



Create a network. Share electricity.  
Brighten the future

## Company Background

ME SOLshare Ltd. (SOLshare) is a Bangladeshi company based in Dhaka. The company was founded in 2014 as an affiliate of the German consulting company MicroEnergy International GmbH. SOLshare targets Bangladeshi households and small businesses in densely populated off-grid villages. These communities need a flexible, stable, and sufficient electricity supply for lighting, phone charging, entertainment and business generating activities at an affordable price point. The main activities of SOLshare are the design, management of manufacturing and sale of an innovative charge controller for Solar Homes Systems (SHS) which manages interconnection between multiple users to a decentralized, low voltage DC nanogrid and facilitates electricity trade. To enable electricity trade between SHS users, SOLshare also offers back-end data management as part of the company's core activities.

SOLshare is the result of years of research of students and practitioners from MicroEnergy International GmbH, Technische Universität Berlin, the United International University Dhaka, and the University of California Berkeley, in the field of off grid rural electrification. The underlying concept for SOLshare's core business was developed by MicroEnergy International and is called Swarm-Electrification. Swarm-Electrification is a dynamic step by step electrification approach for off-grid rural areas, with decentralized generation and storage capacities, enabling the grid to grow dynamic.

## Mission

ME SOLshare was set-up with the innovative vision that energy sharing between individual standalone PV systems can mitigate the present limitations of decentralized rural electrification, and contribute to a significant alleviation of energy poverty in Bangladesh. Most SHS owners have excess electricity, due to the fact that a SHS is usually designed for the month with the lowest average peak sun hours per day; simultaneously others do not have any access to electricity.

### **SOLshare is the Uber of the off-grid world!**

ME SOLshare will design and sell innovative solar charge controllers for SHS with the goal of improving the technical performance of each system, enabling SHS owners to turn their (excess) generation capacity into additional income, and providing non-SHS owners with access to more affordable electricity through a SOLshare nanogrid network.

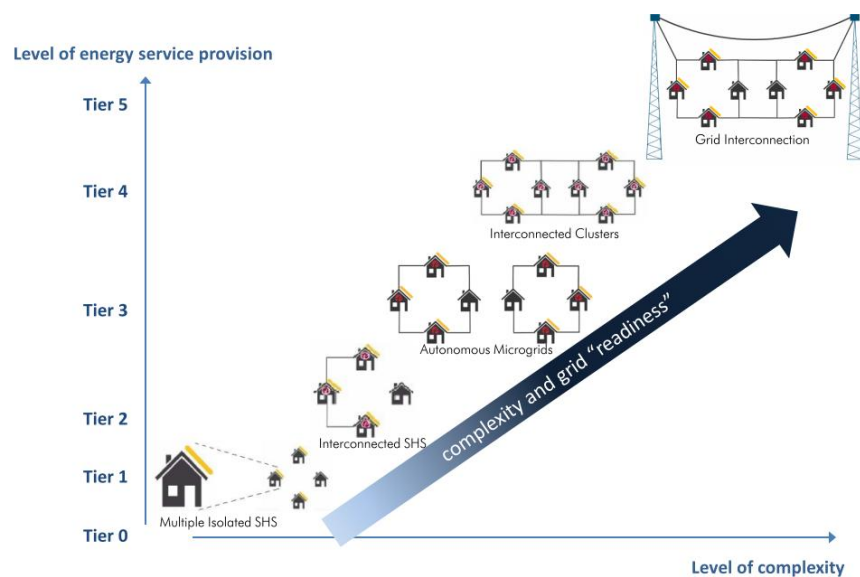
## Project Description

The SOLshare solution is developed in order to provide off-grid Bangladeshi population with accessible and affordable energy. SOLshare focuses on both, the 12 million households that have neither access to the national grid nor their own SHS and use expensive kerosene or car batteries as their primary source of energy, as well as on close to 3.5 million households that have their own SHS. For both target groups the situation can be significantly improved by SOLshare.

### **Existing infrastructure is effectively used instead of made obsolete.**

Households that have their own SHS face the problem of underutilized generation capacity, due to battery capacity limits and time varying consumption requirements, while other households do not have any access to electricity at all. Therefore, the market opportunity lies

in connecting these households to a nanogrid. This will create a more cost effective, efficient, reliable and flexible energy supply. In contrast to the mini-grid approach, the SOLshare grid will be decentralized in terms of energy storage as well as energy generation, enabling the grid to grow dynamic in a step by step approach. Furthermore, performance risks are lowered due to risk diversification. The step by step approach makes SOLshare unique as it prepares the Base of the Pyramid (BoP) to get connected to the main grid as shown in Figure 1 based on a multi-tier approach to measure energy access. As initial investment requirements are divided in this step by step approach, SOLshare has the advantage of being compatible with typical consumer finance schemes like microfinance, making it fundable for the BoP, enabling them to take things into their own hands. Once the BoP is able to exchange electricity, these people will also be able to buy electricity from and sell electricity to each other, making them consumers and producers of electricity at once (so called prosumers), creating new and gender neutral business opportunities, as the physical barriers are eliminated.



**Figure 1: Evolutionary Energy Access**

As the performance of existing solar home systems improve with Swarm Electrification, SOLshare will also enable end-users to use new kinds of technologies and devices that require more power than a typical SHS can provide. This includes services related to education, for example the ability to provide sufficient light for a classroom. Entertainment devices such as TV's, DVD players and computers are possible with Swarm Electrification, which will increase the quality of life as well as social interaction and give access to more information, which is again useful for raising the level of education. Additionally, higher capacities and reliability of energy supply will facilitate the utilization of more devices for productive use and therefore increase productivity and income.

In addition to the socio-economic impacts, this innovative approach will also have a substantial environmental impact, mainly due to the reduction of CO2 emissions on a long-term basis.

### Societal Benefits

SOLshare is based on the principle of sharing. It will show people in a very practical way, that cooperation is meaningful and can be beneficial for everyone, which will encourage social inclusion. Other social benefits will result from the ability to use advanced devices which require higher capacities than the capacities a usual SHS can provide. New kinds of social events will be possible as soon as entertainment devices like television and devices for

listening to music are available. Public buildings can be included in the grid, which will improve the quality of public services like street lighting, schools and health services. Improved health services and reduced indoor air pollution due to the replacement of kerosene lamps for lighting by electric lamps will have a significant impact on overall health of the people. Higher electrification rates will also result in an increased availability of information technologies which will, together with improved public education services, enhance the level of education. Retail shops can work longer and will attract more customers just through the longer availability of light. Security level can be increased because of street lighting. Furthermore, small businesses can produce better and more products when they are able to utilize new kind of machines.

### Share electricity and create opportunities.

Another new business opportunity will arise out of the possibility to produce and sell electricity on a household level. This business opportunity will also help to eliminate gender inequalities, as there are no physical barriers that hinder women in poor rural areas to take part in many other business opportunities. SOLshare is not just an electricity provider – it is a provider for entertainment, social security, access to education, and an increased life comfort.

### ME SOLshare Team



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