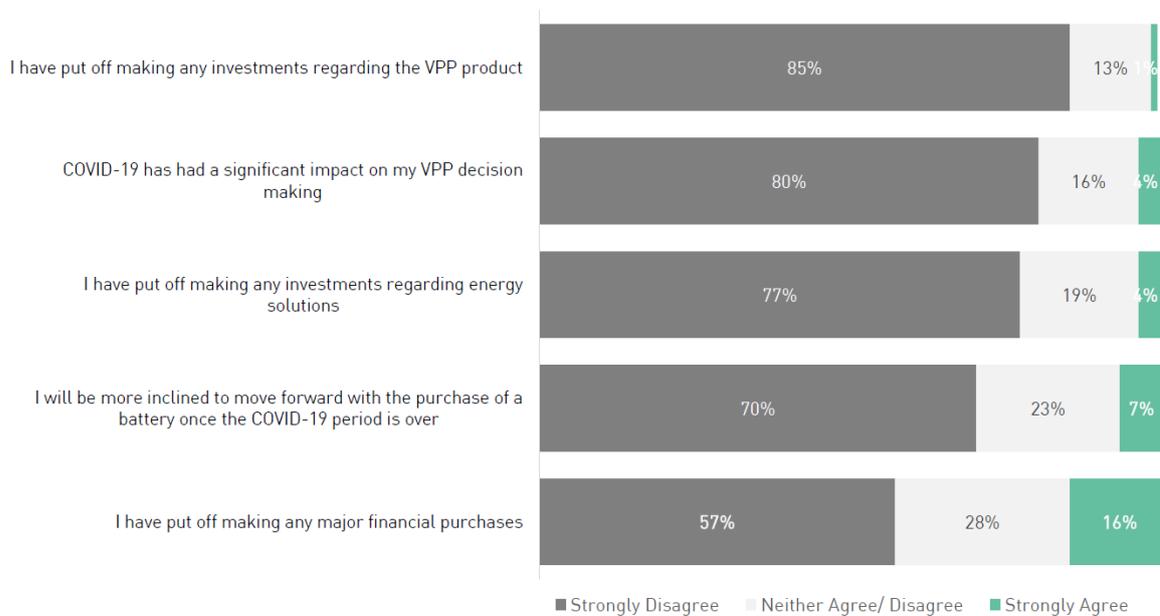


Figure 3: **Question:** We would like to read you a list of questions that might describe how you might think and feel about COVID-19.

2.5 COVID-19 – Impact on future spending

Customer were asked how they expected their spending would change over the following three months (July-Sept). Overall customers indicated that they intended to maintain spending with the exception of a major purchase such as property and travel which may also be due to COVID-19 travel restrictions.

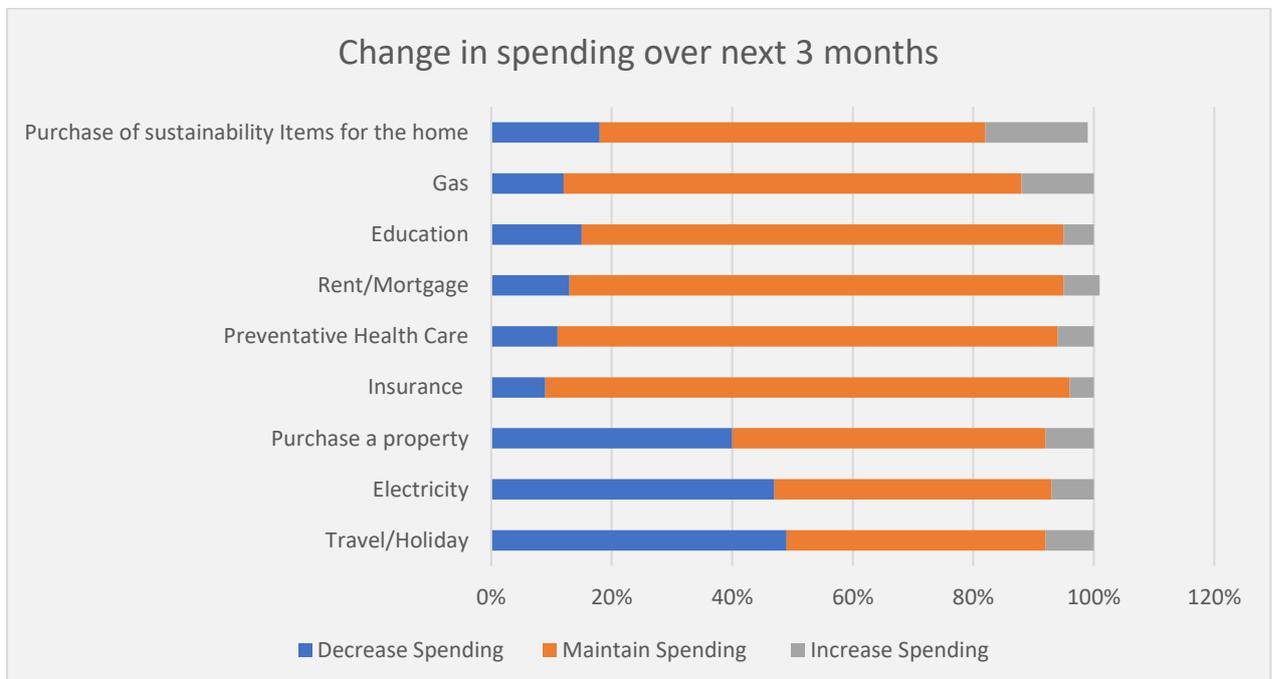


Figure 4: **Question:** How do you expect your spending to change over the next three months in the following areas?

