



Case Study

Grid Connected PV Solar Electricity Solar Hot Water Hydronic Heating The WestWyck Project

Solar electricity and hot water for the WestWyck project was designed, supplied and fitted by the Environment Shop and its renewable energy accredited engineers and installers.



WestWyck occupies the building and grounds of the former Brunswick West Primary School. The WestWyck developers have brought the building to new and vibrant life as an urban demonstration eco-housing project of positive environmental value driven by high design standards.

The environmentally sustainable features include apartments built to minimise energy usage through double-glazing, heavy insulation, careful selection of lights and appliances and cross-flow ventilation systems. The apartments have been built making

maximum use of re-used and recycled materials to the principles of 'healthy building', minimising off-gassing and toxic materials.

Energy/Greenhouse Savings

Total solar output (saving)

4,950 peak Watts

Electricity per Day

28 kWh per day in summer

Electricity per Annum

8.23 Mega Watt Hours

Greenhouse Gas Yearly

11.9 tonnes CO₂

The project includes water conservation, achieved through selection of efficient appliances, maximising roof water harvesting and re-applying this through the solar hot water system, treating and re-using greywater from bathrooms and laundries and treating the blackwater and human and biodegradable wastes on site.





Client: **WestWyck**
Loc: **Hunter St, West Brunswick**
Project Completion: **May 2007**
Project Value: **\$140k**

How It Works

Grid Connected systems interact with the electricity supply grid. Grid connected systems are generally located in urban areas and the PV's are the usual energy source. The main components of the system are the renewable energy source and a grid interactive inverter.

The inverter converts the low voltage DC voltage generated to the normal 240 volts AC household supply.

It also monitors the operation of the system to control how much electricity is drawn from or fed to the grid.

If the household uses more energy than the renewable sources can supply, the shortfall is provided by the grid so power is always available. If the system is supplying more energy than is needed, the excess is fed to the grid. Often the meter just "runs backwards" when electricity is going into the grid, so the household only pays for the difference between what is imported and what is exported.

Solar Hot Water System

5 x 12 evacuated tube collectors
5 x 250L tanks
5 x Baxi gas boiler for hydronic heating and SHW booster
System uses around 70% less energy than a standard hot water system.



Sunnyboy (BP Solar) 1100E Grid Connect Inverter

Solar Electricity System

5 apartment buildings

Solar Panels

30 x BP Solar 165 watt, 24 volt, Polycrystalline Silicon Photovoltaic Solar Panels

Panel Area

7.6 m² per unit (37.8m² total)

Inverters

SMA, Sunnyboy 1100E Grid Connect Inverters.

Wiring

DC wiring system to connect the PVs to Inverter. AC wiring system to connect Inverter to switchboard. Isolator switches and circuit breakers.

Framing

Custom made aluminium frame system engineered for PV systems.