

LIGHTING AFRICA
Catalyzing Markets for Modern Lighting

AN INNOVATION OF
IFC
International
Finance
Corporation
World Bank Group



THE WORLD BANK

**3rd International Off-Grid Lighting Conference
and Trade Fair
November 13-15, 2012 * King Fahd Hotel *
Dakar, Senegal**



Conference Proceedings

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Lighting Africa

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About Lighting Africa: Lighting Africa, a joint IFC and World Bank program, seeks to accelerate the development of commercial off-grid lighting markets in Sub-Saharan Africa as part of the World Bank Group's wider efforts to improve access to energy. Lighting Africa is mobilizing the private sector to build sustainable markets that provide affordable, modern off-grid lighting to communities across Africa that are not on the electricity grid. The program and its partners have brought cleaner, safer, and better lighting to close to 4 million people and are working to increase energy access, providing better lighting to 250 million people by 2030.

Improved lighting provides significant socio-economic, health and environmental benefits such as new income generation opportunities for small businesses. Lighting Africa is a key element of the global Solar and LED Energy Access (SLED) program, an initiative of the Clean Energy Ministerial. For more information, visit www.lightingafrica.org

Lighting Africa is implemented in partnership with: The Africa Renewable Energy and Access Grants Program • The Climate and Development Knowledge Network (CDKN) • The Global Partnership on Output-Based Aid (GPOBA) • The Energy Sector Management Assistance Program (ESMAP) • The Global Environment Facility (GEF) • Italy • Luxembourg • The Netherlands • Norway • The Public-Private Infrastructure Advisory Facility (PPIAF) • The Renewable Energy and Energy Efficiency Partnership (REEEP) • The United States.

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- Energy Sector Management Assistance Program
- Renewable Energy and Energy Efficiency Partnership

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We also want to thank Ms. Vera Songwe, World Bank Country Director for Senegal, Cape Verde, The Gambia, Guinea-Bissau and Mauritania; M. Momar Nguer, Senior Vice President, Africa and Middle East for Supply and Marketing, TOTAL; Mohamed Saad, President, Africa and Caribbean Zone, Schneider Electric; and Kofi Adomakoh, Director, Project and Export Development Finance, African Export-Import Bank all of whom participated in the Opening Ceremony. Also, we wish to thank Mr. Jerome Cretegnny, Senior Country Officer responsible for IFC operations in Senegal, Cape Verde, Gambia, Guinea Bissau, Mali and Mauritania and Mr. Graham Pugh, Director, Office of International Climate Change Policy and Technology, US Department of Energy, who announced the winners of the Product Awards Ceremony. Additionally, we want to acknowledge the leadership of Ms. Meike van Ginneken, Energy Sector Manager, West and Central Africa, The World Bank.

Finally, we want to thank all the conference moderators, speakers, attendees and exhibitors who provided invaluable insights and inputs throughout the three conference days.

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List of Acronyms

| | |
|-----------------|--|
| ADB | Asian Development Bank |
| ASER | Senegal Agency for Rural Electrification |
| B2B | Business-to-Business |
| BoP | Base of the Pyramid |
| CDM | Clean Development Mechanism |
| CO ₂ | Carbon Dioxide |
| DFID | UK Department of International Development |
| DRC | Democratic Republic of Congo |
| ENDA | Environment Development in Action |
| EROI | Energy Return on Investment |
| ESMAP | Energy Sector Management Assistance Program |
| GIZ | Deutsche Gesellschaft für Internationale Zusammenarbeit (German Agency for International Cooperation) |
| GOGLA | Global Off-Grid Lighting Association |
| LA | Lighting Africa |
| LED | Light Emitting Diodes |
| LG-QTM | Lighting Global Quality Test Method |
| MDGs | Millennium Development Goals |
| MNCs | Multi-national Corporations |
| MOU | Memorandum of Understanding |
| NGO | Non-Government Organization |
| PIPPA | Public Interest Intellectual Property Advisors |
| PV | Photovoltaic |
| QA | Quality Assurance |
| R&D | Research and Development |
| REA | Rural Energy Agency |
| REEEP | Renewable Energy and Energy Efficiency Partnership |
| RREA | Rural and Renewable Energy Agency |
| SE4ALL | Sustainable Energy for All |
| SMEs | Small and Medium Enterprises |
| SPLs | Solar Photovoltaic Lamps |
| TATS | TOTAL Access to Solar program |
| UNEP | United Nations Environment Program |
| UNF | United Nations Foundation |
| USDOE | U.S. Department of Energy |
| VAT | Value Added Tax |

Executive Summary

Held November 13-15, 2012, in Dakar, Senegal, Lighting Africa's third International Off-Grid Lighting Conference and Trade Fair reinforced its position as the premier global event on lighting and energy access. At the event more than 400 off-grid lighting stakeholders and over 40 exhibitors met to discuss and showcase the latest developments in off-grid lighting technologies and innovative business models to increase access to clean lighting for rural, low income populations.

According to the IFC/World Bank Lighting Africa report *Solar Lighting for the Base of the Pyramid, Overview of an Emerging Market* (2010), an estimated 1.6 billion people worldwide live without electricity, including 70 percent in Africa. Another report, *From Gap to Opportunity; Business Models for Scaling up Energy Access*, published by IFC in June 2012, estimates the global energy-for-the-poor market as an unexploited \$37 billion business opportunity. A sneak peek into the soon to be published new Lighting Africa market report, *Key Trends and Developments in the Africa Off-Grid Lighting Market*, shows an insatiable appetite for quality solar lanterns on the continent with sales doubling annually over the past three years. As of August 2012, the Lighting Africa program had made it possible for about four million Africans to enjoy better quality lighting, reducing their reliance on kerosene and other polluting lighting fuels.

This conference, the third in six years¹, demonstrated that Lighting Africa is on track to meet its targets of supporting the private sector to supply 250 million people in Africa with better lighting products by 2030. Unlike in the previous years, where social enterprises and non-government organizations (NGOs) were the key attendees, this year's event was dominated by commercial players along the supply chain, including large multi-nationals, and professional, high quality products, including some that are tapping into mobile money payment platforms. Discussions focused on what the industry could do to expand product distribution, enhance marketing and enlarge business development initiatives in order to scale up operations, and further increase access to clean energy in Africa.

With more companies entering the market, improved quality standards and customer needs driving innovation, the lamps are becoming ever more affordable. The market for quality off-grid lighting products in Africa went from displaying huge potential in 2008 to recording an explosive 300 percent growth in sales by 2012. To sustain and enhance this growth, Lighting Africa is developing working capital and trade finance facilities across the supply chain and deepening its focus on building consumer trust in modern, quality assured lighting products through consumer education. The World Bank is accelerating its work with client countries to incorporate Lighting Africa activities into energy access programs that it finances, helping to spur consumer demand and build supply chains to reach the base of the pyramid (BoP). And, the Lighting Africa program is developing and sharing knowledge in distribution models to reach consumers in rural areas. Moreover, in conjunction with the Global Off-Grid Lighting Association (GOGLA), Lighting Africa is creating an environmental sustainability plan for greening the design of new lighting products and ensuring proper disposal of spent lanterns and their components. On balance, experience to date in Africa shows that solar portable lanterns are fast becoming must-have products for off-grid households, much as mobile phones are today.

The remainder of this document provides more detailed information on meeting sessions, including key issues, highlights and conclusions for the two-day meeting. A summary of the six side events on Day 3 is provided as are appendices to include the full Conference Program, list of participants and workshop survey results.

¹ The first International Off-Grid Lighting Conference and Trade Fair was held in Accra, Ghana, in May 2008, with the second conducted May 18-20, 2010, in Nairobi, Kenya.

DAY 1: NOVEMBER 13, 2012

I. Opening Ceremony

Vera Songwe, Regional Director of the World Bank for Senegal, Cape Verde, The Gambia, Guinea Bissau, and Mauritania, served as Session Chair. Ms. Songwe welcomed the participants and introduced high level panelists. She highlighted that the event takes place in the framework of Lighting Africa, a joint initiative between the World Bank and the IFC launched five years ago, which aims to support market development to accelerate access to off-grid lighting products. The first beneficiary countries were Kenya and Ghana but now the program is operational across the continent and recently expanded to India as well. She indicated that Lighting Africa contributes to the Sustainable Energy for All (SE4ALL) initiative of the United Nations Secretary General, which seeks to achieve universal energy access by 2030. Ms. Songwe thanked the conference sponsors—Total, Schneider Electric, dole, the Energy Sector Management Assistance Program (ESMAP), the Renewable Energy and Energy Efficiency Program (REEEP), and the U.S. Department of Energy (USDOE)— without whom the event could not have occurred. She also acknowledged the support of the keynote speaker, His Excellency Aly Ngouille Ndiaye, Minister of Energy and Mines, Government of Senegal and ASER.

His Excellency Aly Ngouille Ndiaye expressed that the use of inefficient and expensive energy sources is hampering development for important segments of the Sub-Saharan population. Lighting Africa's modern and efficient off-grid lighting products offer an alternative. When combining access to basic energy services such as telephone or radio, these products can improve quality of life and contribute to reaching the Millennium Development Goals (MDGs). He stressed that the Senegalese Government intends to incorporate products that have passed Lighting Africa quality tests into ASER's rural electrification program.



View of the panel at the opening ceremony with (left to right) Momar Nguer, Vera Songwe, Honorable Aly Ngouille Ndiaye, Mohamed Saad and Kofi Adomakoh

Momar Nguer, Senior Vice President, Africa and Middle East for Supply and Marketing, TOTAL, described the company's Total Access to Solar (TATS) program, which seeks to provide low-income communities with access to photovoltaic (PV) solar solutions through innovative, profitable and sustainable business models. TATS focuses on key success factors across the value chain, including design, research and development (R&D), marketing, sales and distribution, consumer finance and after sales recycling. TATS is operational in eight countries—Haiti, Burkina Faso, Cameroon, Congo, Kenya, Senegal, Cambodia and Indonesia—and in development in Nigeria, Ethiopia, Uganda and Myanmar. Impact to date in Africa includes 111,000 lamps sold and dedicated last mile distribution networks underway. By 2015, TATS plans for sale of one million lamps with at least 40 percent of clients belonging to the BoP.

Mohamed Saad, Senior Vice President Africa and Caribbean, Schneider Electric, cited the company's commitment to developing energy access for people who most need it while contributing to sustainable development. He described the Bip-Bop project and its three pronged approach: (1) energy for people who are deprived of it; (2) training of young, disadvantaged people in electrical trade jobs; and (3) support for entrepreneurial activities at the BoP.

Kofi Adomakoh, Director, Project and Export Development Finance, Afreximbank. Afreximbank is an Africa supranational financial institution, begun in 1994 to stimulate expansion, diversification and development of African trade. Mr. Adomakoh outlined key challenges facing the off-grid lighting sector—fragmented markets, lack of manufacturer financing, perceived non-commercial viability of manufacturing projects, low average income of target markets/consumers, lack of trust in off-grid technologies due to some inferior products and lack of sector policies. He explained what Afreximbank can offer to lessen these hurdles, including project finance, export development finance, carbon finance, lines of credit and corporate and advisory services. He also suggested measures to improve electricity access, such as attracting capital through bankable projects, educating rural households and stimulating robust regulatory and policy frameworks.

Itotia Njagi, IFC Lighting Africa Program Manager, described the Lighting Africa approach to demonstrate market viability to companies and investors, improve the sector enabling environment and support scale up and replication of successful businesses. He highlighted results to date including four million people with better lighting, 300 percent growth rate in quality product sales, established importer and distribution channels by manufacturers in 20 countries and 46 quality products—and growing. Mr. Njagi explained how quality assurance is at the core of market development and growth and listed program priorities—develop access to finance facilities for the supply chain, expand consumer outreach and awareness campaigns, finalize solar lantern sustainability plans, institutionalize quality standards, enhance partnerships with key stakeholders [e.g., Global Off-Grid Lighting Association (GOGLA), SE4ALL, Global Leap, financiers, NGOs] and grow the program in Africa and Asia.



Honorable Aly Ngouille Ndiaye, Senegal Minister of Energy and Mines, visiting the 3rd International Off-Grid Lighting Trade Fair

II. Engaging the Public Sector

Meike van Ginneken, Energy Sector Manager, West and Central Africa, The World Bank. Ms. Ginneken chaired the session, noting that the purpose was to explore the role of the public sector in helping to expand access to modern off-grid lighting solutions within the continent. She articulated that this implies integrating modern off-grid lighting products into national access programs, taking a look at the role of subsidies in helping spur demand and the challenges presented by import tariffs. She also explained that this was to be a panel session whereby formal presentations would not be provided; instead participants responded to questions raised by Ms. Ginneken and the audience.

Panelists were Antou Gueye Samba, ASER General Manager, Senegal; Grace Mathew, Manager, Rural Energy Agency (REA), Tanzania; Alemu Muleta Jiru, Coordinator, Renewable Energy Fund, Ethiopia; and Augustus Goanue, Executive Director, Rural and Renewable Energy Agency (RREA), Liberia. Highlights of the session are provided below.

What kinds of activities have you been involved with to promote modern off-grid lighting in your country?

- Both Tanzania and Liberia have supported the Lighting Africa program for a number of years. Tanzania primarily works through the Lighting Rural Tanzania program. Liberia works via the Lighting Lives in Liberia program. In Liberia, international suppliers came to the country to demonstrate their products. The RREA now works with small businesses in reaching out to consumers, conducting market assessments and providing business support to retailers. The Liberia RREA selected six companies to deploy qualified products in areas where the private sector reaches out to the poorest. Through this activity, they intend to deploy about 100,000 products.
- Ethiopia is assisting the private sector to provide access. It is working to remove regulatory barriers, eliminate renewable energy duties, build capacity of the private sector and promote standards and quality assurance activities. Mr. Jiru noted that poor quality products coming into the country have created poor perceptions of the technology and thus they continue to work to broaden consumer awareness and education.
- Senegal has engaged with Lighting Africa, but further development of activities is required.

As the private sector is best equipped to support consumer outreach and awareness, what is the role of the government in this area and how does it leverage the advantages of the private sector?

- Consumers are the target population in Liberia. The first requirement is to have quality products available on the ground. Given this, the government can help to provide information on the benefits of quality products to consumers. This is part of the government's social responsibility to its citizens and should be done in collaboration with multinationals and corporate social responsibility entities.
- Tanzania is undertaking significant efforts in the area of consumer awareness. For example, the Government is currently developing and promoting documentaries in areas where projects are being implemented. Further, they are funding Lighting Africa projects that can include consumer awareness. One of their commercial distributors, ENSOL, has been funded to promote Lighting Africa approved products in rural areas.
- In Senegal, the government is working with Environmental Development Action (ENDA), a local NGO, to conduct a feasibility study to define communications requirements and an overall consumer program. This involves a market assessment, to follow with identification of private partners for collaboration.
- *Audience comments:* Trust is important; the public sector has an advantage in building relationships and trust of local communities. A macro framework has to exist for the private sector to survive.

What is being done to successfully integrate women into modern off-grid lighting activities?

- A business support facility has been created in Liberia to establish networks and reach out to remote and public areas. Half of their partners are led by women and the RREA has a gender officer.
- The Government of Tanzania is starting to integrate gender into action plans at project and agency levels and conducting follow-on implementation. The REA has put a lot of focus on integrating rural electrification, including an organizational policy that is not gender blind. Also, any call for proposals, contracts etc., have to reflect gender balance.
- Revolving funds have been established in Ethiopia for small lighting systems. On gender, 50 percent of the rural population is women, whom they are targeting. It has been demonstrated that the trust of the program increases as government support continues to be available.

Regarding duties and taxes, what is the government doing in this area and do you think it is making a difference?

- Currently, there are a lot of regulatory barriers in Ethiopia. The Government's role is to assist the private sector as it is not able to fulfill all the needs of the rural population. It works with the private sector to address policy and regulatory barriers, such as removing duties to help improve the cost of lighting activities.
- The Government of Ethiopia is also improving product quality by promoting quality assurance testing in the country, providing training to technicians on how to use solar products, providing management and business courses and facilitating financing for suppliers and end users, to include a dedicated fund that can support lighting activities. The Government also supervises projects, communicates with stakeholders at the grassroots level, and has signed a Memorandum of Understanding (MOU) with some suppliers on off-grid lighting activities.



Participants at the 3rd International Off-grid Lighting Conference and Trade Fair

On supply and demand subsidies, do they reach the poor? Are they efficient?

