



Overloaded systems

A bank's experiment to provide solar home lighting system faces challenges

Aryavart Gramin Bank partnered with Tata BP to provide solar home lighting systems to rural consumers on short-term credits

In 2008, when Shrinand Lal bought a Solar Home Lighting System (SHS) it seemed a boon for his family of seven. "It lit up the evening and my children could study," says his wife Kamlesh Rani. The family, which lives in Madeenpur village in Uttar Pradesh's Barabanki district, was the beneficiary of Aryavart Gramin Bank's scheme that provides SHS on credit. For 50 families in the village not connected to the grid, Aryavart's scheme has come as a blessing.

Within four years of its inception in 2006, the bank had a client base of 370,000 farmers who use Kisan Credit Cards (KCC)—which provide short-term credit to farmers during the cropping season—and about 27,000 teachers who have accounts with it. The scheme earned the bank, then with branches in Lucknow, Barabanki, Farrukhabad, Hadoi, Kannauj and Unnao districts of Uttar Pradesh, the

distinction of being the first bank in India to receive carbon credits under the Clean Development Mechanism (CDM). It has also been recognised internationally: in 2008, the London-based Ashden Trust awarded the bank the International Global Green Energy award, one of the world's leading green energy prizes.

Drawing on its base of captive customers, Aryavart roped in Tata BP, currently known as Tata Power, which is accredited by the Union Ministry of New and Renewable Energy (MNRE) to supply SHS (see box: Financing solar home lighting systems). On its part, the company provides an extended warranty of 10 years for solar panels and five-year warranty for batteries. This reassured the rural clients who often lack a well-coordinated maintenance apparatus. According to the company, its local dealers have qualified mechanics on hand, who install the systems. "For proper

In many villages, solar home lighting systems are not operational due to lack of coordination among bank, service providers and consumers

FINANCING SOLAR HOME LIGHTING SYSTEM

Aryavart provides a loan for up to 95 per cent of the system cost and the rest is collected from the user as down payment. The loan, offered at an interest rate of 12.5 per cent per annum, can be repaid in monthly or half-yearly installments, within five to seven years, depending on the product.

The bank then negotiates a reduction in the price of the systems with Tata BP. For example, the Venus 1 model (two 9 W CFLs, a 37 Wp panel, 12 V - 40 Ah battery), originally costing ₹ 14,500, was negotiated for a price of ₹ 13,650. This includes ₹ 650 as value-added tax. Out of this, the Union Ministry of New and Renewable Energy (MNRE) gives out a subsidy of ₹ 3,996 per system.

The customer deposits a down payment of ₹ 750 to the bank and the rest is credited to Tata BP by the bank. This amount, ₹ 8,904, is repaid with a monthly installment of ₹ 200 with 12.5 per cent interest in five years. The project has proved to be a successful venture for Tata BP since they do not have to worry about credit repayment. Till March 2012, around 55,560 customers have been given SHS.

PRICE OF THE SHS MODELS

Model	Panel	Luminaire	Battery Capacity	Price
Venus 1	37 Wp	2 x 9 W CFL	Tubular 12 V 40 Ah	₹ 14,500
Venus 2	74 Wp	4 x 9 W CFL	Tubular 12 V 40 Ah	₹ 27,000

Source: Tata BP

installation and maintenance, the company partners with a local dealer who takes care of installations and maintenance," says S M Jafar, regional manager of Tata BP. Solar Power Systems (SPS) is one such dealer in Lucknow, which has trained 'business facilitators' in areas where the systems have been delivered. "We pay the facilitator a monthly salary of ₹ 3,000 and the beneficiary pays them service charges when the system is out of warranty," says Manoj Gupta, manager, SPS.

But all is not well with the scheme. "The panel was kept on the roof. It developed cracks and then shrunk," says Kamlesh Rani. The family is back to buying kerosene and does not know whom to contact. According to Jafar, the warranty was only on performance, not on breakage of systems.

Beer Singh, another resident of the village, who availed the scheme, says the SHS's battery has deep discharging problems. "Only one CFL works and that

too only for two hours," says Sarita, his wife. Singh purchased a new lamp but that too failed. Singh has not paid his dues for several months now.

Mohmad Rizwan of nearby Tikaitganj village, complains, "What is the use of the system, if I still have to purchase kerosene for lighting? All the promises that the bank made about services were hollow," he lashes out. Rizwan has not heard of any technician trained by Tata BP in the area. He has paid all the installments.

