

New Generation of Bushlight's Household RE System



Bushlight has recently installed the first of the new generation of Bushlight Household RE Systems at Galawdjapin, Northern Territory

With thirty renewable energy (RE) systems now operating in remote locations across Australia, the technical reliability of Bushlight's Household RE System has been proven many times over.

Bushlight has recently developed the second generation of household RE systems, incorporating many of the features from the first system as well as some new ones that will help reduce costs and simplify operation.

Key design changes include:

- Simplified operating panel



- Relocation of the operating panel to behind the front doors
- Provision of a Remote User Interface to monitor and operate the system from inside the house



- Larger battery enclosure for increased storage capacity and a wider range of batteries.

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Performance Monitoring of Bushlight RE Systems

Improved RE system reliability is a key outcome for the Bushlight project, and monitoring the performance of systems is an important element of Bushlight's program to achieve this.

Twelve Bushlight Household systems with Programmable Logic Controller (PLC) based performance monitoring have now been installed. Sites for these systems were chosen on the basis of environmental diversity.

Fifteen key parameters related to the performance of the system are monitored to enable Bushlight to assess system design and component performance in a range of harsh environments.

All other Bushlight RE systems have inverter based monitoring which records five key system performance parameters.

Data is downloaded on-site using a laptop computer and software developed for Bushlight. The performance data is used to produce several reports and analyses.

Project stakeholders are able to access the performance data through the Bushlight database and, in addition, Bushlight intends to publish the results of performance data analyses and make key findings available to RE industry participants.



Location of the twelve Bushlight systems with detailed PLC monitoring

Light and Life in the Bush

North Queensland



Community Energy Planning at Birri Williams

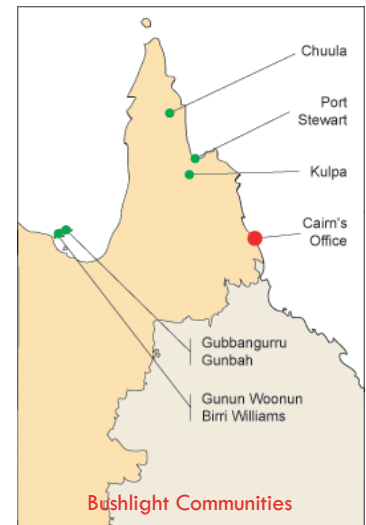


User training after the installation

John Williams lives on Mornington Island, on a homeland approximately 25 kilometres from the main community. Prior to having a Bushlight RE system, John spent about \$20 on diesel fuel almost every day. He makes his income by creating artworks. Now, because of the solar system, he only runs his generator every now and again when he needs to use large power tools.

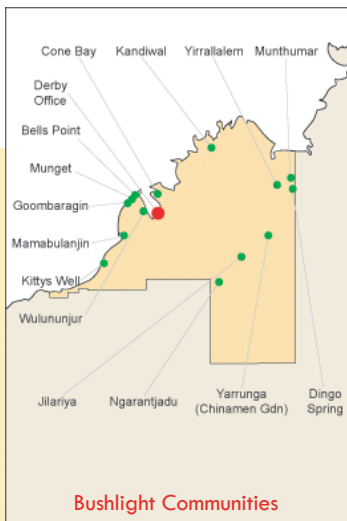
John buys diesel very occasionally now instead of almost every day. This reduces the money he has to spend on fuel, giving him more money to buy materials for his art, and the capacity to create more works than he could before.

John sells his work through the local craft centre and directly to visitors to the Island. There is no shortage of demand for his work. Previously his



limitation to supply was his ability to afford diesel and materials. With a his new Bushlight RE system his quality of life (and that of his family) is enhanced as he can produce more artwork and gain more income.

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Kimberley

The Kimberley Bushlight team has installed five Bushlight systems in Wulununjur, Ngarantjadu, Dingo Spring and Kittys Well, and are currently working on a training installation for Mamabulanjin Resource Centre in Broome. This installation will be unique because the Centre will offer facilities for Training Service Providers to conduct certified training for electrical contractors to upgrade their qualification or enter the field of solar renewable energy.

The community of Dingo Spring was abandoned for many years prior to the involvement of the Norman family. In the past 18 months, this family has rebuilt the community to enable Aboriginal people to spend time on their Homelands. This included re-establishing essential services and infrastructures. Community member, Tanya Norman coordinated the rebuilding of Dingo Spring.

We have also recently worked with the people of Munthumar and Yirrallalem to assess energy service options for their communities. While a Bushlight RE system is an option, connection to the Ord River hydro generation power grid could provide broader benefits. Bushlight is working with others to assess the options and to provide advice to the Indigenous Coordination Centre.



Kids at Munthumar CEP meeting



Kittys Well residents switch on their Bushlight system

Top End

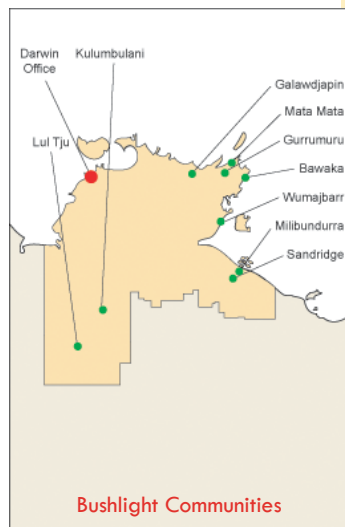
Last year's dry season saw our first six household system installations at Bawaka (eastern Arnhem Land), Milibundurra and Sandridge homelands near Borroloola, and the final installation before the wet season was at Galawdjapin in central Arnhem Land.

