ENERGY ACCESS

LIGHTING GLOBAL

Catalyzing Markets for Modern Off-Grid Energy

WORLD BANK GROUP

ESMAP

The Opportunity

There are 1.1billion people worldwide currently living without access to the power grid and modern energy services, with roughly half living in Sub-Saharan Africa alone. Traditional solutions, such as kerosene, candles, or other fossil fuel-powered technologies are expensive, hazardous, and polluting. The problem is most acute for the poorest, especially those living in rural areas, furthest away from the electricity grid.

Solar power—the most abundant renewable energy resource, with over 100 developing countries having high potential—has proven to be a viable solution to improving access to electricity in the developing world.

The Global Off-Grid Lighting Association estimates that over 93 million people today live in households served by at least one "branded" off-grid lighting product, such as a solar lantern or a solar home system. The pace of progress is remarkable. Ten years ago, the global sales of off-grid solar products were counted in thousands. In FY2016 alone, 8.4 million branded products were sold globally, with an increasing share of larger/higher value products. As solar PV prices continue to plummet, the industry grows more diverse each year in terms of number and type of products, companies, and business models. The products come in different sizes, designs, and functionalities; and are increasingly bundled with DC-powered energy efficient appliances, including cellphone chargers, USB drives, radios, TVs, fans, and, most recently, refrigerators. The sector has attracted more than US$511 million of investment to date (mainly in the last two years).

The Challenge

Notwithstanding this positive trend, households powered by off-grid solar energy still represent less than 10% of the total of unelectrified households. Significant acceleration of off-grid electrification is still needed in order to reach universal access to electricity by the Sustainable Development Goal 7 target year of 2030. The key challenges to be tackled in the coming years include:

- **Geographic and market concentration.** The market is concentrated in India, Bangladesh, and East Africa; the spread to other countries remains limited.
- **Access to finance.** Despite the fact that the off-grid industry has been attracting unprecedented financial flows, commercial lenders and mainstream equity investors still find the off-grid energy sector too risky.
- **Enabling environment.** The conditions for success, as found in East Africa, (i.e., business-friendly regulations, custom duty and VAT exemptions, and mobile phones and mobile money applications, such as pay-as-you-go) are not always present in other countries.
- **Market spoilage**. Quality-verified products are facing fierce competition from inferior quality, lower priced products.
- **Moving up the energy ladder.** The majority of solar off-grid energy products sold globally are relatively small; larger systems are now gaining traction, but there are still technology and affordability constraints.
- **Market-friendly solutions.** Governments are now looking for ways to leverage the market dynamic to reach "last-mile" customers without generating excessive market distortions or harming the core market.

The Energy Sector Management Assistance Program (ESMAP) is a global knowledge and technical assistance program administered by The World Bank. It provides analytical and advisory services to low- and middle-income countries to increase their know-how and institutional capacity to achieve environmentally sustainable energy solutions for poverty reduction and economic growth. ESMAP is funded by Australia, Austria, Denmark, the European Commission, Finland, France, Germany, Iceland, Japan, Lithuania, the Netherlands, Norway, Sweden, Switzerland, and the United Kingdom, as well as The World Bank.

ESMAP's Response

Beginning with its first pilot projects in Ghana and Kenya in 2009, the World Bank Group through the Energy Sector Management Assistance Program (ESMAP)-supported Lighting Africa initiative has enabled 15.8 million people across Africa to meet their basic electricity needs. Now, ESMAP endeavors to strengthen and expand Lighting Africa to meet the global challenge. In conjunction with IFC and others, **Lighting Global** will to meet the basic electricity needs through quality-verified off-grid solar products across the African continent.

As a part of the World Bank Group's contribution to Sustainable Energy for All (SEforAll), Lighting Global will focus on:

- Supporting market-driven approaches with a scale-up potential across and beyond Africa
- Developing market-compatible solutions for reaching poorer consumers, who often live in remote, sparsely populated areas, as well as solutions for more complex business environments (e.g., fragile states)
- Promoting technology and business model solutions for larger loads (e.g., productive and community uses)
- Supporting governments to effectively integrate off-grid electrification in the national electrification strategies and programs
- Building capacity of the key sector stakeholders to prepare for the eventual exit of the program

World Bank Group's Program to Deliver Modern Energy Services via Off-Grid Solar Solutions

Launched in 2008 as a joint initiative of the World Bank and the International Finance Corporation (IFC), the Lighting Africa program was designed to catalyze markets for off-grid energy access. The program is currently active in 13 countries, increasingly supporting integration of Lighting Africa activities to the World Bank and IFC operations. In **Kenya**, the Lighting Africa original pilot country, commercial sales of solar products have seen remarkable growth since the program began in 2009. 2.75 million quality-verified products were sold since 2012, accounting for a quarter of all quality-verified sales in Africa.

Lighting Africa's programmatic approach centers on six pillars that address supply- and demand-side market barriers. Supply-side support covers (i) quality assurance, (ii) market intelligence, (iii) policy and government partnerships, and, especially, (iv) access to finance. On the demand side, (v) business development and (vi) consumer awareness are addressed.

Lighting Africa Program Impact

(as of July 2016)

- 12 million quality-verified solar lighting products sold throughout Africa since 2009
- Over 15 million people are currently meeting their basic electricity needs (Tier1+) through off-grid solar products meeting Lighting Global Quality Standards
- 1.2 million metric tons of greenhouse gases avoided in Africa