

Renewable Energy and Environmentally Sustainable Design Case Studies

Beechworth Prison - GIPV

Site:

Beechworth, Victoria

Dates:

- System Design: March 2009
- System Installation: May 2010
- System Commissioned: June 2010

Client:

Department of Justice

Project Goals:

Design, supply and install a grid-connected power system.

[GIPV = Grid Interactive Photovoltaics]

Project Features:

- Roof-mounted photovoltaic array consisting of 168 x POLY-225 Schott Solar PV panels.
- 3 x SMA SMC 8000TL Inverters on Building 8.
- 1 x SMA SB 5000 TL Inverter on Building 9.
- 3 x SMA SB 3000 TL Inverters on Building 10.
- Complete system documentation including maintenance schedule and log sheets.
- System size: 37800 W

This 37.8kWp was commissioned in June 2010 and features:

- Multi-roof solar installation.
- Innovative floating frame design ensuring minimal roof penetrations.
- Solar inverters installed at multiple sites but all communicate with each other via wireless Bluetooth technology.
- No metal to metal contact for increased life expectancy and corrosion avoidance.
- System designed to accommodate cold weather climate and high start up currents.
- Best in class efficiency transformer-less inverters selected 97% ensuring minimal losses and maximum power production.
- Extremely visible installation to promote Department of Justice backed flagship renewable energy system and long term energy efficiency commitments.
- Premium quality German components selected.
- Installers were required to undergo police checks prior to works starting.
- Challenges were coordinating all goods to be stored off site until required at remote location.
- Data logging of full system provided to client at no additional cost to ensure reporting and system interrogation possible.



PV Panels on Roof



'Floating Frame' System



PV Panels on Roof



Detail of Frame

Renewable Energy and Environmentally Sustainable Design

Case Studies

Project Team (for Going Solar):

- Duncan Macgregor, System Designer, Going Solar
- Duncan Macgregor, Lead Installer, Going Solar
- Glenn Robertson, Electrical Contractor

“For the Beechworth Prison, the original brief was for provision of a 10kW grid connected photovoltaic system. This was increased to a 27kW system during the construction phase. When the client requested additional solar panels for the prison, this required some additional co-ordination of the solar support panels, including structural support platforms over a number of buildings (thereby involving the client, Architect, Electrical Engineer, Structural Engineer and ourselves with our Electrician and Going Solar). Going Solar was co-operative in facilitating this increase, and provided assistance with the correct orientation, sizing, and layout of the panels. After a few rounds of reviewing which layout was the best option, the 168 new panels were provided in banks on separate buildings, with some areas also left for provision of more panels in the future. Overall Going Solar assisted so as to facilitate the best outcome for the system to work. Going Solar also provided a PV system which was easily installed on the site.”

David Stamm, Project Manager, 2/7/10

Further Information:

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Rear of Frame



Inverters