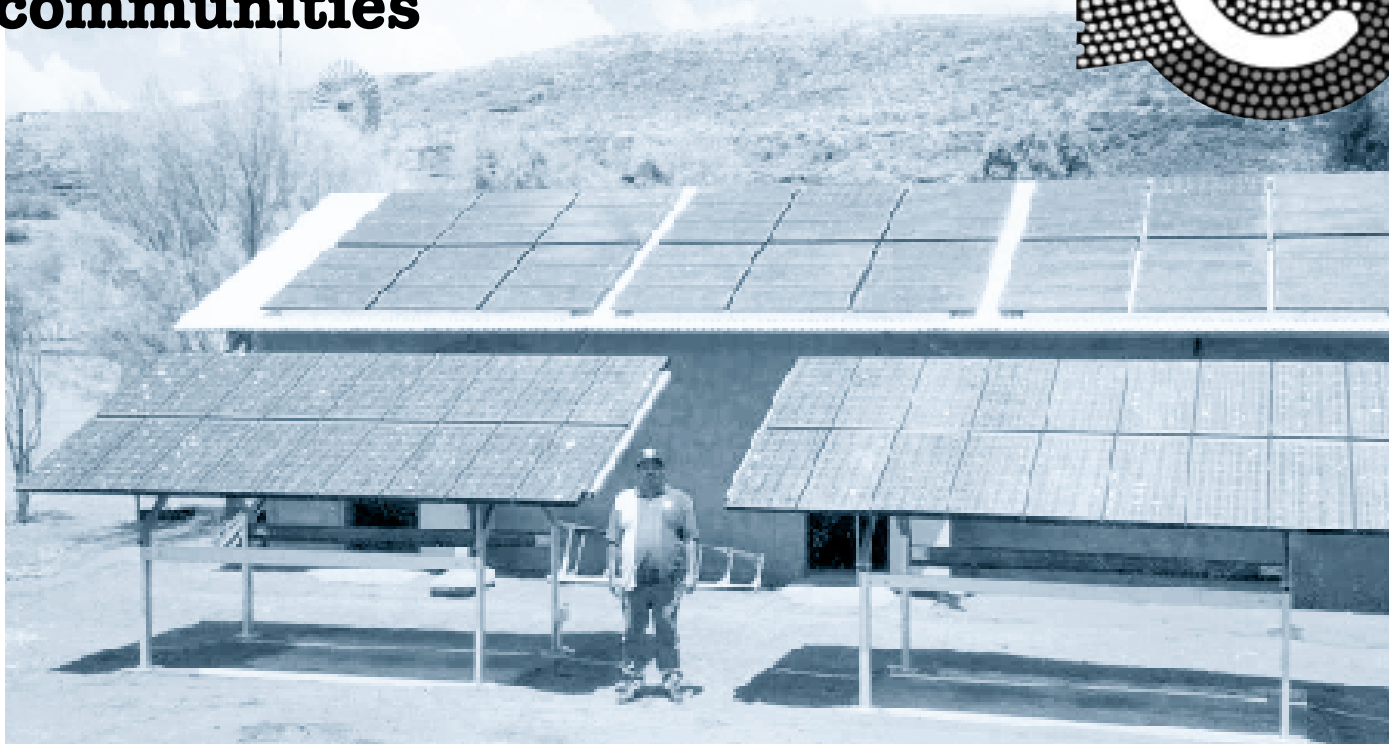
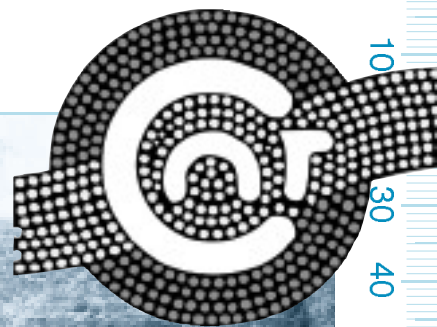


BUSH TECH BRIEF # 2

Renewable energy in remote communities



Introduction:

At first sight it makes perfect sense to use renewable energy, such as solar power, in remote communities throughout Australia. There is certainly plenty of sun around. But a study completed by CAT and ACRE found there are a range of barriers to the successful use of renewable energy technology in remote communities.

