

**PV Hybrid Plants:
A New Vision for Electrifying Remote Villages
in Western China**

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Abstract

The presentation will show the approach and current experience being made in a new Sino-German project to provide villages with electricity in the provinces of Western China by the use of PV hybrid systems.

Within the framework of the Sino-German Financial Cooperation both governments agreed to give support to the Chinese Brightness Program by providing rural areas with electrification by means of photovoltaic hybrid power plants as under the joint Solar Energy Program. Remote villages within the provinces of Xinjiang and Yunnan have been chosen for the installation of PV or PV hybrid plants and a local grid that will supply the villagers with electricity. Specially appointed service companies have been installed and they have the responsibility of running the plants and assuring that the local villagers are provided with electricity services; they are also responsible for administering the charges made to the villagers for the service and the amount of electricity they consume and for collecting these service fees when they are due.

In the first phase, potential villages in the two provinces were singled out and visited to collect the necessary information for initiating the first steps. Bidding documents and technical specifications were worked out and agreed on. While the bidding for the first batch of PV hybrid plants was carried out in early 2003, the contract for the system integrator is anticipated for April 2003, with delivery to follow soon afterwards. Installation of the first 26 PV hybrid plants in Xinjiang and Yunnan is expected to start in the second half of 2003, when they will then be handed over to the provincial service companies.

The challenge of this project is twofold: The design and installation of optimised PV hybrid plants in a large number of remote villages suited to local power demand is more difficult to accomplish than for just one well selected and well known village. Even more challenging is to establish reliable operation and maintenance schemes that have affordable but sustainable tariffs for the villagers. In order to minimise O&M costs from the very beginning of the project, it is essential that due respect to the quality requirements of the hardware and services is assured, so that a reliable and sustainable power supply can be provided to the villagers who, up to now, have never been able to enjoy the amenity of electricity before.

With the implementation of the Sino-German Solar Energy Program under the Chinese Brightness Program, valuable first-hand experience from the field can be gained that will bring electricity services to remote villages in regions where grid extension is not feasible.