

# Policy Report Note

## Kenya

This note summarizes a report prepared by Lighting Africa to identify key policy barriers to the adoption of modern lighting products and services in Kenya, and offers recommendations for their mitigation. (Lighting Africa Policy Report: Kenya, March 2011, prepared by Marge and Econoler with subsequent updates by the Lighting Africa Team.) The report involved consultations with a range of stakeholders—across the supply chain—to obtain an independent, objective assessment of the prevailing policy environment for low cost lighting and electrification services in the country. Kenya is one of eight countries studied.

### Energy Sector Overview

As of 2010, Kenya had an overall national electrification rate of 23 percent, with rural energy access to the grid about 5 percent and urban access at 50 percent.

The national grid is managed by the Kenya Power and Lighting Company Ltd. (KPLC), which has an effective capacity of about 1,300 MW. Kenya's electricity is produced predominantly by hydro, geothermal, and thermal power. In the past 10 years, thermal additions have grown much faster than hydro as Kenya no longer has significant large-scale hydro potential that can be economically exploited. The Kenya electricity sector is the most advanced in the region, with the largest demand, the largest grid capacity, and the most rapidly growing grid.

Although Kenya relies less on biomass than neighboring countries, it is still largely dependent on traditional fuel sources. Wood fuel and other biomass account for 68 percent of total primary consumption, followed by petroleum at 22 percent, electricity at nine percent, and others at one percent.

Demand for petroleum products in Kenya has been steadily rising in virtually all categories. In 2007, Illuminating Kerosene (IK) represented nine percent of petroleum imports in Kenya.

The Kenyan Government is working to rapidly increase electrification rates in both urban and rural areas. As part of its national Vision 2030—to create a globally competitive and prosperous nation with a high quality of life by 2030—Kenya aims to grow rural electricity access to 20 percent by 2012 and 40 percent by 2024.

#### Kenya at a Glance

- Population: 41 million people
- GDP Per Capita: \$1,600
- GDP Growth Rate: 5 percent
- Major economic power of East Africa
- Key Sectors: Agriculture, Tourism, Manufacturing
- Despite political problem in 2008, maintained economic stability
- Large country; much is arid/semi-arid and sparsely populated
- Liberalized economy
- Strong private sector policies
- Large income gap between wealthy and low income groups



Key government agencies active in the energy sector are summarized in Table I.

**Table I. Key Government Agencies in Kenya's Energy Sector**



- **Ministry of Energy (MOE).** Responsible for electricity, petroleum, coal fuels, and renewable energy policy, as well as overall sector development. [www.energy.go.ke](http://www.energy.go.ke)
- **Kenya Power and Lighting Company (KPLC).** National Power Company that transmits, distributes, and retails electricity throughout Kenya. [www.kplc.co.ke](http://www.kplc.co.ke)
- **Rural Electrification Authority (REA).** Established under the Energy Act of 2006 to accelerate the pace of rural electrification. By 2010, was still in its formative stage, focusing on grid-based electricity programs. [www.rea.co.ke](http://www.rea.co.ke)
- **Energy Regulatory Commission (ERC).** Established as an Energy Sector Regulator under the Energy Act of 2006. ERC is the single sector regulatory agency responsible for economic and technical regulation of electric power, renewable energy, and downstream petroleum sub-sectors, including tariff setting and review, licensing enforcement, dispute settlement, and approval of power purchase and network service contracts. [www.erc.go.ke](http://www.erc.go.ke)
- **Kenya Bureau of Standards (KEBS).** Responsible for overseeing all matters related to regulation and quality.

Kenya's electrification initiatives can be broadly divided into three groups:

- **Grid Based Extension**-the Government's primary strategy for increasing rural electrification. Grid based extension is being undertaken largely because the bulk of the population (63 percent) lives in an area served by distribution lines and 93 percent live in a grid reachable area. Rural electrification schemes are managed by the REA, working in close cooperation with KPLC. The Government is pursuing aggressive plans to expand electrification in both urban and rural areas and is making significant progress on grid connections, which have doubled in the last six years, from 686,000 to 1.2 million.
- **Isolated Grids**-power towns and villages in areas that do not have access to the main grid using thermal generator sets. REA manages these activities.
- **Stand Alone** efforts-involve solar and wind power systems for remote institutions (e.g., schools, health centers, etc). This is managed by the MOE.

