

Case study

QE Medical Centre Woodville, SA

In June 2019 Allume Energy, in partnership with LSG Solar, commissioned a shared rooftop solar installation at the Queen Elizabeth Specialist Centre, Woodville, South Australia.

This site was purpose-built and has 40 specialist surgeons and physicians serving the needs of the local community across South Australia.

The Specialist Centre needs 100% uptime to ensure important work is not disrupted for staff and patients. The power demand of two of the five tenants in the building are very high due to the unavoidable consumption by specialist equipment including MRI and CT scanners. The other three tenants have lower grid consumption due to using less energy-intensive equipment.

LSG Solar has entered into Power Purchase Agreements with all five medical consultancies in the building to provide solar power at a cheaper rate than the grid supplied power.

The installation comprises:

- A PV array of 85 kW
- Inverter capacity of 65 kW, comprising two 20 kW SMA Sunny Tripower inverters and one 25 kW SMA Sunny Tripower inverter.
- SolShare 100:
 - Input: 3 inverters (detailed above)
 - Output: 5 three-phase tenanted units

Allume Energy's SolShare 100 continually collects data to monitor the performance of the system. Data collected immediately following installation, for 75 days from 20 June to 2 September inclusive, has been used for this case study. This represents the least sunny months of the year when the rooftop PV's output is at its lowest.

Multi-business buildings with large roofs and high energy usage are the biggest untapped market for solar PPAs. With the SolShare, it's now up for grabs.



Figure 1: A SolShare installed with a Fronius inverter.

Figure 2 shows the electricity demand and solar delivery for each of the customers. The SolShare automatically identifies the customers that consume more electricity and delivers more solar to them. This maximises on-site solar consumption, maximises financial savings for the customers, and maximises financial return for the PPA provider.

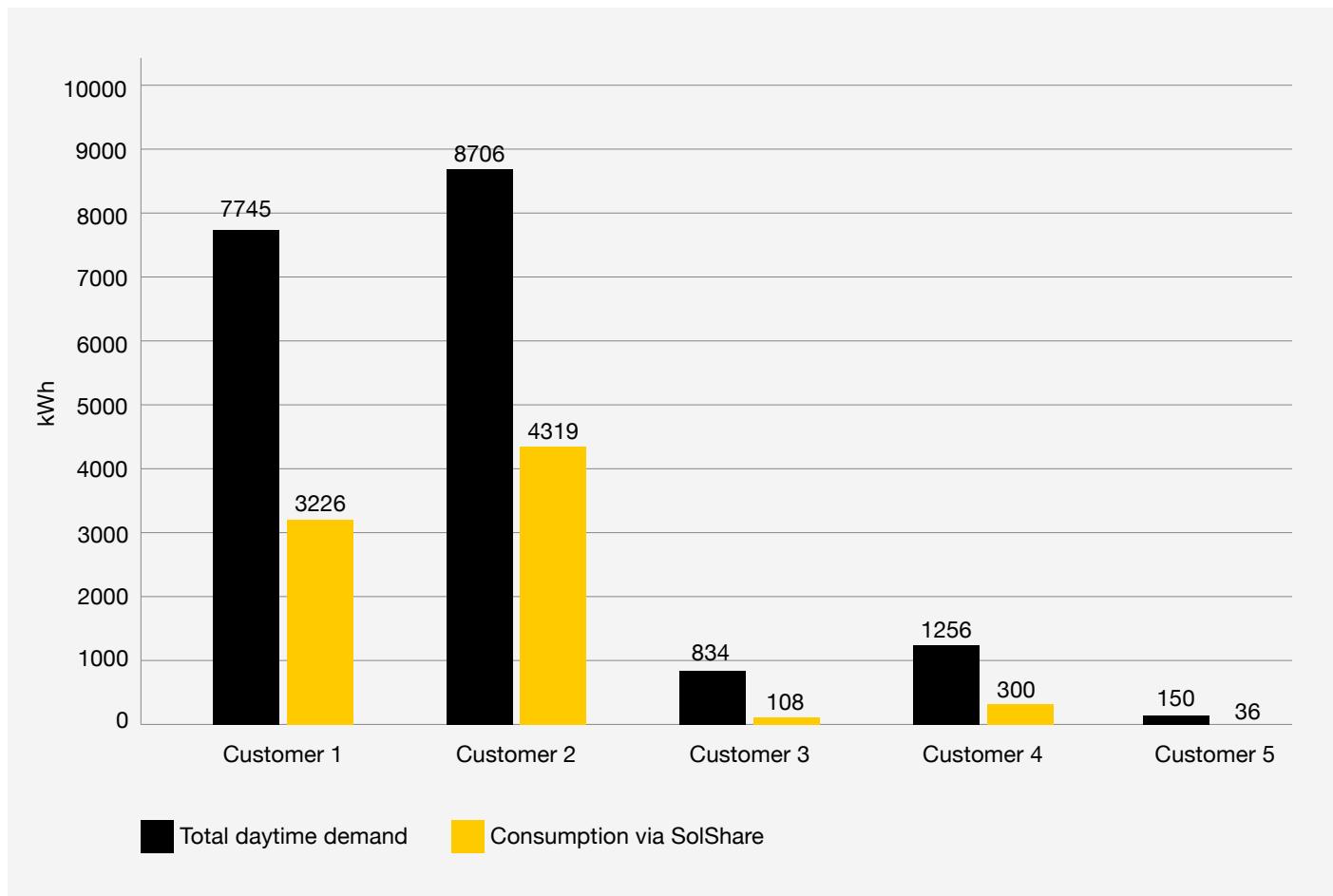
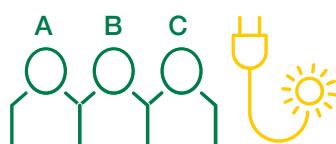


