

## Installation of Solar Home Systems in Off Grid Areas of Tharparkar District

Pakistan

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### Background

The rural electrification in Pakistan is progressing at a slow rate. Presently, 90,000 villages out of a total of 125,000 villages have been connected to the national grid. Of the remaining villages, 7876 are very remote and scattered. Because it is economically and technically not viable to electrify these villages by extending the national grid. The Government of Pakistan plans to supply basic energy services and clean drinking water to these villages by exploiting renewable energy technologies. Villages which are situated at a distance of more than 20Km away from the grid are eligible to benefit from different forms of renewable energy

One of the most successful rural electrification projects has been the RE Electrification of 3000 homes in the Tharparkar district of the Sindh province. The Alternative Energy Development Board (AEDB) has taken the initiative of Village Electrification in far flung area like Tharparkar though alternative energy resources.

### Tharparkar District , Sind Pakistan

The Tharparkar District is very remote with a rough terrain and meager communication in-

### Quick facts

Zone	Tharparkar District
Timeframe	2008
Topic	Renewable energy, Solar Home Systems for Off Grid Villages
Website	<a href="http://www.aedb.org/Main.htm">www.aedb.org/Main.htm</a>
Implementing Agency	Alternate Energy Development Board



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Infrastructure. It is known for its harsh weather, where precipitation is seldom and the temperature in the summer reaches as high as 50°C. The population lives in thatched roof huts and relies on livestock and subsistence farming. The groundwater is brackish and the rain water is normally stored for drinking and is thus a very scarce and precious resource. The population is mostly poor and illiterate with literacy rate of around 10%.

About 10% of households get regular flow income through services in various private and public jobs. The rest derive their income through selling handicrafts, pottery, shoe mending, tailoring, carpet weaving and other micro-enterprise undertakings.

### Project Details

The project scope was to install 3000 Solar Home Systems in Tharparkar district villages of Chachro, Mithi, Diplo and Nagarparker. 3 levels of power were offered to the users, namely 120 Watts, 80 Watts and 40 Watts. Five people from each village were trained to do the regular maintenance and operations of the entire system.

Each Solar Home System consisted of the following:

- A PV panel mounted on a pole adjacent to the house,
- Charge controller,
- Lead acid batteries,
- Compact florescent lamps (CFL), one in each room, kitchen and court yard;
- Switches and Sockets for mobile charging/ Radio

The suppliers/ installers of the SHS provided free maintenance service and guaranteed the satisfactory operation of the system for one year.

### Implementation of the Project

It is a unique project of its kind and implementation was quite challenging because it was a totally new intervention for the area as the development was to directly change the lifestyle of the inhabitants. Initially, the local population was a bit wary as the new technology might have an adverse affect of their cultural values. Tharparkar is a highly

undeveloped area and literacy rate is very low, therefore the AEDB was facing difficulty with the social acceptability of this intervention.

Eventually, the project was completed and the benefits of the project were realized by the local population once the system became operational. The highlight of this project was that the majority of the beneficiaries were women and children.

### Outcomes/Impacts of the Project

- Providing solar energy to 3000 families would save 216 liters of kerosene and nearly 30000 candles every year.
- The installation of the system was free for the locals. They had to pay a small monthly fee (rupees 200) for system maintenance
- Daily maintenance, like cleaning of the solar panels and checking battery water levels, was done by the household personnel.

### Social Impacts

- Electric power helps improve quality of life, offers opportunities for income generation and helps reduce the exodus to major cities like Karachi and Hyderabad. In addition, having access to electricity inspires people to continue to improve their homes and their communities.
- Solar powered electricity eliminates the need for dangerous and unhealthy lighting products, such as kerosene and candles. The people live in small huts with no ventilation and the smoke from the kerosene lamps has resulted in problems like bronchitis.
- There has been a positive effect on the lives of women who do patch work on bed sheets and floor mats. Solar powered electricity thus provided them with better light in which to work.

### References

Alternate Energy Development Board: [www.aedb.org/Main.htm](http://www.aedb.org/Main.htm)

The News: [www.thenews.com.pk/TodaysPrintDetail.aspx?ID=118404&Cat=2&dt=6/15/2008](http://www.thenews.com.pk/TodaysPrintDetail.aspx?ID=118404&Cat=2&dt=6/15/2008)

