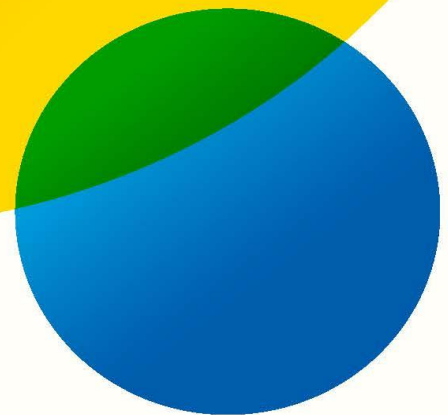


# Simply Energy – Lesson Learnt Report

Date: October 2020







# 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.















“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.”

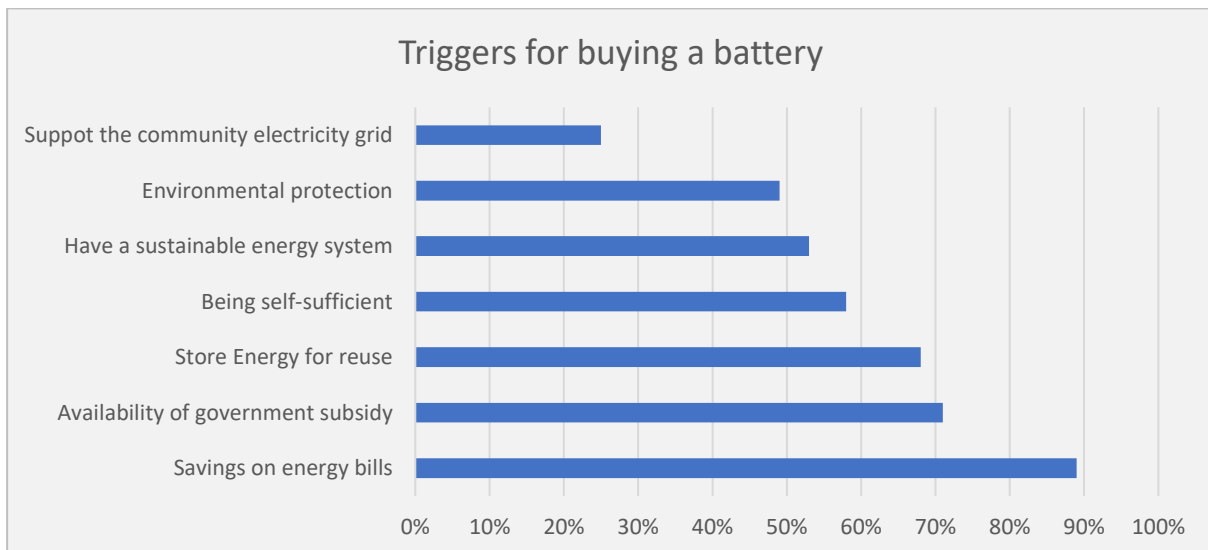


Figure 5: **Question:** What initially triggered you to look for an energy solution for your home?

