

The latest on new information resources and training plans, plus an update on progress from around the regions.

## Bushlight Information and Training Resources

In previous Newsletters, we have described some of the key energy planning processes Bushlight facilitates to help inform community members to choose and manage their energy services. The Bushlight Solar System Demonstration Kit is another key community education resource.

### Bushlight Solar System Demonstration Kit

The Bushlight RE System Demonstration Kit is an educational tool used by Bushlight Regional Teams to demonstrate how solar energy systems work. The kit is used in Bushlight's community energy planning process to help people understand and make decisions about their energy services.



Demonstrating solar energy generation and use

The kit is used to demonstrate solar energy generation and use, flow of energy and energy management. Specifically, it demonstrates:

#### Solar energy generation and use

- How solar energy is generated and used
- How less energy is produced on cloudy days and none at night time
- Major components of a solar energy system
- Flow of current in and out of the batteries
- Level of charge in the batteries

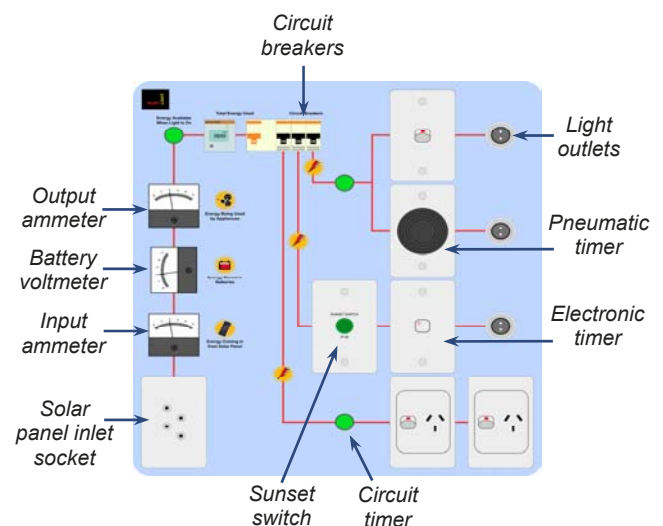
#### Flow of energy

- Different rate of use of energy by different appliances
- How appliances use more energy the longer they are used for

### Energy Management

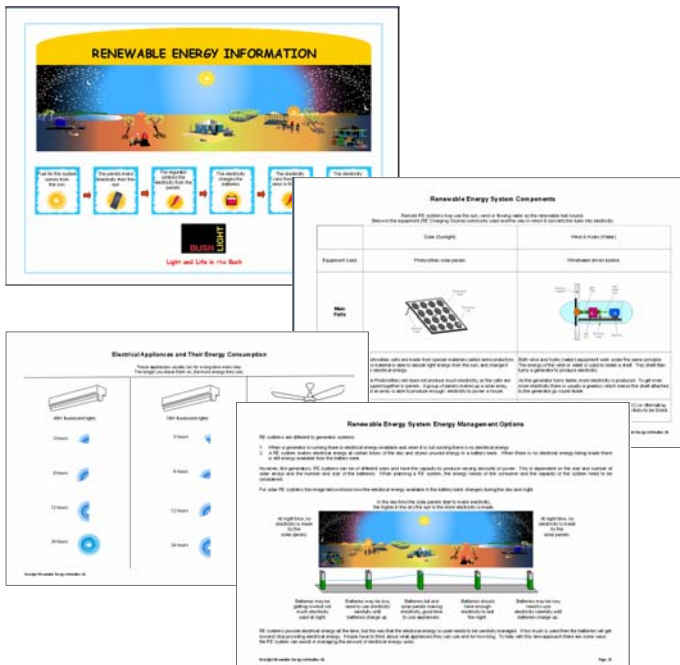
- Variation of solar input with time of day
- How the battery level goes up and down depending on the circumstances
- Concept of different circuits
- Circuit breakers and how they operate
- Central and individual timers
- Pneumatic and VETR timer switches
- PE cell control device
- How stand-by-power continues to use energy when appliances are not used

The kit's user interface has been laid out with lines to depict the flow of current through the various gauges, circuit breakers and switches.



## Renewable Energy Information Book

The Renewable Energy Information Book provides an introduction to renewable energy systems and household or small community power supply options. It is designed to provide resource agency staff, or staff from other regional organisations involved with purchasing, supporting or servicing community energy services, with a solid understanding of energy supply options for remote households and small communities, including factors to consider which influence energy supply, demand and usage, and how remote area power systems work.



## Certificate II in RAPS Servicing

The Certificate II in Remote Area Power Supply Servicing is currently being developed and pilot tested by the Centre for Appropriate Technology. The first course will be available in June 2005 and will cover the topics included in the short course in much more detail, along with recording and analysis of system performance information. It will provide appropriate skills to service providers enabling them to undertake maintenance and trouble shooting tasks on RAPS systems.

## Technical Service Provider Workshops

In order to maximize the effectiveness of regional technical service providers, a short (half-day) workshop is being developed to provide 'in-service' training to service providers. The workshop will be provided in regional areas over the first half of 2005 and will cover:

- General information on Bushlight's approach to provision of energy services
- Technical information relating to Bushlight RE systems, including maintenance schedules, parts lists, operation and maintenance manuals, trouble shooting guides, and manufacturer's details
- Access to regional spare parts stores
- Information on regional service arrangements.

### Topics covered include:

- Household and small community power supply options
- How a diesel generator works
- How a solar energy system works
- RE system components and circuits
- Factors influencing RE systems output capacity
- Electrical appliances and their energy consumption
- Factors influencing electrical energy demand
- RE system energy management options
- Troubleshooting RE systems

## RAPS - Basic Servicing Course

The remote area power system (RAPS) basic servicing course is a two-week course designed for resource agency staff.