2.6 COVID-19 – Summary

Customer responses overall to the survey indicated that COVID-19 did not impact customers purchasing decision in terms of an energy storage system and customers were generally not concerned about the financial impacts of COVID-19.

Responses may be due to a number of factors including:

- The purchase of an energy storage system is a major purchase and customers plan and research in advance and so are already invested in the purchase.
- The majority of the sample of customers had already or were about to purchase the system so naturally COVID-19 had not prohibited the decision.
- The demographic of customers who are purchasing tend to be an older demographic who may be more financially secure with less family expenses or reliance on employment income. The majority of participants were over 55 yrs.
- The purchase of an energy storage system may seem a timely investment to reduce overall energy costs and greater energy independence.

2.7 SA HBS Subsidy Reduction – Impacts

Recipients were asked whether the SA HBS announcement of the reduction in subsidy impacted their decision to purchase an energy storage system. 49% of customers responded that the reduction in the SA HBS subsidy had been a significant influence in their decision. Younger families indicated that it motivated them to reprioritise household expenses to allow them to move more quickly to take up the offer. The older ‘empty nester’ demographic indicated they had made the commitment however made the decision to move quicker to take up the offer.

Here’s what customers had to say:

“If I wanted to get a ROI in short time, I needed to get the deal before the government changed the rules”

“I signed up to the offer because the government subsidy helps with this upfront cost and reduces the payback period”

“The coronavirus did not affect my VPP decisions, SA government subsidy did”

2.8 Purchasing Triggers and Considerations

Customers were asked to rate what triggered their decision to purchase an energy storage solution. Financial benefit was the key driver with environmental factors being a secondary benefit. Here’s what customers had to say:

“I wanted to do my bit to contribute to the climate change but was worried about the costs.”

“A sustainable future was always something very importance to us. If this means we can reduce our spending and help the environment we are winning.”

“In this instance sustainable also directly relates to cost savings and that is a great double benefit”

“Sustainability and looking to lower future household energy costs.”

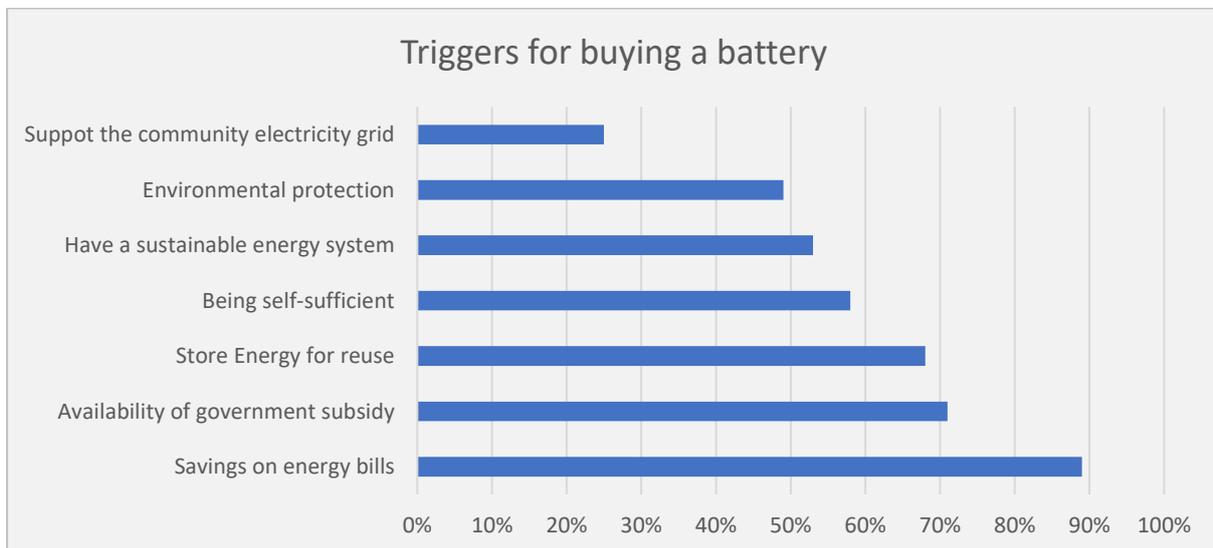


Figure 5: **Question:** What initially triggered you to look for an energy solution for your home?