- In Liberia, supply and demand side subsidies are complimentary. Ultimately, the goal is to make products affordable. One way is to work with partners who are required to sell Lighting Africa products.
- Additionally, the Liberia RREA has set up a Business Support Facility that assists in outreach, advertising and business development. The Facility also aggregates orders in country, places the order with international manufacturers on behalf of suppliers and provides financing support.

How does the government ensure that subsidies are targeted? How do you see this evolving overtime?

- As noted above, RREA created a Business Support Facility which only supports Lighting Africa products for off-grid lighting. The Facility has signed a Memorandum of Understanding (MOU) with partners, establishing terms and conditions for assistance. As a next step, the Facility may extend support to a private aggregator. At present, the Facility is playing the market aggregation role but will gradually disengage, letting market forces take over. The Government is also working with the better business bureau to support private sector development.
- *Audience Comments:* You can subsidize a product, but if there is no infrastructure in place then there are no products later; commenter wants a level playing field, not subsidies. Supply side subsidies may work if there is scale, but you need competition, after sales services, etc. On the demand side, it is difficult to reach to the BoP via subsidies; microfinance for end-users may be more helpful. Customs issues are a problem in many countries, thus, leaving products stuck at the port. Thus, subsidies are not the only issue, broader factors must be considered in evolving the off-grid lighting sector.

What are countries doing to deploy off-grid lighting in public institutions?

- Tanzania has developed a Rural Energy Fund. The REA has a signed an agreement with the Ministry of Health and Education so they target remote areas to provide access. The REA is installing PV systems and other alternative energy technologies, for example biogas for prisons.
- Also the Lighting Rural Tanzania program is focused on lighting rural schools and clinics.

What are governments doing to control product quality?

- Senegal is seeking to control quality to ensure health and environmental safety. A testing facility is being established at the University to evaluate products available in the marketplace.

In closing, Ms. Ginneken, thanked the panelists and audience for their active participation and noted that many of the obstacles to off-grid lighting focus on the business climate, customs, finance and other issues that may be outside the direct control of the sector.



Passed Lighting Africa products on display at the trade fair

III. Sustainable Energy for All: The Role of Off-Grid Lighting

Ms. Richenda Van Leeuwen, Executive Director, Energy and Climate Energy Access Initiative, United Nations Foundation, served as Session Chair. She explained that SE4ALL was created by the UN Secretary-General Ban Ki-moon, to bring together all sectors of society in support of three interlinked 2030 objectives—ensure universal access to modern energy services, double the global rate of energy efficiency improvement and double the share of renewable energy in the global energy mix. She said that the session would serve to review the activities of SE4ALL in increasing energy access. In general, the session was run as a panel with discussions rather than formal presentations.

Dr. Venkata Ramana Putti, Program Leader, Energy Access, Energy Sector Management Assistance Program (ESMAP), stressed that business-as-usual will not lead to universal access, thus the need for SE4All to provide convening power; mobilize, track and report commitments; coordinate activities of key stakeholders; leverage large-scale investments; and rapidly expand the knowledge network. Dr. Ramana emphasized contributions of the World Bank/ESMAP in SE4All. For example, the World Bank President co-chairs the SE4ALL Advisory Group and was on the team that launched the initiative; assists the SE4ALL Global Support Team in designing the country action programs; with IEA, leads the knowledge management annual tracking activities; and in 2013, ESMAP will launch the SE4ALL technical assistance program at the country level. Additionally, under its own programs, the World Bank, with ESMAP support, is doubling energy access programs from \$8 billion to \$16 billion; conducting rural electrification and access programs in several countries; supporting household energy programs in Africa, East Asia and Bangladesh; expanding Lighting Africa; and conducting a Global Gas Flaring Reduction program.

Mr. Wolfgang Gregor, Secretary General, Global Off-Grid Lighting Association (GOGLA), explained that the NGO was founded in June 2012 to provide a sustainable exit strategy for The World Bank/ IFC Lighting Africa initiative. GOGLA aims to ensure that the off-grid industry is able to continue the development of a free market by reducing market barriers and promoting quality goods to people in inadequately electrified countries. It is international in scope and represents those stakeholders at the base of the off-grid market pyramid worldwide, with members active in the SE4ALL initiative.

Mr. Joel Lelostec, Director Business Development Access to Energy Programs, Schneider Electric, discussed the company's activities in enhancing electricity access and the many economic, social and health benefits that off-grid lighting offers to rural communities. He reported that Schneider Electric has made a commitment to SE4LL for 1 million households at the BoP to have access to energy by the end of 2014 and to train 30,000 new people in energy management in this timeframe. To accomplish this, Schneider Electric works with several partners including NGOs, government organizations and social companies.



Visitors at the Trade Fair

Mr. Secou Sarr, Director, Energy, Environment and Development Program, ENDA, described the community-based organization's efforts in working with local stakeholders in Africa to develop a low-risk strategy for alleviating poverty through improved access to modern energy services, including off-grid lighting, and supporting SE4ALL and ASER in these efforts.

IV. Reaching the Base of the Pyramid: Impacts, Market Status and Trends

Mr. Russell Sturm, Head Climate Change Advisory for IFC, chaired the session. He noted that the lighting market has entered a growth phase led by technology advances, cost reductions, performance improvements, entrepreneurial engagement, market-based delivery models and product designs matched to consumer preferences. The session provided an update on the 2010 "Solar Lighting for the Base of the Pyramid Report", to include valuable insights and up-to-date information on market growth, development and trends for off-grid lighting products in key markets of Africa and Asia.



Session panelists from left to right Michael Tsan, Gaurav Gupta, Russell Sturm and Gunnar Wegner

Mr. Gaurav Gupta and Michael Tsan with Dalberg Associates presented the findings of the 2012 Africa market study. These are summarized below:

- Market Status.** The market for solar portable lights in Africa has experienced a cumulative sales growth of approximately 96 percent (2008 – 2011), with total sales of approximately 2.2 million solar photovoltaic lamps (SPLs) by the end of 2011. Cumulative sales of quality-approved SPLs have increased at more than 400 percent through 2011, much faster than the market growth. Market penetration across Africa remains low at about 2 percent, with close to 100 million households still without access to proper lighting. The geographic footprint of SPLs in Africa has expanded, with the number of African countries selling SPLs increasing from five in 2010, to ten in 2011 and more than 20 in 2012. The Lighting Africa program has increased the presence of quality-approved SPLs from two countries in 2010 to eight in 2012. In addition, some individual manufacturers have intensified and consolidated their geographic presence by setting up outpost offices in countries such as Kenya, Uganda, Senegal, Tanzania and Ethiopia. The availability of SPLs in Africa is uneven across countries, with East African markets (e.g., Kenya and Tanzania) having the deepest penetration, although even in these more advanced markets, the bulk of sales have been restricted to urban and peri-urban areas. Demand drivers identified in 2010 have held true: grid growth continues to lag behind population growth rates, implying an increase in the off grid population over time, and a growing need for off grid lighting solutions; kerosene prices have historically been rising in most African geographies at 5 to 10 percent per year and the need for off grid mobile phone charging options is already evident and can be expected to grow at least at the rate of mobile phone subscriber growth (e.g., 26 percent per year). The market continues to attract new manufacturers and distributors. The number of quality-approved manufacturers has been increasing at 35 percent annually from about six in 2010 to approximately twenty today. In addition, in more mature markets

like Kenya, the number of retailers stocking SPLs has increased. The majority of SPLs sold in African countries (more than 70 percent) are manufactured and assembled in China; local assembly has been limited to a small number of pilot projects. The market for SPL manufacturers and suppliers is maturing, having evolved into bigger, sophisticated and complex businesses. In addition, interest from large multi-national corporations (MNCs) has increased steadily. Much progress has been made on industry coordination, particularly the establishment of GOGLA in 2012. The market development capabilities of donors, development organizations, NGOs etc. will be necessary for the next three to five years, until it achieves approximate penetration of 16 to 18 percent.

- **Product and Technology.** SPL performance has significantly improved from two to three years ago. The trend toward consumer-oriented design has intensified as demonstrated in that 35 percent of Lighting Africa approved SPLs now provide multiple brightness levels, and almost 60 percent have incorporated mobile charging. Small lighting products, including \$1 – 10 torches and flashlights, have sold millions of units in Africa, and represent the largest market share of off grid lighting products. However, emerging data from quality-tested products suggest that task/work lighting and ambient lighting are the fastest growing product categories. These are driven by rapidly declining costs of major components, e.g., PV, light emitting diodes (LEDs) and batteries; the theoretical manufacturing cost has reduced by almost 25 percent from 2010, and is expected to reduce by another ~33 percent by 2020. LED technology completely dominates market share among approved SPLs, and prices are falling at 20 to 25 percent annually. The market remains attractive for manufacturers, who reported margins ranging from 10 to 30 percent during interviews. Distributors, on average, reported higher margins of 30 to 50 percent, set high by manufacturers as an incentive to stock and sell SPLs.
- **Barrier Evolution.** Market barriers have remained stable over time:
 - *Upstream access to finance:* Working capital is needed for distributors attempting to reach remote, off-grid markets. Upstream access to finance and capital is available for businesses that have a proven concept and track record of success. Several solutions have emerged including commercial bank loan-loss partnerships or guarantee schemes for working capital or trade finance and third-party financing of distributors, via manufacturers, to fund trade credit.
 - *Downstream finance:* End user affordability was identified as the major downstream finance bottleneck. Approximately 50 to 70 percent of the African BoP is unable to afford SPLs at the \$10 price point. Lantern price and costs remain the main drivers of end-user adoption. Effective consumer financing models have the potential to reduce upfront costs and increase the size of the addressable market. Innovative models of consumer financing include product bundling, payroll finance, MFI-financing for small retailers/village-level entrepreneurs and pay-as-you-go models.
 - *Distributor-dealer network:* These networks serve as the most popular distribution channel among interviewed manufacturers. Some existing “second generation” manufacturers have begun establishing proprietary distribution networks, with integrated financing mechanisms. Sales have grown across all distribution channels, with the most rapid growth witnessed for the distributor-dealer channel.
 - *Consumer awareness:* Consumer awareness among the African BoP for SPLs has improved, but remains low, particularly within remote rural areas. Targeted and effective consumer awareness programs, despite their positive impact on consumer willingness to pay, remain difficult to design and expensive to execute. The need for consumer awareness interventions has increased as the market has reached a more advanced stage of development in some locations. The differential impact of various marketing and /or consumer education tools used by industry players, including donors and associations, is uncertain at best. Anecdotally, the majority of manufacturers and distributors have indicated that word-of-mouth is the most effective way to convince customers of the benefits and value of SPLs.
 - *Policy:* At least six countries (Kenya, Uganda, Ethiopia, Ghana, Cameroon and Burkina Faso) have made progress by lowering or removing import duties and/or value added taxes (VAT) for

solar lighting products. However, even in these countries enforcement is uncertain. Policy barriers in the form of import taxes and VAT can add between 10 and 25 percent to the final SPL cost, and in some markets, particularly in West Africa, remain a major barrier to market entry and scale up.

- *Market spoilage:* Quality off-grid lighting products represent an increasing market share in Africa. Approximately 40 SPLs have passed minimum quality standards. Quality standards are also being adopted and propagated by a large number of international development and donor agencies such as Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Asia Development Bank (ADB), UK Department of International Development (DFID) and the United Nations Environment Program (UNEP). Nonetheless, market spoilage exists due to poor quality products prevalent in the marketplace.

- **Recommendations:**

- Encourage, support and incentivize the continued development of high-quality, low cost products for off-grid customers.
- Facilitate a pool of funding (from donors, governments and interested private partners) to provide grants / low-interest loans to manufacturers wishing to provide trade credit to their distributors. Develop a centralized facility for Clean Development Mechanism (CDM) programs. Encourage interesting and innovative pilots and develop sustainable partnerships between players exploring consumer financing models for SPL end users. Continue seeking innovative and potentially high value private partnerships with complementary distribution channels. Increase the level of coordination and collaboration among market players for consumer education and awareness activities. Increase the focus of consumer education and awareness activities on small retailers and dealers, not just end users. Continue lobbying governments and policy makers to reduce / eliminate duties and taxes on solar goods (both solar components as well as fully assembled SPLs). Encourage collaboration between market players, associations, governments and donors to drive alignment of product quality standards with national ones. And, facilitate the development of new testing centers and increase the footprint and activities of industry associations like Lighting Africa, in countries such as China or India.

Mr. Gunnar Wegner, Endev/GIZ, discussed lessons learned from field tests of pico-hydro photovoltaic systems, in Africa, Latin America and Asia. What GIZ has found is that inexperienced customers prefer bright lamps and traditional hurricane lamp design while experienced users prefer products with multiple uses, room lighting, robustness and mobile phone charging. In the tests for kerosene lamps, baseline expenditures were about \$2.50 per week, with lamp owner expenditures of \$1.70 per week. Modern off-grid lighting savings were about \$0.80 per week or roughly \$40 per year (based on experiences in Uganda, Peru, and Bolivia); with savings depending on energy usage patterns. Lessons learned from users were that access to financing is needed and the impacts of pico-PV include improved health, income, and access to communication and accident rates.

V. Financing Across the Supply Chain

This session was chaired by Simon Desjardins, Program Manager, Access to Energy, Shell Foundation. Speakers were Yemonzwork Girefie Nardos, Development Bank of Ethiopia; Keith Allman, Investment Manager, Bamboo Finance; Patrick Nyagaka Mokaya, Bank of Africa Trade Finance Facilities for SMEs; Simon Gathecah, Head of Operations, Small and Micro Enterprise Program DTM Ltd; and Kenjiro Suzuki, Programme Officer, Standard Setting Unit, UNFCC.

This session highlighted a number of areas required for financing support across the supply chain for the off-grid market sector:

- Early stage companies need some level of equity support from impact funds and smart grants that facilitate both managerial capacity as well as working capital finance; this applies particularly to manufacturers.
- Distribution finance is a major gap in the supply chain. Banks have traditionally not been supportive as they deem the risks as too high. Commercial banks need to catch up and innovate by leveraging various opportunities such as contract finance and aggregation.
- MFI's have been brought into various aspects, including financing of distributors and consumers in last mile. However, the limited sources of MFI finance make interest costs quite high.
- Development banks need to play a more significant role as market makers and catalysts, yet many tend to fall back on commercial bank style lending.
- Carbon finance has been touted as a good source of funding and is expanding in Africa, including for CDM finance. However, the impact of solar lantern for carbon dioxide (CO²) emission reductions is small and carbon rates in the market are currently low. Carbon market registration is deemed too high and could be a source of support if the market was aggregated and supported with large numbers of contributors.
- Impact funds and donors could provide crucial support through smart grants operating as a concessional loan rather than an outright grant, particularly in access to trade finance.



Visitor at the Trade Fair

This session demonstrated a very high need for access to finance. Manufacturers believe that access to finance needs to be prioritized in order to create significant benefits down the supply chain. Distributors and banks felt that support for supply channels and last mile ought to be provided in order to ensure closure of the loop.

VI. Closing Session

Led by Philippe Durand, Lead Energy Specialist, World Bank Office, Dakar.

DAY 2: NOVEMBER 14, 2012

VII. A: Products Advances in Off-Grid Lighting

Dr. Russell Leslie, Associate Director, Lighting Research Center, Rensselaer Polytechnic Institute, served as chairperson for this session. He noted that the lighting market is undergoing significant transformation in product design and quality. This session addressed technology trends and opportunities for system efficiency and performance improvements and discussed progress in the core elements of off-grid lighting products—solar modules, batteries and lighting source.



Dr. Russel Leslie, Rensselaer Polytechnic Institute

Kevin Gauna, Lighting Africa Consultant, reviewed the “system level” efficiency of off-grid lighting products. He noted that increases in efficiency could lead to lower manufacturer costs (e.g., allow for a smaller photovoltaic panels for given light output) and that big increases in LED efficacy has been a key driver in increasing overall system efficiency.

He identified system losses from the solar potential all the way through LED and optics indicating that 144 lumens/watt are potentially achievable with today’s state of the art technology, 73 lumens/watt are measured from top performing products tested by Lighting Africa and 28 lumens/watt are measured from the bottom performing products tested by Lighting Africa. In summary, lighting efficacies and system efficiencies can be useful in determining the weak links in system design and the associated opportunities for product improvements.

Mr. Martin Bellamy, Industry Expert, provided a review of PV technologies, indicating that most all PV today is crystalline. Thin-film technologies are promising for off-grid applications but the market has “stalled” to date. Thin film offers some interesting benefits in terms of flexibility, versatility, durability and effectiveness without direct light. In the recent past, the PV market has grown very quickly, due to increased efficiencies and declining costs.

