

**Did you know that a range of different off-grid lighting products meet the individual energy needs of households and communities at affordable prices?**



**Solar powered off-grid lighting products have developed significantly in the past few years. Products are offered in a variety of size and service, and are designed to meet specific customer needs. New products have evolved and already established products are being continuously updated. Most products combine efficient lighting with external power outlets for mobile phone charging. Bigger devices can even power radios, small TVs and fans. These innovative products also help spread investment costs and make solar off-grid electricity more affordable to low-income households.**

Over the last years, off-grid lighting products have evolved rapidly and the technology has been refined. LED lighting

**Off-grid lighting products are energy efficient, sustainable, and affordable**

and new battery technology helped the market to develop high quality products that are energy efficient, sustainable, and affordable. At the base of the product range, solar lanterns provide lighting to meet different customer needs: illumination for rooms or stores, domestic work, socializing, or task lighting for studying and handicrafts. They help customers safely find their way at night, or sell products on the market during evening hours. Increasingly, solar lanterns come with a mobile phone charging option and larger products (including solar home systems) can power multiple lights as well as radios or small TVs.

Around 1.3 billion people around the world are without electricity and could benefit from this technology. With off-grid lighting products, households no longer have to spend their incomes on expensive and ineffective ways of lighting like kerosene, candles or torches on dry cell batteries.



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As customers invest their savings in off-grid lighting technology, quality is essential. Low quality products which fail to meet expectations severely undermine customer trust in the technology at large. To ensure that products are of high quality and meet customer expectations, Lighting Global, a joint World Bank and International Finance Corporation (IFC) program, offers a comprehensive quality assurance framework for solar lanterns, providing guidelines and standards<sup>i</sup>.

## **Meeting the Energy Needs of Households...**

Basic solar lanterns operate at 5V and are equipped with either an integrated or an external solar panel with a power output of 3 to 15 Wp. Solar lanterns with phone charging capability come with a USB cable and various adapters for the most common mobile phones.

**Products offer a wide range of services: Lighting, phone charging and even the operation of radios and small TVs**

With most products, the customer can also choose between different brightness levels: the lower the brightness setting, the longer the runtime. Depending on the setting and battery capacity, solar lanterns can provide more than 30 hours of light (with a day's worth of charge)<sup>ii</sup>. Solar lanterns are considered an entry level product on the "energy ladder": with prices ranging between USD 10 and USD 40, the payback period is usually only a couple of weeks<sup>iii</sup>.

Savings made from the purchase of a solar lantern are often reinvested by households to move up the energy ladder. Besides multiple light points and an external USB socket for phone charging, solar kits and small Solar Home Systems (SHS) can also

connect low power appliances such as radios, small TVs, and fans. They generally operate around 12 V and consist of one or more external solar panels with a power output of 20 to 100 Wp. Prices for solar kits range from USD 50 to USD 200<sup>iv</sup>. Larger SHS, of which some can even power refrigerators, start at USD 200<sup>v</sup>.



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## ...at Affordable Prices

Solar lighting products are already affordable for hundreds of millions of households worldwide living off the grid<sup>vi</sup>. In order to support more low income households to overcome the initial investment costs, the industry is developing innovative “pay as you go” solutions. These solutions allow users to pay for the energy service on an ongoing basis instead of having to cover the entire upfront cost at once. They thereby reduce the risk for customers that they invest in a product that does not deliver on its promises. Smart technology ensures that products only work when payments have been made, thus reducing the suppliers’ risk for non-payment.

**112 million households can afford off-grid lighting products**

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## Serving Communities

While portable solar lanterns and SHS are designed for the household level, entire neighborhoods can benefit from solar street lighting or community lighting. These stand-alone systems illuminate whole markets, schools, health centers and soccer fields through solar lighting. In urban areas, solar street lighting is being used in order to reduce dependency on the often unstable and unreliable grid.

Solar powered outdoor and community lighting enhances security and social cohesion, stimulates economic activities, and can be of great help in emergency situations. Simple to set up lighting kits are often used in refugee camps where access to grid electricity is mostly non-existent.

## Overcoming Barriers

Market barriers such as the industry’s lack of access to financing, challenging distribution, and low consumer awareness still prevent low-income households from accessing these off-grid lighting technologies. The Global Off-Grid Lighting Association (GOGLA) has been established to support the industry in addressing these barriers, and to promote clean, quality and affordable off-grid lighting technologies.

Help us to make leading edge technology available to as many households as possible and spread the word about this life changing opportunity. For more information, please get in touch with us.

i See [www.lightingglobal.org](http://www.lightingglobal.org)  
 ii John Keane, Pico-Solar Electric Systems, 2014  
 iii A.T. Kearney Investment and Finance Study for Off-Grid Lighting 2014  
 iv A.T. Kearney Investment and Finance Study for Off-Grid Lighting 2014  
 v A.T. Kearney Investment and Finance Study for Off-Grid Lighting 2014  
 vi According to IFC, 112 million households worldwide living off the grid could afford solar portable lanterns, 86 million solar kits and small SHS, and 56 million even larger SHS study. Source: IFC, From Gap to Opportunity: Business Models for Scaling Up Energy Access 2012