2.9 Sources of purchasing research

Customers were asked to identify their primary sources of information when researching for the purchase of home storage solution. Overwhelmingly, most customers undertook their own research using a range of sources.

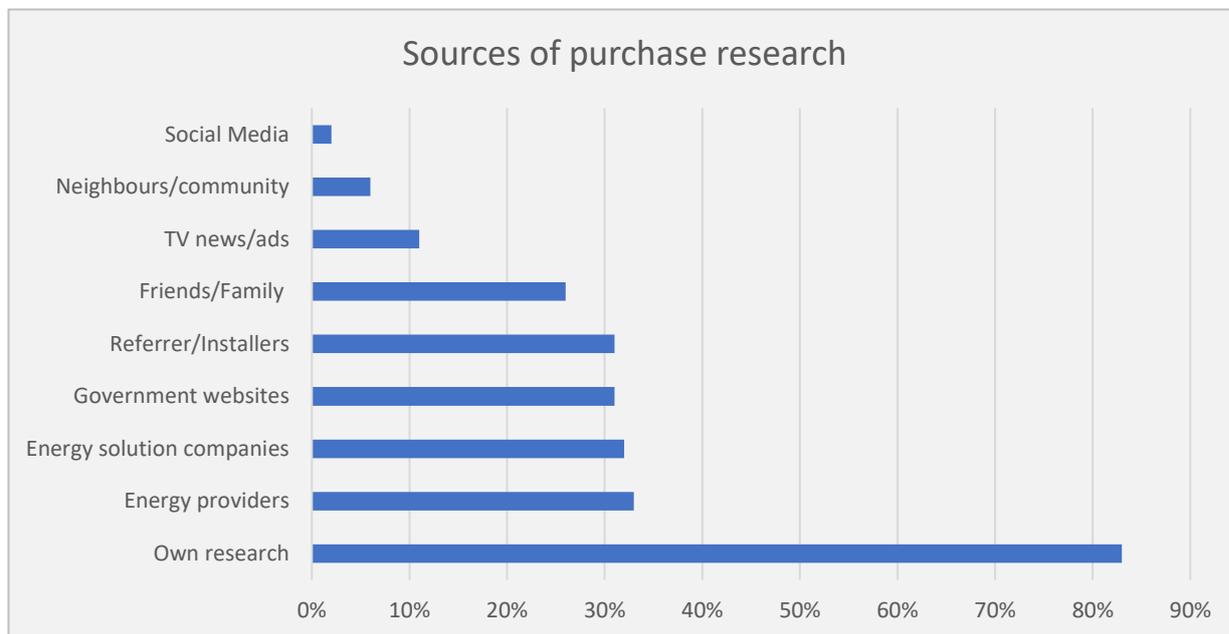


Figure 6: **Question:** What are were your primary sources of information when considering an energy solution?

2.10 Considerations when researching

Interestingly when customers were asked about the information they sought when considering the purchase of a home energy storage solution, return on investment (ROI) rated relatively low however aspects such as cost of a home energy storage solution and installation and availability of subsidies rated high.

Cost factors were among the primary considerations when researching for an energy solution system. Customers rated 4 cost factors within the top 5 considerations. Interestingly, battery brand rated 6th in terms of importance for research (although still a factor for over 70% of respondents) however rated number one in a later question specific to battery purchase.