Despite Kenya's recent national electrification advances, approximately 75 percent of the country will remain unelectrified by 2015, given the high capital costs and power supply requirements.<sup>1</sup> Over 6 million households are expected to be without modern lighting by 2020. Modern lighting has an important role to play in immediately improving the lives of groups in communities that will not be served—in the foreseeable future— by broader electrification activities.

## Lighting Africa

Since 2008, Lighting Africa has piloted efforts in Kenya that are improving access to approved modern lighting technologies. The program is working through the private sector to develop better supply chains, reduce upfront payment hurdles, incentivize quality, and improve the business climate for modern lighting. Lighting Africa's 2010 International Off-Grid Lighting Conference and Trade Fair held in Nairobi showcased Kenya as a leader in the modern lighting movement in Africa.

### Lighting Options in Kenya

Lighting systems in Kenya can be divided into four broad categories, all of which occupy significant niches. Further, the type of light used can be considered a "primary lighting device" or "secondary lighting device", as noted below.

<sup>1</sup> National Electrification Coverage Planning, Investment Costing Model, Kenya Draft Final Report, Columbia University Earth Institutes, November 2007.



- Kerosene.** Kerosene is the dominant lighting fuel for rural and off-grid peri-urban consumers. Though its use is primarily for lighting, there is also significant application of kerosene for cooking. Since 2005, there was a steady decline in kerosene use, with the exception of a spike in 2009 (which is probably related to power shortages). Use ranges between 7.4 and 11.4 liters per capita per year, or on the order of 50 liters per family per year. Kerosene is widely available throughout the country. Common forms of lighting include locally manufactured wick lamps (prevalent in low income households), hurricane lamps, and pressure lamps. The rates of kerosene use vary depending on the type of lighting device.
- Traditional lighting fuels and candles.** In extremely isolated locations and among the very poor, many households still use biomass for lighting. Traditional fuels include wood, agricultural wastes or twigs, and grass. Paper wastes may be used by urban poor. During periods when there is no cash for kerosene purchases, many rural and urban low income groups utilize biomass as a lighting fuel. Although there is little focus on traditional fuel as a lighting source, its importance should not be underrated.<sup>2</sup> Candles are widely available in Kenya, however, they are primarily used as a back-up solution during power outages or for very short periods by households that utilize kerosene as the primary lighting source. Few Kenyans identify candles as their primary lighting source.
- PV/battery based systems.** The most common power supply for off-grid electricity in Kenya is 12 volt batteries. The market is largely over-the-counter. The majority of people tend to use their batteries to generate electricity for television, music, phone charging, and light (prioritized in that order). There are probably more than one million Battery Based Systems (BBS) in use in Kenya. Most consumers recharge BBS in urban charging stations (at US\$ 0.50 – 1.00 per charge). As many as a third of these systems have solar photovoltaic (PV) modules attached to the battery. Well over half of the PV systems installed do not use charge regulators or other control devices, which negatively affect battery output and lifetime.
- Modern lighting technologies.** Light Emitting Diode (LED) torches have already replaced a considerable portion of the torch/flashlight market in Kenya.<sup>3</sup> Dry cell powered lamps, manufactured mostly in Asia, are widely available. Moreover, many brands promoted by the Lighting Africa program are starting to appear in the marketplace, however to date, their share overall remains small.

Table 2 depicts lighting fuel sources in Kenya.<sup>4</sup> It is made up of responses from a preliminary pilot questionnaire conducted on a variety of sample groups. Results show: (i) kerosene is the main lighting source, (ii) biomass plays an important role among the very poor, (iii) electricity is the third most common source, and (iv) solar electricity is small but significant.

**Table 2. Lighting Fuel Sources in Kenya**

Major Source of Lighting	Frequency	Percent	Source
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<sup>2</sup> Low per capita use of kerosene provides ample evidence that people have to rely on other lighting fuels.

<sup>3</sup> Lumina Kericho study and anecdotal observations from Maina Mumbi.

