

## Policy Study Report Note

August 2011

This note summarizes a recent report prepared by Lighting Africa to identify key policy barriers to the adoption of modern lighting products and services, and recommendations for their mitigation. The note is based on the results of eight country-specific policy reports.

### Introduction

Policy-related issues have been identified by the lighting industry as key barriers to accelerating large-scale market penetration of improved, high quality, non-fossil fueled lighting products. The purpose of the Policy Study was to assess policy and regulatory barriers to modern lighting delivery in Sub Saharan Africa (SSA) and to recommend improvements. The Study focuses on eight countries: Cameroon, Democratic Republic of the Congo (DRC), Ethiopia, Ghana, Kenya, Rwanda, Senegal, and Tanzania, selected because of their market viability, energy access policies, government institutional partners, prevalence of World Bank/IFC programs, and balance of East and West African countries.

### Activities

The project entailed documenting existing/planned policies and regulations at the country and regional level, identifying and analyzing key policy and regulatory barriers affecting adoption and scale-up, identifying good practices and approaches to improve policy and regulatory frameworks and their implementation, and conducting stakeholder workshops to validate and disseminate study results and follow-on actions. A Policy Advisory Group, comprised of senior policy makers and the private sector, helped guide the Study process.

### The Policy Environment

Lighting technology is changing rapidly worldwide, but in Africa policy regimes have yet to incorporate these advances into strategies to help the region's population. Governments promote grid-based electrification and, to a lesser extent, rural electrification and kerosene subsidies, as their primary tools to increase lighting access and accelerate development. Yet these efforts are not reaching millions of households that live without electricity, and who continue to rely on polluting, hazardous, and unhealthy fuel-based lighting products (e.g., kerosene, candles, and firewood). Today, a range of modern lighting options exist offering proven, affordable solutions for low-income and poor households. Policy interventions are needed to level the playing field for modern lighting options and increase market reach and penetration.

### What is Modern Lighting?

For this Study, the term “modern off-grid lighting” refers to off-the-shelf products that provide lighting, although they may also offer additional pico-electricity services, such as cell phone charging, radio power, fans, etc. Fuel-based lighting solutions—such as kerosene or oil lamps - are not considered modern lighting.

Modern off-grid lighting devices may be charged from solar photovoltaics (PV), household sockets, charging stations, hand-crank, or other pico-power systems. However, they share the common feature of being able to work off-grid or when grid power is not available. The term also implies that they meet a minimum standard of performance and are attractive to a wide group of consumers<sup>1</sup>.

Today, modern lighting devices are the least costly options among a set of new devices and tools (including solar home systems, isolated grids, battery-based systems, solar lanterns, charging stations, etc.) that allow off-grid consumers to have far better small power applications than kerosene. They also enable consumers to achieve energy access levels suited to their economic and technical requirements. The main driver is that new off-grid lighting products offer a wider variety of options superior to kerosene. In essence, these products help consumers move up the “energy ladder” by enabling them to choose products they can afford, enhancing the provision of sustainable energy services in a way that is not detrimental to their health.

<sup>1</sup> The Lighting Africa program is working with manufacturers, distributors, and standards bodies to ensure that the types of products promoted under the program provide an acceptable level of lighting service for low-income consumers.

### Existing Policy Situation

African governments support “lighting access” for all segments of their populations. In some countries, governments have established subsidies or other fiscal support to make kerosene available throughout the country at the same price, while in other cases they have provided loans for renewable energy projects in order to support off-grid electrification in rural areas. In general, two observations can be drawn:

- 1) Lighting technology choices in African countries can be divided into: (a) electric lighting, including grid electricity, photovoltaics, battery-based systems, dry-cell torches, etc.; and (b) non-electric lighting, such as kerosene, candles, vegetable oil, and biomass to include firewood and agricultural residues. Real lighting expenditures and existing policies including fiscal measures vary from country to country. However, a constant across the countries is the lack of information regarding the number of lighting sources, their exact usage patterns, and the actual prices paid for these options.
- 2) The poor are already incurring high costs for poor quality lighting. An estimated US\$10.5 billion is spent in Africa every year on fuel-based lighting<sup>2</sup>. Per unit output of light, this means that poor households pay more than those connected to the electricity grid for lighting. It is generally noted that government intervention to keep kerosene prices low is not sufficient. Moreover, poor populations targeted by existing kerosene subsidy policies are actually spending relatively more for lighting and may not be the only group benefiting.

Table 2 presents the policy environment for kerosene, modern lighting, and PV systems in the eight countries.

### Policy Recommendations

The Study sets the stage for creating new policy directions in African countries to achieve rapid scale-up of modern off-grid lighting access. Recommended policy interventions include:

- **Incorporate modern lighting strategies into overall government development and poverty reduction strategy.** This provides political recognition of modern lighting as an important step in the energy access ladder, and is the cornerstone of necessary efforts to change the living conditions of millions of people.

Such political mobilization will translate into a huge impact on the market, encourage businesses to invest in this area, lay the groundwork for increasing access to lighting and micro-electricity in a short period, and stimulate consumer demand for more electricity services.