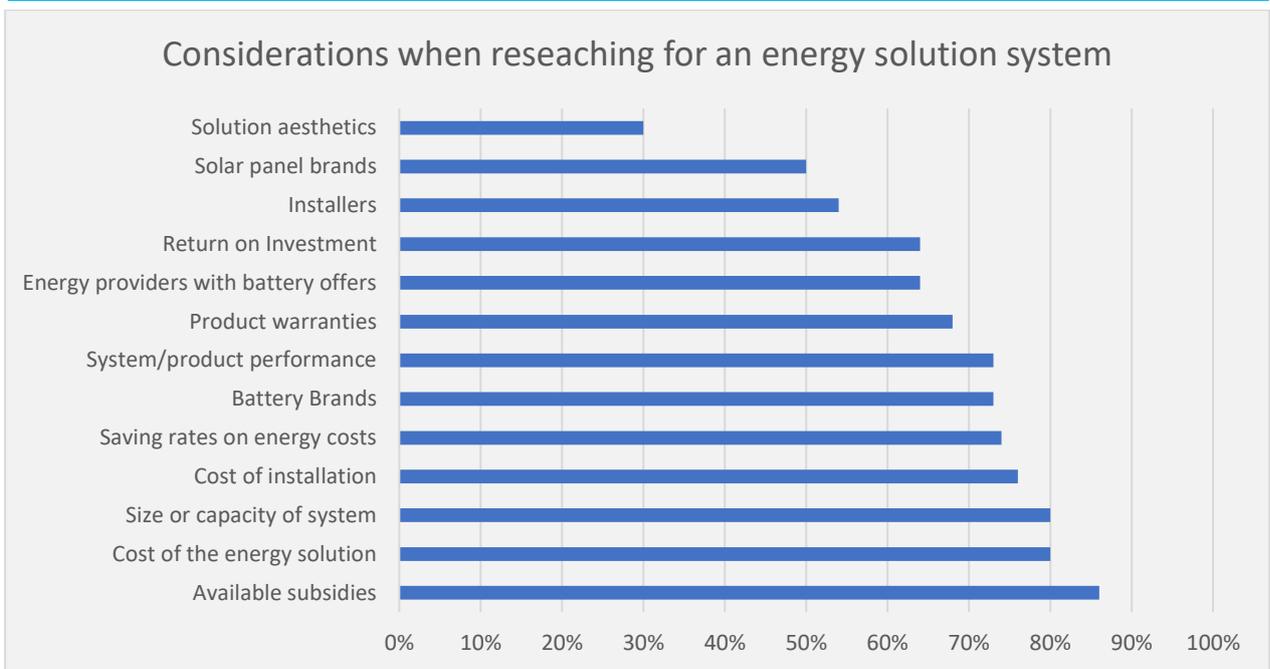


Figure 7: **Question:** What information would/did you want to find out when you are/were searching for an energy solution?

2.11 Key Barriers

Participants were asked to rate the barriers to purchasing an energy storage system. Consistent with earlier findings, cost factors remain the overwhelming barrier. Participants cited 5 cost factors in the top 6 barriers, including the cost of battery, loss of Premium feed-in-tariff, ROI, cost of solar and available subsidies.

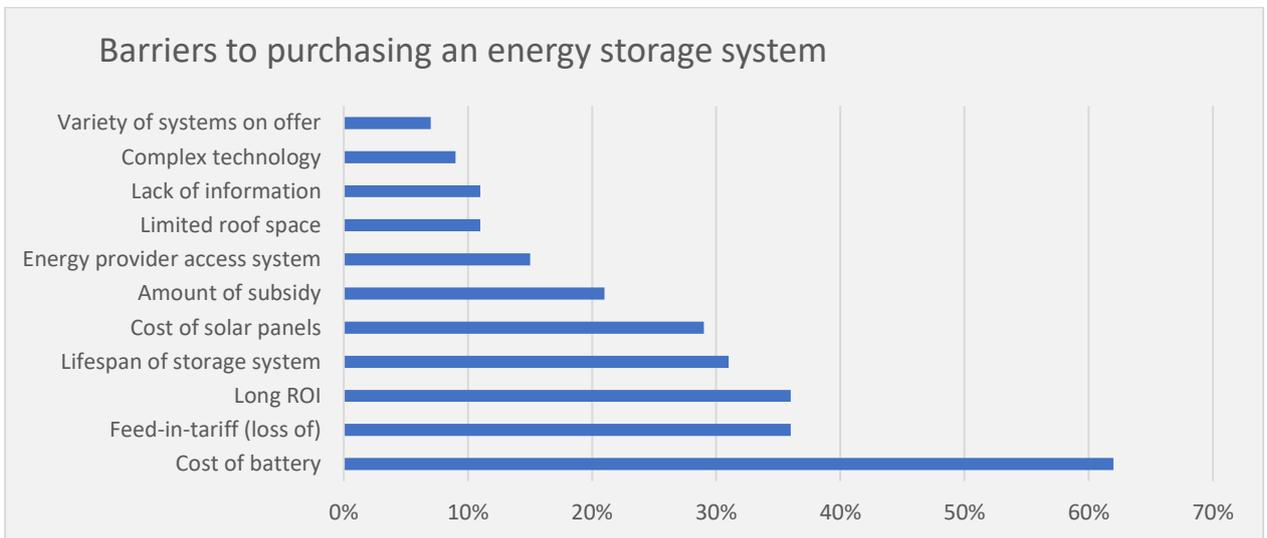


Figure 8: **Question:** Overall what did you consider to be the key barriers to having an Energy Solution Product?

2.12 Purchasing Considerations

Participants were asked to rate various factors they considered when purchasing a battery. It is interesting to note the importance of brand reputation that customers place on purchasing decisions. Not surprisingly, features such as storage capacity rated highly along with product life. Customers also rated financial factors such as savings on energy bills, VPP incentives and subsidies as common considerations in the battery purchasing decision.

