



Angula

The Setting

This Fact Sheet provides information about the Bushlight Community System installed at Angula community. The system provides power for two houses and the community church. This system was commissioned on the 30th June 2005.

Background

Angula is located near the Sandover Highway, 177km NE of Alice Springs. Prior to the Bushlight System being installed the community obtained power from a small generator which was operated for approximately 4 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 maximum daily AC load of the system is 17.9 kWh/day. There are no DC loads.

The following major components are used:

- PV array - ground mounted with a capacity of 6.08kWp (total of 72 x 85W panels)
- Battery bank - Capacity of 1,700Ah @ 48VDC providing 2 days of storage at a 25% average daily depth of discharge
- Inverter - 3.3kW @ 40°C, with expected peak and surge loads of 2.6kW and 6.3kVA respectively
- Battery charger - 50A @40°C
- Energy Use Meters (EUM) - electricity metering and management devices that replace the household switchboard
- The total project cost was \$182,778. This included mobilisation and system installation, two service visits in the first year and additional works including reticulation, installing street lights, fencing of the PV array and replacing household switchboards with EUMs. The Northern Territory Government Renewable Energy Rebate Program provided a rebate of \$77,069 on the total cost

Monthly Load Variations

- The design load allows for the maximum daily power consumption to occur in the summer months when the fridges and freezer are cycling more frequently and fans are used more.

Demand Side Management

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

- EUMs have been installed at the three houses. Their primary purpose is to ensure fair and equitable distribution of power by providing each household with a predetermined amount of energy (the 'energy budget') each day
- Each EUM incorporates an intuitive user interface to aid energy management
- Low amp circuit breakers have been installed to prevent the usage of high power demand appliances
- Individual device timers have been installed for fans and certain lights. The duration of these timers have been set to meet residents' needs
- Centrally controlled timers have been installed for general power circuits. The duration 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, only when there is enough power available. The best time to use them is in the morning, before the EUM resets the energy budget at midday.

Appliance Acquisition & Replacement

As part of the overall approach to demand side energy management, inefficient appliances are identified and replaced as the community is able to do so. At Angula two refrigerators were found to be inefficient and were replaced with appropriately sized new energy efficient units.

Generator Use

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

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

- When the community wishes to use power tools, air conditioners, electric heaters or kitchen appliances
- During extended periods of cloud cover and when there are many visitors

Other Energy Services

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

- Firewood for cooking and warmth
- Solar thermal hot water heater



Contact Bushlight

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