



MAGELLAN POWER CASE STUDY

TransGrid iDemand

TransGrid operates the major high voltage electricity transmission network in NSW and the ACT, connecting generators, distributors and major end users. The utility's network comprises of 99 bulk supply substations and more than 12,900 kilometers of high voltage transmission lines and cables. Interconnected to Queensland and Victoria, the network enables energy trading between Australia's three largest states along the east coast making it the backbone of Australia's National Electricity Market. The network operates primarily at voltage levels of 500 kV, 330 kV, 220 kV and 132 kV. TransGrid's network also connects to 20 direct connect customers, including the four distribution businesses: Endeavor Energy, Ausgrid, ActewAGL, and Essential Energy.



Client
TransGrid NSW

Date
July, 2014

Location
Wallgrove Regional Centre, NSW

Scope of Project
Magellan Power designed and manufactured the 100kW/ 400kWh Utility Scale Energy Storage System



Client Requirement

IDemand is a hybrid energy project, which was designed to facilitate research into development of demand management opportunities in NSW. The system is also used to save energy at TransGrid's Wallgrove Regional Centre.



Magellan Solution

The demand management system was built for TransGrid NSW, the owner and operator of one of the largest high-voltage transmission networks in Australia. The project, which is in place at TransGrid's Western Sydney (Eastern Creek) site, also includes 98 kW of solar panels and high-efficiency LED lighting.

The Magellan Grid Power Support System utilises 400 kWh lithium polymer batteries and the advanced bi-directional inverter uses rugged IGBT power circuitry with the latest microprocessor hardware and software. The long cycle life of the Nickel Manganese Cobalt batteries combined with the high reliability and rugged design of Magellan inverters make this energy storage equipment a perfect choice for many applications including frequency and voltage regulation, peak load management, remote area power systems, solar smoothing, diesel reduction and many other applications.

The Magellan Energy Storage System is Australian made and designed to store large amount of electrical energy into batteries and to support the connected grid by providing peak demand and power quality service such as reactive power compensation.

The equipment is designed for compliance with AS4777 and uses a high reliability four quadrant 3-phase bidirectional inverter to store energy from the grid, or from a renewable energy source, into highly efficient and reliable Lithium Nickel Manganese Cobalt (LiMnNiCoO₂) batteries. The Lithium Polymer Batteries (SLPB) high energy cells feature outstanding energy densities (200Wh/kg) and longevity with deep discharge (80% DOD).

Magellan Inverter:

State of the art four quadrant bi-directional IGBT based sine wave Inverter capable of Real and Reactive power control.

Batteries:

Advanced, proven Lithium Polymer batteries with excellent energy density, high charge/discharge efficiency, and high cycle life.

Battery Management System (BMS):

The Battery Management System plays a crucial role in the safety and reliability of the storage battery. It monitors and logs all vital parameters (voltage, temperature and state of charge) of each cell of the battery bank.