## 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.

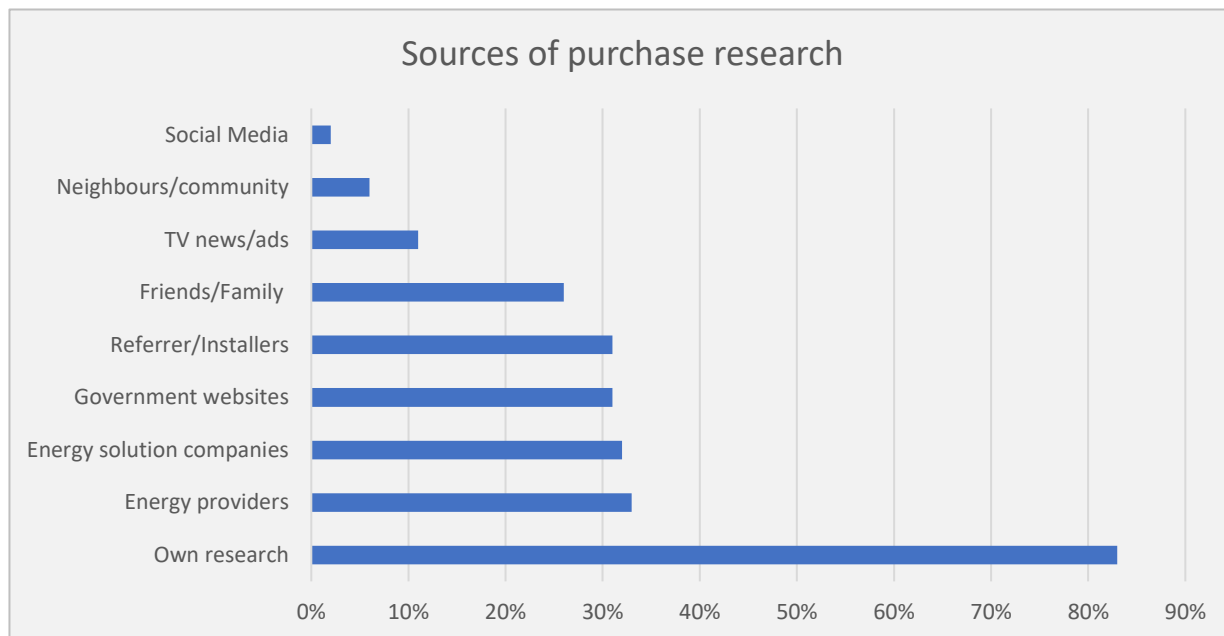


Figure 6: **Question:** What are were your primary sources of information when considering an energy solution?

## 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.

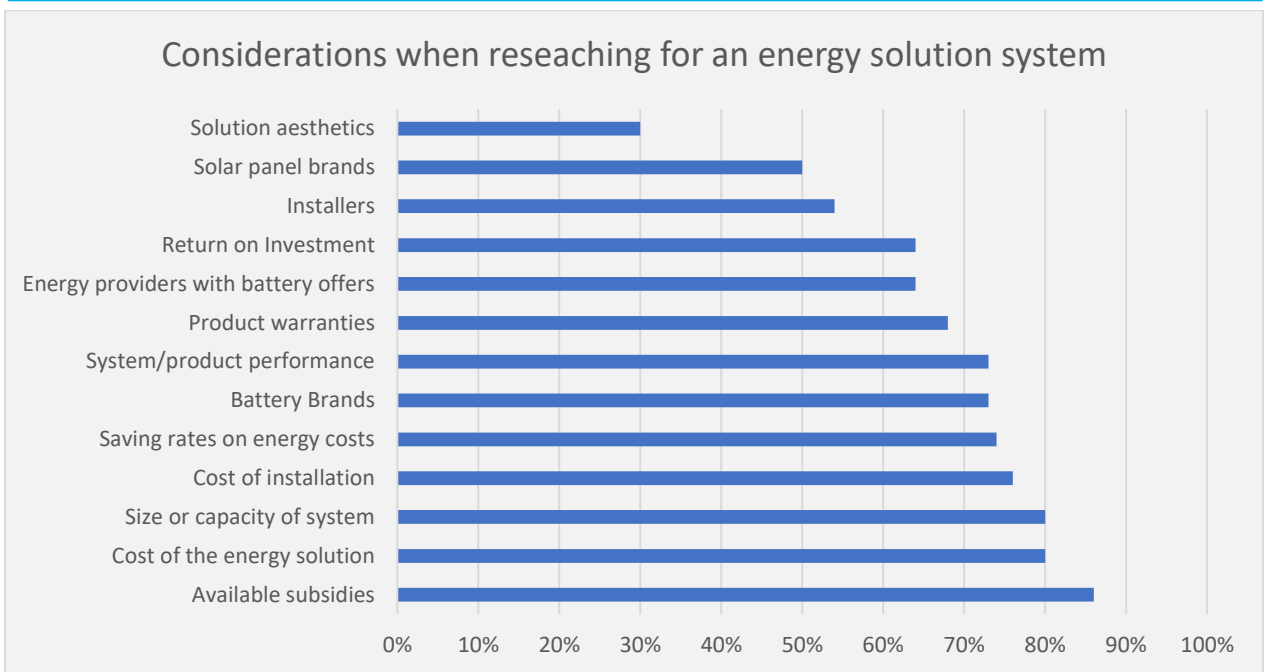


Figure 7: **Question:** What information would/did you want to find out when you are/were searching for an energy solution?

