



Gurrumurru

Gurrumurru plays an important role in North East Arnhem Land as a cultural hub community. Residents of Gurrumurru have been living with a Bushlight solar power system since 2005. The system was designed in collaboration with residents, and at the time it was installed it was adequately sized to meet the needs of the community. Several years later this was no longer the case, as Gurrumurru often hosts many visitors during ceremonial activities and other cultural events, has a growing population and expanding infrastructure. This story is about how Bushlight has responded to Gurrumurru's changing power needs through our ongoing dialogue and relationship with homeland residents.

A cultural hub

Gurrumurru is situated amongst the expansive eucalypt forests and wetlands of North East Arnhem Land. Natural resources are plentiful and residents maintain close ties with their country, kin and culture. The community is an important place for ceremonial activities, and many people from nearby homelands and communities travel to Gurrumurru for funerals and other cultural events. The Traditional Owner at Gurrumurru, Waralka, is an important Yolngu leader and is often called on to take care of cultural business in Yolngu country.



The road to Gurrumurru is only accessible in the dry season



Gurrumurru is situated amongst the lush wetlands of Arnhem land

As an area rich in natural resources, there is no shortage of bush foods to sustain the residents and visitors of Gurrumurru. It is located close to a freshwater river system, where people hunt for long neck tortoise, catfish and other freshwater fish. To supplement their diet there are many fruit trees within the community, including mango and coconut. Residents travel to the nearest service centre of Nhulunbuy every 2 weeks to buy extra provisions. In the dry season, this is a 3.5 hour drive along a narrow dirt track. In the wet season, the country becomes waterlogged and the only way to get to town is by charter flight.

Many residents are accomplished artists and earn an income through selling their art work through the well known Buku-Larrnggay Art Centre in Yirrkala. Art products include carvings, bark paintings and yidaki (didgeridoos).



Traditional Owner and strong Yolgnu leader, Waralka, with his two daughters

Gurrumurru is a base for the Land and Sea Ranger Program that works with local Indigenous people to help manage the Laynhapuy Indigenous Protected Areas. The office in the community was erected by the Laynhapuy Homelands Association and enables the Rangers to access a phone, computers and other office equipment to maintain their business.

For a remote location, Gurrumurru is well serviced, offering benefits to local residents as well as those of surrounding communities. Gurrumurru has a Homeland Learning Centre where the children attend school. Long time resident, Vera teaches there 5 days a week and another teacher flies in and out to conduct lessons each fortnight.

A clinic was established in the community in 2006 and a community health worker visits Gurrumurru every week to service the clinic.

Designing the Bushlight system

Before the Bushlight system was installed at Gurrumurru in 2005, Bushlight undertook a thorough Community Energy Planning (CEP) process with residents (see box on next page). Together we looked at the energy services needed in the community including which appliances were being used, their duration of use each day, and future plans at Gurrumurru. Based on these discussions an energy budget was determined for each building. It was decided that Bushlight would provide energy for 5 houses and the school. All of the information was put together to create a system design that would provide an adequate amount of energy for the community at the time of CEP.



Residents draw a map of Gurrumurru during the Community Energy Planning meetings

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;



Gurrumurru residents talk to Ken Aitchison from Bushlight about energy during Community Energy Planning

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..

Incorporating change

Since solar power came to Gurrumurru, the population has grown. When Laynhapuy Homelands Association first observed this increase, Traditional Owner, Waralka, explained: "Everyone is coming back to look at the new Bushlight system". With the installation of a low cost and reliable energy supply, life becomes a bit easier in remote areas and this often encourages more family to return to their homelands. In addition to this, there was the usual population fluctuation from cultural ceremonies and events.

Population growth and infrastructural developments in Gurrumurru has required ongoing communication with residents to keep track of their changing energy needs. Bushlight, in collaboration with Gurrumurru and Laynhapuy, rolled out a series of solutions to support the changes as they occurred.

1. Reallocation of power

The rise in population meant more people were living in the houses and using the energy supply from the Bushlight system and some houses were subsequently running out of power. Through consultation with



Residents talk to Ken Aitchison about the future plans for Gurrumurru

residents, Bushlight was able to alleviate some of this strain by reallocating excess energy from one of the houses and the school to some of the over crowded houses.