<sup>4</sup> Kenya completed its most recent census study in 2009. This report mentioned grid connections and solar PV systems. A more thorough study of household expenditures and living styles was made as part of the “Kenya Integrated Household Budget Survey, 2005/06”. Although the report does not directly address lighting itself, data from the study has been used by some analysts to identify lighting systems and types in the country.



Collected firewood	27	13	Paraffin
Purchased firewood	8	4	Paraffin
Grass	2	1	Paraffin
Kerosene/Paraffin	144	70	Kirkwood/Torch
Electricity	16	8	Paraffin
Dry cells torch	1	1	none
Solar	5	3	Paraffin

Source: Pilot Study 2004/05 Kenya Integrated Household Budget Survey

Prospects for rapid developments in the modern lighting sector of Kenya are encouraging for several reasons: (i) the commercial infrastructure to supply lighting products is already in place, (ii) there is a high interest in switching to solar by rural consumers, and (iii) there are a relatively large proportion of people with solar lighting product experience throughout the country.

The Kenya Country Report found that a private sector-led shift to modern lighting is already underway. Back-up lighting products are common in urban areas and LED torches and other modern lighting products (e.g., solar lanterns) are widely supplied by the informal market in rural areas. The solar and battery based system market reaches the more affluent rural and peri-urban consumers, serving over 10 percent of the rural population. The off-grid lighting product business is worth millions of dollars per year and provides thousands of jobs.

Kenya's current six million unelectrified households represent a significant market opportunity for the modern lighting industry. Foreseen benefits of shifting to modern lighting include large savings from kerosene use by both households and the Public Sector. By encouraging a shift to modern lighting, the Kenyan Government could also amass significant revenues through re-imposed full value added tax (VAT) and duties from kerosene. Finally, modern lighting will provide new business opportunities for the private sector and small enterprises, reduce national carbon emissions, and improve household health.

The key channels for delivery of modern lighting products include:

**Government.** By and large, Government rural electrification activities tend to entail large scale procurement projects (grid and solar PV based) that do not typically address low-cost lighting. However, on-going discussions are taking place between Lighting Africa, the World Bank, the REA, and MOE regarding potential options to bundle modern off-grid lighting solutions into existing Government projects, especially projects involving those populations for whom grid-connectivity is still a long way off.

**Non Government Organizations (NGOs).** A variety of mission and NGO managed modern lighting projects have been attempted in Kenya. Some examples include a project by Solar Aid to expand outreach of solar lighting products by helping rural populations to increase their marketing skills, and a project by Green Power which is using micro hydro power to provide lighting and other electricity services in Central Kenya.



**Private Sector.** The private sector market for portable lighting products is worth millions of dollars per annum and includes several well-established product types that vary widely in quality and pricing. The boundaries between these types of products are becoming increasingly less distinct, however, as the market matures and innovation meets need:

- *Back-up Lighting Products* are widely available, found at grocery stores, kiosks, electrical goods retailers, petrol stations, and supermarkets. These products are primarily consumed by grid-connected middle class households, followed by off-grid peri-urban markets. They are mostly grid-charged and typically used by households and businesses to weather power outages.
- *Solar Lanterns and Pico-Solar Kits* have been in development for over 20 years. A decade ago, product manufacturers realized that the Solar Home System (SHS) model could not meet the needs of low income populations and sought to develop less expensive product lines. Yet, despite many donor-funded efforts, solar lanterns and other more affordable products remained niche products, primarily reserved for NGOs and safari camps. The recent development of new LED light and battery technology, however, has rapidly increased the number and range of types of portable off-grid lighting products available in the marketplace. These products are Lighting Africa’s primary focus.
- *LED Torches.* LED lighting and low-cost battery innovations, combined with increasing distributor and manufacturer interest in rural areas, has stimulated the market for LED-powered fast moving goods. Whereas less than five years ago, the market for torches was based solely on 100-year-old dry cell/incandescent torch technology, today over 40 percent of the torch market is LED-based. Moreover, LED lights are commonly found in products targeted for mass consumption such as cell phones, butane lighters, key chains, and pens. Even major players like “Eveready” have introduced LED lighting products, although the majority of these products continue to utilize disposable dry cells and poor quality LED lamps.