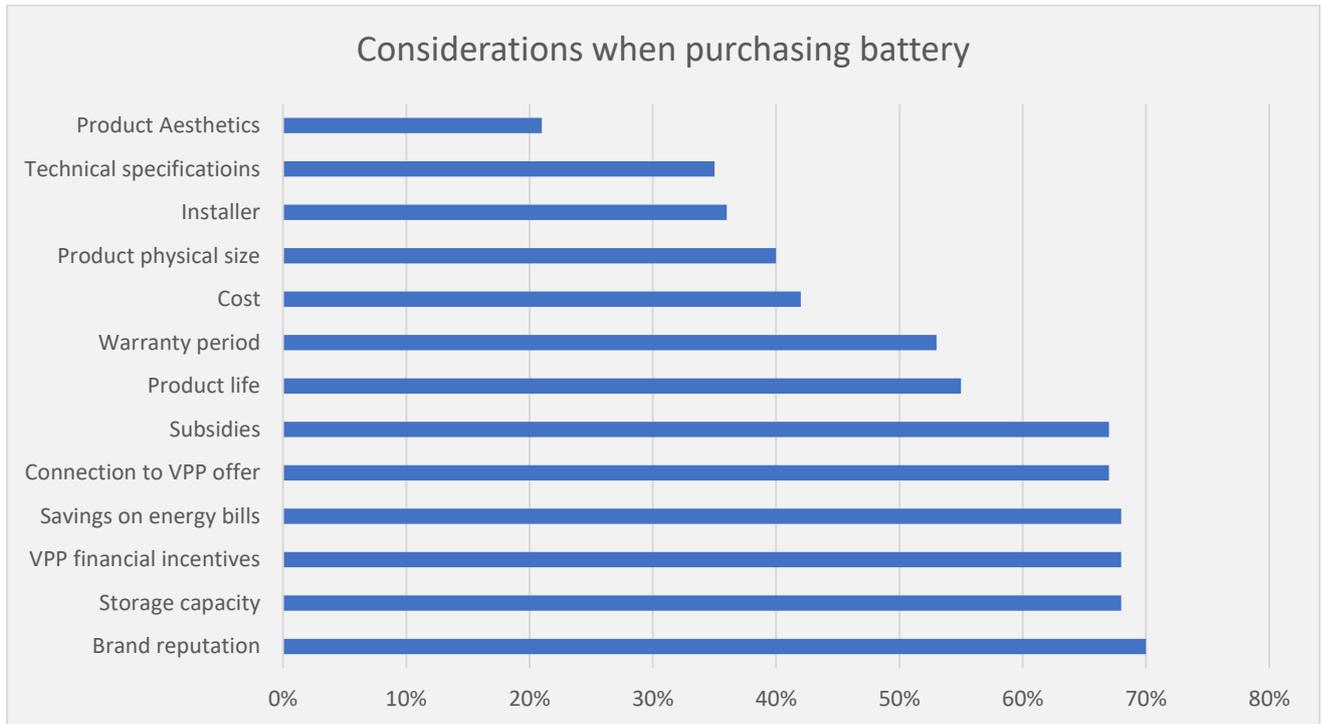


Figure 9: **Question:** What are/were your primary sources of information when considering an energy solution?

3 Development of Offers

3.1 Offers and Sales Channels

Simply Energy has tested multiple product offerings, marketing approaches and sales channels to attract customers to its VPP offering. Figure 10 below offers a timeline comparison between the release of various offers and the rate of VPP uptake. This shows that as the project progressed and tested different offers and different marketing and sales channel approaches, customer uptake progressively increased. The key contributing factors in this timeline is the introduction of the Complementary offer and the SA HBS. The below commentary provides a more in-depth timeline.



Figure 10: Simply Energy VPP Product offer timeline.

S.M.A.R.T Storage offer

Simply Energy launched the **S.M.A.R.T Storage offer** in May 2018. This offer consisted of a subsidised bundled energy storage system (ESS) and “all you can use” electricity commodity offer to South Australian households with an existing solar PV system. The subsidised ESS was a 13.5 kWh Tesla Powerwall which required the customer to contribute \$7,299 upfront (this price included a \$5100 subsidy discounted from the total cost of the Tesla Powerwall and installation). Customers were then offered a fixed electricity offer of \$2/day for all grid electricity consumed for a fixed, 5-year term. Additionally, customers were also offered the choice of a consumption-based market variable rate with feed-in-tariff for a 5-year term.

Uptake of the **S.M.A.R.T Storage offer** was slow with only 42 VPP offers sold at the end of 2018. Problems encountered included:

- The sales process was too long and was significantly impacted by the time required to explain the technical nature of the product with customers.
- The product was considered too expensive by customers; especially the \$2/day offer.

- Installation was complex and problematic, with delays between sales and installations.
- Competition VPP programs in the market and home battery subsidies in South Australia made the market confusing for customers, who were trying to find the best offer that suited them.
- Multiple marketing channels were tested for the product, however they failed to convert into sales.

Complementary BYO offer

In an attempt to enable customers to access both the SA HBS subsidy and the Simply Energy VPP subsidy, Simply Energy introduced a new “**BYO Model**”. Under this arrangement, Simply Energy initially partnered with four solar PV sales and installation companies (installers) accredited for the SA HBS. Customers who purchased an eligible battery (one of the five batteries specified below) from this select group of installers would receive the SA HBS subsidy and would “BYO” their home battery to the VPPx to receive an additional \$5,100 subsidy which is paid through monthly credits. Initially the monthly credits, called VPP Access Credits, were \$3.50/day on the customer’s account over 4 years, up to a total of \$5,100. This resulted in significant positive uptake in customer interest and forthcoming sales. VPP Access credits were later increased to \$7/day for 2 years, up to a total of \$5,100.