## 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.

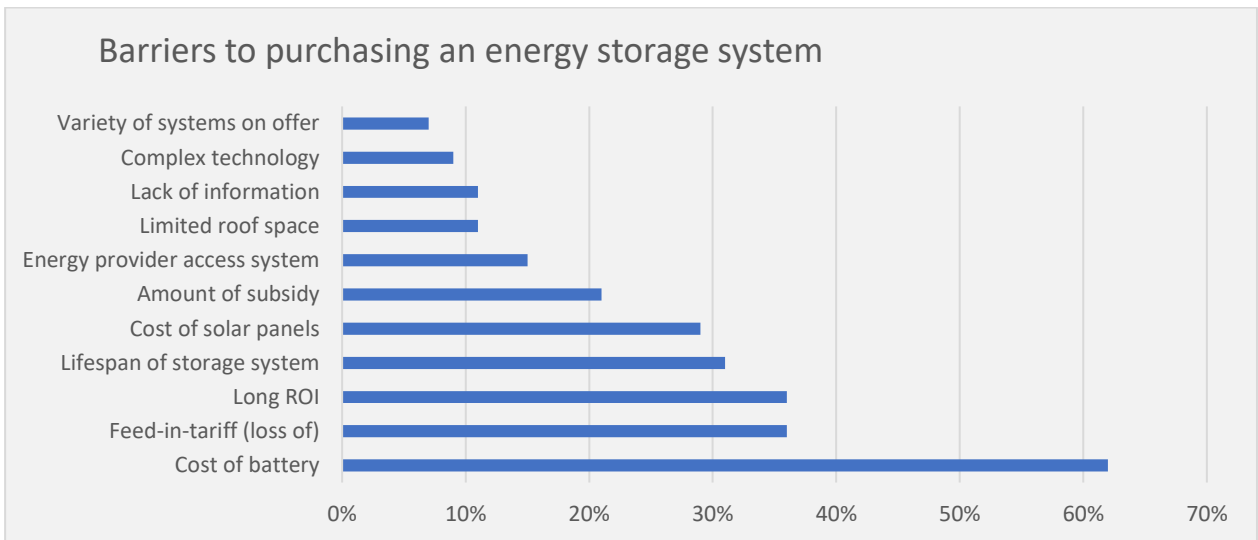


Figure 8: **Question:** Overall what did you consider to be the key barriers to having an Energy Solution Product?

