



Multi-inverter control in the public sector

The Problem

As part of train station upgrade projects, the Public Transport Authority of Western Australia required the solar inverter fault code status and inverter/grid fault to be flagged to their on-site SCADA. The brief also called for reliable solar monitoring across three geographically separated sites. Off-the-shelf PV loggers could not handle multi-inverter coordination or speak to the required SCADA protocols.

Our Solution

ZECO engineers created a customised solution involving capture of inverter fault codes and flagging them to a potential-free contact across SCADA sensor. This further involved Marshall hardware, creating a local network and connecting MODBUS relay to the above network, to which inverters were also connected. With flagging of loss of grid connection to the inverters, a unique solution was developed involving three-phase, phase detection relay and associated parameters.

Outcome

Marshall was the only system which was able to deliver on the highest level requirements of the Transport Authority. The solution was delivered in full within other project targets to ensure no operational delays.



Commercial-grade monitoring with tailored data

The Problem

The Northam Shopping Centre in Western Australia required a billing tool to calculate a mix of grid and solar tariff for their tenants within the premises. At the time, there was no recording and calculation of solar usage across tenants on a dynamic basis, which caused loss of profits for the Centre Operator in relation to billing processes.

Our Solution

Our Marshall solution involved measuring the grid power and aggregation of total solar power across all inverters. This data is logged at minute intervals and can be downloaded remotely by the operators to calculate the exact mix of grid and solar usage and bill the customer on actual mix of energy usage.

Outcome

The Centre Operator is now able to measure and bill their tenants based on actual energy usage of grid and solar, improving return on investment and corporate relationships now that every business within is accurately billed.



Unique Fixed Export Solution

The Problem

Mandurah Ocean Marina Chalets comprises eight separate buildings that share a 1.5kW export cap. Without coordinated control, one chalet's inverter could push the whole site over the limit, triggering fines and lost revenue. At the same time, monitoring of solar and grid power usage for each Chalet was not possible on site.

Our Solution

Marshall Blackboxes - capable of measuring solar and grid power - were installed in all Chalets and the admin building and the monitoring of this was enabled on the customer's Marshall dashboard. A master Marshall unit was installed to monitor grid power inbuilt with advanced smart logic which triggered follower Marshall units to control their individual inverters to match the total site export limits.

Outcome

The chalet precinct stays within export limits automatically, maximising solar self-consumption and guest-house savings. Live dashboards and ZECO's around-the-clock support mean the chalet operator can verify status or request help, no matter the time zone.



The ideal ecosystem for multiple inverters

The Problem

Several schools in Western Australia, each running their rooftop solar systems with multiple inverters scattered across different buildings within each site, had to comply with 1.5kW export limit per site. The Inverter OEM solution of export control could not be implemented due to site constraint of multiple buildings.

Our Solution

Our Marshall Blackbox was installed in the Vlan network controlling multiple inverters on the same network to meet site export requirements without any physical connection between inverters and Marshall units, also acting as a gateway device to provide the operators with increased flexibility in relation to its usage.

Outcome

Schools now operate confidently at the edge of the export limit without manual checks. Automatic failsafe behaviour keeps them compliant, and centralised dashboards give facilities staff, installers, and government auditors transparent insight 24/7.



A clean integration with precise monitoring

The Problem

The Wyndham Law Court, which moved into a brand new facility with a >150kW solar system, required Victorian Emergency Backstop operation compliance. Inverters were located on the roof and the Main Switch Board was in the basement. Inverters couldn't be connected to the Export Meter on the site, creating a problem few could solve.

Our Solution

ZECO Energy deployed the Marshall ecosystem, which was installed in the basement to control inverters on the roof using the building's LAN connection. There was no existing product or solution which would have met the site requirements given the site layout and the high electricity current limit. Marshall streams real-time solar production, grid interaction, and the system health metrics directly into Court's approved network, meeting stringent policies and empowering staff to make decisions off the best data.

Outcome

Facility Managers of the Building can receive precise, format-ready data for Government reporting. There was no existing platform which delivered Victorian Backstop operation feature given this site's constraints and integration with on-site Building Management System.



A brand agnostic solution ensuring data is never lost

The Problem

A Victorian-based electricity network company, which owned over 40 systems for their clients across Queensland, New South Wales, Victoria and South Australia, had issues on the limited data collected. The previous smart meter disconnected on a regular basis, meaning Solar production was often not captured and then not able to be recovered. With a resulting fall in savings and the manual intervention required, the client was seeking a more reliable system where figures would live on a centralised dashboard.

Our Solution

The Marshall ecosystem presented as the ideal solution given its tailored dashboard and ability to work as a remote gateway device, meaning many issues could be troubleshooted quickly and efficiently by ZECO Energy online. We provided a brand agnostic product that worked across all different inverters, while maintaining the same ability to read and measure data down to the granular level. It's unique ability to track Solar production even during periods of connectivity difficulty means data was never lost.

Outcome

Average production across all sites improved by 15 per cent as a result of the move to Marshall Technology . All stakeholders can now see the data in real time and troubleshoot some issues, reducing costs in site visits. The 4G connection provided increased system durability and with more data points to action, the client was able to make more informed decisions.