- **Adjust regulatory environments to favor modern lighting solutions.** This entails removing old subsidies and price breaks for kerosene, designing tax and duty structures that support quality products and, in some situations, creating subsidies for target groups that ordinarily would not have access to modern lighting.
- **Support a market transition to high-quality products.** This necessitates agreement on viable standards and enforcement mechanisms, combined with incentives for those products that meet minimum standards.
- **Facilitate a competitively priced supply chain that delivers lighting products to all segments of the market.** This intervention would create awareness at all levels, support supply chains, and facilitate an environment conducive to the unencumbered flow of modern lighting products and resources. By implementing financing schemes to support the supply chain, governments would enable market expansion and reduce costs for low-income and poor groups, including the “last mile” that represents a large component of the market. Rural electrification funds such as those already created in many countries could be an appropriate mechanism for supplying modern off-grid lighting products to rural areas, by way of the private sector.
- **Ensure that the widest possible access to modern lighting is achieved, particularly among the poor.** In addition to exempting modern lighting products from taxation, this may involve supporting financial options through flexible payment schemes and cross-subsidizing modern lighting among certain low-income groups. Micro-finance institutions (MFIs) could play an important role as channeling agents. In all of the eight countries studied, MFIs, including some NGOs, have a strong presence in rural areas and a proven track record of collaborating with low-income and poor populations.

<sup>2</sup> Source: Lighting Africa 2010. Solar Lighting for the Base of the Pyramid - Overview of an Emerging Market.

There is no “one-size-fits-all” program to roll out modern lighting. The diversity of countries, and their respective needs and conditions, requires a range of policy approaches. Policy interventions will necessitate careful sequencing, targeting the different market segments.

Commercial markets could be developed first, allowing the private sector to gear up to supply products without major investments in remote areas. Thereafter, more remote markets and lower-income groups could be targeted with different tools as necessary.

Table 1. Key Policy Barriers and Characteristics

Barrier	Characteristics
Lack of both problem recognition and understanding of the potential for emerging solutions in modern lighting access	<ul style="list-style-type: none"> <li>• Lack of strategy and objectives regarding modern lighting products</li> <li>• Modern lighting devices are not seen as an alternative solution or an efficient contribution for rural electrification</li> <li>• Lack of knowledge of modern lighting products by locals, businesses, governments</li> <li>• Traditional lighting solutions are well-established and dominate the market</li> </ul>
Regulatory barriers hinder trade in modern lighting technologies or support inferior solutions	<ul style="list-style-type: none"> <li>• (Unfair) competition with substandard, counterfeit, fake, low-quality, low-cost products that overrun the market</li> <li>• Slow processing of products due to heavy customs and police formalities</li> <li>• High taxes are prohibitive</li> </ul>
Quality-related issues prevent modern lighting devices from building a sustainable market	<ul style="list-style-type: none"> <li>• Lack of quality control and standards in modern lighting products</li> <li>• Lack of means to differentiate good-quality products from poor-quality ones</li> <li>• Lack of educated customers</li> </ul>
Non-existent supply chains for modern lighting products to reach rural areas	<ul style="list-style-type: none"> <li>• New and rapidly changing products not tied to existing supply chains</li> <li>• Higher-cost product than those stocked and sold by retailers at outlets</li> <li>• Absence of mechanisms to facilitate product availability in remote areas, unlike kerosene in some countries</li> </ul>
Lack of affordability preventing traders, consumers, distributors, and manufacturers from modern lighting investments	<ul style="list-style-type: none"> <li>• Price-driven market: initial investment and monthly spending can be prohibitive, especially for the rural poor</li> <li>• Difficulty getting financing to both supply and demand sides</li> <li>• Companies unwilling to make investments due to the perceived risks</li> <li>• Lack of clarity in tariffs, value added tax (VAT), and duties for photovoltaics (PV) and lighting products</li> </ul>

Table 2: Policy Environment Regarding Lighting Products, Fuels, and Electrification

Subsidized Items	Cameroon	DRC	Ethiopia	Ghana	Kenya	Rwanda	Senegal	Tanzania
Kerosene Subsidies	Reduced transport fees for kerosene in household use  Exempted from special tax of US\$ 0.24/liter applied to other petroleum products	Indirect through tax exemption	Exemption on taxes: VAT of 15%  Exemption of other taxes of 30% (excise, municipal taxes and the Road Fund Levy)	Subsidized at 23% below price in the mining sector  Exempt from the Debt Recovery Levy and the Road Fund Levy	Cost of kerosene is 15% lower than cost of diesel due to lower Excise Duty & no applied Road Maintenance Levy	Certain charges in price structure are waived so that it is 25% cheaper than diesel	Kerosene is 22% lower than diesel	Cost of kerosene is 41% lower than the cost of diesel (25% exclusion from VAT, other exemptions)
Modern Lighting	N/A	N/A	Efficient lights for off-grid use must fit with solar PV equipment	Duty on off-grid lighting: 10%	Duty removed on LED lights in 2010	Energy efficient lights subject to reduced import duties	Some subsidies (VAT exemption); limited to West African Economic & Monetary Union (UEMOA) restrictions	Efficient off-grid lights allowed under PV tax exemptions
PV systems	No tax exemption  Import duties: 20- 30%  VAT: 19.25%	Import duties: 10%  VAT: 15%	Duty free  VAT: 15%  Surtax: 10%	Duty free  VAT: 12.5%  Other taxes/levies: 3.5%  Duty applied for Balance of Systems (BOS)	Duty free  VAT Free  Duty applied for BOS	PV kits are subject to reduced import duties	Some subsidies (VAT exemption); limited to UEMOA restrictions	Duty free  VAT Free

### 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 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.

This platform will provide an avenue for social, health and economic development, especially for households and small businesses that will realize significant cost savings and increases in productivity. Lighting Africa is implemented in partnership with: The Africa Renewable Energy and Access Grants Program (AFREA), the Asia Sustainable and Alternative Energy Program (ASTAE), the Energy Sector Management Assistance Program (ESMAP), the Global Environment Facility (GEF), Good Energies Inc., Italy, Luxembourg, the Netherlands, Norway, the Public-Private Infrastructure Advisory Facility (PPIAF), the Renewable Energy & Energy Efficiency Partnership (REEEP). For more information: [www.lightingafrica.org](http://www.lightingafrica.org).