Kenya is ahead of the rest of Africa with regard to the development of distribution chains for modern lighting products. Lessons learned from Kenya’s experience offer useful insights for replication in other countries in Africa. In particular, there are three general distribution models that have proven to be successful in getting modern lighting products to Kenyan consumers, as indicated in Table 3. International manufacturers are finding that they do not necessarily have to develop their own distribution chains— there are in-country partners that can and are already doing this effectively with other fast moving goods.

**Table 3. Prevailing Modern Lighting Product Distribution Models**

Model	Description	Examples
Supplier to Sole Agent	Supplier provides single agent exclusive rights to develop product market.	Schneider/Power Technics Philips/Nabisco
Local Subsidiary Model	Local subsidiary is wholly or partially owned by international agent; share same trademark.	SunTransfer/Suntransfer Kenya Barefoot Solar/Smart Solar
International Supplier with Multiple Outlets	International supplier provides products to a number of agents.	Sun King/Radbone Clarke, Solar Taa, etc.



## Where is the Off-Grid Market Going?

The Kenya Country Report employed a simple model generated from current plans to increase the number of rural connections by 2020, to project electricity access rates at that time. Based on the model, urban access is projected to be over 80 percent by 2020, but rural access is still likely to be below 40 percent. Even if grid-based rural electrification efforts are scaled up, there will still be a large portion of rural families and some urban families, without access to electricity. This population is the target market that Lighting Africa seeks to serve in Kenya. The model is useful in defining a baseline need for off-grid lighting products to fill gaps in the market where electrification is yet a long way off.

However, the market is segmented, thus requiring different market development approaches. Figure 1 below demonstrates that there are in fact six primary markets that each require their own market development strategies and policy formulations<sup>5</sup>.

They are broken down as follows:

- **Urban Grid Connected Market.** This is a fully commercial market interested in modern lighting products that primarily serve as back-up lighting when the grid fails. This market is important where grids are weak, undersized, or prone to brown-outs. Market approaches would need to account for the fact that products would need to be grid charged rather or in addition to PV, and that the demand for quality (and willingness to pay for it) is likely to be lower in this segment than those without grid access.
- **Rural Grid Connected Market.** This market is similar to the Urban Grid Connected Market with the exception that rural areas tend to be located farther from commercial distribution networks, and therefore grid services are likely to be of lesser quality. This is a key market driver for rural grid connected consumers to purchase modern off-grid lighting devices. Also, in general, they may have less access to modern off-grid light products.
- **Urban Off-grid Commercial Market.** This market will aspire to grid power but perhaps be unable to pay grid connection charges. As users of kerosene and battery-based systems, they have the cash to buy units. They will be more likely to power their lighting devices from grid recharging than PV since living in an urban center affords them to access grid-charging, even if their household isn't connected.
- **Rural Off-grid Commercial Market.** Kenya has a much larger rural commercial market than many other African countries because of its well-developed rural middle class. A major difference between the urban and rural commercial market is that the rural lighting device will need to be PV charged. Kenya's comparatively high rural incomes make the rural commercial market for modern lighting an attractive business prospect.
- **Urban and Rural Poverty Markets.** Extreme poverty markets (urban and rural) use kerosene less frequently and would not likely be able to purchase modern lighting devices even with competitive pricing. These groups would probably require financial assistance and customized policy solutions to improve their access. Some rural groups have the additional disadvantage of being geographically isolated and poor, which would need to be remedied somehow in order for these groups to be able to access and afford modern lighting products.

