



Renewable Power – Renewed Communities

The Problem

Across the Asia-Pacific, the cost of electricity and fuel bites into the budgets of organisations and the rural communities they serve. These costs limit opportunities for community transformation and growth. Access to reliable cheaper power changes this equation, enabling the rural poor to improve life circumstances – with opportunities for education, employment, recreation and social participation. Access to power also improves the night-time safety of isolated neighbourhoods.

The Solution

Through partnerships with churches, communities, individuals, governments and the corporate sector, Mission International [MI] is seeking to transform lives through an innovative micro renewable energy initiative. The initiative – **MI Energy** – applies technology to simultaneously harness four God-given sources to achieve power and fuel self sufficiency to village, neighbourhood and campus contexts. These renewable sources – sun, wind, water and waste may be combined with mains grid sources, where available.

The Initiative

The micro harnessing of renewable energy sources in the developing and developed world is gaining momentum. However hybrid models are relatively new, for example linking wind and solar or hydro and solar. The **MI Energy** initiative combines four renewable sources (plus the mains grid option), to ensure power sustainability.

In addition, our research and project design is embracing the latest LED (Light Emitting Diode) technology and power management systems to maximise lighting capacity and ensure cost-effective power distribution.

The initiative also harnesses local design, construction, maintenance and management expertise to ensure local project ownership. Education and training aimed at encouraging environmental awareness and resource responsibility are core features of each project. Recipient educational campuses in particular will include these features in school and college curricula.

Mission International

Mission International is a non-denominational Christian organisation committed to transforming the lives of poor and disadvantaged people living in the Asia Pacific region. Mission International is a related organisation of Mission Australia (www.missionaustralia.com.au), one of Australia's leading not for profit community service organisations, operating across Australia for 150 years, with strong partnerships in the government, corporate and community sectors. Mission International is currently engaged in partnerships in India, the Philippines, Indonesia and Papua New Guinea.

To support the responsible use of power, **MI Energy** is offering resources and advice for individuals, organisations and communities to self-audit energy use and waste with simple steps to reduce energy consumption.

The Benefits

Developing a multi-source energy harnessing model:

- provides power where none exists
- increases power reliability
- reduces or eliminates power supply and fuel costs
- transforms the lives of individuals, families and whole (rural) communities
- improves night-time social participation and neighbourhood safety
- includes understanding, owning and sharing the power sustainability model
- applies new waste management techniques
- contributes in small ways to CO₂ emission cuts

In addition to providing light and power to campuses, neighbourhoods and rural villages, there is scope to develop alternative vehicle fuel from excess methane (bio-gas). This 'spin-off' from waste generation is being researched to provide added transport benefits.

Implementation

MI Energy researches and manages projects assisted by recognised and qualified local and Australian technical experts with knowledge in both large and small scale renewable energy models.

The specifics of our contribution could include:

- ⇒ assessing and scoping projects
- ⇒ brokering and/or coordinating technical expertise
- ⇒ managing/coordinating project roll-outs
- ⇒ contributing to capital costs
- ⇒ sourcing and managing funding
- ⇒ maintaining a research and evaluation capability, and/or
- ⇒ providing or overseeing maintenance and management skills training.

As no two communities are identical **MI Energy** would apply a hybrid model suitable for each unique environment, taking into consideration the energy needs and natural conditions of the community. Multi-source hybrid models allow energy to be appropriately harnessed in varying environmental and seasonal conditions.

Projects under research, scoping and implementation

ACTS training campus – India

ACTS (Agriculture, Craft, Trades and Studies) is a Christian training college located on a 12.5 acre property in Bangalore, India. ACTS operates across India and internationally with schools, higher education institutions and community development programs.

The campus in Bangalore is implementing ACTS' first program in renewable energy by introducing composting technology to convert 'raw' garbage into stored biogas (methane) as fuel for a biodiesel generator, which supplies cooking and general power to the campus, 3 to 4 hours per day.

MI Energy is coordinating and assisting the College to apply micro renewable energy sources to achieve energy and fuel sufficiency by mid 2009, adding solar, wind and hydro generation technology to complement its two biogas reactors.

Broader Asia-Pacific Opportunities

The ACTS project has encouraged Mission International to undertake research and scoping of other projects in India and a number of potential sites in Indonesia, the Philippines and Papua New Guinea.

Get Connected

- ⇒ Become a community transformation partner by funding an MI Energy project – supplying power and fuel to a neighbourhood centre, education and training campus or rural village
- ⇒ Donate specifically to the **MI Energy Bank** by nominating micro energy installations such as a wind turbine for a school campus in India, solar panels, battery banks or inverters for a recovery and rehabilitation centre in PNG

Typical equipment requirements for a hybrid project:

- micro wind turbines and towers
 - solar panels and mounting racks
 - mini-hydro capturing and pumping systems
 - biomass reactors (digesters) and composting/detention tanks
 - inverters, regulators and micro multi-switching systems
 - battery banks for off-grid storage
 - master control sub-station/room.
 - AC (bio) diesel generators
 - cabling, power points and associated (efficient) LED lighting
- ⇒ Suggest a project or contribute your experiences and expertise to this initiative. Our MI staff, technical and research advisory panel is keen to receive and share ideas about new technology, new models and new opportunities. Please visit our website or contact us:

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