On-grid applications dominate the market with a push towards bigger modules. Over 80 percent of the market share in 1980 was off-grid whereas today this segment accounts for five percent or less of market share. The capacity of crystalline PV is much higher than demand, leading to a collapse of the market. Further, crystalline has serious limitations for small module and off-grid applications. In conclusion, the market is dependent on crystalline into the mid-to long-term as price drops have driven thin-film technologies—the chief competitor—out of the market.

Ryan Hunt, Country Manager, OSRAM Opto Semiconductor. South Africa indicated that the LED market has experienced a rapid rise in efficacies with LEDs, which are predicted to rapidly gain market share in traditional lighting markets. Factors affecting LED technology include efficacy, lifetime, price and color rendering. Also, new phosphorus technologies allow for higher efficacies and lower color shift as LED junction temperatures increase.

Peter Adelman, Industry Expert, described the basics of Pico PV systems (Pico PV = solar lanterns and solar home systems). He indicated that due to the recent drop in PV costs, batteries are now by far the most costly element of Pico PV systems. Different batteries are available for pico PV systems. These are:

- Lead-acid: The traditional technology in this area. This is not ideal for applications where they are not often fully charged (such as in Pico PV applications).
- Nickel Metal Hydride/Nickel Cadmium (NiMeH/NiCd): Very simple charge control, limited but predictable life and efficiency. NiCd is very toxic and not recommended for Africa because of lack of recycling.
- Lithium Manganese Oxide (LiMgO₂), Lithium Cobalt Oxide (LiCoO₂), Lithium Iron Phosphate (LiFePO): Charge control is simple but urgently needed and efficiency is high but so is cost. LiFePO is very promising; soon it might be made to last as long as the PV module.
- Costs: Initial costs lowest for Pico-PV with Lead-Acid; Li has lowest 10-year lifecycle costs.

Audience Comments: In response to audience comments, testing was conducted over the last year. Line losses are captured in existing testing; lifetime loss testing is not captured in current testing. Lumen maintenance is not affected by changes in higher junction temperature LEDs. The self-discharge rate for batteries at high temperatures is as follows: Li is 1 percent per month, lead-Acid is 10 percent per month, and Ni is 15 to 50 percent. Finally, Li batteries should be oversized so they do not run dry.

VII. B. Going to Scale: Business Models for Off-Grid Lighting

This session was chaired by Mary Roach, Business Development Manager—Community Power from Mobile—GSMA Development Fund.

Pep Bardouille, Global Product Specialist, Clean Energy, IFC. Ms. Bardouille presented business models, innovative approaches and initiatives that have led to commercial success in rural areas.



Pep Bardouille, IFC

Emmanuel Leger, Head of Access to Energy, TOTAL, described Awango—the dedicated commercial brand of the Access to Energy program of TOTAL. Awango demonstrates TOTAL's commitment to a social business model, conveys its efforts to reach populations with no or limited energy access and communicates the specifics of TOTAL's offer in this area. In addition to its service stations' network, TOTAL is developing last mile distribution channels and working with NGOs, cooperatives, micro finance institutions, business-to-business channels, micro resellers and itinerant sales. TOTAL also works in partnership with other stakeholders to contribute to its social objectives and ensure widespread benefits. With GIZ, for example, TOTAL is working in Cameroon and Kenya on a two-year program that involves conducting a social impact study on lamps, training of 200 solar entrepreneurs, and awareness raising about solar energy and its benefits. Awango is in place in eight countries and under development in four countries.

Dr. Prabha Sinha, Founding Director and Co-Chairman, ZS Associates, focused on seven areas for going to scale. First, nothing kills a good product as fast as a bad distribution system; a good distribution system as fast as a bad product; and a company with a bad product as fast as lots of sales. Second the route to the customer should be done with local partners and through resellers. Third, sustainability equals profitability. Fourth, price and value are important. Fifth, marketing is vital. Sixth, in moving to the customer both market push and market pull forces will need to be addressed. Seventh, from product to market—the product is king and distribution is god.

David Small, Managing Director, Africa, d.light, defined the challenge in Africa. That is, despite advances and growth, the penetration of solar lighting products in Africa remains less than two percent. He then described d.light’s going to scale solution which focuses on three areas:

- **Availability.** Challenges include no established route-to-market; appropriate channels are undefined; and few retailers are willing or have the ability to offer credit. In response, d.light is working in 40 countries, has over 6,000 outlets and has established 10 field offices and four regional hubs.
- **Awareness.** Creating awareness is a difficult task. Key considerations are branding and media reach among rural BoP communities. This requires investment in awareness and education to include distributor training, customer outreach, communications and support materials.
- **Affordability.** The affordability challenge for end users includes high unit prices, upfront cash investment, cash constrained clients and lack of savings. To address this situation, d.light is working with M-Kopa Solar to leverage mobile payments and create a pay-as-you-go self-financing scheme to enable affordability without compromising quality. The advantages of mobile payment are: simple and easy to use; can engage via an existing and trusted medium of 18-20 million users; can easily customize payment plan to meet need; builds a strong end-user relationship; and accelerates availability. The disadvantage of mobile payment is it can only expand in countries with wide mobile-money penetration.
- **Key lessons.** Specialize on what each partner does best. For example, d.light brings the lighting system, M-KOPA focuses on technology/financing and Safaricom emphasizes distribution and visibility. Create a symbiotic relationship among partners, technology alone is not enough. Investment is required in new and improved products, market education, consumer awareness, end-user support and dedicated sales and operation teams.

VIII. A: Consumer Perspectives: Focus on Behavioral Change

Ellen Morris, Director of the Energy and Environment Program at the School of International and Public Affairs at Columbia University, chaired this session. She opened by presenting the context for energy access in Africa and the high price that people are paying for low-quality energy services. With kerosene prices increasing by more than 12 percent over the last two years and rural areas paying a premium, she noted that there is a great opportunity for modern lighting options if marketing and behavior change are taken seriously by all of the stakeholders.

Lillian Achieng, Regional Social Marketing Coordinator Exp, presented the Kenya Lighting Africa strategy for engaging consumers with social marketing methods. Lillian explained the range of approaches used in Kenya—including road shows, trade fairs, “pop-up” product demonstration booths and informational forums. They were looking for multiple connection points to reach people at the local level, most notably in the rural areas. With this comprehensive approach, Lighting Africa was able to

reach into a large number of communities and found that keeping the message simple, clear and action-oriented resonated the most with the potential customers.

Alison Malmqvist, Population Services International, discussed lessons that Population Services International has learned from the programs to promote adoption of condoms and mosquito nets in Africa. Through much trial and experimentation they learned that understanding the audience and placing him or her at the center of marketing strategies was key to success. The four key aspects of marketing—the right product, at the right price, available in the right place and with the right promotion—were also applicable in expanding lighting markets. Alison highlighted the need to spend resources on marketing to address the current mismatch she sees between lighting products and the customer.

Seydou Koita, Water and Sanitation Program the World Bank, discussed in more detail the many different things to consider in influencing social change—such as social norms, accessibility, motivation, perceived risks and access to financing. At the center is spending ample resources at the outset on research about consumer behavior, using techniques such as home visits with clients, focus groups and regular communication with field agents. On the role of gender, Seydou made it very clear that men and women need to be included in the advocacy and decision-making as they are both important in influencing change.

Focusing on an energy initiative in Kenya, *Jechoniah Kitala, Senior Advisor SNV*, presented an SNV program that supports awareness creation, consumer education and support for local enterprises in cooking and lighting products. Kitala stressed the importance of looking at a range of distribution models using existing systems such as agricultural value chains, savings and credit cooperatives and rural energy centers. SNV has found that consumer confidence is vital to the acceptance and purchase of clean energy systems. Moreover, a diverse set of clients calls for a diverse set of product offerings at a range of prices. Multiple actors must be engaged at different levels to tap into the market at the base of the pyramid.

VIII. B: Sustainability Issues

Rodd Eddy, Lighting Industry Expert, chaired the session which explored environmental and health benefits and costs associated with the adoption of new off-grid lighting technologies and steps being taken to mitigate costs.

Evan Mills, with the Lumina Project, Lawrence Berkeley National Laboratory, focused on the health and safety impacts of fuel-based lighting. He noted that kerosene is often the dominant fuel source generating off-grid lighting hazards, but is not the only source. Others include paraffin, candles, etc. Risks include lamp burns, house fires, fuel adulteration (mixing of kerosene and gasoline which causes explosions), kerosene ingestion, poor indoor air quality (mainly from wood for lighting but also for cooking), impaired visual health and poor health care services as many clinics have only intermittent lighting. Solutions include: fill information gaps; address subsidies to poor quality fuels such as kerosene; provide improved, modern lighting; and target interventions where the need is greatest (slums, clinics, etc.). Dr. Mills provided examples of the benefits of improved lighting at rural clinics in Tanzania and Nigeria, factories in Thailand, and elsewhere. He stressed that LuminaNet.org provides a social network to discuss these and other issues.

Bryan King, Lighting Management Consultants, described the Strategic Product Life-Cycle Management Plan for minimizing end of life waste through activities such as improved product design, implementation of national and sub-national product stewardship schemes and in-country capacity building in the area of

waste electric and electronic equipment management infrastructures. For off-grid lighting technologies, they are reviewing the types of materials that will reach the waste stream from lighting systems, batteries and power subsystems (such as PV). They are also looking at product/system quality and performance; end-of life management issues, such as recycling of lighting systems/components, hazardous materials, and power subsystems; and supply chain and product lifecycle management. Finally, Mr. King set forth product life-cycle management options, to include the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal; the E-Waste Africa Project which seeks to enhance the environmental governance of e-wastes and create favorable social and economic conditions for partnerships in recycling; and the Mobile Phone Partnership Initiative. He also raised issues related to sustainable design, product stewardship and the supply chain.

Peter Alstone UC Berkeley and Patricia Lai, Schatz Energy Research Center, discussed the life-cycle energy benefits of off-grid lighting. Their analysis accounted for embodied energy manufacturing and offsets in the field, to include estimation of total energy to manufacture and delivered product; reduction in kerosene consumption rate as a result of adoption; energy payback, e.g., how fast until breakeven; and energy return on investment (EROI) which is the ratio of total kerosene offset to embodied energy over the product lifetime. The life cycle analysis demonstrated that off-grid lighting pays environmental debts quickly and many times over, and that product quality and performance assure environmental benefits as well as end user satisfaction.

IX. A: Quality Assurance in the Off-Grid Lighting Market

Dr. Arne Jacobson, Director Schatz Energy Research Center, served as session chair. In setting the stage for this session, Dr. Jacobson outlined three key quality assurance (QA) propositions: (1) effective QA is an important foundation for off-grid lighting market growth; (2) international harmonization of QA, including test methods and quality metrics, benefits manufacturers and end-users; and (3) QA efforts should be sustained for years to come, extending beyond the life of the Lighting Africa and Lighting Asia programs. He described the Lighting Africa QA program, which includes standardized testing methodologies (multi-level), minimum quality and durability standards, program specific performance targets and standardized specification sheets. Dr. Jacobson also reported on recent progress and next steps, including over 100 products tested, with 46 currently meeting minimum quality standards; creation of standards and test methods for off-grid lighting products; creation of an independent, sustainable certification body for QA (in process); and recruitment of new commercial laboratories with the capability to test the Lighting Global Quality Test Method (LG-QTM) to expand the test lab network.

Audience Comment: How to Deal with Quality Labels? Dr. Jacobson responded that Lighting Africa is working on this, but it is a key challenge. The plan is to start with a business-2-business (B2B) label that companies would be free to use in conducting a marketing campaign. A consumer label would be more difficult for legal and financial reasons (harder to market); nonetheless, this is one of the end goals.

Paul Waide, Waide Strategic Efficiency Limited, summarized the strategy developed by Navigant for a sustainable global solar off-grid lighting assurance effort. It focused on four areas:

- **Background.** Navigant is supporting development of a strategy to sustain off-grid lighting quality assurance efforts beyond IFC and World Bank funding.
- **Need.** Upfront costs of off-grid lighting products are significant for consumers who also face steep challenges in assessing product quality. End-users are unable to tell much about off-grid lighting product quality by inspecting the product other than the initial light output (brightness and color) and

directional characteristics. Product reliability is also hard to evaluate. Assessing these issues is important as the fate of the solar off-grid lighting market hinges on quality assurance.

- **Strategy.** Today, the Lighting Africa off-grid lighting quality assurance program has three components: standards, product testing and verification and marketing. Navigant has made five recommendations to sustain quality assurance efforts and stimulate supply and demand of quality assured off-grid lighting products, beyond funding available from Lighting Africa. These are: (1) institutionalize an international off-grid quality standard; (2) develop an independent off-grid lighting quality assurance *certification body* to certify products, maintain standards, provide public information, assist manufacturers/producers, promote certification with buyers and raise funds to support a certification body; (3) rapidly create demand for quality-assured off-grid lighting products using a B2B approach; (4) develop customer facing quality assurance communication options (via a pilot activity); and (5) build international commitment to use quality standards and adopt an approach for this. The proposed certification body would carry out the five recommendations. At a smaller scale, the Lighting Africa Quality Assurance Program has been performing many of the functions that an Off-Grid Lighting Certification Body would perform.
- **Next Steps.** Addressing key issues in successfully transitioning the Quality Assurance Program to a Certification Body, including identification of potential long-term funding sources and potential implementation partners.

Audience Comments: For manufacturers who are not certified...why are they not certified? Are the fees a barrier? What is the incentive for the non-certified products?

In the context of Lighting Global, that is one element of becoming an associate to Lighting Africa, which affords benefits in the form of program support. Testing is a prerequisite for engaging and getting support for marketing throughout the supply chain. In terms of the cost of testing it could be a barrier, although the benefits outweigh the costs, substantially. Several companies are in the process of engaging now, and sometimes the issue is on the part of the company (poor quality) while other times the issue is that the product simply has not been tested.

R. Mark Davis, Public Interest Intellectual Property Advisors (PIIPA), highlighted that PIIPA provides pro bono intellectual property support to companies that work in the developing world. PIIPA addresses counterfeiting which is a global problem—the World Economic Forum estimates that globally, counterfeiting accounts for between 7 and 10 percent of global trade (about \$1.3 trillion annually) which is larger than the Gross Domestic Product of 150 economies. In the East African Community, research found an estimated \$500 million in revenues from unpaid taxes was lost to counterfeit goods. Violations lead to multiple problems from the company perspective: lower sales volume and prices, damaged brand value, reduced royalties, less incentive to invest in new products/processes, higher costs, potential reduction in scope of operations and litigation due to product recalls. Economy-wide impacts include lack of motivation for innovation, lower tax revenues, corruption and crime. Any electrical product can be copied. Intellectual property infringement occurs with trademarks, copyrights, patents and design rights. To combat counterfeiting a company should spend roughly about \$5,000 to 10,000 if the cost to fail is approximately \$100,000. Counterfeit detection techniques include visual inspection (\$1,000 to \$3,000); X-ray (\$3,000); electrical characterization (\$3,000 to \$6,000); mechanical robustness (\$2,000 to \$5,000); and destructive tests (\$6,000-\$10,000). At the national level, two of the principal challenges in combating counterfeiting and piracy are to find ways to enhance enforcement and raise awareness of counterfeiting and piracy issues. Internationally, the Global Congress Steering Group is working multilaterally to determine new strategies to fight counterfeiting. Recommended practices are ensure a traceable supply chain, foster cooperation and accountability between all participants, increase transparency, include provisions in supplier contracts that facilitate and improve oversight, calibrate supplier assessments according to risk, engage with suppliers/subcontractors, develop procedures for

dealing with counterfeit parts, work collaboratively with government authorities to support product safety and quality and increase awareness among consumers and end users regarding the hazards of counterfeits.

In closing, there is no simple solution or remedy that can be applied to eliminate counterfeiting; protection of Intellectual Property Rights is an issue to which governments and industry have assigned higher priority in recent years and it is only through the combined efforts of all sectors that piracy can be stopped.