## 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.

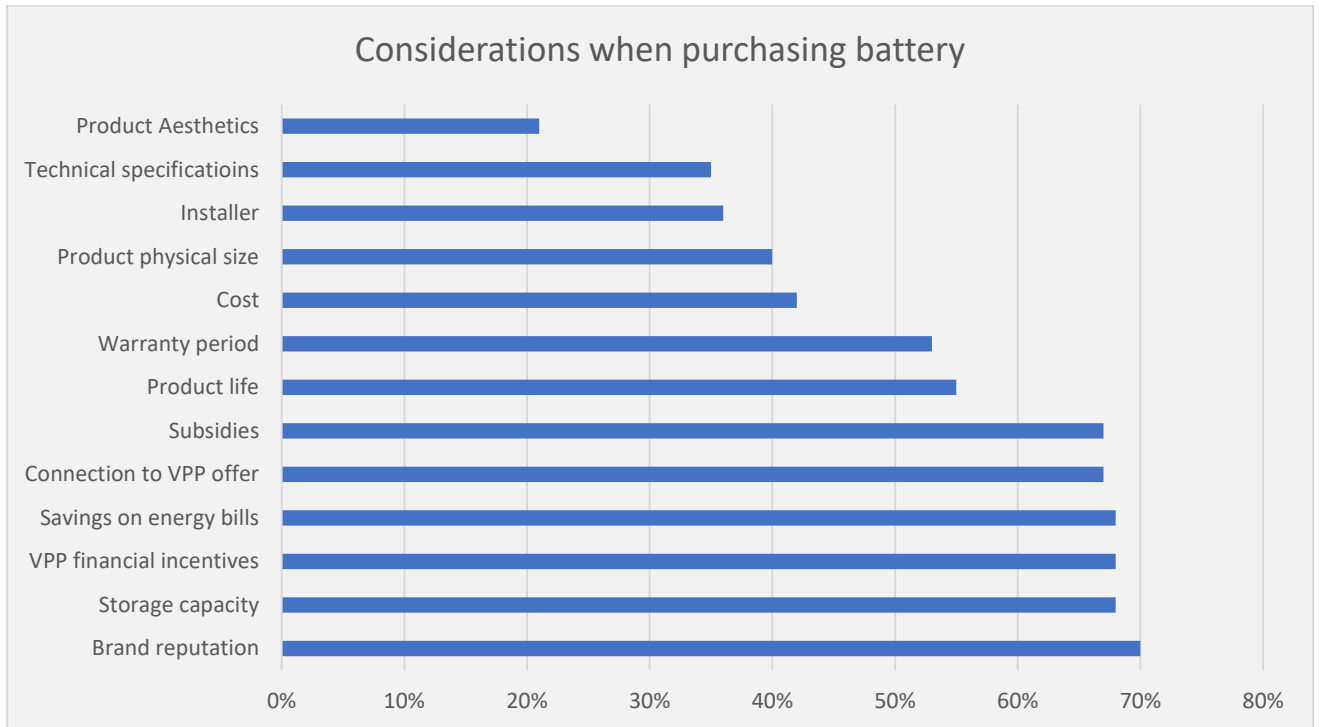


Figure 9: **Question:** What are/were your primary sources of information when considering an energy solution?

### 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 6<sup>th</sup> March the SA Government announced a \$2,000 reduction in their HBS subsidy, which was to come into effect on the 14<sup>th</sup> 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.

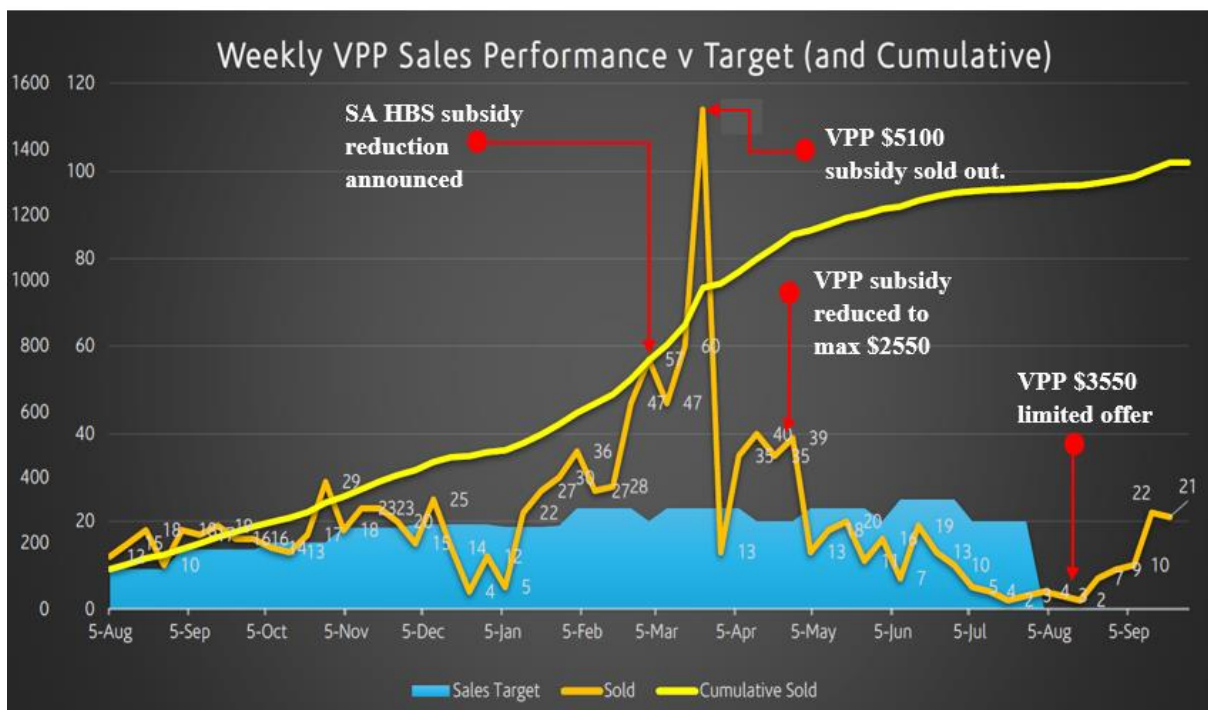


Figure 11: Weekly sales performance for the Simply Energy VPP offer.

- 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.

