



## Wumajbarr

### The Setting

Wumajbarr is 20 kms north from Numbulwar in East Arnhem land. Numbulwar is the community's major provider of goods and services. Wumajbarr has been established as a homelands for the past 30 years.

The community has many activities including fishing and hunting, cultural activities and living a traditional life. Family living in Numbulwar visit regularly and the community hosts a bible camp every 2 years.

Wumajbarr residents prides themselves for living a traditional and simple life on their homelands.

### Bushlight's Approach

Bushlight has established a process for use with homeland communities to plan and manage their energy services.

This process involves a series of facilitated workshops called the Community Energy Planning Model (CEPM). Bushlight regional staff work with community residents through this process.

The process informs residents and helps them to choose and manage energy services that are best for them and that will help them achieve their aspirations.

Residents are provided with technical and other information so they can choose sustainable – that is, affordable and reliable – RE services that will meet their current and future energy needs.

In making decisions about energy services, residents take into account the technical and financial limitations that are associated with their various energy service options.

12 months after installation Bushlight undertakes a Community Energy Plan (CEP) Review with the community to obtain feedback on Bushlight services and assess community outcomes.

### Energy Service Goals

Wumajbarr energy goals included:

- Cheap reliable source of power

- Increase use of community provision of better services
- To be able to watch football
- Have less noise from the generator

## Existing Energy Services

In the initial discussions it was determined that the community used:

- Firewood for cooking and space heating
- Diesel for power generation
- Thermal solar hot water heaters
- RE powered bore

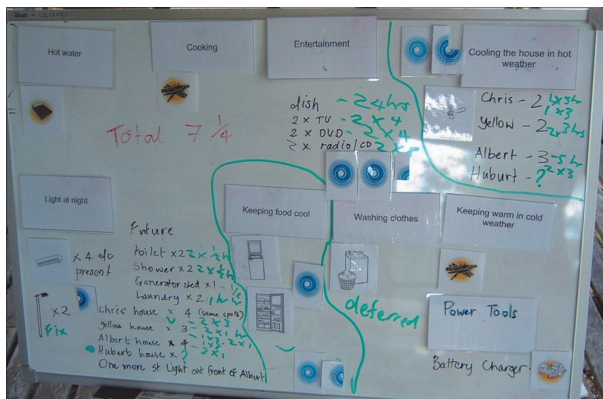
Firewood was available readily around the community.

Prior to the Bushlight being installed a Honda 5 kVa generator provided power and this was operated for about 5 hours a day. The cost of diesel and noise from the generator were big issues for this community. **How did you community transport did they get any from NHAC as oncost or any other way?** At the time of the CEP review diesel prices at Numbulwar stood at \$2.20/litre, by February 2006 prices had risen to \$2.60/litre.

**NO.** ? Of the houses were provided with hot water from thermal solar hot water services.

## Energy Services Planning

During the Energy Services Planning stage of the CEPM, Bushlight provides education about energy service options and finds out about the community's energy needs and issues, social structures, mobility, household members and daily activities. Bushlight looks at all the energy sources available to the community in order to assist people with making decisions about what would be the best energy options for their homeland.



The end result of the process is a Community Energy Plan, a document that details the most

appropriate sources and uses of available types of energy. This document includes details of the proposed RE system.

Bushlight developed Wumajbarr's Community Energy Plan in consultation with the community and Numbulwar Homelands Aboriginal Corporation (NHAC).

Wumajbarr residents agreed on the following:

- Firewood would be continued to be used for cooking
- Diesel generation would provide back-up power during the wet season and run other heavy load appliances
- Thermal solar HWS
- Bushlight RE system would provide power to run refrigerators, freezers, lighting, fans and entertainment appliances i.e. tv and dvds and two street lights.



Wumajbarr was the first community to receive a Bushlight Community Renewable Energy System.

## System Specifications

A Bushlight Community RE System has been located in the generator shed and is designed to provide an average daily AC load of 10.4 kWh/day. The photovoltaic arrays are free standing. The system was commissioned on 25th May 2005.

Bushlight systems power non-critical appliances via "discretionary" circuits and critical appliances via "essential" circuits. To attempt to ensure continuous power to critical appliances (like fridges and freezers), power to discretionary circuits is cut when the battery charge drops below a predefined level.

