Product Catalogue - 2014

Prepared by MicroEnergy International GmbH with the collaboration of Davide Forcella (CERMi-ULB)
A Solar Home System (SHS) is a small-scale, autonomous electricity supply for households that are off-grid or have unreliable access to energy. It generates electricity from sunshine and stores the electricity in a battery for consumption during the night or cloudy days. SHSs generate direct current (DC) that can be used for a range of electrical appliances, from lighting and mobile phone charging to small televisions, radios, or other appliances. By replacing fossil energy sources such as kerosene, candles, and dry batteries, SHSs have the potential to reduce indoor air pollution and substitute energy expenditures.

### Description and Working Principle

SHSs are suitable for microfinancing and financial as well as operational microleasing. For community-scale projects microleasing can be more suitable. Depending on the down payment and size of the SHS, the loan or lease period can vary from two to three years. Higher down payment allows shorter repayment period and more attractive conditions for end-users. During this time MFIs also can offer after-sales service, including installation, maintenance and training.

### Technical Characteristics

<table>
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<th>Target group</th>
<th>Price range (USD)</th>
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<td>Households</td>
<td>Between USD $100 – $800</td>
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<tr>
<td>Community-scale projects</td>
<td>More than USD $800</td>
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### Ease of Distribution, Installation and Maintenance

The initial sizing of the technology packages on offer should be carefully considered and calculated by engineers. Hands-on training provided by local technical or government institutions can enable low skilled people to properly install the SHS. Solar panels must be installed on poles or rooftops with a particular angle towards the sun and away from shade caused by trees or other objects. Batteries should be connected close by in a secure, cool, dry and ventilated location, and electrical cabling must be safely installed. Properly designed and installed SHSs operate without supervision and require only minor routine maintenance by end-users. End-user training on use and load management is essential and should be repeated multiple times during a loan period. SHSs present some distribution challenges, as they require multiple components in separate packages and tools for installation. Batteries are heavy (10 kg or more depending on size), and cushioned packaging must be used to prevent damage to solar cells in transit.

### Price Range

Each SHS requires a solar panel, battery, charge controller, cabling, switches, and appliances. A complete setup of 20 W panel capacity starts at around USD $150.

### Type of Financing

SHSs can reduce the health impacts of indoor air pollution and fire hazards caused by kerosene and candles, whilst reducing expenditures needed for these fuels and improving the quality of lighting. Time spent purchasing fuels can also be reduced, and increased lighting availability may enhance the productivity of shops and studying opportunities for school children.

### Economic and Social Impact for End-users

Benefits for the MFI

MFIs have the chance to expand their product portfolio with this technology and once implemented, the technology quickly gains interest from new potential clients such as neighbors, friends and family who see the benefits of clean, efficient and high quality products. SHSs offer an attractive opportunity to MFIs clients wishing to gain access to basic electricity services. Substituted costs for conventional fuels and low operational costs help to ensure an ability to repay, however a focus on supporting productive use activities provides even more assurance. Due to their green characteristics, the inclusion of SHSs into an MFI’s portfolio will promote the MFI to rank better in the Microfinance Environmental Performance Indicator.

### Environmental Benefits

- **Environment**: it reduces particulate emissions and pressure on natural resources used to produce electricity. It reuses wasteland and it reduces waste coming from dry batteries and leakages from kerosene of diesel.
- **Climate change mitigation**: it reduces greenhouse gas emission.
- **Climate change adaptation**: it reduces the vulnerability to electricity and fuel price volatility, and it reduces the vulnerability to volatility in energy provision.
- **Potential positive synergies** with efficient air conditioners, energy efficient refrigerators.

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1 Based on Bangladesh kerosene price of 0.88 US$/liter in September 2014
2 For further information on potential synergies check the other product catalogues for EE and RE technologies.
European Microfinance Platform

The European Microfinance Platform [e-MFP] was founded formally in 2006. e-MFP is a growing network of over 120 organisations and individuals active in the area of microfinance. Its principal objective is to promote co-operation amongst European microfinance bodies working in developing countries, by facilitating communication and the exchange of information. It is a multi-stakeholder organisation representative of the European microfinance community. e-MFP members include banks, financial institutions, government agencies, NGOs, consultancy firms, researchers and universities.

e-MFP's vision is to become the microfinance focal point in Europe linking with the South through its members.

e-MFP Microfinance and Environment Action Group

e-MFP Action Groups facilitate synergies among e-MFP members and encourage them to implement activities together, thus contributing to the advancement of the microfinance sector.

The aim of the e-MFP Microfinance and Environment Action Group is to bring together microfinance practitioners to discuss and exchange experiences in dealing with environmental issues and to create new practical tools to advance environmental microfinance. The Action Group is also intended to act as a think tank that disseminates its results among e-MFP members and the microfinance sector at large with a view to increasing the awareness of and commitment to act on these issues. It is meant both as an internal knowledge-sharing and external awareness-raising platform that serves as a reference in the microfinance sector.


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