IX. B. Reaching the Last Mile: Issues and Approaches

Ms. Eva Oberender, Programme Director, Renewable Energy and Energy Efficiency Partnership, chaired the session and described REEEP which serves as a catalyst for up scaling successful clean energy business models. REEEP conducts project calls for business enabling mechanisms, analyzes and aggregates peer reviews, provides financing for project scale up, leads cutting edge data management in clean energy and supports local champions in developing countries. REEEP has funded 160 projects with 14.4 million Euros, while leveraging 29.4 million Euros and avoiding 56 billion tones of CO₂ emissions. Ms. Oberender presented examples of projects that REEEP has supported in India, Ethiopia, Solomon Islands, Kiribati and Sub-Saharan Africa. REEEP has also been a supporter of the three Lighting Africa conferences.

Steve Andrews, CEO, Solar AID and Sunny Money, noted that the organization has sold 205,000 lights in the last three years of which 135,500 were in the last seven months. In 2012, the company is forecasting 360,000 with one million in lighting sales projected for 2013. Sunny Money is looking for partner countries interested in their products, lighting manufacturers that want to collaborate, financiers that can help fund the company's growth and potential sellers of their solar lights.

Dennis Tessier, Programs Director, Appropriate Rural Technology Instituted, Tanzania, described Arti Energy's effective off-grid distribution model for going to scale in Tanzania. ARTI Energy is a collaboration between: (1) the Appropriate Rural Technology Institute in Tanzania, a non-profit established in 2007 to support Tanzania development through the dissemination and application of sustainable technologies for energy production, environmental protection, employment and income generation; and (2) ARTI Energy Limited, a commercial enterprise created in 2011 to identify quality renewable energy products, market them to Tanzanian consumers and provide support of quality sales and service. Arti Energy has supported the Lighting Rural Tanzania program which seeks to disseminate low cost solar systems to rural populations using existing trade channels and traditional credit systems. Arti trains and equips local technicians at each wholesaler and retailer to repair lights as required and provides marketing support in the form of banners, posters, flyers and demonstrations during road shows.

Bozhil Kondev, GIZ, discussed strategies for achieving widespread adoption of pico-PV devices. He noted three key elements to achieve wider adoption:

- The right product, where priorities are product acceptance, quality, durability and field performance.
- Product distribution and retail infrastructure, where key characteristics for widespread adoption are end-user awareness of the product and benefits, the product is widely available locally with no supply shortages, the distributor understands the local conditions, the distributor and retailer can sustain business and there are a variety of financing options to obtain the product.

- After-sales services and repair, with priorities to include access to product repair and replacement, distributor and service agents that can address warranty claims, service agents who can repair/replace the product and users who are aware of servicing and repair infrastructure and can easily access it.

Each of these elements are important but are not always practiced.

X. The Future of Off-Grid Lighting: Perspectives from Around the Globe

Ms. Dana Rysankova, Africa Renewable Energy and Access Program Manager, The World Bank, chaired the Session. She noted that this is an interactive session with the Lighting Africa and Asia project management team to: (1) provide their perspectives and priorities for partnering with other organizations; and (2) seek audience feedback and input. Ms. Rysankova also acknowledged the support of ASER in co-hosting the event and sponsors including TOTAL, Schneider Electric, dole, ESMAP, USDOE and REEEP.

Ms. Rysankova noted that since its inception, the Lighting Africa program has facilitated the sale of over 4 million “quality” products in the Africa marketplace. Further, costs for modern lighting products/components have come down and performance has gone up. To date, Lighting Africa has focused the major part of its efforts on product quality and technology. It is now necessary to expand activities towards testing business models for scale up, enhancing distribution channels for reaching the bottom of the pyramid and building partnerships and collaborative arrangements—as the needs of the program are beyond the capabilities of the World Bank and IFC. Further regional expansion of the program is underway. In East Africa, priority countries are Tanzania and Ethiopia and in West Africa Senegal and Nigeria.



Session panelists from left to right: Daniel Murphy, Arthur Itotia Njagi, Patrick Avato, Dana Rysankova, Richenda Van Leeuwen, and Harald Schützeichel

Arthur Itotia Njagi, Program Manager, Lighting Africa, IFC, indicated that proven off-grid lighting products exist and they have been shown to meet consumer demands, however, more work is needed to increase consumer awareness of the benefits of these products and enhance market demand. On the supply side, Lighting Africa will be increasing efforts to strengthen the supply chain for reaching the end consumer. The program will also help to link manufacturers and local distributors and further map out the distribution chain. Plans are also underway to provide financial support in the form of matching funds for priorities. The program is moving from a centralized approach to the distribution of discretionary funds for the development of well manufactured products. The program is also seeking trade finance solutions and customer finance such as microfinance (working with Shell Foundation and the Global Village Energy Partnership) and pay-as-you go solutions.

Daniel Murphy, World Bank Lighting Africa Program Manager, indicated that The World Bank is committed to continued support of Lighting Africa. Planned activities include incorporating Lighting Africa into conventional lending activities which involve the preparation of energy access projects, including finding innovative ways to incorporate modern lighting. The Bank is already doing this today in a few countries and will expand efforts in future projects. To accomplish this, the Bank will provide incentives, such as supply side subsidies for distributors (short term, targeted) and outsourcing by third parties in a transparent manner. At present, these approaches are being tested in Liberia and the Democratic Republic of Congo (DRC).

At the facility level, the Bank is working with schools and health clinics to introduce quality lighting products and stimulate demonstration effects. Distribution and after-sale service will evolve. The Bank is currently working on these activities in Tanzania and Ethiopia and will be expanding efforts in Senegal, with plans to move to DRC, Sierra Leone and Burkina Faso.

Patrick Avato, Lighting Asia, IFC Climate Business, Europe and Central Asia, highlighted that compared to the first conference in 2008, this event has involved the participation of more companies and improved products, and it is evident that a “modern lighting industry is evolving”. Four years ago participants represented corporate social responsibility programs and NGOs, whereas today we have more professional products with the participation of a range of manufacturers and distributors, to include multi-national companies that are partnering on the ground with smaller companies. In 2008, GIZ was Lighting Africa’s key international partner; today this has broadened to include the UN Foundation, Global LEAP, GOGLA, etc. It is exciting to witness a 300 percent growth in sales in the last three years, yet we have to recognize we started from a very low point.

Four years ago environmental sustainability was identified as an issue. At that time our discussions were theoretical, whereas now it has emerged as a priority for many companies in the marketplace. Importantly, GOGLA has now been established and is working to bring the industry together. Some issues are common across the industry, while others are specific to a particular segment. As an association, GOGLA can work with industry members to find solutions, doing so in partnership with the World Bank and IFC. As we move forward, it will be interesting to see which aspects of work can be best assumed by the Association, and what the role of others may be. Lighting Africa has agreed that the next international conference will be organized jointly with GOGLA, as a key step in its maturation process.

Richenda Van Leeuwen, Global Leap, Executive Director and Climate Energy Access Initiative UN Foundation, stressed that the organization has supported all three conferences and it is amazing to see how the sector has grown. Some of the prominent advances are that lighting and cell phone charging is now the norm; completion and choice is emerging, though still in early stages; and there is a wider variety of product price points, though there is still a need to see more. Women are key end users, which is

important; but they need to be incorporated throughout the supply chain as well. We are starting to see pay-as-you-go models to reach the last mile which can have an important impact on the market, and there is a stronger emphasis on consumer finance. Some additional areas requiring continued attention are: increase the efficiency of end-use appliances so they do not need as much power; improve service and maintenance, which has been an Achilles heel; and strengthen local trainers to support after-sale servicing so this does not always come from outside. The UN Foundation, which is part of the Sustainable Energy for All Initiative, has formed a global Energy Access Practitioner Network. The Network focuses on household- and community- level electrification for productive purposes, incorporating specific market-based applications for health, agriculture, education and small business.

The Network has several working groups to develop tools and ensure access to financing and local capacity development. Over the next year the Network will be developing sub-networks in India and Ghana. UN Foundation is also working with Global LEAP, the World Bank and USDOE on modern lighting issues and continues to support development of commercial markets, self sustainable models and open competition; improvements in energy efficiency; strengthening of enabling environments; and financing facilitation. The next clean energy ministerial will be held in India in 2013 and will include product awards by off grid lighting, flat panel television and other products—so stay tuned for this. With GOGLA and Global LEAP, the UN Foundation is about to launch a new website to serve as clearing house for relevant events, initiatives and funding sources.

Dr. Harald Schützeichel, President, GOGLA, noted this had been an excellent conference with lots of good information provided and products demonstrated. Compared to prior Lighting Africa events, the progress is demonstrated by the fact that more companies are now focused on customer service, not just sales. There was more attention to broader energy supply, not just solar, as well as a focus on more than energy to include televisions, cell phones, etc. However, there is still not sufficient attention to reducing power requirements in these and other applications. The industry is becoming more holistic, recognizing it cannot focus on quality, policy, business development, financing and training individually, but need to combine efforts across the spectrum. The balance may change in a given country but all these aspects are important. Also, today we do not have any production and assembly factories in Africa but this will need to evolve overtime.

In this regard, GOGLA is a new association, set up in Hong Kong with an office in Paris. It has been established to act as *the* industry advocate with a focus on small and medium enterprises. It is a neutral, independent, not-for-profit association created to promote lighting solutions that benefit society and businesses in developing and emerging markets. GOGLA will support industry in the market penetration of clean, quality alternative lighting systems. Formed in 2012 as public-private initiative, GOGLA was conceived out of the joint World Bank/IFC effort to provide a sustainable exit strategy for the Lighting Africa initiative. The association welcomes the participation of all stakeholders within the off-grid lighting sector. Although GOGLA is young, it is not powerless, with a strong Board of Directors and several major company participants. Today there are four working groups to build on Lighting Africa work: policy and regulation, product quality and standards, environmental sustainability and business models and market intelligence. Reports are made available to GOGLA members, which started with seven organizations and has grown to more than 20, with others welcome. GOGLA is also pleased to note that IFC, World Bank, DOE and others are continuing to support its efforts.

Audience Comments

- Agree that emphasis on maintenance and service quality is important. Quality assurance has been good but needs continued progress. Efforts are underway to harmonize standards.

- There are differing definitions of manufacturers. Companies develop products. Small companies conduct product design, manufacturers do physical transformation; they do not develop products.
- Do not think just of products but supply chains; it is not always clear how products reach rural users.
- Continue focus on financing across supply chains and design subsidies accordingly. Access to finance is not an easy challenge; we need to understand financial issues to address them
- There continues to be a lack of enforcement on duties and consistency of customs/import situations. There are instances where there has been limited training of customs officers to help them better understanding the process.
- In response to these comments, the panel noted that Lighting Africa cannot resolve all these issues today but will continue its efforts while enhancing partnerships with Lighting Asia, GOGLA, industry and others. It was stressed that all the stakeholders need to work together as we experience the shift from NGO to business; from individual project thinking to development; and from kerosene to modern lighting in rural areas. We need to continue to emphasize that quality lighting is as reliable as the grid. Off grid lighting and broader energy access can address many needs today until the grid is available. In many less developing countries there will never be a grid and there are alternate solutions making this unnecessary.



The Lighting Africa team

XI. Second Lighting Global Product Award Ceremony and Gala Dinner



2012 Outstanding Product Award winners and presenters

The Second Lighting Global Product Award Ceremony and Gala dinner was held on the evening of November 14. Award presenters were Jerome Creteigny, IFC, Senior Country Officer (Senegal, Cape Verde, Gambia, Guinea Bissau, Mali and Mauritania) and Graham Pugh, Director, Office of International Climate Change Policy and Technology, US Department of Energy.

A new manufacturer of portable solar lamps overcame tough competition to win two of the five 2012 Outstanding Product Awards announced at the event. Marathoner CLP dazzled judges and consumers with two products; a competitively priced single-task light powerful enough to light a room marketed as the Marathoner Beacon MB2 090 in Africa, and under the brand name SooLED B1 in Asia; and a three-lamp home lighting system, the Marathoner Beacon MB2 380/SooLED B3. Marathoner/Toomeen won top prize in the Budget Category and was the sole winner in the Premium Category.

This year Outstanding Products Awards attracted 25 entrants in three price-based categories Budget retailing under \$30; Mid-range for products priced between \$30-\$72; and Premium category retailing from \$72-\$135. Other winners were:

- Greenlight Planet Sun King Pro, which took the top prize in the Mid-Range Category. The Sun KingPro is a multipurpose lantern that can be used as a flash light/torch, a task light and a room light.
- The Sundial TSL01, an ambient/room light manufactured by Trony Solar Holdings, was the runner up in the Mid-Range Category.
- Barefoot Power task light, the Firefly 2.5 Mobile, came in second in the Budget Category.

The Lighting Global Outstanding Product Awards are designed to spur development of quality, affordable lights for an estimated 1.6 billion people in the world without access to electricity. Winners are granted rights to market their products using the phrase ***Lighting Global 2012 Outstanding Product Award***, and an associated logo.

Competing products were put through rigorous laboratory tests and evaluation by rural customers in Senegal, Kenya and India. A panel of judges considered technical performance and durability, end-user acceptance, affordability and environmental sustainability. There were strong nominees in all categories; only the very best entrants received awards. The judging panel was comprised of experts drawn from the UN Foundation; the German development agency, GIZ; the Global Off-Grid Lighting Association; the Schatz Energy Research Center at Humboldt State University; and the World Bank Group Lighting Africa and Lighting Asia programs.

DAY 3: NOVEMBER 15, 2012

Topical Side Events

08:30-10:30am: Investor Roundtable. This session presented views of financiers across the supply chain for off-grid products and services and engaged participants to share their perspectives and experiences.

08:30-10:30am: Increasing the Performance and Affordability of Off-Grid Lighting Products. Keeping up with the fast pace of technological progress in off-grid lighting requires a good understanding of system design and a thorough knowledge of the performance capabilities of emerging cutting edge components. This event brought together experts from the Lighting Global Quality Assurance team and product designers and executives from off-grid lighting firms to discuss technical and design trends with a combination of presentations and a panel discussion. The audience had an opportunity to be part of the discussion and help shape the future of Lighting Global technical support with an interactive and participatory format.

11:00am-13:00pm: Lighting Global Quality Assurance Program Stakeholder Discussion. This session provided private and public sector stakeholders with an opportunity to discuss key issues related to quality assurance for off-grid lighting with members of the Lighting Global Quality Assurance team. The discussion covered current topics and future plans related to quality standards, test methods, specification sheets and associated subjects.

11:00am-13:00pm: Carbon Finance. This session discussed carbon trading and how it works, opportunities for displacing kerosene lanterns and associated carbon reductions, the status of the carbon market worldwide and in key markets of Sub-Saharan Africa, and the role of CDM and other carbon finance mechanisms. Key stakeholders provided their experiences in generating carbon revenues and accessing credit facilities.

14:00-16:00pm: Business Edge—Improving Business Performance & Competitiveness. Business Edge™ is a world-class training system, which provides practical solutions for Small & Medium Enterprises (SMEs). Backed by IFC and delivered by certified local trainers, Business Edge™ seeks to strengthen the management skills of SMEs and middle managers of larger firms, providing them access to practical training solutions.

17:00-19:00pm: UN Foundation Energy Access Practitioner Meeting and Reception. The UN Foundation's Energy Access Practitioner Network is an integral part of the UN Secretary-General's Sustainable Energy for All initiative. The network's mission is to help catalyze action towards achieving universal access to modern energy services by 2030, through focusing on the contribution of mini-grid and decentralized energy services for households and communities. This discussion and reception provided an open forum for current and potential network members to learn more about the network, to plan regional activities in the coming year and to obtain updates on the overall Sustainable Energy for All initiative.