Bushlight will deliver the course on-site or close to resource agencies to enable easy access by participants over the period September 2004 to June 2005. Resource agencies will be contacted to invite participation and to schedule and deliver the course to suit participants' availability.

The course covers safe working practices, basic electrical concepts, understanding of RAPS systems, basic maintenance and troubleshooting of RAPS systems and an introduction to demand side management issues. Participants will learn how to safely undertake basic, non-technical maintenance on RAPS systems.



## Technical Support for Communities to Use and Manage Energy Services

The resources outlined above are provided to help service providers support community energy services. Bushlight works with resource agencies and technical service providers to establish provision of a range of services to support community energy services.

Support services often provided by resource agencies include:

- Management of RE system maintenance and response to breakdowns
- Provision of support to community members to operate and troubleshoot energy supply or management problems
- Management of community financial contributions to and payments for the ongoing cost of energy services
- Delivery of fuel (diesel, gas, etc)
- Provision and maintenance of generators

Resource agencies also either directly, or through appropriately qualified service providers:

- Provide regular, scheduled RE system maintenance
- Respond to and resolve technical problems, such as component failures
- Replace components or equipment as required

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## Regional Updates

### North Queensland

Over the last few months the Bushlight team has been working with families at Birri Williams and Gunun Woonun on Mornington Island.

Following the completion of the community energy plan and finalisation of system designs, tenders have been called and the contract awarded for the supply and install of two Bushlight systems. With funding secured for the Household RE systems, everyone is looking forward to the installation of the first systems. The Bushlight team will travel to Mornington Island in early November to assist with training and support.

The team will also continue work on CEPs for Gubbangurru and Gunbah, with installations planned for early 2005.



*Bushlight's Jane Errey  
with David Claudie at  
Chuula*

John Hopkins and Sonny Levers from the NQ office attended a recent Peninsula Regional Council meeting to update the council on Bushlight in the Peninsula region and to seek

endorsement of the Regional Energy Plan. Peninsula Regional Council indicated their full support for Bushlight by endorsing the REP.

During a recent field trip to the Coen region, the Bushlight team visited Kulpa outstation and commenced CEP work with Chuula and Port Stewart. System designs are now underway for Chuula and it is anticipated that the first Bushlight RE system in the Peninsula region will be installed in late 2004.

### Top End

Bushlight Top End has entered a new phase with two system installations taking place at Bawaka (East Arnhem Land), two at Milibundurra and one Sandridge homelands (Borrooloola). Top End is also currently in the design phase for four further homelands—Galawdjapin and Wumajbarr (East Arnhem Land/Miwatj) and Lul Tju and Kulumbulani (Katherine/Garrak-Jarru). Indigenous-run organisations in partnership with industry have been involved in all Top End installation tenders to date and Bushlight is pleased to be contributing to indigenous employment and enterprises as well as improving energy services for homeland communities.



*Solar array, Bawaka*

Bushlight is about to commence CEP work with four new homelands—Mata Mata, Gurrumuru, Gorpulyul and Momob.

The Bushlight team generally visits each homeland at least twice to undertake CEP work. The first visit introduces Bushlight to the homeland and develops an energy budget that is used to design a renewable energy system.

Bushlight then returns to ensure that the design is appropriate for the homeland's needs, confirm that the homeland wants to proceed and to discuss the responsibilities of the homeland, the resource agency and Bushlight in looking after the system. The team also returns to the homeland for system installation and provides user training. It then makes regular visits over the next 12 months to conduct further training, iron out any problems and check the system performance.

**Central Australia**

Community Energy Planning (CEP) and system installations continue in Central Australia. In the Tennant Creek region, seven Bushlight Household systems are being installed at Kurraya, Putulki and Ngapagunpa. Once commissioned, the regional team will provide training; assisting community members to better understand and operate their Bushlight systems.

Central Remote: two further systems were installed at Mt Peachy, where all households now have access to reliable energy services. CEP is advanced in three communities: Mulga Bore and Angula, and Alateye. Mulga Bore will be the site of Bushlight's first larger reticulated system and will provide power to houses, a school, community workshop and clinic.

Alice Springs: we continue to monitor the existing eight Bushlight Household systems and have carried out additional work at one site to increase the capacity of the system to cope with an expanding household population. CEP will commence in at least one further community before the end of the year.

With the Bushlight Project gaining momentum, there is increasing interest in the work we are doing. In this region, we recently hosted a crew from the ABC's Landline program, taking them to Mulga Bore and Mt Peachy.

We have also taken an international group of PV experts from the International Energy Agency on a day trip to Mt Peachy to show them some working Bushlight systems and better explain the Community Energy Planning process to them.

**Kimberley**

July was a blue ribbon month with the first two Bushlight Household systems installed in the Kimberley at Wulununjur, on the west side of the King Sound. The Wulununjur Community folk were very excited as this was the largest and most important capital works investment in their community since their Elder, Joe Francis started out camping 15 years ago. Their new Bushlight systems have been working perfectly ever since without the need to start their generator once as they quickly learnt to conserve and utilise their daily quota of solar power.



*Wulununjur residents with their new Bushlight Household system*

In August Ngarantjadu, on the edge of the Great Sandy Desert received their new Bushlight system as well as having their three small houses wired for electricity courtesy of a co-contribution of funds from WA Dept of Housing & Works. The lights came on in their houses on 26 August ... and they were built in 1989!

Also in August Bushlight commenced the next round of Community Energy Plans with three communities on the Dampier Peninsula which should follow with installations around the upcoming wet season.

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