Figure 2: Queen Elizabeth Specialist Centre daytime demand and solar consumption



The return on investment of the QESC system is 7.35 years. With a system lifespan of 20 years, its forecast to return at least 2.7 times the initial investment.

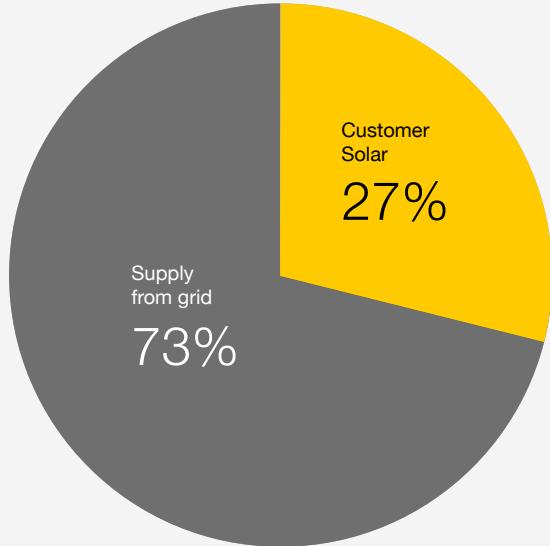


The SolShare continually monitors demand, so if a customer is replaced the SolShare will simply adjust the solar distribution to suit the new demand profile and keep ROI at its maximum.



The SolShare sits behind-the-meter and requires no changes to current smart meter infrastructure. Therefore, customers retain the right to choose their energy retailer.

Daytime electricity consumption with individual systems



Daytime electricity consumption with SolShare

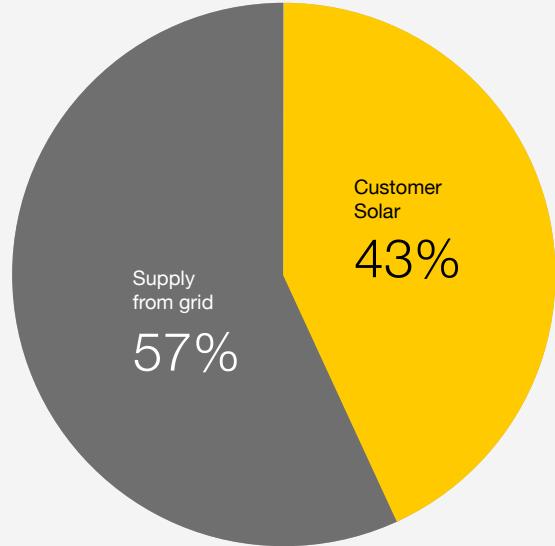


Figure 3: Comparison of daytime electricity consumption for the Queen Elizabeth Medical Centre with the SolShare (left) and individual systems in place of the SolShare (right)

As can be seen from the pie chart on the right in Figure 3 above, the consumption with the SolShare meets 43% of the daytime demand of the building, with the grid meeting the rest.

This is compared to the theoretical consumption if each customer was provided with a standalone 17kW array connected to a 13kW inverter (i.e. one fifth of the overall installation). If each customer had such an individual system, only 27% of the daytime demand would be met over the period, which corresponds to reduced consumption of solar of 2,879 kWh. Revenue that would be lost without a SolShare system.

During the sunnier months of October through March, it is expected that more than half of the daytime energy demand of the building will be met by the shared solar system.

In addition to maximising financial return for PPA providers, the SolShare provides defensibility against customer churn. If one of the tenants were to move out of the building, leading to a period of vacancy of that lettable area, the SolShare automatically cuts the solar supply and redirects all generation to the remaining customers. Therefore the SolShare protects against the stranding of assets and can enable more flexible terms for PPA providers to assist in customer uptake.

Because a SolShare PPA actively distributes the solar energy from a single system, it generates 55% more revenue at the QE Specialist Centre than if individual systems were installed.

For more information, please visit:
www.allumeenergy.com.au

Allume Energy Ltd.
info@allumeenergy.com
+61 394 270 005

