

# Light and Life in the Bush

**BUSH** LIGHT

Fact Sheet 36

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[www.bushlight.org.au](http://www.bushlight.org.au)

## John Holland North



### The Setting

This Fact Sheet provides information about the Bushlight Community System installed at John Holland North community. The system provides power for one house and one shelter. This system was commissioned on the 21st November 2005.

### Background

John Holland Bore North is 75km south of Alice Springs near the railway line. Prior to the Bushlight System being installed, power was provided by an existing unreliable and malfunctioning, smaller solar system with generator backup. Power from this system was available for about seven hours a day, and the community spent over \$6,000 a year on diesel.

### 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 maximum daily AC load of the system is 7.5 kWh/day.

There are no DC loads.

The following major components are used:

- PV array - ground mounted with a capacity of 2.88 kWp (36 x 80W panels 6x24 v existing modules were also utilised))
- Battery bank - Capacity of 720Ah (C100) @ 48VDC providing 2 days of storage at 22% average daily depth of discharge.
- Inverter – 3.3kW @ 40°C, with expected peak and surge loads of 1.3kW and 4.2kVA respectively
- Energy Management Units (EMU) – metering and management devices that replace household switchboards.
- Energy Meter (EM) – electrical metering for small buildings e.g. sheds, caravans.
- The total project cost was \$103,807. This included system mobilisation and installation, two service visits in the first year and additional works such as reticulation, connecting the old solar panels to the system and replacing switchboards with EMUs. The Northern Territory Government Renewable Energy Rebate Program provided a rebate of \$44,035 on the total cost.

## Monthly Load Variations

The design load allows for the maximum daily power consumption to occur during the summer months when fridges and freezer are cycling more frequently and ceiling fan use is greater.

## Demand Side Management

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

- An EMU has been installed at the house. The primary purpose of the EMU is to control the total load on the system by providing each household with a predetermined amount of energy (the 'energy budget') each day.
- Each EMU incorporates an intuitive user interface to aid energy management
- An EM has been used at the shelter. These units also provide an "energy budget".



*Energy Management Unit*

- Low amp circuit breakers have been installed to prevent the usage of high power demand appliances
- Individual device timers have been installed for certain lights. The duration of these timers have been set to meet residents' needs
- Circuit timers have been installed for light, fan and general power circuits. The durations of the 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 residents to manage their power consumption appropriately.

During pre-installation discussions residents agreed to use certain appliances, such as washing machines and a computer, only when there is enough power available. The best time to use them is in the morning, before the EMU resets the energy budget at midday.

## Generator Use

The existing generator was connected to the solar system to enable battery charging when the generator is running.

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

- To run the 3.7kW bore pump for an hour each day
- During extended periods of cloud cover and when there are many visitors
- When the community wishes to use power tools, air conditioners or kitchen appliances

## Other Energy Services

In addition to the energy being supplied by the Bushlight Systems, residents at John Holland North continue to rely on the following additional energy sources:

- Firewood for cooking and warmth
- Solar hot water heater



*Energy Meter*

## Contact Bushlight

Bushlight Administration  
PO Box 8044, ALICE SPRINGS NT 0871  
Tel (08) 8951 4344, Fax (08) 8951 4333  
enquiries@bushlight.org.au