Appendix 1. Conference Agenda

| <i>MONDAY NOVEMBER 12</i> | |
|--|--|
| 13:00pm | <i>Associate set up of Trade Fair booths</i> |
| 14:00pm | <p><i>Exhibitor set up of trade fair booths</i></p> <p>(*Booths open during lunches, breaks, and evening receptions: November 13-14 and all day November 15)</p> |
| 17:00pm | <i>Conference Registration Open</i> |
| <i>TUESDAY NOVEMBER 13</i> | |
| 07:00am | <i>Conference Registration Open</i> |
| 08:30am <i>Plenary Session</i> | <p>I. Opening Ceremony Room: Grand Amphitheater</p> <p>Welcome: Aliou Goloko, Master of Ceremonies Chair: Vera Songwe, World Bank, Country Director for Senegal, Cape Verde, The Gambia, Guinea-Bissau, and Mauritania</p> <p>Keynote Address, Honorable Aly Ngouille Ndiaye, Senegal Minister of Energy & Mines, Senegal</p> <p>M. Momar Nguer, Senior Vice President, Africa & Middle East for Supply and Marketing, TOTAL</p> <p>Mohamed Saad, President, Africa and Caribbean Zone, Schneider Electric</p> <p>Kofi Adomakoh, Director, Project and Export Development Finance, African Export-Import Bank</p> <p>Arthur Itotia Njagi, IFC Lighting Africa Program Manager</p> <p><i>High level policy makers and executives from government, lighting, and finance sectors provide perspectives on the future of the off-grid lighting industry, to include experiences with others sectors targeting rural markets. The session focuses on the unique energy access challenges of rural markets while also highlighting the potential that new technologies can have to remedy the situation or provide an interim solution. It updates participants on the progress of Lighting Africa after five years in operation and sets forth plans for future activities—thus providing a basis for participant discussions and contributions.</i></p> |

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| 10:00am | <p>Coffee Break in Trade Fair Areas</p> |
| 10:30am | <p>II. Engaging the Public Sector Room: BC12</p> <p>Chair: Meike van Ginneken, Energy Sector Manager- West & Central Africa, The World Bank</p> <p>Panel Discussion:</p> <p>Antou Gueye Samba, General Manager, Agency for Rural Electrification, Senegal</p> <p>Grace Mathew, Manager, Rural Energy Agency, Tanzania</p> <p>Alemu Muleta Jiru, Coordinator, Renewable Energy Fund, Ethiopia</p> <p>Augustus Goanue, Executive Director, Rural and Renewable Energy Agency, Liberia</p> <p><i>The public sector has an important role to play in helping make modern off-grid lighting solutions a reality. This panel discussion tackles integration of modern off-grid lighting products into national access programs, the role of subsidies in helping spur demand and the challenges presented by import tariffs.</i></p> |
| 12:00pm | <p>III. Sustainable Energy for All: The Role for Off-Grid Lighting Room:BC12</p> <p>Chair: Richenda Van Leeuwen, Executive Director, Energy and Climate Energy Access Initiative, United Nations Foundation</p> <p>Panelists:</p> <p>Venkata Ramana Putti, Program Leader, Energy Access, Energy Sector Management Assistance Program</p> <p>Wolfgang Gregor, Secretary General, Global Off-Grid Lighting Association (GOGLA)</p> <p>Joel Lelostec, Director Business Development Access to Energy Program, Schneider Electric</p> <p>Secou Sarr, Director, Energy, Environment and Development Program, ENDA</p> <p><i>Created by UN Secretary-General Ban Ki-moon, Sustainable Energy for All brings together all sectors of society in support of three interlinked 2030 objectives: ensure universal access to modern energy services, double the global rate of energy efficiency improvement, and double the share of renewable energy in the global energy mix. The session describes initiative status and activities of the Sustainable Energy for All initiative in increasing energy access and provides perspectives by ESMAP and the private sector.</i></p> |

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| 13:00pm | <p>Lunch</p> |
| 14:30pm | <p>IV. Reaching the Base of the Pyramid: Impacts, Market Status, and Trends Room: Grand Amphitheater</p> <p>Chair: Russell Sturm, Head of Climate Change Advisory, IFC</p> <p>Africa Market Study, Gaurav Gupta and Michael Tsan, Dalberg Associates</p> <p>Lessons Learned from Field Tests and Impact Studies, Gunnar Wegner, EnDev/GIZ</p> <p><i>The off-grid lighting market has entered a growth phase led by technology advances, declining costs, performance improvements, entrepreneurial engagement, innovative market-based delivery models, and product designs matched to consumer preferences. This session provides an update on the 2010 "Solar Lighting for the Base of the Pyramid Report". The session provides valuable insights and up-to-date information on market trends, growth and development of off-grid lighting products in key African markets, and their impacts.</i></p> |
| 16:00pm | <p>Coffee Break in Trade Fair Areas</p> |
| 16:30pm | <p>V. Financing Across the Supply Chain Room: Grand Amphitheater</p> <p>Chair: Simon Desjardins, Programme Manager- Access to Energy, Shell Foundation</p> <p>Access to Finance, Yemenzwork Girefie Nardos, Development Bank of Ethiopia</p> <p>Social Funds, Keith Allman, Investment Manager, Bamboo Finance</p> <p>Bank of Africa's Trade Finance Facilities for SMEs, Patrick Nyagaka Mokaya, Regional Corporate Manager (East Africa), Bank of Africa Kenya Limited</p> <p>Simon Gathecah, Head of Operations, Small and Micro Enterprise Programme,(SMEP) DTM Ltd</p> <p>Kenjiro Suzuki, Programme Officer, Standard Setting Unit, UNFCC</p> <p><i>Growth capital for manufacturers, trade finance for distributors, and micro-finance for consumers are essential ingredients in development of the low cost off-grid market. This session creates a platform for interaction between financial institutions and social/private equity funds seeking to invest in the off-grid market on one hand, and manufactures/distributors looking for funding on the other. The session will discuss the challenges facing both early stage developers and those seeking to scale up their operations. It will present the various financial sources and</i></p> |

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| | <p><i>offerings available in the marketplace today and explore their practical application in helping to tap and exploit the potential demand in the off-grid lighting industry.</i></p> |
| <p>18:00pm</p> | <p>VI. Day 1: Wrap Up Room: Grand Amphitheater</p> <p>Philippe Durand, Lead Energy Specialist, World Bank Office, Dakar</p> |
| <p>18:30pm</p> | <p>Trade Fair Exhibition & Reception</p> |
| <p>WEDNESDAY NOVEMBER 14</p> | |
| <p>08:30am</p> | <p>TOTAL Breakfast Press Meeting - Awango by Total: the offer of solar solutions to develop access to energy Room: Small Amphitheater C106</p> |
| <p>09:00am <i>Concurrent Breakout Sessions</i></p> | <p>VII.A. Product Advances in Off-Grid Lighting Room: C05-06</p> <p>Chair: Dr. Russell Leslie, Associate Director, Lighting Research Center, Rensselaer Polytechnic Institute</p> <p>Technology Trends and Opportunities for System Efficiency and Performance Improvements, Kevin Gauna, Industry Expert</p> <p>Advances in PV Development, Martin Bellamy, Industry Expert</p> <p>Advances in LED Development, Ryan Hunt, Country Manager- OSRAM Opto Semiconductors, South Africa</p> <p>Advances in Battery Technology, Peter Adelman, Industry Expert</p> <p><i>Beyond price improvements, the off-grid lighting market is undergoing a revolution in product design and quality. This session addresses overall technology trends and opportunities for system efficiency and performance improvements. It also discusses progress in the core components of common off-grid lighting products — solar modules, batteries, and the light source, typically light emitting diodes (LEDs) — with a focus on the potential for these trends to benefit end users.</i></p> <hr/> <p>(OR)</p> <hr/> <p>VII.B. Going to Scale: Business Models for Off-Grid Lighting Room: BC12</p> |

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| | <p>Chair: Mary Roach, Business Development Manager - Community Power from Mobile- GSMA Development Fund</p> <p>Advancing Commercial Success in Rural Areas, Pep Bardouille, Global Product Specialist, Clean Energy</p> <p>Accumulators Perspective, Emmanuel Leger, Head of Access to Energy, TOTAL</p> <p>Meeting the Base of the Pyramid, Dr. Prabha Sinha, Founding Director and Co-Chairman, ZS Associates</p> <p>Mobile Payments, David Small, Managing Director, Africa, d.light</p> <p><i>Featuring business models, innovative approaches, and initiatives that have led to commercial success in rural areas, this session provides insights for bringing market-based solutions to scale. In particular, it seeks to learn from other sectors about key success factors in reaching scale and how successful companies achieved this. This session also examines the role of key stakeholders in the process—companies, SMEs, investors, policy makers, donors — and how to enlist their interest and participation.</i></p> |
| <p>10:30am</p> | <p>Coffee Break in Trade Fair Areas</p> |
| <p>11:00am <i>Concurrent Breakout Sessions</i></p> | <p>VIII.A. Consumer Perspectives: Focus on Behavioral Change Room: BC12</p> <p>Chair: Ellen Morris, President, Sustainable Energy Solutions</p> <p>Engaging Consumers with Social Marketing Methods for Lifestyle Change, Lillian Achieng, Regional Social Marketing Coordinator, Exp</p> <p>Changing Age Old Practices: Lessons from the Adoption of Condoms & Mosquito Nets in Africa, Alison Malmqvist, Population Services International</p> <p>Consumer Perspectives—A Journey in Behavior Change, Seydou Nourou Koita, Water and Sanitation Program, The World Bank</p> <p>Consumer Considerations in the Adoption of Modern Energy Technologies in the Base of the Pyramid, Jechoniah Kitala, Senior Advisor, SNV</p> <p><i>Lighting Africa is helping consumers to better understand and trust the new, modern off-grid lighting market. For the sector to grow, consumers must be able to assess the quality of a product and understand the benefits of swapping fuel-based lighting for clean, lighting options.</i></p> |

This session explores methods for consumer lifestyle changes, lessons learned from other sectors, and consumer perspectives on behavioral change. It also examines the role of social marketing in the success of behavior change campaigns across Africa and how these can be applied in off-grid lighting — focusing on areas of importance to manufacturers.

(OR)

VIII.B. Sustainability Issues

Room: C05-06

Chair: Rodd Eddy, Industry Expert

Health & Safety Benefits of Modern Off-Grid Lighting, Evan Mills, Lawrence Berkeley National Laboratory

Waste Contamination, Collection & Recycling, Bryan King, Lighting Management Consultants

Life-Cycle Energy Benefits from Off-Grid Lighting, Peter Alstone, UC Berkeley and Patricia Lai, Schatz Energy Research Center

There are clear environmental and social benefits to the adoption of quality assured off-grid lighting products in Africa and globally, including reduced greenhouse gas emissions and improved health from kerosene eradication. Off-grid lighting devices that can be recharged by renewable energy, human powered energy, or other sustainable sources offer the most environmentally sound option to generate energy for lighting. However, despite these favorable attributes, the introduction of any new technology comes with potential environmental and social costs. This session will explore environmental and health benefits and costs associated with the adoption of new off-grid lighting technologies and steps being taken to mitigate the costs.

12:30pm

Lunch

14:00pm

Concurrent Breakout Sessions

IX.A. Quality Assurance in the Off-Grid Lighting Market

Room: BC12

Chair: Dr. Arne Jacobson, Director, Schatz Energy Research Center

Quality Assurance Communication Strategies, Paul Waide, Director, Waide Strategic Efficiency

Intellectual Property Theft and Product Counterfeiting in the Off-Grid Lighting Market, R. Mark Davis, Public Interest Intellectual Property Advisors (PIIPA)

Poor quality off-grid lighting products, including some that are counterfeits of quality assured products, are entering African and Indian markets in large numbers. Low income end-users purchasing inferior goods often waste limited disposable cash, undermining consumer confidence. Developing a large, dynamic, and sustainable market for modern off-grid lighting requires careful attention to product quality and mitigation of the potential for "market spoiling." This session describes on-going activities to enhance quality assurance in this market while remaining flexible to ever changing market dynamics. Intellectual property and product counterfeiting will also be discussed.

(OR)

IX.B. Reaching the Last Mile: Issues and Approaches

Room: C05-06

Chair: Eva Oberender, Programme Director, Renewable Energy and Energy Efficiency Partnership (REEEP)

Solar AID, Steve Andrews, CEO

Practitioner Experience in Tanzania, Dennis Tessier, Programs Director, Appropriate Rural Technology Institute, ARTI

Tackling the Multitude of Challenges Along the Pico-PV Value Chain, Bozhil Kondev, GIZ

This session explores transformational marketing and route-to-market strategies aimed at rural and low income markets. Focusing on "out of the box approaches" and case studies it examines successful and innovative business models from other sectors with potential application for the off-grid lighting industry as it strives to reach the Base of the Pyramid.

15:30pm

Coffee Break in Trade Fair Areas

16:00pm

Plenary Session

X. The Future of Off-Grid Lighting: Perspectives from Around the Globe

Room: Grand Amphitheater

Chair: Dana Rysankova, Africa Renewable Energy and Access Program Manager, The World Bank

Arthur Itotia Njagi, IFC Program Manager, Lighting Africa

Daniel Murphy, World Bank Program Manager, Lighting Africa

Patrick Avato, Lighting Asia, IFC Climate Business, Europe and Central Asia

Richenda Van Leeuwen, Executive Director Global LEAP and Climate Access Initiative, UN Foundation

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| | <p>Global Off-Grid Lighting Association, Dr. Harald Schützeichel, President</p> <p><i>Interactive session with Lighting Africa and Asia project management team who provide their perspectives and priorities for partnering with other organizations and seek audience feedback.</i></p> |
| <p>19:30pm</p> | <p>Second Lighting Global Product Award Ceremony and Gala Dinner</p> <p>Room: The Salon Brun</p> <p>Master of Ceremonies: Aliou Goloko</p> <p>Awards Presenters:</p> <p>Jerome Creteigny, IFC, Senior Country Officer (Senegal, Cape Verde, Gambia, Guinea Bissau, Mali and Mauritania)</p> <p>Graham Pugh, Director, Office of International Climate Change Policy & Technology, U.S. Department of Energy</p> |
| <p>THURSDAY NOVEMBER 15</p> | |
| <p>09:00am</p> | <p>Trade Fair Exhibition</p> |
| <p>08:30am-19:00pm</p> | <p>Topical Side Events</p> <p><i>Concurrent Sessions:</i></p> <p>08:30-10:30am: Investor Roundtable</p> <p>Room: B12</p> <p><i>This session presents views of financiers across the supply chain for off-grid products and services and engage participants to share their perspectives and experiences.</i></p> <p>08:30-10:30am: Increasing the Performance and Affordability of Off-Grid Lighting Products</p> <p>Room: C12</p> <p><i>Keeping up with the fast pace of technological progress in off-grid lighting requires a good understanding of system design and a thorough knowledge of the performance capabilities of emerging cutting edge components. This event brings together experts from the Lighting Global Quality Assurance team and product designers and executives from off-grid lighting firms to discuss technical and design trends with a combination of presentations and a panel discussion. The audience will have an opportunity to be part of the discussion and help shape the future of Lighting Global technical support with an interactive and participatory format.</i></p> |

Concurrent Sessions:

11:00am-13:00pm: Lighting Global Quality Assurance Program Stakeholder Discussion

Room: B12

This session provides private and public sector stakeholders with an opportunity to discuss key issues related to quality assurance for off-grid lighting with members of the Lighting Global Quality Assurance team. The discussion covers current topics and future plans related to quality standards, test methods, specification sheets and associated subjects.

11:00am-13:00pm: Carbon Finance

Room: C12

Discussion of carbon trading and how it works, opportunities for displacing kerosene lanterns and associated carbon reductions, the status of the carbon market worldwide and in key markets of Sub-Saharan Africa and the role of CDM and other carbon finance mechanisms. Key stakeholders provide their experiences in generating carbon revenues and accessing credit facilities.

14:00-16:00pm: Business Edge—Improving Business Performance & Competitiveness

Room: B12

Business Edge™ is a world-class training system, which provides practical solutions for Small & Medium Enterprises (SMEs). Backed by IFC and delivered by certified local trainers, Business Edge™ seeks to strengthen the management skills of SMEs and middle managers of larger firms, providing them access to practical training solutions.

17:00-19:00pm: UN Foundation Energy Access Practitioner Meeting and Reception

Room: B02

The UN Foundation's Energy Access Practitioner Network is an integral part of the UN Secretary-General's Sustainable Energy for All initiative. The network's mission is to help catalyze action towards achieving universal access to modern energy services by 2030, through focusing on the contribution of mini-grid and decentralized energy services for households and communities. This discussion and reception is an open event for current and potential network members to learn more about the network, to plan regional activities in the coming year and for updates on the overall Sustainable Energy for All initiative.