This Bush Tech explores barriers to renewable energy and looks at what can be done to improve the situation.

Background

People need access to energy to provide services such as lighting, refrigeration, cooling, heating, communications and cooking. Access to reliable and cost effective energy services helps to enhance the health and well being of remote Indigenous communities.

In small communities electricity is often used to provide basic needs, perhaps to run a fridge, freezer, some lights, a fan, washing machine and a television, video or stereo. In some places power may be needed to run workshop equipment such as a welder or power tools. Other fuel sources such as wood and gas are used to provide heating and cooking needs. Solar hot water systems are also common.

Many small communities use diesel generators to provide electricity. This technology is well known and generally found to be reliable, however the disadvantages lie in the expense to run the equipment and noise factors etc.

In recent years, many remote communities have used renewable energy systems including photovoltaic or wind standalone systems and various hybrid configurations with diesel generators.

Challenging the Technology

There are Indigenous communities that have had positive experiences with renewable energy over long periods, resulting in large diesel fuel savings, reduced fuel transportation problems and access to clean power 24- hrs a day.

However, there are many others that have tried renewable energy systems with limited success.

Remote communities can present challenging environments for technology. Depending upon the region, a renewable energy system may be subject to a range of environmental factors including extremes of temperature, infiltration of dust, sand, insects and other vermin, humidity, tropical cyclones and lightning strikes. These environmental factors have contributed to the failure of renewable energy systems in remote communities.

The remoteness of many communities means they are far removed from the technical service support available to people living closer to major regional centres. In addition, community members have generally not had access to training in order to sustain renewable energy equipment at a local level. As a result, the capacity to sustain renewable energy technologies in remote communities has come at a cost.



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BUSH TECH BRIEF #2

Renewable energy in remote communities (continued)

Study Brief

In April 2000, CAT and ACRE published Renewable Energy in Remote Australian Communities (AMarket Survey), an extensive market survey that focused on renewable energy in remote communities. The survey looked at small Indigenous communities, pastoral properties and tourist and other ventures in remote areas, focusing on finding out what users had to say about renewable energy in remote areas. The communities surveyed were remote, ranging from the Pilbara and Kimberleys in WA, through central Australia (including the APLands in SA) and the NT Top End, to Cape York Peninsula and the Torres Strait in Qld.

A total of some 88 Indigenous communities were field surveyed. Typically the sites surveyed were small outstations consisting of between one and five houses; perhaps with a workshop and almost always with a bore water supply. The number of inhabitants ranged from 3 to around 50.

What we learned

The market survey revealed a range of barriers to the successful and sustainable operation of renewable energy systems in remote communities.

But along the way, we also learnt a lot about 'best practice' in providing renewable energy systems in remote communities in a sustainable way:—

Failures in the electronic control systems and inverters dominated recurrent maintenance problems.

Best Practice: Renewable Energy industry to produce standardised, reliable, user-friendly designs.

Battery failure dominated total systems failure – in many cases battery maintenance was either non-existent or erratic, depending on the dedication of the people available.

Best Practice: Consumers to purchase and maintain quality components.

Because of the high transport costs associated with remoteness, reliability, is usually more important than efficiency in system design.

Best Practice: More information and emphasis on reliability.

Users of renewable energy systems were surprised to find out the maintenance and battery replacement costs.

Best Practice: Realistic up-front sales information

Education and training were perceived to be vital.

Best Practice: Relevant training packages

Existing warranties were often not honoured

Best Practice: Enforceable warranties



Maintenance support mostly inadequate

Best Practice: Service agreements and local support vital for success.

Overall the market survey confirmed a need for a different approach, moving from a focus on technological solutions to a more holistic focus on energy services.

Future Directions

The problems associated with sustaining energy infrastructure in remote Indigenous communities has led CAT, ACRE, the Australian Greenhouse Office (AGO) and ATSC to develop the Bushlight program. Over the next four years Bushlight will implement strategies to tackle many of the barriers to renewable energy service provision in small Indigenous communities.

Links

CAT — www.icat.org.au

ACRE — www.acre.murdoch.edu.au

AGO — www.greenhouse.gov.au

ATSC — www.atssc.gov.au

Compiled by Laurence Wilson, CAT