The Bushlight Community RE System provides power to a number of houses and buildings. Each house or building receives an independent energy budget via an Energy Management Unit. (for further technical information see Bushlight website)

### Major System Component Specifications

PV Array	4.76kWp (60 x 80W)
Battery Bank	1,700Ah @ 48VDC
Inverter	3.3kW @ 40°C
Charge Controller	2 x PL60



*Wumajbarr's Bushlight Community RE System*

### Costing Information

The total installed cost of the Bushlight Community RE System was \$168,886. This figure includes costs associated with two service visits in the first year and additional works, i.e. reticulation connecting the generator, additional house wiring and lighting and energy management fittings. The Remote Renewable Power Generation Program (RRPGP) provided a rebate of approximately \$66,688 on the total cost.

The total diesel offset by the provision of 24 hour RE power to the community is equivalent to 6,400 litres per annum. This equates to an annual cost saving of approximately \$15,500, and greenhouse gas abatement of 18 tonnes.

### Community Service Agreement

The Community Service Agreement (CSA) is an agreement between the community, its support or resource agency, the agency funding maintenance of essential services and Bushlight where each party agrees to work together, in a spirit of cooperation, to maintain and sustain the energy services. The CSA clearly articulates the roles and responsibilities of each party as well as describing maintenance and repair arrangements.

As of the 1 July 2006 Bushlight will be responsible for the maintenance and repairs of all Bushlight RE Systems. However the actual delivery mechanism will be determined by local circumstances. Existing CSAs will be renegotiated to include this new arrangement.

The CSA also covers the collection of user contributions to pay for future maintenance carried out by the Resource Agency. These arrangements are still to be finalised.

### Post Installation Community Training

Community Training was delivered to Wumajbarr residents with the aid of a pictorial based User Manual and their RE systems. This training included system operation and maintenance, basic troubleshooting and energy use management. Bushlight training was designed to be broken into stages to allow time to experience system use and operation.



*Wumajbarr residents receiving training for their Bushlight Community RE System*

In August 2005 Bushlight delivered its Level II Training at NHAC to six staff. Key areas of training delivered include: basic electrical concepts; RE system components and what they do; basic maintenance tasks; common problems and how to fix them; managing energy use; working safely with RE equipment. This is part of Bushlight strategy to improve regional capacity and 4 NHAC completed the training.

The community reported to the CEP Review that

they had utilised the Bushlight User Manual to follow explanations of what appliances were appropriate to use of the system.

## Service and Maintenance

To date this system has only experienced minor problems and therefore it is difficult to ascertain the response time of service providers due to the fact that the installation is still within its 12 month warranty period. However, the Level 2 service provider NHAC has indicated that they felt prepared through the training and planning sessions that Bushlight has delivered.

## Community Outcomes

The death of the elder of the community in late 2005 has meant that the outstation has been largely unoccupied ever since due to cultural reasons. The community has advised their resource agency and Bushlight they will return to Wumajbarr to live on a full time basis after the right season for undertaking proper cultural practise. They will also continue to use the community as a bible camp which hosts up to 100 people from Ngukurr and Groote Eylandt.

The community told Bushlight that the Bushlight RE System had made life much easier for the community in the 4-5 months that the community was occupied before the passing of the elder.

*When residents were asked what they thought about the Bushlight system Kathy Anne said:*

*"all outstations should have the same system as Wumajbarr has".*

*She explained that it's very hot, there are mosquitoes and sandflies and the fans are important to keep cool and keep insects away. Perishables like wallaby, kangaroo, red skin, and bush turkey can be kept a lot longer. The freezers in House 4 are currently storing lots of Barramundi that Morris has caught. They can now do one big shop instead of lots of small trips saving them expensive diesel which now costs \$2.20 per litre in Numbulwar. Kathy Anne also said that they can now enjoy cold water and drinks.*

Although the outstation is currently unoccupied, the importance of homelands comes through with a powerful statement made by community member Bobby who said:

*"that the outstations are people's connection to the land , ancestors and their past way of life. Some young people don't want to live in the bush but for the ones that do its very important for them. It's a connection to Tribal peoples and ancestors."*



Names??

## Contact Bushlight

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