----END OF CONFERENCE----

Appendix 2. Conference Registration List

| 3 rd International Off-Grid Lighting Conference and Trade Fair – Delegation List (Nov. 13-15, 2012) | | | | | |
|---|-------------|-----------|---|--------------|--|
| Company | First Name | Last Name | Title | Work Country | Registration Type |
| ACRA | Matteo | Cantoro | Country Manager - Senegal | Senegal | Africa/India Registrants/inscrits africains/inde |
| ADEA | Youssouf | Ndiaye | Responsable D'Agence | Senegal | Africa/India Registrants/inscrits africains/inde |
| Afric Building Services Group | Gueye | Ndongo | Directeur Général | | Africa/India Registrants/inscrits africains/inde |
| Africa Media Initiative | Aliou | Goloko | Programme Officer | Kenya | Africa/India Registrants/inscrits africains/inde |
| Africamic TV | Elmor | Diop | Manager Général | | Registrants other/d'autres déclarants |
| African Export-Import Bank | Kofi | Adomakoh | | Egypt | Invited Speakers/conférenciers invités |
| Afrisek energy | Nfaly | Sylla | | | Africa/India Registrants/inscrits africains/inde |
| Agence Nationale d'Electrification Rurale | Jean-Pierre | MPANDZOU | Attaché Chargé de l'énergie solaire et éolienne | | Africa/India Registrants/inscrits africains/inde |
| Aissa Dione Tissus S.A. | Aissa | Dione | Press | Senegal | Africa/India Registrants/inscrits africains/inde |
| Anji Dasol Solar Energy Science & Technology Co., Ltd. | Zhe | Wang | Sales Specialist | | Exhibitors/exposants |
| Anji DASOL Solar Energy Science & Technology Co., Ltd. | Jintao | Zhang | Sales Director | China | Exhibitors/exposants |
| Antenna | Christophe | Hug | | Switzerland | Exhibitors/exposants |
| AOS | Aly | Fall | | | Africa/India Registrants/inscrits africains/inde |
| Appropriate Rural Technology Institute | Dennis | Tessier | Director | | Invited Speakers/conférenciers invités |
| ARC FINANCE | KEVIN | KENNEDY | CONSULTANT EAST AFRICA | Uganda | Africa/India Registrants/inscrits africains/inde |

3rd International Off-Grid Lighting Conference and Trade Fair – Delegation List (Nov. 13-15, 2012)

| Company | First Name | Last Name | Title | Work Country | Registration Type |
|-----------|--------------|-------------|---|--------------|--|
| ASER | Seydou | Sagna | | Senegal | Africa/India Registrants/inscrits africains/inde |
| ASER | Rokhaya | Diao | | Senegal | Africa/India Registrants/inscrits africains/inde |
| ASER | Daf | Oumar Baila | | Senegal | Africa/India Registrants/inscrits africains/inde |
| ASER | Lamine | Camara | | Senegal | Africa/India Registrants/inscrits africains/inde |
| ASER | Awa | Diarra | | Senegal | Africa/India Registrants/inscrits africains/inde |
| ASER | Seynabou | Gueye | | Senegal | Africa/India Registrants/inscrits africains/inde |
| ASER | Mme Khady | Ndiaye | | Senegal | Africa/India Registrants/inscrits africains/inde |
| ASER | Niang | Badara | | Senegal | Africa/India Registrants/inscrits africains/inde |
| ASER | Mohamed | Sarr | | | Africa/India Registrants/inscrits africains/inde |
| ASER | Samb | Idrissa | | Senegal | Africa/India Registrants/inscrits africains/inde |
| ASER | Sarr Ousmane | Fall | Director for Studies and Information System | Senegal | Africa/India Registrants/inscrits africains/inde |
| ASER | Ousmane Fall | Sarr | | | Africa/India Registrants/inscrits africains/inde |
| ASER | Alassane | Sane | | | LA Team |
| ASER | Assane | Sene | | Senegal | Africa/India Registrants/inscrits africains/inde |
| ASER | Malick | Koita | | Senegal | Africa/India Registrants/inscrits africains/inde |
| ASER/CIER | El Hadji | Sylla | | Senegal | Africa/India Registrants/inscrits africains/inde |

3rd International Off-Grid Lighting Conference and Trade Fair – Delegation List (Nov. 13-15, 2012)

| Company | First Name | Last Name | Title | Work Country | Registration Type |
|--|-----------------|------------------|----------------------------------|----------------|--|
| ASER/DFER | Omar | Thiam | | Senegal | Africa/India Registrants/inscrits africains/inde |
| ASER/DTR | Mohamadou Bamba | Thiam | Minister Justice | Senegal | Africa/India Registrants/inscrits africains/inde |
| Association nationale Des Conseils Ruraux ANCR | Mouhamadou Abib | Niass | Secrétaire Permanent - Trésorier | Senegal | Africa/India Registrants/inscrits africains/inde |
| ASSOCIATION SENEGALAISE D'ENERGIE SOLAIRE (ASES) | Ba | Aliou | Président Permanent | | Africa/India Registrants/inscrits africains/inde |
| Azimut SRL, photovoltaïque Technologies | Issa | Kane | | | Africa/India Registrants/inscrits africains/inde |
| Azuri | Dr. Simon | Bransfield-Garth | | United Kingdom | Associate Exhibitor |
| Azuri | Dr. Sebastian | Schoefer | | | Exhibitors from Sub-Saharan Africa |
| Azuri | Dr. Nigel | Preston | VP Product Management | | Exhibitors from Sub-Saharan Africa |
| Bamboo Finance | Keith | Allman | | | Invited Speakers/conférenciers invités |
| Bamboo Finance | Florian | Ulmer | Finance Manager | | Registrants other/d'autres déclarants |
| Bamboo Finance | Christian | Schattenmann | CFO | Switzerland | Registrants other/d'autres déclarants |
| Bank of Africa Kenya Limited | Patrick | Mokaya | | | Invited Speakers/conférenciers invités |
| Barefoot Power | Andrew | Barson | | | Africa/India Registrants/inscrits africains/inde |
| Barefoot Power | Boldwijn | Sloet | | Uganda | Associate Exhibitor |
| Barefoot Power | Moses | Agone | | | Africa/India Registrants/inscrits africains/inde |
| Barefoot Power | Kathryn | Pentecost | Sales Consultant | Kenya | Africa/India Registrants/inscrits africains/inde |
| Barefoot Power | Anne Kayiwa | Kaggwa | | | Africa/India Registrants/inscrits |

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| | | | | | africains/inde |
| Barefoot Power | Biodun | Olaore | | | Africa/India Registrants/inscrits africains/inde |
| Barefoot Power | Kwasi | Gyeabour | | | Africa/India Registrants/inscrits africains/inde |
| Barefoot Power | Eliza | Hogan | | | Africa/India Registrants/inscrits africains/inde |
| Barefoot Power Pty Limited | Becca | Schwartz | Business Development Manager, West and Central Africa | Australia | Africa/India Registrants/inscrits africains/inde |
| BBOXX | Jessica | Tomlin | | | Registrants other/d'autres déclarants |
| BBOXX | Laurent | Van Houcke | Partner & Director of Global Operations | United Kingdom | Exhibitors/exposants |
| BBOXX | Rocio | Perez-Ochoa | | | Registrants other/d'autres déclarants |
| BBOXX | Mansoor | Hamayun | Partner & Director of New Markets | Uganda | Africa/India Registrants/inscrits africains/inde |
| Beka | Daniel | Kasper | Mr | South Africa | Exhibitors from Sub-Saharan Africa |
| BERD Bureau d'Électrification Rurale Décentralisée | Mamadou Saidou | Diallo | Responsable Technique, Ministry of Energy | Guinea | Invited Speakers/conférenciers invités |
| BESTNET A/S | Lars | Hansen | | Denmark | Registrants other/d'autres déclarants |
| Beutelreusch | Peter | Adelmann | Industry Expert | | Invited Speakers/conférenciers invités |
| BMA - International | Baba | Moulaye | Directeur Général | Mali | Africa/India Registrants/inscrits africains/inde |
| BNSTP Senegal (Bourse Nationale de Sous-traitance et de Partenariat du Senegal) | Mamadou | Sow | Head of Department Sous - Traitance | | Africa/India Registrants/inscrits africains/inde |
| BRIGHT Products | Olivier | Butstraen | | | Booth Pass Only |
| BRIGHT Products AS | Kristian | Bye | CEO | Norway | Exhibitors/exposants |
| Business World newspaper | Anne-Cecile | BRAS | Journalist | | Africa/India |

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| | | | | | Registrants/inscrits africains/inde |
| Canopus Foundation | Peter W. | Heller | Dr. | Germany | Registrants other/d'autres déclarants |
| Canopy | Fabrizio | Nastri | Chairman of the Board - Cameroon | | Africa/India Registrants/inscrits africains/inde |
| Canopy Cameroon | Thierry | Njomgang | Project Director - Cameroon | Cameroon | Africa/India Registrants/inscrits africains/inde |
| CDS-Eau et Energie | Mohamed Abdellahi | Lemrabottt | | | Africa/India Registrants/inscrits africains/inde |
| CECEP Oasis New Energy Co | Zhenpeng | Guo | | | Booth Pass Only |
| CECEP OASIS NEW ENERGY COMPANY | HUANG | XINGHUA | | China | Exhibitors/exposants |
| CERER (Study & Research Center for Renewable Energies) | Omar | Kane | | Senegal | Africa/India Registrants/inscrits africains/inde |
| CERER (Study & Research Center for Renewable Energies) | Amadou | Tidiane | Ingénieur | Senegal | Africa/India Registrants/inscrits africains/inde |
| CERER (Study & Research Center for Renewable Energies) | El | Mar | | | Africa/India Registrants/inscrits africains/inde |
| CERER (Study & Research Center for Renewable Energies) | Diop | Adama | | Senegal | Africa/India Registrants/inscrits africains/inde |
| CERER (Study & Research Center for Renewable Energies) | Professor Issaka | Youm | Director | | Africa/India Registrants/inscrits africains/inde |
| CHEIKH ANTA DIOP (UCAD) / EPT / SIFRES | Pierre | Ndiaye | Services des relations extérieures | | Africa/India Registrants/inscrits africains/inde |
| Cheikh Anta Diop University of Dakar | Elmar Dimpl-Von | Lossau | Expert In Renewable Energies | Senegal | Africa/India Registrants/inscrits africains/inde |
| CISSE ENTREPRISE | Ndeye Fatou Cisse | Barry | | | Africa/India Registrants/inscrits africains/inde |
| clarion | test2 | test2 | test | Australia | Africa/India Registrants/inscrits africains/inde |
| CLASP/Global LEAP | Matt | Jordan | Program Manager | USA | Registrants |

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| | | | | | other/d'autres déclarants |
| Columbia University, School of International and Public Affairs | Ellen | Morris | Director of Energy and Environment Concentration | USA | Invited Speakers/conférenciers invités |
| Comasel | Bakary | Daffe | Directeur Administratif et Financier | Senegal | Africa/India Registrants/inscrits africains/inde |
| COMNAC (Comite National Changement Climatique) | El Hadj Mbaye | Diagne | Président | | Africa/India Registrants/inscrits africains/inde |
| Compagnie De L'Eau De L'Energie Et De L'Environnement C3E SARL | Mouhamadou Lamine | Ndiaye | Directeur | Senegal | Africa/India Registrants/inscrits africains/inde |
| ConCrea | Cheikh Oumar | Daffe | Area Manager Pour Le Senegal | Italy | Africa/India Registrants/inscrits africains/inde |
| ConCrea | Boubacar | Gueye | Area Manager Pour Le Senegal | Italy | Registrants other/d'autres déclarants |
| Conseiller Planificateur Econome Energie | Papa | Ndiaye | Ministere de la Sante et de l'Action Sociale | | Africa/India Registrants/inscrits africains/inde |
| Coopération Technique Belge | Laurence | Janssennes | Représentant / Opening | | Africa/India Registrants/inscrits africains/inde |
| CREEC | Steffen | Wassler | | Uganda | Africa/India Registrants/inscrits africains/inde |
| d.light | Arlin | Tao | | | |
| d.light | Michael | Muthigani | Regional Business Manager New Markets Africa | | |
| d.light Design | David | Small | MD Africa | Kenya | Associate Exhibitor |
| Dalberg | Gaurav | Gupta | Dalberg Partner and Asia Region Director | | Invited Speakers/conférenciers invités |
| Dalberg | Michael | Tsan | Partner | USA | Registrants other/d'autres déclarants |
| Dalberg | James | Mwangi | Global Managing Partner | South Africa | Africa/India Registrants/inscrits africains/inde |
| DASSY Enterprise Ltd | Francois d'assise | NEZERWA | Managing Director | Rwanda | Africa/India Registrants/inscrits africains/inde |

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| De Egg | Donatien | Mourmant | | | Africa/India Registrants/inscrits africains/inde |
| Development Bank of Ethiopia | Yemenzwork | Girefie | | | Invited Speakers/conférenciers invités |
| DG QILIFA FILMS | Djibrile Saliou | Ndiaye | Assistant Director | Senegal | Africa/India Registrants/inscrits africains/inde |
| DGHER - Direction Generale de l'Hydraulique et des Energies Rurales | Baudoin | Butoyi | Chief of Service | | Invited Speakers/conférenciers invités |
| Directeur de l'Energie | Daouda | Diouf | | | Africa/India Registrants/inscrits africains/inde |
| DOBLE TELESCOPIC LIGHTING | Simon | Doble | | | Gold Contributors/Contributeur or |
| DOBLE TELESCOPIC LIGHTING | Steve | Huff | | | |
| DOBLE TELESCOPIC LIGHTING | Sam | Doble | | | |
| DOBLE TELESCOPIC LIGHTING | Martin | Doble | | | Reception Sponsor/commanditaire de la réception |
| DOE Office of Energy Efficiency and Rene | Graham | Pugh | Senior Technical Advisor, Board of Directors | | Invited Speakers/conférenciers invités |
| Dura Energy-y | Daouda | Gueye | | | Africa/India Registrants/inscrits africains/inde |
| EarthMatters LLC | Don | Feil | CEO | USA | Registrants other/d'autres déclarants |
| EBV | Gregg | Patterson | Mr | South Africa | Africa/India Registrants/inscrits africains/inde |
| Effectron Luminex Ltd | Shweta | Srivastava | | | Booth Pass Only |
| Effectron Luminex Ltd | Anupam | Darbari | Manager - International Trade | India | Africa/India Registrants/inscrits africains/inde |
| Effectron Luminex Ltd | Ashish | Sharma | | | Booth Pass Only |
| Effectron Luminex Ltd. | Gopal | Darbari | Managing Director | India | Exhibitors/exposants |
| ENCO - Isophoton Group | Abdou | Sy | | | Africa/India Registrants/inscrits africains/inde |

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| Enda | Touria | Dafrallah | Ingenieur Coordinatrice de Recherche-Action | Senegal | Africa/India Registrants/inscrits africains/inde |
| ENDA Energie | Sekou | Sarr | Program Coordinator, Energy, Environment & Development | | Africa/India Registrants/inscrits africains/inde |
| EnDev/GIZ | Gunnar | Wegner | | | Invited Speakers/conférenciers invités |
| Energy and Resources Group | Peter | Alstone | | | Invited Speakers/conférenciers invités |
| Energy For Opportunity | Chernor Marju | Jalloh | Programme Manager | | Africa/India Registrants/inscrits africains/inde |
| Energy For Opportunity | Simon | Willans | Executive Director | Sierra Leone | Africa/India Registrants/inscrits africains/inde |
| Energy One | Clive | Hardwick | Director | South Africa | Exhibitors from Sub-Saharan Africa |
| Energy One | Grant | Mashile | Consultant | | Africa/India Registrants/inscrits africains/inde |
| Energy, Water and Sanitation Authority (EWSA) | Edward | Kasumba | Coordinator, Electricity Energy Access Rollo-out Program (EARP) | | Invited Speakers/conférenciers invités |
| EnergyNet | Elizabeth | Owens | Head of Marketing | | LA Team |
| EnergyNet | Verena | Lester | Global Operations Director | | LA Team |
| EnergyNet | Alice | Ake Loba | Operational Conference Manager | | LA Team |
| EnergyNet | Sergio | Azanha | Conference Account Controller | | LA Team |
| EnergyNet | Damon | Thompson | Commercial Director | | LA Team |
| EnergyNet | Drew | Perry | Videographer | | LA Team |
| EnergyNet | Belle | Wilkinson | Operations Executive | | LA Team |
| EnergyNet | Simon | Gosling | Director | | LA Team |
| ENMA | Mohamed-Yaghine | Heidara | Program Officer | | Africa/India Registrants/inscrits africains/inde |
| ENMA | Ahmed | Abdi-Tfeil | Director General | | Africa/India Registrants/inscrits africains/inde |

