



Mount Peachy

The Setting

This Fact Sheet provides information about the three Bushlight Household Systems commissioned at Mount Peachy between December 2003 and May 2004.

Background

Mount Peachy is a remote community 90km south of Alice Springs. The outstation consists of 3 houses and was established twelve years ago. Work with this community is part of the Bushlight Pilot Project funded by ATSIIS.

Community Energy Planning Process

Bushlight has developed a participative approach to energy planning called the Community Energy Planning Model. Facilitated by regional Bushlight staff, this process assists householders to make informed decisions about their specific energy needs, including generation and consumption, which ultimately influences the most appropriate energy service options.



System Specification

The three systems have been designed for maximum daily AC loads of 5.0, 3.4 and 5.5 kWh. One of the systems includes a maximum daily DC load of 1.2 kWh.

The systems comprise the following major components:

- Roof mounted PV array of 1.5, 1.5 and 1.65 kWp capacity. Using 75W panels, the respective numbers of panels are 20, 20 and 22.
- Battery banks with the following capacities: 1,200, 960 and 960 Ah. All systems are 24VDC and provide \approx 2.5 days of storage at a 50% maximum depth of discharge.
- Inverters rated at 2.2, 1.5 and 1.5 kW @ 40°C. The maximum expected peak and surge loads are 1.5 kW and 4.4 kVA respectively.
- The total cost was approximately \$245,000. This includes installation, data logging equipment, two service visits in the first 12 months and modifications to the existing house wiring. The Northern Territory Government Renewable Energy Rebate Program provided a rebate of approximately \$102,616.



Monthly Load Variation

The design load assumes the maximum daily energy consumption occurs during the summer months when fridges and freezers are cycling more frequently and ceiling fan use is greatest.

Technical Demand Side Management

To minimise the risk of excessive power usage the following strategies have been implemented in consultation with the community:

- Low amp circuit breakers have been installed to prevent the usage of high power demand appliances
- Some light, fan and general power circuits have been fitted with centrally controlled timer switches. The duration of these timers have been set to meet residents needs.
- Individual device timers have also been fitted to some lights and fans.

In addition to the technical demand side management measures, Bushlight staff have facilitated a range of education and training activities to assist the residents to manage their power consumption appropriately.

Appliance Acquisition & Replacement

As part of the overall approach to demand side energy management, Bushlight assists the community with identifying inefficient appliances, which can be replaced as funds become available.

At Mt Peachy two existing inefficient fridges and freezers were replaced with modern energy efficient appliances. Existing incandescent lights were replaced with compact fluorescent globes.

Agreed Deferred Loads

During the Community Energy Planning process it was agreed with the householders that some specific appliances would be treated as deferred loads. This means the appliances will only be used during those periods when the batteries are fully charged and excess power is being generated. In the case of Mt Peachy, it was agreed that use of the washing machine, computers, hand power tools, water pump and portable evaporative cooler would be deferred until excess power is available.

Generator Only Circuits

The following situations where the generator may need to be run have been identified:

- When the solar hot water booster is required.
- When the community wants to use portable evaporative coolers, larger power tools, electric heaters and kitchen appliances.

Other Energy Services

In addition to the energy being supplied by the Bushlight Systems, the community continues to rely on the following additional energy sources:

- Firewood for winter space heating and outdoor cooking
- Gas for inside cooking
- Solar thermal for hot water
- Diesel for pumping bore water



Contact Bushlight

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