Under the \$7/day offer the project began to see a significant increase in sales. This was attributed to the addition of the SA HBS subsidy, the inclusion of 4 new eligible battery types as well as the use of installers as a referral sales channel. Simply Energy also made changes to its website to better attract battery/VPP searches. This BYO model also enabled the simplification of the sales process whereby installers could respond with their expertise in the sale and installation of the eligible battery and Simply Energy could respond to the sale of the electricity and VPP participation.

With the announcement of significant reduction in the SA HBS subsidy in March 2020, the project experienced a significant uptake of the VPP Offer with the an average 190 sale per month over the February-April period selling out the remaining available offers under the program arrangement, and generating a “waiting list” of customers eager to take up a VPP offer.

Reduced subsidy offers

To accommodate the high demand Simply Energy was able to extend the VPP offer beyond 1200 batteries and provide a final **Reduced Subsidy Offer**. The project offered two reduced subsidy offers:

- \$7/day for 1 year, up to a total of \$2550 for eligible energy storage systems with larger 5kVA inverters (i.e. Tesla, LG Chem and Eguana systems), and
- \$7/day for 6 months, up to a total of \$1275 for smaller 3.3kVA or less inverters (i.e. Sonnen and Varta systems).

The following months from May 2020 to July 2020 the project experienced a sharp decrease in customer take-up, down to an average of 45 sign ups per month demonstrating the price sensitivity of customers when considering the purchasing of a home battery storage system. This also reflected the competitiveness of the VPP market in South Australia. The presence of competing VPP offers, particularly for Tesla Powerwall 2 storage systems which provided comparable discounts to our \$2550 subsidy offer, but paid upfront, meant that more customers were opting for the other deals. In addition, the peak in sales during the March-April period due

to the imminent reduction in the SA HBS subsidy led to a general downturn in activity across the market in the immediately following months.

With the sharp decline in customer interest and in an effort to finalise VPP offer sales the project released a final, limited offer which included a bonus \$1000 upfront payment. This offer was only open to customers purchasing the larger 5kVA inverters (i.e. Tesla or Eguana systems) as these had been deemed the highest value systems for the VPP. Solar Edge/LG Chem were excluded due to software cost complexity and Sonnen systems were excluded from this offer due to the added cost and complication of the need to install a VPP enablement device (droplet) to successfully integrate these systems into the Simply Energy VPP. This approach was aimed at testing how price differentiation could help VPP operators to target a more optimal asset mix in their fleet. Each referring installer was given an allocation of the remaining available offers to provide to their customer base.

3.2 Technology offerings

Five battery types and three DER controllers were available within the eligible home battery product range these included:

Energy Storage System

- ✓ **Tesla**
 - Tesla Powerwall 2
- ✓ **Sonnen**
 - sonnenBatterie eco 8.0/10,12,14
 - sonnenBatterie eco 8.2/10,12,14
 - sonnenBatterie eco 9.43/12.5,15
- ✓ **Varta**
 - Pulse 6
- ✓ **LG Chem**
 - RESU10H-R coupled with the AC Coupled SolarEdge HD Wave SE5000H-AUSACNNN2
- ✓ **Eguana**
 - Evolve 0513

DER Controllers

- ✓ GreenSync – deX Command
- ✓ Tesla – Gridlogic
- ✓ SwitchDin – StormCloud
- ✓ SolarEdge Grid Services platform

3.3 Customer Responses to changes in subsidies

The single key factor in customer take-up of Simply Energy's VPP offer has been price. The level of subsidy provided for the battery purchase and the VPP offer has varied significantly across the project timeframe and this has been reflected in the sales performance.

The sales profile over the last 12 months of the VPPx Project is shown in Figure 11 below.

Key features of this profile include:

- At the beginning of 2020 there was a drop in sales coinciding with the Christmas and New Year holiday period.
- From February sales progressively started to pick up in line with sales numbers pre-school holiday period.
- On the 6th March the SA Government announced a \$2,000 reduction in their HBS subsidy, which was to come into effect on the 14th April. This announcement generated a sharp increase in sales. The project's sales forecast had been targeting 1200 sales by early June but by late March the project was reaching the 1200 sales and when this information became known to customers, it increased demand even further as customers rushed to secure a subsidised place in the trial before they sold out. As a result, a waiting list of interested customers was created to manage demand. The imminent withdrawal of a benefit proved to be a far greater incentive than the initial announcement of a benefit, as the SA HBS and Simply Energy VPP subsidies had been in market for well over a year prior to this spike in demand.