2. First system expansion

In 2007 a new health clinic was built in the community. The consultant who developed the new clinic had \$20,000 in funding to install a standalone RE system. Instead, Bushlight collaborated with the consultant to invest this money in an expansion of the Bushlight system. This was advantageous for both parties as much of the existing Bushlight infrastructure could be utilised, the need for additional maintenance of another system was avoided and the nurse could manage the energy via the Bushlight Energy Management Unit (EMU).



The Bushlight system was expanded to power the new health clinic

3. Second system expansion

Gurrumurru's continued growth in population called for the need to expand the system for a second time. Additional solar panels were added to the existing array to provide enough power to support residents needs.

Managing Energy Use

Despite the first expansion to the Bushlight system and reallocation of energy budgets, residents continued to experience lack of power at times. After investigation by Bushlight, further issues came to light:

- The generator, which was installed to provide back-up energy for times of high energy loads, was not functioning properly for some time, although this issue has now been rectified.
- Heavy use of appliances such as fans, TV and other entertainment appliances
- Additional appliances in houses since the Community Energy Planning meetings
- Heavy use of the washing machines
- Broken fridge/freezer seals which significantly increases the energy consumption of the appliance.

Unfortunately residents were left little option to manage the energy shortage than by adopting the following responses which were less than ideal:

- Running extension cords from less used buildings (such as the clinic and office) to the houses that were using a lot of energy.
- Turning off circuits at the switchboards and going without power all afternoon so they could have fans during the evening.

Bushlight continues to offer training and advice so that Gurrumurru residents can make informed decisions about how to manage their energy. As with other Bushlight communities, this is done via annual visits to the community, and being available on the phone at all times to support residents and their Resource Agency, Laynhapuy Homelands Association. The case at Gurrumurru has shown the value of annual visits in maintaining an ongoing relationship with residents to keep track of developments as they occur in all the dynamic communities Bushlight works with.



Patrick and his family at Gurrumurru

Continuing to live on country

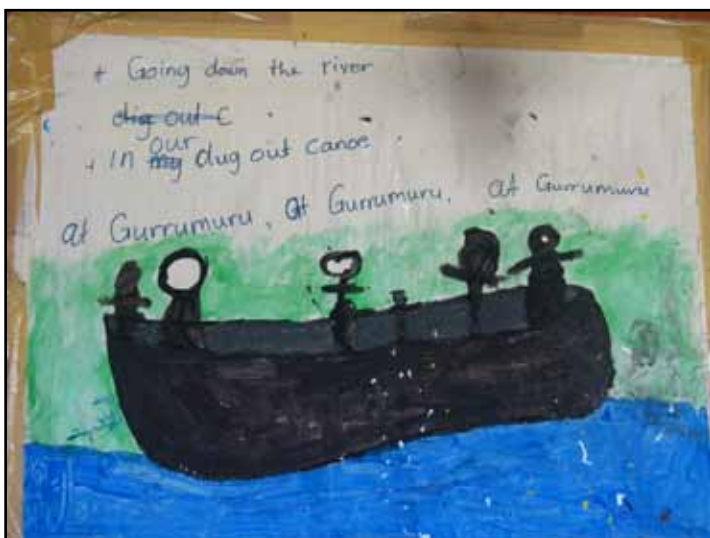
As Gurrumurru grows residents continue to think about how they can improve infrastructure and services to make the community a more comfortable place for everyone to live. Residents have expressed they are very happy to have solar power as they are saving money on diesel and can always rely on their fridges and freezers to keep their food fresh. Many improvements to infrastructure have already been made. Bushlight will continue to work with Gurrumurru, to be flexible and adaptable in providing energy solutions for their growing community.

“I love to live here, too much humbug in town, too many drunks, here I have freedom. I am free here on my own country.”

Waralka's son, Sebastian, from Gurrumurru



Residents under the solar panels of their newly installed Bushlight system in 2005



Art work from the Gurrumurru Homeland Learning Centre