No ownership

Company officials blame the battery problems on the overloading of the system. "A 37 Wp (Watt-peak) SHS has been designed for lighting about five hours a day. People have been told to not run television and fans for long hours together. But they don't pay heed," says Jafer. He explains, "There is a charge controller that cuts off power when the battery is about to go into reserve mode.

The beneficiary does not understand this and removes the charge controller, and directly connects wires of the panel with the battery. This exerts pressure on the battery. The charge finishes completely and the battery goes into deep discharge mode. The only way to get the battery fully discharged then is to leave the system untouched for two to three days."

But many beneficiaries say they use the system only for lighting and even then the SHS battery runs out. Says Gajraj Singh, Shrinand and Kamlesh's neighbour, "To begin with, the system not only powered CFLs for at least five hours, but also a fan for two hours. But that was only for a year-and-a-half. We are now back to using kerosene." Singh has not complained to the bank because of his pending dues.

Defaulters galore

Defaulting is a major problem across Aryavart's operational area. Till mid-2012, its branch at Kursi (25 km from Lucknow) had 14 villages, including Madeenpur, in its service area where it had provided about 1,000 SHSs. Only 300 had paid their complete installments while some others had time to complete the five-year loan

period. "On an average, there were 20 per cent defaulters," complained Anwer Husain, Chief Manager (finance) of Aryavart Gramin Bank, Lucknow.

Satya Prakash, who lives in nearby Gondwa village, had paid all his installments, but was still denied good service. Prakash was unaware of the complaint book in the bank where beneficiaries could register their complaints.

Ravindra Kumar Trivedi, Aryavart's manager in Kursi, blames the beneficiaries for their problems. "There is a complete lack of ownership among beneficiaries. They think that since the bank has given them the system, it is the bank's responsibility to knock on their doors to check for all problems," Trivedi says. "Until the beneficiary reports problems, how would the bank come to their aid?"

Ramkumar Singh, another beneficiary from Madeenpur, does not agree. He had put in a complaint with Trivedi and was assured the services of a technician sent. "But the technician never arrived", says Singh. Madeenpur is just three kilometres from Kursi. According to the bank's system every branch is supposed

ENERGY POVERTY IN UTTAR PRADESH

Installed capacity (as on
December 2013)

14,275 MW

Annual per capita electricity
consumption (2011-12)

449.9 kWh

Total households

32,924,266

Unelectrified
households

20,808,136

FOR LIGHTING

Households depending on
kerosene

20,380,121

Households
depending on solar energy

164,622

FOR COOKING

Households using firewood,
crop residues, cow dung,
coal, etc

26,602,807

Unelectrified villages

30,802

Source: Census 2011, Central
Electricity Authority



Shrinand Lal's solar home lighting system has lit up evenings for his family of seven

The bank is working to expand its solar business and to also improve the after-sales service

to keep a separate complaint register for SHS to note the complaints but none of the two branches at Gondwa (in Hardoi district) and Kursi that researchers from Delhi-based Centre for Science and Environment (CSE) visited had the register.

The technicians have problems with their service conditions. A local technician, who had been trained by Tata BP, on conditions of anonymity says he had not been paid his salary for a year. "I get around three to four calls every day but I have a large area of around 50 villages to cover. I cannot spend my own money to pay for the conveyance," he says.

Success stories and future plans

But not all are unhappy. The SHS in the house of Ramdulare Singh, the pradhan (village head) of Tikaitganj is working fine. He purchased the system around 2008. "I have paid all my dues," he says. He uses two CFLs for three or four hours a day and sometimes watches TV for an hour. "I try not to overload the system," he says.

Aryavart embarked upon its next phase of development in the SHS sector using its earnings from carbon credits. In 2010-11 the bank earned US\$ 77,536 (nearly ₹ 35 lakh) as carbon credits. It has a six-year deal with Micro Energy Credit, a US-based company that applies for credit with the UN Framework Convention on Climate Change on its behalf. Micro Energy Credit takes 20 per cent of the profit.

To begin with, Aryavart Gramin Bank is organising camps in rural areas to popularise SHS. It plans to engage more channel partners and business facilitators. The bank is also using the funds to devise ways to develop the service delivery mechanism, the key grouse of most consumers. Many villagers have complaints about the SHS they purchased and the problems with insufficient after-sales services, as CSE discovered when they visited Barabanki and Hardoi districts in Uttar Pradesh.

Beneficiaries often connect the wires of the panel directly with the battery, exerting pressure on it

