

Fact Sheet

Grid-connected photovoltaic electricity

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How solar electricity works

Grid-connected photovoltaic (solar) electricity systems are legal to install in towns of central Australia. Contact Power and Water NT for details.

Unlike stand-alone systems there are no batteries in a grid-connected system. Instead, the solar panels are connected in series and the DC power is converted to 240 volt AC by an inverter. This is fed through an outgoing electricity meter into the town grid. The house continues to use normal grid power through a second in-coming meter.

Every quarter, Power Water records both meters and charges or pays the difference.

Costs, rebates & payback periods

It costs around \$18,000 to install a 1.5 kW grid-connected system minus a maximum \$4,000 rebate from the Australian Greenhouse Office.

This will generate around 2,500 kWh per year¹ (enough to power an energy efficient house) with a payback period of 50 yrs at \$0.14/kWh buy-back. Manufacturers claim installation costs are reducing due to technological and assembly improvements.

Reducing power station peaks

In future, grid-connected systems may help reduce peak power demands in Alice Springs. This occurs on summer days due to high refrigerative a/c use.

Peak solar energy output occurs at the same time so reduces the energy required from the power station. Elsewhere, power companies are starting to pay premium rates (up to \$4/kWh) for grid-connected solar power generated at this time as it is cheaper than installing extra turbines that are needed for only a few hours each year.

If Power Water does the same then pay-back periods for solar systems will be markedly reduced.

Energy efficiency is critical

Due to the high cost of grid-connect systems, it is financially wiser to optimise the energy efficiency and thermal performance of a house BEFORE investing in solar power.

This includes solar hot water, efficient lights & appliances, evaporative a/c, insulation, shading of walls & windows and good use of thermal mass.



Case study Lackman Tce, Alice Springs

16 Lackman Tce Alice Springs has a grid-connected system of 12 x 170W fixed panels. Installation cost was \$25,500 in 2001 (heightened cost due to oversized inverter). It generates around 3,300 kWh/yr (\$460 of electricity) or 60% of the house's total energy use.

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More good news for those interested in grid connect PV systems. A Federal Government initiative called Solar Cities proposes that 750 homes in Alice Springs will have subsidised grid connect PV systems. Further benefits of the Solar Cities program include "green" loans and an increased price amount for electricity exported back into the grid. The bad news is that Alice Springs is still waiting to find out if it will be one of the lucky Cities chosen, fingers crossed!!!

Further information

'Solar Electricity – plan your own solar system' 1999 by ATA. www.ata.org.au. Ph (03) 9388 9311.

Local suppliers

Ecoenergy (ph 8953 4728) in Alice Springs installs grid-connected systems.