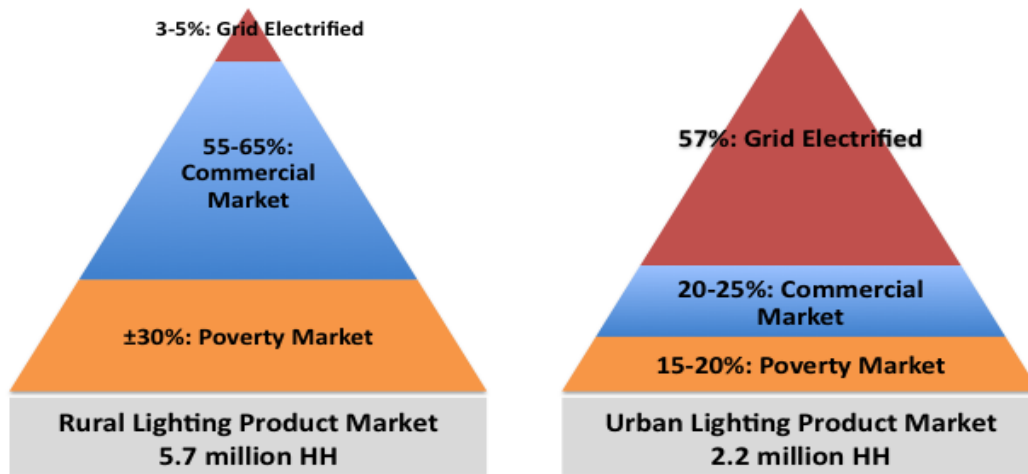
The first four market segments can be quickly developed on a commercial basis with very minimum policy and financial support. These groups can utilize modern lighting technologies to meet their lighting needs and fill gaps created by an absent or substandard quality of electricity service. There is a strong rationale for the promotion of modern off-grid lighting products based on country electrification projects that show about 60 percent of the population will not be grid connected by 2020.

**Figure 1. Kenya Lighting Product Segmentation, 2010**

<sup>5</sup> The market segments are modeled and approximate, especially when segmenting "poverty" and commercial markets. Exact market figures require a much higher level of detail than this report provides.







### Policy and Institutional Environment for Modern Off-Grid Lighting

Kenya's policy framework has undergone a long history which has created a favorable business environment for trade in modern lighting products. Despite this, targeted policy measures for modern off-grid lighting have yet to be aggressively pursued to support households and small businesses to acquire modern lighting products.

The following policy measures support market development for modern lighting in Kenya and are either underway or in consideration:

#### Fiscal Measures

- **Import Tax Exemptions.** The 2010/11 Budget Speech<sup>6</sup> directed that LED lighting devices receive an import tax exemption. Although some importers have experienced problems, all indications are that customs policies for new LED products are being implemented in the ports.
- **Kerosene and Fuels.** In 2008, Kenya imported 3.28 million tons of petroleum products, of which nine percent was illumination kerosene. Total petroleum expenditures amounted to US\$1.4 billion and US\$130 million of this was for illumination kerosene imports. Illumination kerosene is taxed slightly less than diesel, resulting in lower pump prices than diesel. This measure was taken in recognition of the role kerosene plays in rural lighting. Based on 2008 petroleum imports, the three percent lower excise duty that kerosene receives results in a US\$11 million dollar loss of tax revenue for the Government.
- **PV Products, Solar Batteries, and Lighting Products.** In the late 1990s, duties were removed from solar products (including modules, solar batteries, regulators and inverters); they were also exempted from the VAT. The exemptions have continued and current duty structures are now being harmonized across East African countries. However, importers of PV equipment and balance of systems (BOS) have mixed experiences with customs departments when importing equipment. Some companies have expressed the need for clarity on implementation of this Government mandate.

There are no defined subsidies for kerosene, PV products, or modern lighting.

#### What to Know about Customs

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### **Laws Governing Private Business Development**

Kenya places 98th in terms of ease of doing business according to the IFC/World Bank's *Doing Business Report for 2011*, which ranks the business environment of 183 countries around the world, putting it in the upper third of African countries. The reason for this ranking can be explained, for example, by the fact that setting up and registering a company in Kenya can be done in a matter of days. VAT and tax registration are also easy and can be performed on-line. Kenya makes continual efforts to encourage private sector development and investment.

### **Awareness Raising Mechanisms**

The Kenya Government operates 13 rural energy centers located throughout the country that are designed to serve as demonstration platforms for rural customers. These demonstration centers were set up in the late 1980s as part of Government efforts to promote agro forestry, improved cookstoves, and biogas technologies.<sup>7</sup> There is an opportunity to use these locations to promote approved lighting solutions in rural areas.

