



## Wada Warra

### About this Case Study

This case study is about the small outstation of Wada Warra in the Gulf Country of the Northern Territory. It looks at the community's transition from generator power to the power provided by the Bushlight Renewable Energy (RE) system and what this change has meant to residents.

### Background to the Community

The outstation of Wada Warra lies in Yanyuwa country, 45kms to the north of Borroloola. An agreement was reached in the 1970s between the vast Macarthur Station and the Macarthur River Mine to excise a parcel of land to the traditional owners. One of these traditional owners was the grandfather of Patrick Mullholland who occupies the land today.

Patrick and his wife Annie were living in Borroloola permanently until the 1980s when they started spending less time in the community and some time in Wada Warra. At this stage the outstation's infrastructure was very limited, with only three tin shelters housing

a multitude of permanent and mobile residents. In the 1990s Patrick and Annie moved to Wada Warra on a permanent basis. However at this time there were issues with access during the wet season. Until nearby Baton Bridge was built in 1997 Wada Warra residents used to camp on the 'town' side of the river during the wet season in order to access goods and services in Borroloola.

While life can be hard on outstations because of their remoteness from goods and services, outstation life has many positive aspects in addition to being on one's traditional land. Many outstation residents have actively chosen to live away from larger communities in favour of the relative peace and quiet of outstations. Annie Roberts commented that she prefers to live "away from noise, away from humbug, away from drunks".

### Pre-Bushlight Energy Services

Prior to the installation of the Bushlight system residents were reliant on a 17kVA diesel generator. On average the generator would run

## Bushlight's Community Energy Planning Model

Bushlight's objective is to improve livelihood choices for remote communities by increasing their access to reliable energy services. To do so, Bushlight works directly with community members to provide them with independent advice and information about choosing which energy services are best for them, and advice on demand side management, and energy conservation. Using a range of pictorial resources, Bushlight invites communities to consider how they use energy and how much it costs them; and with them, look at what options are available for improving their access to reliable energy services.

Through workshops and community mapping exercises, Bushlight works with residents to prepare Community Energy Plans (CEPs). These plans detail the community's current energy needs as well as any future livelihood aspirations. The CEP documents an agreement between Bushlight and the community by setting out household energy budgets and the roles and responsibilities of the community in using and looking after their solar power system. The responsibilities of Bushlight, the community's service agency, and the system installer are also laid out.

After the initial CEP meetings and completion of the system design, Bushlight coordinates the installation of the RE equipment. Following installation Bushlight provides education and training in system operation and maintenance over several visits during the course of the first year. Bushlight's approach elaborates on the typical RE industry process by involving the community in all key activities and decisions.



Community Energy Planning at Wada Warra

for about 10 hours each night which meant diesel use totalled approximately 7,300 litres per year. With diesel costing \$1.50 per litre at this time residents were spending about \$11,950 each year on a 10 hour per day power supply.

At a post-install visit in September 2008 Annie told Bushlight that using the generator in this way was "... alright but we used to spend a lot of money on diesel and we used to argue a lot with other houses about chuck-in for diesel".

When Wada Warra's only source of power was the diesel generator, residents did not have fridges. As is common in many outstations with unreliable energy supplies the Wada Warra residents used a chest freezer which would freeze food while the generator ran. However

food would then thaw during the long hours where there was no power available. This created a very tenuous position for residents in terms of keeping meat fresh and did not allow for storing fruit and vegetables.

Annie said that having reliable 24 hour power from the Bushlight system has made a big difference to the way residents store food and the type of food they eat.

### Energy Services Planning

Bushlight commenced working with Wada Warra residents in April 2005. During the Energy Services Planning stage of the Community Energy Planning (CEP – described in greater detail above), Bushlight provides information about energy service options and finds out about the community's energy needs, social structures, mobility, household members, daily activities and plans for the future. Bushlight looks at all the energy sources available to the community in order to assist people to make decisions about what would be the best energy options for their outstation.

One of the end products of the CEP 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.

At the CEP meetings Wada Warra residents agreed on the following:

- To use the generator for power tools, on





A household energy budget is drawn up in consultation with residents.

cloudy days and when they need to use the air conditioners

- To use the washing machine only when there is plenty of energy available as indicated by the energy budget light.

Aside from indicating that they would like to have power all day and all night, Wada Warra residents said they would like to:

- Cut back on diesel use
- Install a solar bore so the generator does not have to run to pump water
- Fix up the single boys shelter
- Build a new house
- Build a basketball court.