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| Ensol Tanzania Limited | Prosper | Magali | Director of Projects and Business Development | Tanzania | Africa/India Registrants/inscrits africains/inde |
| Equip Plus | Serigne Mbaye | Niang | Directeur | | Africa/India Registrants/inscrits africains/inde |
| Erik Page and Associates | Erik | Page | | | LA Team |
| Exp | Lillian | Achieng | Social Marketing Specialist, Exp | | Invited Speakers/conférenciers invités |
| FINCA International | Sonali | Rohatgi | Senior Manager, New Business Initiatives | USA | Registrants other/d'autres déclarants |
| FOPEN Solaire | Yvonne | Faye | | | Africa/India Registrants/inscrits africains/inde |
| Fosera | Catherine | Adelmann | | | Exhibitors/exposants |
| fosera manufacturing PLC | Thomas | Koepke | General Manager | Ethiopia | Africa/India Registrants/inscrits africains/inde |
| Fraunhofer ISE | Georg | Bopp | Senior Scientist | Germany | Registrants other/d'autres déclarants |
| Fraunhofer ISE | Norbert | Pfanner | | Germany | Registrants other/d'autres déclarants |
| FUNAE - Energy Fund | Mussa Abdul | Mane | Engineer | Mozambique | Africa/India Registrants/inscrits africains/inde |
| FUNAE - Energy Fund | Miguel Chituno | Diogo | Chefe da Divisao de Sistemas Solares e Eolicos | Mozambique | Africa/India Registrants/inscrits africains/inde |
| FUNAE - Energy Fund | Mario | Batsana | Chefe da Divisao de Mini Hidricas, Biomassa e Grupos Geradores | Mozambique | Africa/India Registrants/inscrits africains/inde |
| GIZ Cameroon - Pro PSFE | Billy | YARRO | Project Officer | Cameroon | Africa/India Registrants/inscrits africains/inde |
| GIZ Energy Coordination Office Ethiopia | Gerd-Henning | Vogel | | Ethiopia | Africa/India Registrants/inscrits africains/inde |
| Glenergy Inc. | Ellen | Torvi | International Business Development | Canada | Registrants other/d'autres déclarants |
| Glenergy Inc. | Glen | MacGillivray | President | | |

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| Global Alliance for Clean Cookstoves | Davis | Broach | Senior Director, Market Development | USA | Registrants other/d'autres déclarants |
| Global Off-Grid Lighting Association | Wolfgang | Gregor | | | Associate Exhibitor |
| Global Telelinks | SOMISETTY VENKATA | SWATHI | Manager | | |
| GLOBAL TELELINKS | Venkateswara Rao | challapalli | CEO | India | Associate Exhibitor |
| Global Telelinks | MOODNAHALL I SOMASHEKAR A KRISHN | MURTHY | Senior Engineer | | |
| Global Village Cameroon (GVC) | Dieudonné | THANG | Secrétaire Exécutif | Cameroon | Africa/India Registrants/inscrits africains/inde |
| GMSA | Mary | Roach | Business Development Manager | | Invited Speakers/conférenciers invités |
| Go Solar | Keven | Jensen | CEO/President | USA | Exhibitors/exposants |
| Go Solar | Scott | Cramer | COO | USA | Registrants other/d'autres déclarants |
| GOLDENWELL | Martine | NIKIEMA | Manager in Burkina Faso | Burkina Faso | Exhibitors from Sub-Saharan Africa |
| Green Energy Africa | Ely | Faye | Marketing/Communications | Senegal | Africa/India Registrants/inscrits africains/inde |
| Greenlight Planet | Gbolahan | Mosaku-Johnson | | | Exhibitors from Sub-Saharan Africa |
| Greenlight Planet | Thomas | Walsh | Chief Technology Officer | | |
| Greenlight Planet | Anish | Thakkar | | | Exhibitors from Sub-Saharan Africa |
| Greenlight Planet | Radhika | Thakkar | VP Global Business Development | India | Associate Exhibitor |
| Greenlight Planet | Wanji | Nh'ang'a | | | Exhibitors from Sub-Saharan Africa |
| Group Clarteen | Ibrahima | Dieng | | | Africa/India Registrants/inscrits africains/inde |
| Groupe Clarteen | Diaw | Faton | | | Africa/India Registrants/inscrits africains/inde |
| Groupe ENCO | Farzam | Mohseni | Directeur | Senegal | Africa/India Registrants/inscrits |

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| | | | | | africains/inde |
| Groupe Saboughima | Malang | Faty | | | Africa/India Registrants/inscrits africains/inde |
| GSMA | Michael | Nique | Strategy Analyst | Kenya | Africa/India Registrants/inscrits africains/inde |
| GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit) | Carsten | Hellpap | Program Director Energising Development | Germany | Registrants other/d'autres déclarants |
| GTZ / PERACOD (Programme pour la promotion des énergies renouvelables, de l'électrification rural) | Mansour | Dahouenon | Technical Advisor, Rural Electrification | | Africa/India Registrants/inscrits africains/inde |
| GVEP International | David | Disch | Sustainable Markets Adviser | Kenya | Africa/India Registrants/inscrits africains/inde |
| GVEP International | Jasmien | Bronckaers | SME development specialist | Senegal | Africa/India Registrants/inscrits africains/inde |
| GVEP International | James | Wakaba | | | Registrants other/d'autres déclarants |
| Headstart Consulting Limited | Fanen | Acho | Principal Consultant | Nigeria | LA Team |
| HERA GIZ | Bozhil | Kondev | Energy Advisor | | Invited Speakers/conférenciers invités |
| Human Rights Research & Development Center | Ikechukwu Celestine | Onyia | Director Research & Development | Nigeria | Invited Speakers/conférenciers invités |
| Humboldt State University | Arne | Jacobson | | | Invited Speakers/conférenciers invités |
| IBG | Adama | Cisse | Commercial Director | Senegal | Africa/India Registrants/inscrits africains/inde |
| IFC | Arthur | Nyagi | Lighting Africa Program Manager | Kenya | Invited Speakers/conférenciers invités |
| IFC | Lucie | Blythe | | | LA Team |
| IFC | Patrick | Avato | Climate Business, Europe and Central Asia | USA | Invited Speakers/conférenciers invités |

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| IFC | Rodrigue | Djahlin | | | LA Team |
| IFC | Prosper | Wilfried GANDONOU | | | Registrants other/d'autres déclarants |
| IFC | Carolina | Dominguez | Infrastructure Economist | Kenya | Africa/India Registrants/inscrits africains/inde |
| IFC | Alexios | Pantelias | | | LA Team |
| IFC | Gabriel | Kivuti | | | LA Team |
| IFC | Ange Claver | Kouassi | | | LA Team |
| IFC | Pep | Bardouille | Global Product Specialist, Clean Energy | | Invited Speakers/conférenciers invités |
| IFC | Leo | Blyth | | | LA Team |
| IFC | Benedicte | Walter | Communications Specialist | Kenya | LA Team |
| IFC World Bank Group | Muhammad Taif | Ul Islam | Operations Analyst, SEDF | India | LA Team |
| Immeuble Total Senegal | Boubacar | Sow | Directeur de Filiale | Senegal | Africa/India Registrants/inscrits africains/inde |
| IMQ SpA | Giuseppe | Sonzogni | EVP International Development | Italy | Registrants other/d'autres déclarants |
| Independant | Faruk | Karim | | Canada | Registrants other/d'autres déclarants |
| INDIA IMPEX | Sagar | Mehta | VP, SALES AND MARKETING | India | Exhibitors/exposants |
| India Impex | Divyesh | Thakkar | | | Exhibitors/exposants |
| Consultant | Rodd | Eddy | Lighting Industry Expert | New Zealand | Invited Speakers/conférenciers invités |
| International Climate Change Policy & Technology Office of Policy & International Affairs | Caroline | McGregor | Policy Analyst | USA | Reception Sponsor/commanditair e de la réception |
| International Finance Corp | Russell | Sturm | Sustainable Energy Team Leader | USA | Invited Speakers/conférenciers invités |
| IS - Ingénieurs Conseil | Ibrahima | Sanokho | | Senegal | Africa/India Registrants/inscrits africains/inde |
| ISI Energy | Luca | Arcoini | Business Development Manager | Italy | Registrants other/d'autres |

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| | | | | | déclarants |
| Jamesses Ventures | James | Nyarko | Director | Ghana | Africa/India Registrants/inscrits africains/inde |
| K8 Industridesign | Marius | Andresen | Managing Director | | Exhibitors/exposants |
| KANE CONSULTING | Amadou D. | Kane | | | Africa/India Registrants/inscrits africains/inde |
| KAYOR (Kayor énergie rurale) | Assane | Dieng | | | Africa/India Registrants/inscrits africains/inde |
| KogyBox | Oumar | Samake | | | Africa/India Registrants/inscrits africains/inde |
| KogyBox | Omar | Samake | Technico Commercial | | Africa/India Registrants/inscrits africains/inde |
| Lawrence Berkeley National Laboratory | Evan | Mills | Staff Scientist | USA | Invited Speakers/conférenciers invités |
| Le Soleiel | NDeye Seymi | Samb | Reporter Photographer Quotidian | | Africa/India Registrants/inscrits africains/inde |
| Le Soleil | Diejan | San | | | Africa/India Registrants/inscrits africains/inde |
| Les Cableries du Senegal | Paul | Sarr | Technico-Commercial | Senegal | Africa/India Registrants/inscrits africains/inde |
| Light Foundation | Kelly | Kayne | general manager | USA | Registrants other/d'autres déclarants |
| Lighting Management Consultants | Bryan | King | | | Invited Speakers/conférenciers invités |
| LittleSun GmbH | Felix | Hallwachs | CEO | Germany | Exhibitors/exposants |
| LittleSun GmbH | Frederik | Ottesen | CEO & co-founder | | Registrants other/d'autres déclarants |
| L'Office | Abdou | Mbodj | Journaliste (Press) | | LA Team |
| MATFORCE (compagnie sahélienne d'industries) | Mamadou | Sow | Directeur Général | | Africa/India Registrants/inscrits africains/inde |
| MATFORCE (compagnie sahélienne d'industries) | Amadou | Ba | | Senegal | Africa/India Registrants/inscrits |

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| MHH Solartechnik GmbH | Jona | Banzhaf | | Germany | Registrants other/d'autres déclarants |
| Micart (Micromark) | michael | moses | Managin Director | | Africa/India Registrants/inscrits africains/inde |
| Millenium Promise | Francisco S. | Rodriguez- Sanchez MSc PhD | Regional Sustainable Energy Specialist | Senegal | Africa/India Registrants/inscrits africains/inde |
| Ministere des Ressources Hydrauliques et Electricite | Jerome Iziba | Mabiala | Chef de Division Energie Domestique | | Invited Speakers/conférenciers invités |
| Ministere des Ressources Hydrauliques et Electricite | Jean Baptiste | Mathe Mbayirindi | Expert Electricite a la Cellule d'Appui Technique | | Invited Speakers/conférenciers invités |
| Ministry of Energy | Edrissa | Ken-Joof | Assistant Secretary | | Invited Speakers/conférenciers invités |
| Ministry of Energy and Mines | Assane | Diouf | Permanent Secretary for Energy | Senegal | Africa/India Registrants/inscrits africains/inde |
| Ministry of Energy Direction des Energies Renouvelables (Office for Renewable Energy) | Lamine | Diop | Director Renewable Energy | | Africa/India Registrants/inscrits africains/inde |
| Ministry of Foreign Affairs of the Netherlands | Koen | Peters MSc MBA | Senior Policy Advisor | Netherlands | Registrants other/d'autres déclarants |
| MINTECH INTERNATIONAL | E. MALICK | FALL | MANAGING DIRECTOR | Senegal | Africa/India Registrants/inscrits africains/inde |
| Mlinda Foundation | Kadathur Arjunan | Vijay Bhaskar | Country Director - India | India | Africa/India Registrants/inscrits africains/inde |
| Mlinda Foundation | Sudeshna | Mukherjee | Deputy Country Director - India | India | Africa/India Registrants/inscrits africains/inde |
| Mouna Group Technology | Souleymane | Ndiaye | Consultant Energy | | Africa/India Registrants/inscrits africains/inde |
| Ngali Institute | Emmanuel | Munyangab e | Director, Energy | Rwanda | Africa/India Registrants/inscrits africains/inde |
| Nice Gambia | Sander | Groeneveld | Manager | | Africa/India Registrants/inscrits |

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| | | | | | africains/inde |
| Nice Gambia | Omar | Njie | Programs Manager | | Africa/India Registrants/inscrits africains/inde |
| Nigerian Federal Ministry of the Environment | Eng. Bahijjahtu | Abubakar | Honourable Minister, national coordinator of renewable energy programme | | Invited Speakers/conférenciers invités |
| Nokero International | Evan | Husney | Head of Business Development | USA | Associate Exhibitor |
| Nord-Energy TSA/MIMBAR | Assane | Diagne | | | Africa/India Registrants/inscrits africains/inde |
| Noreyni Cofe Touba | Ousmane | Sylla | | | Africa/India Registrants/inscrits africains/inde |
| NS RESIF | Mamadou | Kane | | | Africa/India Registrants/inscrits africains/inde |
| One Degree Solar | George | Michieka | Senior Sales Manager | Kenya | Africa/India Registrants/inscrits africains/inde |
| One Degree Solar | Gaurav | Manchanda | Founder | Kenya | Exhibitors/exposants |
| Opérateur GDT GSERM / Zone vélingara | Diakité Abdel | Khassim | Directeur Général | | Africa/India Registrants/inscrits africains/inde |
| Orb Energy | Andrea | Griffin | Head of International Business Development | India | Exhibitors/exposants |
| OSRAM GmbH | Christina | Schmoe | Vice President | Germany | Registrants other/d'autres déclarants |
| Osram Opto Semiconductors | Ryan | Hunt | Mr | South Africa | Associate Exhibitor |
| Ostium Capital Partners | Sonia | Alexandre | Founder | United Kingdom | Registrants other/d'autres déclarants |
| O-SUN SYSTEM LIMITED | xavier | Baudoux | CEO | Hong Kong | Exhibitors/exposants |
| Partenaire de Sud Solar System | Benkhachouh | Azzedine | | | Africa/India Registrants/inscrits africains/inde |
| Peak View Global Trust | John | Tadayeski | Managing Director | Cyprus | Registrants other/d'autres déclarants |
| People Development | Yann | Hazoume | Directeur | Senegal | Africa/India |

3rd International Off-Grid Lighting Conference and Trade Fair – Delegation List (Nov. 13-15, 2012)

| Company | First Name | Last Name | Title | Work Country | Registration Type |
|--|------------|-------------|---|----------------|--|
| | | | | | Registrants/inscrits africains/inde |
| Phaesun France SAS | Cédric | DUPUY | Business Development | France | Registrants other/d'autres déclarants |
| Pharos Off-Grid Technologies | Roshan | Sajnani | Managing Director | Philippines | Associate Exhibitor |
| Philips | Mark | Koener | | | Registrants other/d'autres déclarants |
| Philips Africa | Mark | Bennett | Director, Strategy and Business Development | South Africa | Africa/India Registrants/inscrits africains/inde |
| Phocos AG | Andreas | Kettenacker | Business Development Manager | Germany | Registrants other/d'autres déclarants |
| Poly Solar Technologies | Lee | Yang | | | Booth Pass Only |
| POLY SOLAR TECHNOLOGTES (BEIJING) CO., LTD | WEI | SU | MAOKETING MANAGER | China | Exhibitors/exposants |
| Population Services International | Alison | Malmquist | Senegal Representative | | Invited Speakers/conférenciers invités |
| Practical Action Consulting | Drew | Corbyn | Energy Consultant | United Kingdom | Africa/India Registrants/inscrits africains/inde |
| Proact International | Katsuhiko | Otaki | Managing Director | Japan | Registrants other/d'autres déclarants |
| Programme National de Biogaz | Anne | Correa | | | Africa/India Registrants/inscrits africains/inde |
| PROSOLIA SENEGAL | Jose Luis | RIVERO | CEO | Senegal | Africa/India Registrants/inscrits africains/inde |
| Prosonergy UG | Gungor | Kara | | Germany | Registrants other/d'autres déclarants |
| PROXICOM sarl (ELEKTRA/BYD) | Samba | Bathily | | Mali | Africa/India Registrants/inscrits africains/inde |
| PSI | Alison | Malmqvist | Chief of Party | USA | Africa/India Registrants/inscrits africains/inde |
| Public Interest Intellectual Property Advisors (PIIPA) | R | Davis | President & CEO | USA | Invited Speakers/conférenciers |