### **Financing Mechanisms**

Four types of financing are particularly well-organized in Kenya, offering opportunities to facilitate off-grid lighting markets.

- **Merry-go-round Schemes.** These informal, self-regulating savings and loans groups are prevalent in rural Kenya. Typically they are formed by groups of friends who meet regularly and contribute in fixed amounts. This sum is given to a single member on a rotating basis. Thus, each member benefits from the occasional influx of cash, receiving more than they would ordinarily be able to generate and save.
- **Hire Purchase.** Trade through hire-purchase companies are well organized in Kenya and many employers and agricultural companies approve credit in the form of “check-offs” for their employees and/or out-growers. Many customers in Kenya buy electronics, furniture, bicycles, and even solar PV systems through hire-purchase agencies.
- **Cooperative Banks or SACCO's.** Kenya has a strong cooperative movement in its agricultural sector and civil society. There are well-organized societies for coffee, tea, flower, horticulture, sisal, cotton, and other farmer products throughout Kenya. As well, there are cooperatives for teachers, civil servants, police officers, and military personnel.
- **Microfinance Organizations (MFIs).** In the 1990s, a number of social finance organizations built banking networks by working with groups of farmers and small traders. These include Faulu Kenya, K-REP, and others. Some groups that started as MFIs grew into full-fledged banks with offices across the country. Safaricom's mobile phone banking service adds to the dynamic small scale banking sector in Kenya.

### **Private Sector Effectiveness**

Kenya's vigorous private sector is based on solid policy, a strong middle class, a small-holder agriculture sector, and long trading traditions. As well, the compact nature of the country (most of the population resides in 25 percent of the land area) has enabled the development of well-organized distribution/retail networks. Due to these and other factors, Kenya's modern lighting sector is well ahead of neighboring countries in East Africa.

### **Product Quality**

The Kenya Bureau of Standards (KEBS) has developed minimum standards and installation guidelines for solar PV equipment and solar installations (these are largely adapted from international standards and have been incorporated into East African standards). However, the development of lighting product markets for lanterns, LED torches, and dry-cell powered devices has occurred outside of any quality parameters. Studies by the Lumina Project and observations by the Lighting Africa team have indicated that most of the lighting products in the country do not meet acceptable standards.

An increase in standards awareness would hopefully build market confidence and negate any perceptions of modern

<sup>7</sup> See < [http://www.energy.go.ke/?page\\_id=209](http://www.energy.go.ke/?page_id=209)>





lighting technologies as bad quality and “cheap”. However, any such approach would have to be light-handed and based on pro-consumer approaches, as the Government does not have the capacity to regulate the market. To this end, Lighting Africa is working with the KEBS and the University of Nairobi to test lighting products that are for sale in the country and provide consumers with reliable non-partisan information about product performance.

## Conclusions and Recommendations

This study found that the Kenyan Government and private sector are eager to develop rural lighting solutions. The advanced status of the solar PV and battery-based marketplace provide a foundation upon which progress can be built. However, there is a need for the Government to take a lead by: (i) recognizing the limitations of existing electrification efforts, and (ii) providing guidance to and investment in successful solutions that the private sector has already begun to develop. Further, the “commercial” and “poverty” segments of the urban and rural markets require different Government approaches that should be clearly staged and developed.

### Key Barriers

- **Lack of Recognition of Modern Off-grid Lighting and Lighting Access in Government Policy.** Groups of people without access to grid power—primarily at the base of the pyramid—are not included in Government plans to extend energy access and are limited to inferior solutions (e.g., kerosene).
- **Lack of Clarity in Tariffs, VAT, and Duties for PV and Lighting Products.** Companies are less willing to invest in modern lighting products due to perceived importation obstacles. Current policies and practices result in importation of less expensive products, evasion of duties, and submission of products under improperly harmonized standard codes.
- **The Active Kenya Lighting Product Market does not Prioritize “Quality”.** Consumers do not invest in quality products because they lack confidence in or awareness of the overall long term benefits of modern lighting products.
- **Companies are Unwilling to Invest in Stock and Supply Chains due to Risks and Lack of Market Understanding.** Low income groups in the “last mile” have less access to modern lighting products and pay higher prices for those that are available.
- **Low Cost, Low Quality Lighting Products Dominate the Market.** Consumers are receiving low quality unregulated products that escape taxes. Market “spoilage” by inferior products prevents investment in building higher quality product access.

