

Case study 4

“Luz en Casa”-“Light at Home” project
Fundación ACCIONA Microenergía
PERU



Service: Domestic
System: Stand Alone (Home Systems)
Generation: Solar
Storage: Gel sealed lead-acid batteries (Trojan VRLA GE 27 and Exide Sonnenschein SB 12/100)

Fundación ACCIONA Microenergía (FUNDAME) was established in 2008 as a corporate organisation of the ACCIONA group to provide isolated rural communities with basic sustainable and affordable services. In 2009, the foundation created an electricity service company (ESCO) - ACCIONA Microenergía Perú (AMP) - to supply electricity with solar home systems (SHS) to isolated rural communities. FUNDAME remains the first and only Peruvian electricity provider with SHS. FUNDAME has also started its operations in Mexico.

The Challenge

Due to the low levels of population density and the remoteness of some Peruvian communities as well as low demand levels, it was operationally and financially very challenging to provide the latter with reliable and affordable electricity services via grid extension.

The Solution

FUNDAME started by mapping the isolated communities excluded from the 10-year electrification plan in Peru. The second main step was to reach an agreement with the local authorities on official SHS tariffs and other related regulation which were finally established by the regulator on the basis of an economic study in 2010. This regulation was critical as it was a prerequisite to access the cross subsidy called FOSE.

Based on the available information, a fee for service model with a regulated tariff (to be revised every 4 years and adjusted on a monthly basis) and a cross subsidy for exploitation to operate at the base of the pyramid was designed. The average cost of an installed SHS is 750\$.

The present tariff is 2,5\$/kWh of which the user pays around 0,5\$/kWh. Project sustainability will be reached with a minimum of 3.000 installed SHS.

Based on the average demand (7,5kWh/month), a system was designed for a day cycle of 200Wh and an autonomy of two days. The project promoter decided to use two above mentioned brands of gel sealed lead-acid batteries with a capacity of 100Ah due to their robustness, price and that they are maintenance-free. The average life cycle of the systems is estimated at 5 years (approximately 1000 cycles at 80% of depth of discharge).

During the first phase of implementation of the project, FUNDAME donated 1.300 SHS and the implementation costs of AMP. In 2012, the ESCO was awarded a long term credit to buy additional 1.700 SHS that are now being installed. It is expected that project sustainability will be reached by the end of 2013.

The project has reduced the end-user payoff for energetic alternative components by 33%. Additionally, the project has led to job creation in rural areas. To ensure accurate monitoring of the project outcomes, an impact study is currently being undertaken. The project has also clearly had a positive impact on governance, as it requires close collaboration between public sector, communities and the project-promoter.

FUNDAME is exploring possible collaborations with microfinance institutions and telecom operators (pre-paid system) to improve its model. Technology innovations are also being investigated.

Source: FUNDAME