BOUNDARY POWER

CASE STUDY

Location

Mt Ney, 87 kilometres east of Esperance, Western Australia

Agri-business:
Improving farm safety

Customer

Tom and Victoria Brown - Horizon Power customers

Situation

Crop farmers, Tom and Victoria Brown, experienced power fluctuations or outages most weeks. Living towards the end of a distribution spur line of aging infrastructure, the Browns had power poles and wires running through their cropping paddocks.

Power poles in paddocks present a range of safety issues including:

- Farm machinery colliding with power poles, particularly during seeding and harvesting when machines operate at night, risking peoples' safety, machinery damage, power pole damage and lengthy power outages
- Pole top fires caused by dust on the wires, extreme weather events or bird collisions
- Aerial sprayers clipping power lines.

Solution

Design and deploy a customised Stand-alone Power System (SAPS) combining solar photovoltaic panels, advanced battery storage technology and back-up generation to power Homestead and Workshop.

Specifications: R-Series SAPS

10.5 kW of solar panels

25.2 kWh of battery storage

15 kVA of back-up diesel generation

Design Considerations

- Providing safe reliable power that met or exceeded the utility's obligations under its charter.
- Analysing the load profile, demands and usage requirements of the household and agri-business.
- Mitigating the impact of a power outage on an end-of-grid customer by sizing the battery to be capable of providing 4 – 5 hours of back-up power, allowing the utility time to rectify an issue.

Locality considerations:

- No requirement to travel across farm paddocks to limit bio-security risks
- Ease of access for deployment and servicing
- Safe distance from agricultural chemicals
- Not inhibiting the movement of large farm machinery

Customer Benefits

Since the SAPS was installed in late 2019 the Browns have experienced a range of benefits:

Reliability and quality of power

- Reduction from weekly power outages or interruptions to only two outages.
- Improved quality and evenness of power flow.

Farm safety and land usage

The removal of poles and wires in the paddocks is:

- Making it safer to operate farm machinery day and night.
- Removing the costly impacts associated with farm machinery colliding with poles, including lengthy power outages.
- Allowing the Browns to maximise the usage of their land.
- Removing the possibility of a pole top fire igniting and spreading through their paddocks.
- Making it significantly safer for aerial spraying as aircraft can fly low and stay low.

Day-to-day improvements

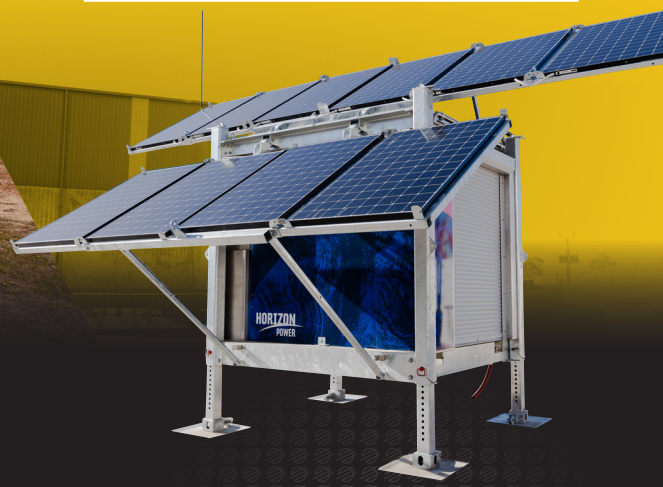
The reliability of SAPS is improving the Browns' day-to-day lives, including:

- Eliminating the prolonged unplanned outages as a result of issues occurring somewhere along the lengthy distribution spur line.
- No longer needing to maintain a generator for back-up power.
- Peace of mind when they are off the farm that the SAPS' 24-hour remote monitoring service coupled with the back-up generator will ensure continuity of power.

"We no longer have to think about preparing the generator ahead of a storm, or the many other concerns that went with having power poles running through our paddocks."

- Victoria Brown,
Horizon Power customer, Western Australia

CLEAN ENERGY COUNCIL MEMBER



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