### Key Recommendations

Based on the prevailing policy environment and the remaining barriers, the following recommendations ought to be considered to support a sustainable transformation of the modern lighting market in Kenya. Relatively simple policy adjustments integrated with existing rural energy access strategies (and combined with clear targets and outcomes), would do much to expand the commercial market for modern lighting products. A summary of key recommendations is provided below.

- **Enhance Political Participation.** A first step in increasing lighting access is for the Government to recognize that intermediate solutions such as solar PV and quality lighting can, in the short term, complement existing grid electrification efforts for rural households and small businesses.
- **Increase Awareness and Education.** A second step is to raise awareness of modern lighting solutions utilizing dedicated “marketing” support, as was successfully done with approaches to fight AIDS and malaria. Such programs require joint support and close collaboration between the Government and the private sector. The development of a market chain that reaches the most remote and poorest consumers requires actions to build awareness among consumers, retailers, distributors, and Government actors.
- **Build the Delivery Chain.** Efforts to help the private sector reach into rural and remote areas throughout the country are required. Groups that develop the “last mile” of the supply chain should be encouraged and

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rewarded, including retailers, microfinance groups, fast-moving consumer goods suppliers, and even the cell phone sector for integrating modern lighting into their product offerings.

- **Address Product Quality Issues.** Light-handed (vs. regulated) efforts to improve the quality of lighting products are needed. Such efforts—which would require the cooperation of KEBS, manufacturers/distributors, and consumer groups—include voluntary minimum standards for equipment, product warranties, and efforts to build consumer awareness around the need for quality control in products.
- **Broaden Access to the Base of the Pyramid.** Finally, there is a need to develop delivery packages (and assistance) for both the “commercial” and “poverty” sectors of the urban and rural markets. Commercial segments require information about what products are available, where to get them, and product quality assurance. Low income segments may not be able to purchase a modern lighting device without some type of financial assistance, be it a loan from an MFI, a subsidy, or some other incentive. The Government should also consider approaches to stimulate last-mile markets such as bulk procurements for civil servants in off-grid locations and charging stations for lanterns.

The Government, through the MOE, the Kerosene Free Kenya Initiative, and other agencies is collaborating with like minded programs such as Lighting Africa to mitigate these barriers and accelerate markets for modern lighting in Kenya.

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## About Lighting Africa

Lighting Africa, a joint World Bank and IFC program, seeks to accelerate the development of markets for modern off-grid lighting products in Sub-Saharan Africa where an estimated 10 to 30 percent of household incomes are spent on hazardous and low quality fuel-based lighting products. The goal is to mobilize and provide support to the private sector to supply quality, affordable, clean, and safe lighting to 2.5 million people by facilitating the sale of 500,000 off-grid lighting units by 2012 (target achieved and exceeded with 4 million people reached), while at the same time creating a sustainable commercial platform that will realize the vision of providing 250 million people with modern off-grid lighting products by 2030.

## About the Public-Private Infrastructure Advisory Facility (PPIAF)

PPIAF is a multi-donor trust fund that provides technical assistance to governments in developing countries in support of the enabling environment conducive to private investment, including the necessary policies, laws, regulations, institutions, and government capacity. It also supports governments to develop specific infrastructure projects with private sector participation. PPIAF is a major donor of the Lighting Africa program, supporting off-grid lighting policy studies and international off-grid lighting conferences.

## About the Africa Renewable Energy Access program (AFREA)

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AFREA was established in 2009 to help meet energy needs and widen access to energy services in Sub-Saharan African countries in an environmentally responsible way. AFREA funds support the implementation of the World Bank's Africa Energy Unit (AFTEG) strategy and its clients, through analytical and advisory activities, while also providing recipient-executed technical assistance and investment grants that help speed up the deployment of renewable energy systems regionally. AFREA is a donor of the Lighting Africa program.

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