

Light and Life in the Bush

BUSH LIGHT



Fact Sheet 7

October 2004

www.bushlight.org.au

Milibundurra

The Setting

This Fact Sheet provides information about the two Bushlight Household Systems installed at Milibundurra homeland. These systems provide power to the two houses at Milibundurra and were commissioned on the 28th of October 2004.

Background

Milibundurra is a homeland approximately half an hour from Borroloola. Prior to the Bushlight Systems being installed a 15kVa three phase generator provided power. However, this was wired to provide 7.5kVa single phase power and was run for about 8 hours each day.

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.

Basic Technical Information

The combined maximum daily AC load of the two systems is 14.1kWh/day. There are no DC loads.

The following major components are used:

- PV arrays - Both ground mounted with a combined capacity of 6.0kWp (total of 80 x 80W panels)
- Battery banks - Combined capacity of 4,360Ah @ 24VDC providing \approx 3 days of storage at a 50% maximum depth of discharge
- Inverters - Two 1.5kW @ 40°C, with expected peak and surge loads of 0.9/1.0kW and 4.1/3.6kVA respectively
- The total cost was \$233,324. This included system mobilisations and installations; data-logging equipment, two service visits in the first year and additional works (installation of additional AC house wiring). The Northern Territory Government Renewable Energy Rebate Program provided a rebate of \$98,722 on the total cost



Monthly Load Variations

The time of year that the maximum daily power consumption is expected to occur is during April and September. The main contributors to these increased loads are:

- Refrigeration: These appliances use 30 to 40% more power during the wet season months when the ambient temperature is higher
- A 20% increase in the population during these times

Technical Demand Side Management

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

- Low amp circuit breakers have been installed to prevent the usage of high power demand appliances
- Individual device timers have been installed for all ceiling fans, bathroom, toilet and utility room lights
- Light and general power circuits have been fitted with centrally controlled timer switches. The duration of these timers have been set to meet residents needs

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

Bushlight helped to organise acquisition or replacement of the following appliances:

- In one house an existing inefficient AC chest freezer and fridge were replaced with a new 312L Vestfrost chest freezer and 118L Whirlpool fridge
- A second new 118L Whirlpool fridge has been provided to the other house
- All internal light fittings and globes have been replaced with 20W fluorescent light fittings and lamps, and an external spotlight has been replaced with a 40W fluorescent light

Agreed Deferred Loads

During Community Energy Planning residents agreed 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. At Milibundurra, it was agreed that the washing machine would be a deferred load or generator power would be used.

Generator Use

One generator only circuit has been installed on each system. The following situations where the generator may need to be run have been identified:

- During the wet season there may not be sufficient excess power for the use of the washing machine
- When the community wishes to use power tools, air conditioners or kitchen appliances, such as electric frypans, toaster and rice cooker

Other Energy Services

In addition to the energy being supplied by the Bushlight Systems, the Milibundurra residents continue to rely on the following additional energy sources:

- Firewood
- Solar water heater



Contact Bushlight

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