As mentioned previously, when Annie and Patrick began living in Wada Warra the total housing stock consisted of three shelters. One new house was constructed around the same time as the Bushlight system was installed in January 2006, and an old shelter was renovated shortly after.

One component of the CEP process is to discuss with residents their future plans for the community, including housing developments.

This is important so that the system can be designed to an appropriate size to allow for future development. There was also a series of discussions between Bushlight and residents to create 'energy budgets' for each building in the community. At the time of the CEP residents told Bushlight about plans for a new house to be built in the community. A Bushlight Renewable Energy (RE) system was designed based on the energy budgets for the existing and planned houses and the system itself was installed January 2006.

### Education at Wada Warra

"School of the Air" is a distance learning program for primary school-aged children living in remote areas. It was first established in Wada Warra in about 1990. At this stage all lessons were conducted by radio, hence the name as classes were delivered over the 'air waves'. At this time classes were often difficult to hear due to the static of the radio. Learning in the community became much easier and more enjoyable after the transition was made to computer-based learning, which includes live video and audio allowing students to have 'real-time' interaction with their teacher.

Prior to the installation of the Bushlight system residents would have to turn the generator on for each School of the Air class. Over the past 18 years about 15 children have been schooled through School of the Air at Wada Warra.



Annie Roberts in the School of the Air Classroom at Wada Warra

### Enterprise Development at Wada Warra

Today Wada Warra is an active cattle station and place of horse breeding. Annie & Patrick's sons and daughters are involved in the cattle industry, some year round, and some only

during school holidays. One component of this economic enterprise involves breaking in wild brumbies so that they can be used during the cattle mustering work that takes place before the wet season. Some of these horses are sold on to other working stations and outstations in the area.

### **Feedback for the Project**

Part of the underpinning philosophy of Bushlight's approach to Community Energy Planning is to instil in residents a sense of confidence to manage their power use and a sense of ownership over their energy system. It was noted on Bushlight's database at the six month post-installation visit that new residents had moved into the community and existing residents had provided training to this family in how to operate their system and manage their energy use. That residents felt confident to provide this training is, in itself, a positive outcome for Bushlight. Similarly, it was also commented that residents use the Bushlight User Manual to help inform family members about the system when they come out to visit. Again, this is positive feedback for the project.

Bushlight carries out 12 Month Reviews with community residents that have lived with a Bushlight system for one year. The Review provides a structured means of getting feedback about our approach and processes from residents and resource agencies we've worked with, as well as a means of recording change in the community over time.

In the 12 Month Review for Wada Warra Bushlight's Top End Regional Manager Ken Aitchison notes: "Wada Warra has changed quite drastically in the 2 years that Bushlight has worked there. Many infrastructural improvements have taken place and the School of the Air seems to be improving every visit. Patrick is hard working and highly motivated in improving the community and working with livestock, and Annie works hard with the kids. Working with this community has been a success story for Wada Warra and for the Bushlight project".

Bushlight's work in the Borroloola region extends beyond the community of Wada Warra. At the time of the installation of the Wada Warra system Bushlight had already worked in two other outstations (Sandridge and Milibundurra). When Mabinji Aboriginal Resource Association heard the positive response to Bushlight from

residents of these outstations they approached the project to procure a further five Bushlight systems. At the time, Mabunji had accredited RE system designers and installers on staff, so were interested in purchasing Bushlight components, with the intention of doing the community consultation and system design themselves. In addition to the provision of system components, Bushlight conducted system commissioning at all sites and provided post-install training to residents of these communities.

### **Community Outcomes**

In addition to notable improvements in refrigeration and education, through the reliability of the Bushlight system, another key outcome for residents is the significant savings made on low diesel use. The savings made for Wada Warra residents have largely been invested in transport; paying car registration, buying new tyres and other car parts. Having reliable transportation is a critical element of being able to live on remote outstations such as Wada Warra. In addition, Annie mentioned that the money saved on diesel is also used to send her older children to high school. She currently has one child at school in Katherine and one in Charters Towers.

In September 2008 Annie Roberts commented that "Bushlight is the best thing that's happened out here". When asked about her plans for the future of Wada Warra, Annie stated "We're just happy with what we've got so far, and what we're doing. We don't look too far into the future, just take it day by day".

