

Australia: Olympics Village, Sydney

BIODATA

PV community name:	Olympics Village, Sydney
Kind of community:	Residential – urban
Main building type in community:	Houses - Attached houses
New/Retrofit/Added:	New district/community – building integration
Type of project:	Demonstration project
Start of operation:	Year 1999
Location/City:	Sydney
Country:	Australia
Latitude:	S33 87'
Longitude:	E151 12'

PV SYSTEM CHARACTERISTICS

PV power total community:	857kW (780 x 1kW and 155 x 0.5kW)
Number of houses/buildings:	935
PV power per unit:	0,5 - 1 kW/house
Energy yield per year:	1 300 – 1 500 kWh/kW/year
Main PV system type:	Grid connected – demand side
Main PV application type:	Inclined roof – integrated, and PV roof tile
Main PV module type:	Frameless regular laminate & PV roof tile
Main PV cell type:	Crystalline Silicon – mono
PV module manufacturer/brand:	BP Solar/Saturn PV
Inverter manufacturer/brand:	Predominantly 850 W BP Solar inverters
Investment for PV systems/modules:	-

OWNERSHIP

Building owner:	Inhabitant, after the Olympic (During the Olympic, Sydney Olympics Village Consortium)
PV owner:	Inhabitant (During the Olympic; Sydney Olympics Village Consortium)
PV energy user:	Inhabitant



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PV COMMUNITY DESCRIPTION

PV Community Brief

Newington is a low-rise, inner-city suburb of around 90 hectares. It is located approximately 15 kilometres west of the Sydney CBD, on a site of approximately 262 hectares, which encompasses the Olympic Village. The site originally consisted of salt marshes, wetlands and open grasslands and had been extensively used for industrial purposes. The brownfield site, previously housed saltworks, flour and tweed mills, a government asylum and hospital and most recently, a navy ammunition d

Grid issue

The utility, Energy Australia was a key consortium member and the Olympics Village was used as a testing bed for understand risks of islanding and harmonics. Given that the suburb was a new development the utility were able to design the electrical infrastructure to allow for a dispersed location of PV embedded generators linked to the grid network.

Urban planning and architectural issues

Newington was part of the Olympics master plan to create a working athletes' village that could then be on sold as a typical suburb of private housing. Architectural design issues that were considered include:

- Balancing the incorporation of photovoltaics with the desire to create a 'low-tech' streetscape. The visibility of the PV is varied over the site depending on the house design concept, orientation and urban design goals;
- Matching the BIPV system to the different architectural styles of each architect;
- Site planning and roof design so that the majority of roofs lie within the range of 20° west of north and 30° east of north;
- Provision of about 80 per cent of roofs with a 25° pitch to optimise outputs;
- Positioning of the solar hot water units in relation to the PV laminates;
- Controlling the visual appearance of non-integrated systems where roof orientation was not optimal (minority of houses).

Economic / financial issues (including information on tariff, net-metering etc.)

Sydney Olympic Village development: 590 million AUD (NSW Government contributed 63,8 million AUD); After the Olympics the estimated selling price of the houses started at around 355 000 AUD for 3-bedroom courtyard homes to 540 000 AUD for 4-bedroom executive homes.

Other remarks

More highly-engineered BIPV approaches from overseas were rejected in favour of a design that could meet market needs and be readily accepted by the housing industry for simplicity and ease of installation. Typically, the tray installation would take half an hour and PV wiring a little over two hours. A record number of nine roofs were installed in one day by two skilled labours.

Pacific Power provided third-party indemnity and the systems were covered by a 10-year warranty on deterioration in output due to faulty workmanship or materials. The frameless laminate design and diamond tray mounting clips lower life cycle energy costs and help to achieve a pleasing balance of cost versus thermal performance and energy yield.

COMMUNITY INFORMATION

Project leader company: Mirvac Lend Lease Village Consortium

Other project company: Client: Olympic Co-ordination Authority

Owner and user: Originally Pacific Power (home owner thereafter)

Project architects: Henry Pollack Architects (co-ordinators), Virginia Kerridge, Grose Bradley, Gordon & Valich, Order Architects, Howard Tanner & Associates, Tonkin Zulaikha, Richard Huxley.

Engineers: Connell Wagner, BP Solar & Pacific Power

Contractor: Civil & Civil (Lend Lease Projects)

Builders-Developers: Mirvac LendLease

PV manufacture: BP Solar

BIPV system supplier(s): BP Solar, PV Manufacturers, BOS suppliers

BIPV installer(s): BP Solar Structural installation

Project's www: <http://www.newingtonvillage.com.au/>

http://www.bp.com/liveassets/bp_internet/solar/bp_solar_australia/STAG_ING/local_assets/downloads_pdfs/a/Aust_ps_solar_Newington.pdf