The two Bawaka systems have met community needs and expectations very well so far. Residents at all communities have undertaken comprehensive user training. Bushlight will return to these communities soon to help with any further training needs and to confirm and assess the operation of the RE systems.

The Bushlight Top End team has also been finalising designs for new systems at Lul Tju and Kulumbulani in the Tanami Desert country, at

Wumajbarr in SE Arnhem Land and at Mata Mata and Gurrumurru in NE Arnhem Land. These systems are larger community systems and will be installed after the wet season.

Further CEP work will begin with two homelands on Groote Eylandt in February and several other communities throughout the next dry season.



The community at Sandridge with their new system



Community Energy Planning, Mata Mata

follow the links to "What's New", "Work in Communities"

Central Australia

Eighteen household systems have been installed in the Central Australia Bushlight region, and tenders have been awarded for two larger Community RE Systems. Community Energy Planning work has also commenced in three additional communities.

In the Central Remote region, the three systems installed at Mt Peachy continue to perform well and the ceiling fans are much appreciated by the householders in summer. Two community solar systems will be installed in Angula and Alatyeye in early 2005. These will be the first community solar systems installed by Bushlight and the first to have Energy Use Meters at each house. We are also finalising the details of the large system proposed for Mulga Bore. Seven systems were commissioned in the Tennant Creek region during

October: two at Kurraya, three at Putulki and two further systems at Ngapagunpa. During a follow-up visit in November all systems were found to be meeting community energy needs. Further user training was provided, particularly in relation to the use of old and inefficient appliances.

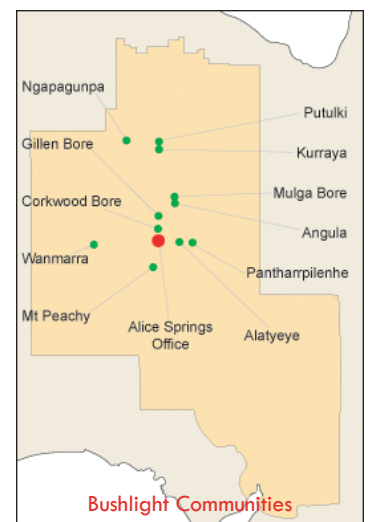
Systems installed nearly 12 months ago at Corkwood Bore and Gillen Bore in the Alice Springs region are also all running well.



Making a choice at Angula



Planning meeting at Mulga Bore



Bushlight RE System Installation Program

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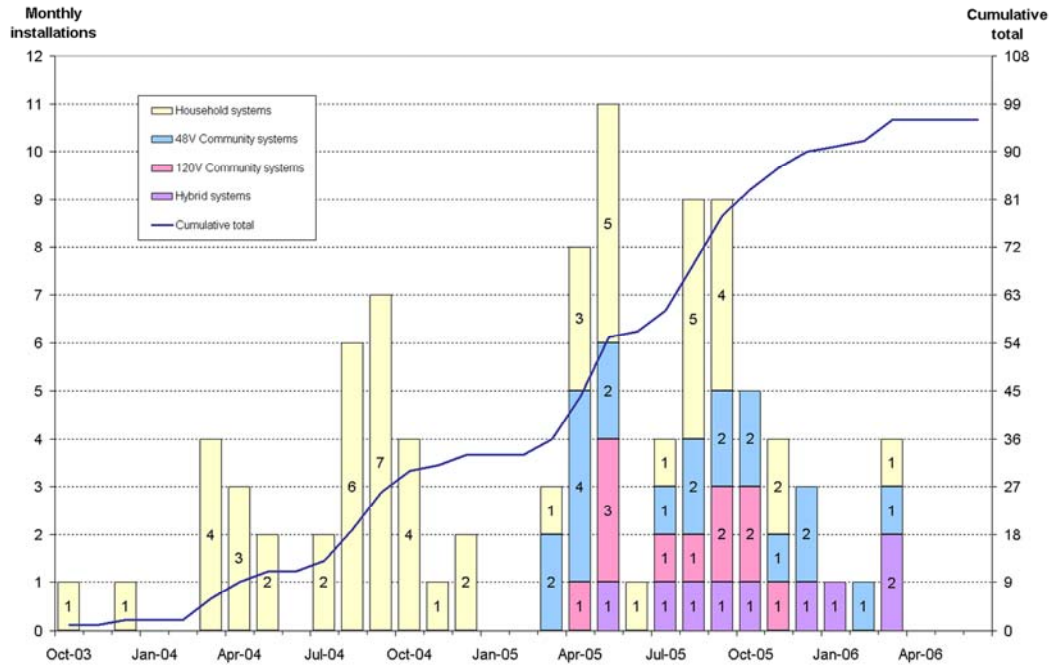
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Bushlight Top End Talks Energy in the Classroom

Bushlight Top End was recently invited to Leanyer Primary school in Darwin to work with grade 6 students. The class had been studying energy issues and were keen to hear more about Bushlight's work, to learn about where electricity comes from and to find out how much energy they used in the classroom.

After an introduction to Bushlight's work and a discussion about different types of fuel and energy we undertook an energy budget and worked out that the classroom

used about 22 kWh of electricity each day. This was mainly because there were 26 x 40W lights on all day in the classroom! We were all surprised to discover that lighting was probably using more energy than the air-conditioner.

The students were really keen to learn more about solar power having made solar ovens the day before which had heated water to near-boiling point. One student wanted to know why if the sun is free all energy isn't made from solar power.



Students at Leanyer Primary School working on their energy budget