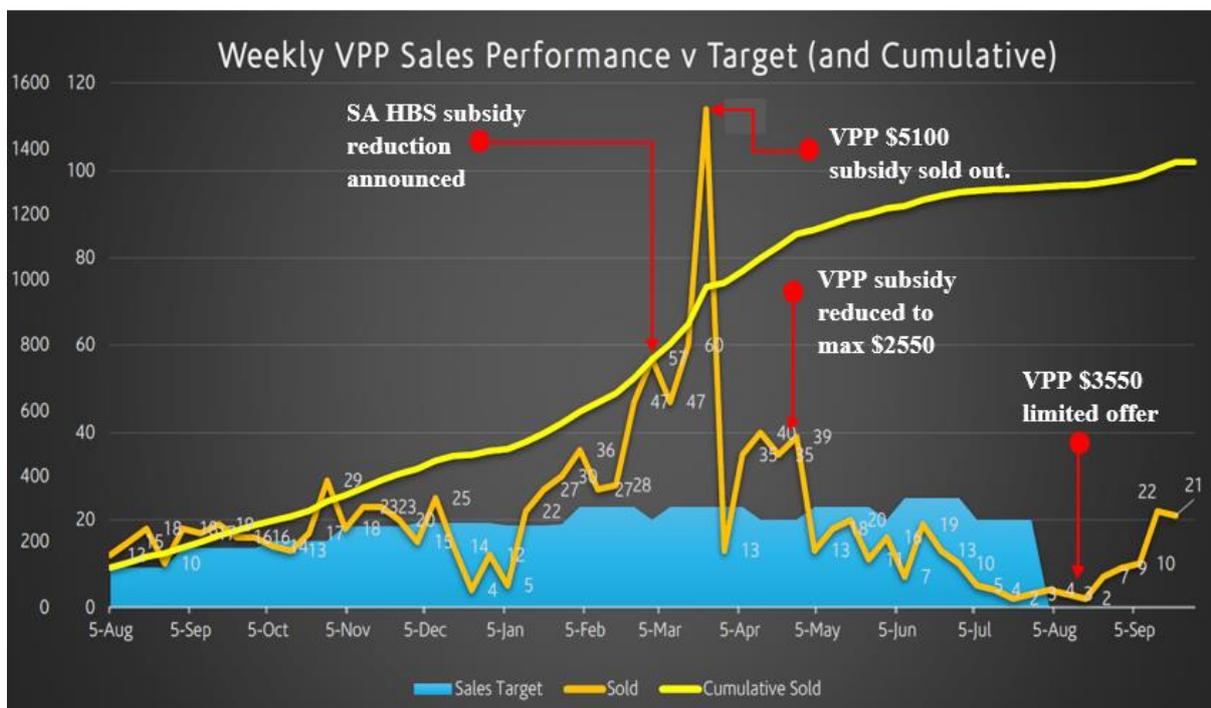


Figure 11: Weekly sales performance for the Simply Energy VPP offer.

- The significant drop at the end of March shows when the sales were placed on hold. Over the month of May the project team worked through the waiting list to allocate the remaining sales for the full subsidy, BYO offer.
- In May the new reduced subsidy offer was launched. Customers reacted to a further reduction on subsidy with sales significantly reducing over time to one or two sales a week, indicating that these offers were uncompetitive.
- In late August, the final offer was launched with an extra \$1000 to be paid upfront. There was an immediate increase in sales as customers responded to the increase in subsidy.

3.4 Batteries of Choice

The overwhelming battery of choice for customers in the Simply Energy VPP is the Tesla Powerwall, making up over 70% of the installed battery types in the Simply Energy VPP to date. This proportion is likely to grow as Tesla customers received higher levels of subsidies at the end of the program, resulting in more sales.

Figure 12 shows the distribution of confirmed installations by battery type with a strong preference for Tesla Powerwalls.