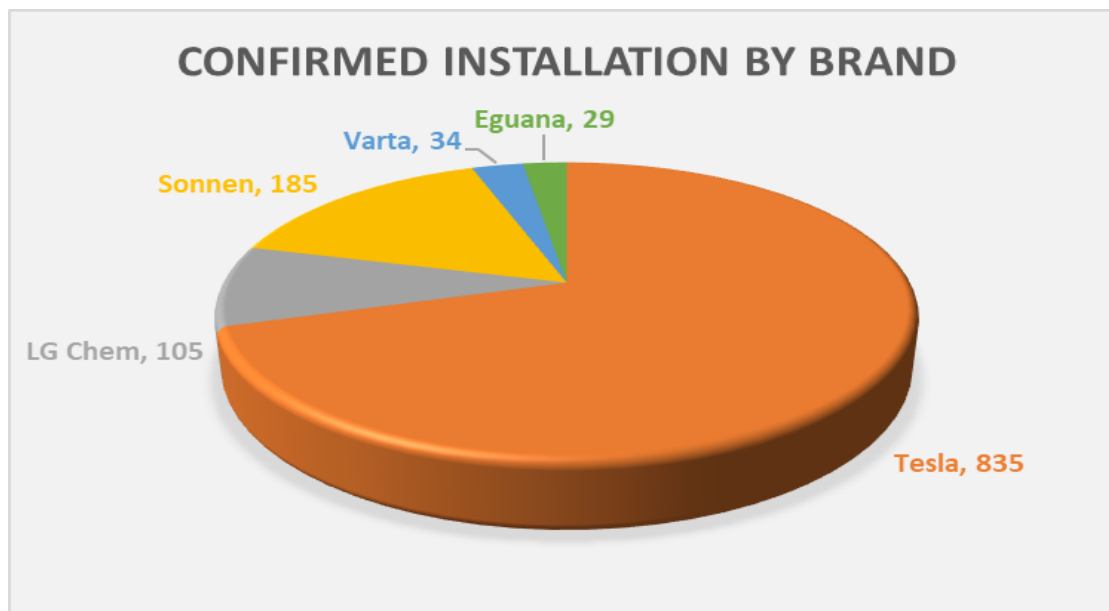


Figure 12: Confirmed installations by brand in the Simply Energy VPP (as at October 2020).

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

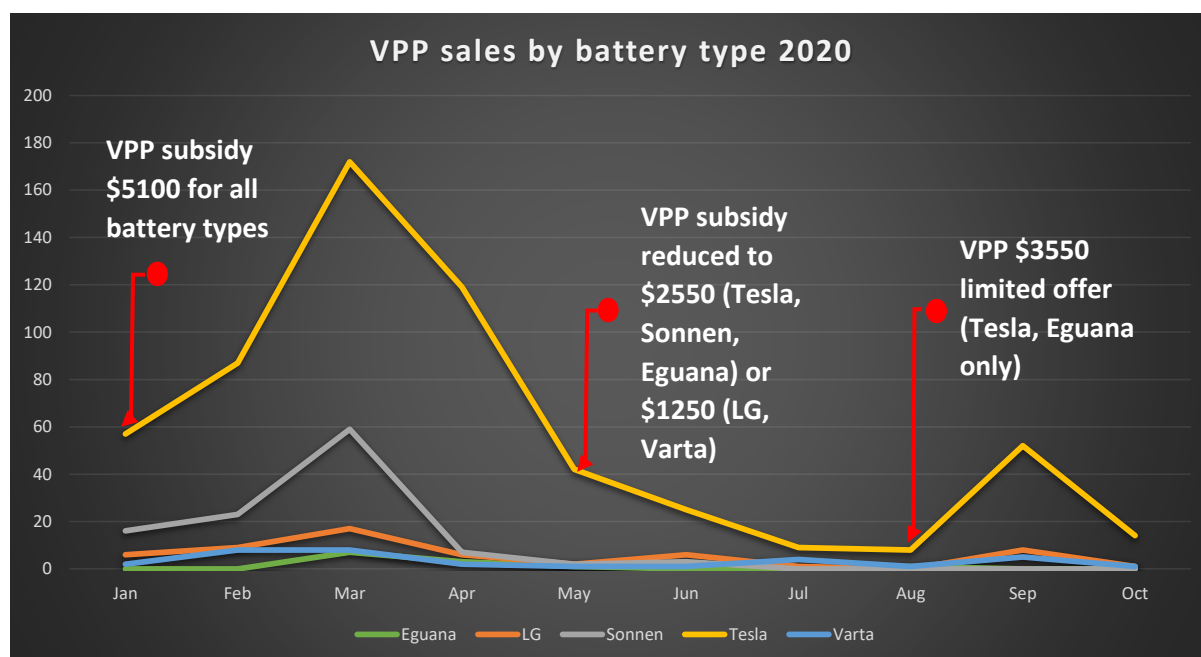


Figure 13: VPP sales by battery type in 2020.

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.