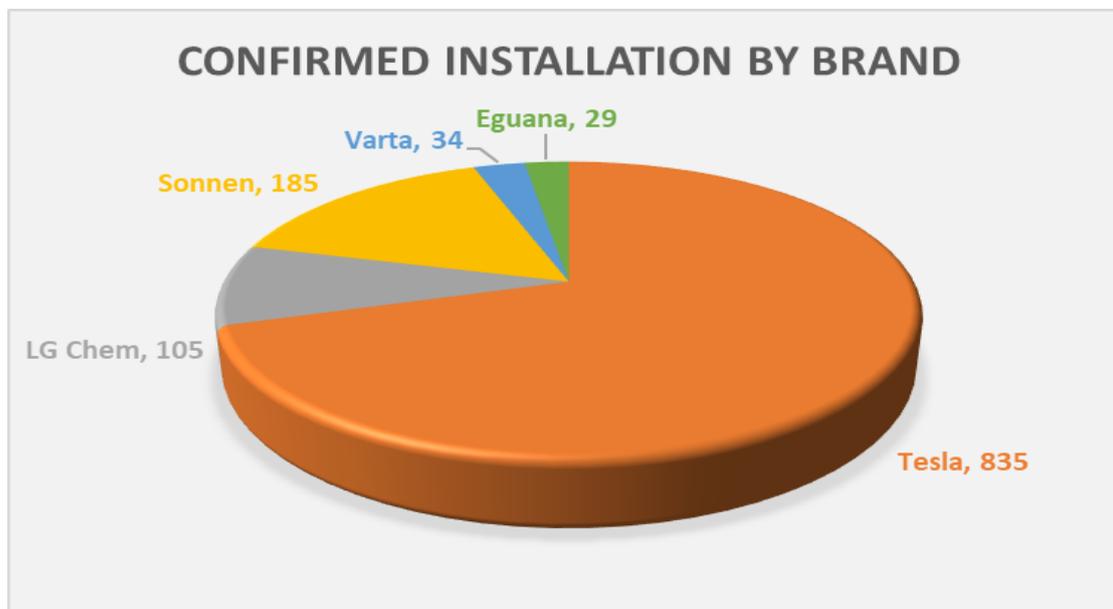


Figure 12: Confirmed installations by brand in the Simply Energy VPP (as at October 2020).

The impact of the reduced subsidy offers on the sales of each battery type is shown in Figure 13.

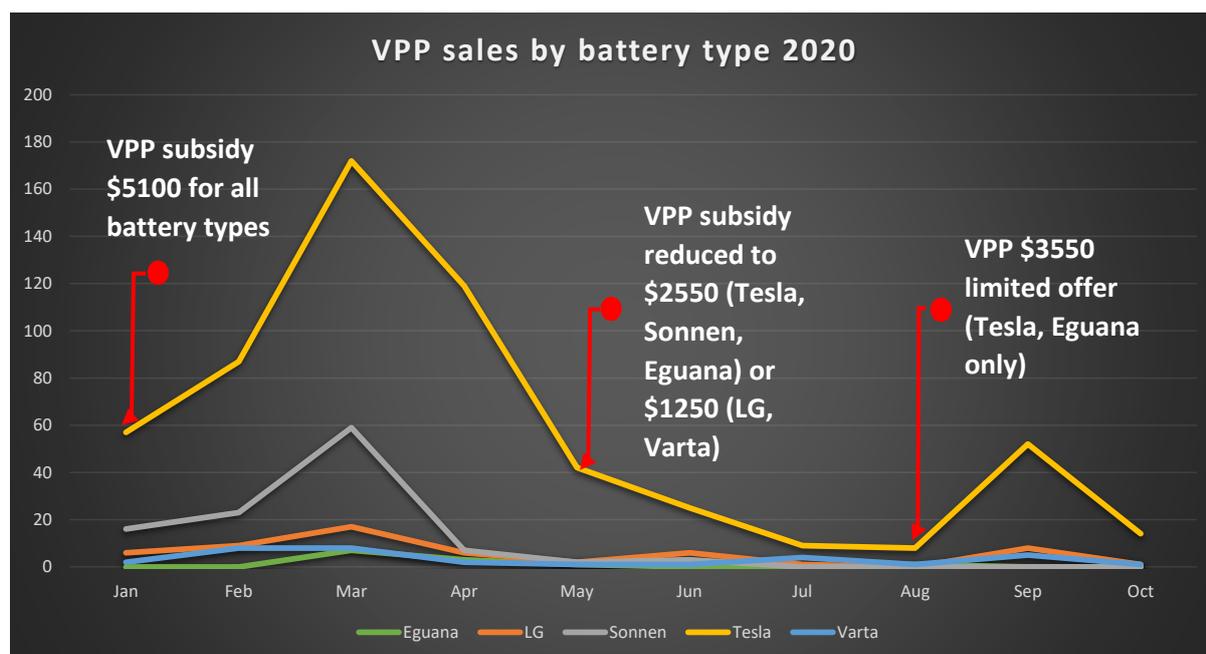


Figure 13: VPP sales by battery type in 2020.

This shows how the reduced subsidy offer significantly reduced the sales of all battery types, but particularly the Tesla Powerwall units, as other offers in the market proved to be more competitive.

The \$1000 increase in VPP subsidy in late August made the offer competitive once more for customers looking for a Tesla Powerwall, resulting in a significant lift in sales. The Sonnen systems, which were excluded from the \$1000 bonus offer did not see any increase in sales. This contrasts to the sales spike in March when Sonnen was the second most popular battery across the range as it received the same subsidy levels as the Tesla Powerwall. Interestingly, the Eguana systems also did not see any increase in sales in September even though they too were eligible for the \$1000 bonus payments. This is likely to be due to the price premium of the Eguana systems over the Tesla Powerwall.

These results clearly indicate that finding a competitive price level is critical to driving residential battery storage uptake and attracting participation in a VPP. It also shows how VPP operators differentiate customer incentives based on the value of the asset to the VPP to optimise the composition of their fleet.