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| Company | First Name | Last Name | Title | Work Country | Registration Type |
|--|------------------|------------|---|--------------|--|
| | | | | | invités |
| Publications (Press) | Nathalie Desanti | Toukara | Director of Development | France | Registrants other/d'autres déclarants |
| Rahimafrooz Accumulator Ltd. | Navid | Hossain | Head of International Sales | Bangladesh | Registrants other/d'autres déclarants |
| Rahimafrooz Accumulators Limited | Munawa Misbah | MOIN | Group Director | Bangladesh | Registrants other/d'autres déclarants |
| RayVio | Robert | Walker | President | USA | Registrants other/d'autres déclarants |
| Renewable Energy and Energy Efficiency Partnership | Eva | Oberender | Programme Director | Austria | Invited Speakers/conférenciers invités |
| Renewable Energy Fund, Ethiopia | Alemu Muleta | Jiru | Coordinator | Ethiopia | Invited Speakers/conférenciers invités |
| Rensselaer Polytechnic Institute | Naharaja | Narendran | Research Director, Lighting Research Center | USA | Invited Speakers/conférenciers invités |
| Researcher at University of Lucerne | Anna | Bruederle | | | LA Team |
| RESIF | Abdou Sadhik | Sarr | | | Africa/India Registrants/inscrits africains/inde |
| Rosa Luxemburg | Kolo | Diallo | Administrative Assistant | Senegal | Africa/India Registrants/inscrits africains/inde |
| Rural & Renewable Energy Agency | Augustus | Goanue | Executive Director | Liberia | Invited Speakers/conférenciers invités |
| Rural Energy Agency | Vestina | Rwelengera | Monitoring and Evaluation Officer | Tanzania | Invited Speakers/conférenciers invités |
| SAFICO | Thomas | Adamson | CEO | Haiti | Registrants other/d'autres déclarants |
| Saphir Technics International | Mane Papa | Boubou | General Director | Senegal | Africa/India Registrants/inscrits africains/inde |
| SATECH SARL | Moustapha | NDIAYE | GENERAL MANAGER | Senegal | Africa/India Registrants/inscrits africains/inde |
| SAUDEQUIP (Société | Dioura | . | | | Africa/India |

3rd International Off-Grid Lighting Conference and Trade Fair – Delegation List (Nov. 13-15, 2012)

| Company | First Name | Last Name | Title | Work Country | Registration Type |
|--|-------------------|-------------|--|----------------|--|
| Auxiliaire d'Equipements) | | | | | Registrants/inscrits africains/inde |
| Schatz Research Center, HSU | Kristen | Radecsky | | USA | LA Team |
| Schneider Electric | Mohamed | Saad | President Africa and Caribbean | | Invited Speakers/conférenciers invités |
| Schneider Electric | Joel | Lelostec | Director Business Development Access to Energy | | Invited Speakers/conférenciers invités |
| Schneider Electric | Christophe | Poline | Sustainable Investments Director | France | Registrants other/d'autres déclarants |
| Schneider Electric | Ninon | Tollard | Manager Access to Energy Program | France | Registrants other/d'autres déclarants |
| Schneider Electric | Pascal | Anato | Senegal Manager | | Africa/India Registrants/inscrits africains/inde |
| Schulich Business School | loid | DANGA | MBA Student | Canada | Africa/India Registrants/inscrits africains/inde |
| SEM Fund | Djibril | Cisse | | | Africa/India Registrants/inscrits africains/inde |
| Ministry Energy and Mines, Senegal | Hon. Aly Ngouille | Ndiaye | Ministre de l Energie et des Mines | Senegal | Africa/India Registrants/inscrits africains/inde |
| SERCOM | Ibrahima | Ndiaye | Directeur General Manager | Senegal | Africa/India Registrants/inscrits africains/inde |
| Seris | Peter | Adelmann | Senior Consultant | Singapore | Africa/India Registrants/inscrits africains/inde |
| SeTAR Centre, University of Johannesburg | James | Robinson | Energy Access Programme Manager | South Africa | Africa/India Registrants/inscrits africains/inde |
| SHANGHAI ROY SOLAR CO., LTD. | xiaohui | liu | General Manager | China | Associate Exhibitor |
| Shell Foundation | Simon | Desjardines | Programme Manager | United Kingdom | Invited Speakers/conférenciers invités |
| Shenzen Cowin Company Limited | Wu Fu | Hui | Senior Engineer | China | Exhibitors/exposants |
| SHENZHEN COWIN SOLAR COMPANY LIMITED | Hui Hong | Lin | Manager | China | Exhibitors/exposants |

3rd International Off-Grid Lighting Conference and Trade Fair – Delegation List (Nov. 13-15, 2012)

| Company | First Name | Last Name | Title | Work Country | Registration Type |
|--|------------------|---------------|--|--------------|--|
| SIFI | Cheikh Sadibou | DIOP | Président Directeur General | Senegal | Africa/India Registrants/inscrits africains/inde |
| SINOWARE | Haitao | Huang | Sinoware Technology Co., Limited | China | Exhibitors/exposants |
| Sirmel | Paul | Francois SARR | Tehnico-Commercial | Senegal | Africa/India Registrants/inscrits africains/inde |
| SLOVOLTAS | Ibrahima | Diakhate | | | Africa/India Registrants/inscrits africains/inde |
| SMEP Deposit Taking Microfinance Ltd | Simon | Gathecah | Head of Operations | Kenya | Africa/India Registrants/inscrits africains/inde |
| SMT - 2D Consultants Associes | Antoine | Faye | Senior Consultant | | Africa/India Registrants/inscrits africains/inde |
| SNV | Kelley | Bishop | Renewable Energy Advisor | Niger | Africa/India Registrants/inscrits africains/inde |
| SNV - Netherlands Development Organisation | Amoussoun Marcel | TONI | Renewable Energy Advisor, Projet Manager | Benin | Africa/India Registrants/inscrits africains/inde |
| SNV Netherlands Development Organization | Jechoniah | Kitala | Senior Advisor, Renewable Energy | Kenya | Invited Speakers/conférenciers invités |
| SOLAR CITY | Roselynd | LAUBHOUET | Managing Director | Senegal | Africa/India Registrants/inscrits africains/inde |
| Consultant | Martin | Bellamy | Solar Industry Expert | | Invited Speakers/conférenciers invités |
| Solar Sister | Neha | Misra | Chief Collaboration Officer | Uganda | Africa/India Registrants/inscrits africains/inde |
| Solar-Aid | Charles | Miller | | Kenya | Africa/India Registrants/inscrits africains/inde |
| Solar-Aid | Steve | Andrews | CEO | Kenya | Africa/India Registrants/inscrits africains/inde |
| SolarAid/ SunnyMoney | John | Keane | | Kenya | Exhibitors from Sub-Saharan Africa |
| Solar-Ka | Diouga | Ka | Director | Senegal | Africa/India Registrants/inscrits africains/inde |

3rd International Off-Grid Lighting Conference and Trade Fair – Delegation List (Nov. 13-15, 2012)

| Company | First Name | Last Name | Title | Work Country | Registration Type |
|----------------------------------|-------------|------------|---------------------------------|--------------|--|
| SOLTYS - SAHEL ENERGIE | Alexandre | Chavanne | | | Africa/India Registrants/inscrits africains/inde |
| Solux e.V. | Franz | Kies | Consultant | Germany | Associate Exhibitor |
| SOLUX Service GmbH | Hans | Mutzbauer | Managing Director | Germany | Associate Exhibitor |
| Soluz | Richard | Hansen | | | Africa/India Registrants/inscrits africains/inde |
| SONI Niger/Bestnet | Abdel Kader | Agne | | | Africa/India Registrants/inscrits africains/inde |
| Sonopro Power & Light, Inc. | John | Steininger | CEO & Founder | USA | Registrants other/d'autres déclarants |
| SOSAI Renewable Energies Company | Habiba | Ali | Managing Director | Nigeria | Africa/India Registrants/inscrits africains/inde |
| STEG IS-COSELEC-LCS group | Mor | Kasse | Direction Generale | | Africa/India Registrants/inscrits africains/inde |
| Sud Solar System | Alpha M | Barry | Directeur | Senegal | Africa/India Registrants/inscrits africains/inde |
| Suka Wind and Solar Limited | Abdul-Wahab | Raaj | Ghana | Ghana | Associate Exhibitor |
| Sunbrothers | kevin | gauna | Founder | USA | Invited Speakers/conférenciers invités |
| SunnyMoney Kenya | Eduardo | Appleyard | SunnyMoney Brains | Kenya | Africa/India Registrants/inscrits africains/inde |
| Systèmes PV | Charly | Nakache | | | Africa/India Registrants/inscrits africains/inde |
| Tanzania Rural Energy Agency | Grace | Mathew | Capacity Building Manager | Tanzania | Invited Speakers/conférenciers invités |
| TATA | Adama Cissé | Niang | | Senegal | Africa/India Registrants/inscrits africains/inde |
| Tellurex Corporation | Richard | Harmon | Director of Engineering | USA | Exhibitors/exposants |
| Tellurex Corporation | Norman | Golm | Business Development Consultant | | Booth Pass Only |
| TERRA Technologies | El Hadji | Diop | | Senegal | Africa/India Registrants/inscrits africains/inde |

3rd International Off-Grid Lighting Conference and Trade Fair – Delegation List (Nov. 13-15, 2012)

| Company | First Name | Last Name | Title | Work Country | Registration Type |
|-----------------------------------|--------------|---------------------|--|----------------|--|
| test | testspeaker2 | testspeaker 3 | | Australia | Invited Speakers/conférenciers invités |
| The Ecology Foundation (BBOXX) | Declan | Murphy | | United Kingdom | Associate Exhibitor |
| The World Bank | Maria Hilda | Rivera | Energy Analyst | USA | LA Team |
| The World Bank | Abdoulaye | Ba | Consultant | Senegal | LA Team |
| The World Bank | Vera | Songwe | Country Director, Senegal | Senegal | Invited Speakers/conférenciers invités |
| The World Bank | Meike | Van Ginneken | Sector Manager Energy West and Central Africa | USA | Invited Speakers/conférenciers invités |
| The World Bank | Daniel | Murphy | | USA | LA Team |
| The World Bank | Seydou | Koita | Water and Sanitation Program | | Invited Speakers/conférenciers invités |
| The World Bank, Dakar | Philippe | Durand | Lead Energy Specialist | Senegal | Invited Speakers/conférenciers invités |
| Toomeen Solar | TONGBIN | ZHANG | Technical Consultant | | Africa/India Registrants/inscrits africains/inde |
| TOTAL | Mamadou | NGOM | Vice President Marketing Africa & Middle East | | |
| TOTAL | Maelle | BISSONNET | Head of Sales & Business Development | | |
| TOTAL | Catherine | ENCK | Vice President, Social Business & Societal | | |
| TOTAL | Geneviève | BEYENE | Solar Coordinator Africa & Middle East | | |
| TOTAL | Michael | CROCHET- VOUREY | Head of Communication Africa & Middle East | | |
| TOTAL | Mariam | KANE GARCIA | Vice President Strategy Africa & Middle East | | |
| TOTAL | Mathieu | EVEILLARD | Finance Officer & Access to Energy Project Manager | | |
| TOTAL | Momar | NGUER | Senior Vice President Africa & Middle East | | |
| TOTAL | Aude | COLAS DES FRANCS | Press Officer | | |

3rd International Off-Grid Lighting Conference and Trade Fair – Delegation List (Nov. 13-15, 2012)

| Company | First Name | Last Name | Title | Work Country | Registration Type |
|----------------------------|--------------|----------------|--|------------------|--|
| TOTAL | Emmanuel | Leger | Head of Access to Energy | | Platinum Contributors/Contribut eurs platine |
| TOTAL | Robinson | ALAZRAKI | Head of Product Strategy, Development & Purchase | | |
| Total E&P Congo | Claudia Inès | FEVILIYE DAWEY | Chef de projet Accès à l'énergie | Congo (Republic) | Africa/India Registrants/inscrits africains/inde |
| Total E&P Congo | Louis-Roger | TCHINIANGA | Chef de Division Responsabilité Sociétale et Communication | Congo (Republic) | Africa/India Registrants/inscrits africains/inde |
| Total Sénégal | Moussa | Thiam | Sustainable Development Manager | | Africa/India Registrants/inscrits africains/inde |
| Total Sénégal | Thiabault | Flichy | Managing Director | | Africa/India Registrants/inscrits africains/inde |
| Total Sénégal | Cédric | Guillemot | Trade & Sales Network Manager | | Africa/India Registrants/inscrits africains/inde |
| Total Sénégal | Dieynaba | Béyé | Solar Coordinator | | Africa/India Registrants/inscrits africains/inde |
| Total Sénégal | Mame Dior | Bathily | Head of Communication | | Africa/India Registrants/inscrits africains/inde |
| Touba Solar Rama | Malick | Seck | General Manager | Senegal | Africa/India Registrants/inscrits africains/inde |
| ToughStuff | Jonathan | Bamber | Mr | United Kingdom | Associate Exhibitor |
| Trina Solar | Redouane | Elbouchikhy | | | Registrants other/d'autres déclarants |
| TRONY | Kang | Xiaojun | GM | | |
| TRONY | Wang | huashan | CMO | | Associate Exhibitor |
| TRONY-EA | Su | Yanshan | DGM | | |
| U.S. Embassy Dakar | Brian | Guy | Fulbright Researcher | | Registrants other/d'autres déclarants |
| Unihyd & Sealing Solutions | Abdul-Lateef | Abubakar | Unique in Hydraulic Operations | Ghana | Africa/India Registrants/inscrits africains/inde |

3rd International Off-Grid Lighting Conference and Trade Fair – Delegation List (Nov. 13-15, 2012)

| Company | First Name | Last Name | Title | Work Country | Registration Type |
|--|----------------|-------------|--|---------------|--|
| United Nations Foundation | Richenda | Van Leeuwen | Senior Advisor | USA | Invited Speakers/conférenciers invités |
| United Nations, Climate Change Secretariat | Kenjiro | Suzuki | Programme Officer, Standard Setting Unit | Germany | Registrants other/d'autres déclarants |
| University of Bayreuth | Philipp | Wollburg | | Germany | Registrants other/d'autres déclarants |
| Waide Strategic Efficiency | Paul | Waide | Director | | Invited Speakers/conférenciers invités |
| Wandel International Nigeria Limited | Rajan | Menon | Solar Energy Specialist | Nigeria | Africa/India Registrants/inscrits africains/inde |
| West African Vocational Schools | Almamo | Danfa | School director | Guinea-Bissau | Africa/India Registrants/inscrits africains/inde |
| World Bank | Srilata | Kammila | Senior Consultant | USA | LA Team |
| World Bank | Dana | Rysankova | Sr. Energy Specialist | USA | Invited Speakers/conférenciers invités |
| World Bank | Kate Kennedy | Freeman | Energy Specialist | USA | LA Team |
| World Bank Africa Energy | Fatouma Toure | Ibrahima | Senior Finance Specialist | Senegal | LA Team |
| World Bank Lighting Africa Energy and Security Group | Christopher | Carlsen | Technical Specialist | | LA Team |
| YASMA S.A. | Judy | Siegel | President | USA | LA Team |
| | Sadou | Mounkaila | | | Africa/India Registrants/inscrits africains/inde |
| Younou's Entreprises | Adrien Sanka | Nzale | | | Africa/India Registrants/inscrits africains/inde |
| ZS Associates | Praba | Sinha | Founding Director | | Invited Speakers/conférenciers invités |
| | Pierre | Diou | | | Registrants other/d'autres déclarants |
| | David | Cieminis | Solar Energy Professional | USA | Registrants other/d'autres déclarants |
| | Alioune Badara | Faye | | | Africa/India Registrants/inscrits africains/inde |

3rd International Off-Grid Lighting Conference and Trade Fair – Delegation List (Nov. 13-15, 2012)

| Company | First Name | Last Name | Title | Work Country | Registration Type |
|---|----------------|-----------|-----------------------------------|--------------|--|
| Energy Sector Management Assistance Program | Venkata Ramana | Putti | Program Leader, Energy Access | | Invited Speakers/conférenciers invités |
| | Idy | Niang | Program Manager on Climate Change | Senegal | Africa/India Registrants/inscrits africains/inde |
| | Olson Barnaby | Olson | | USA | Africa/India Registrants/inscrits africains/inde |
| | Jun | Lu | | | Registrants other/d'autres déclarants |
| | Fall | Fatoumata | | Senegal | Africa/India Registrants/inscrits africains/inde |
| | Falaye | Cissoko | Consultant Commercial | Senegal | Africa/India Registrants/inscrits africains/inde |
| | Mademba | Gueye | | | Exhibitors/exposants |

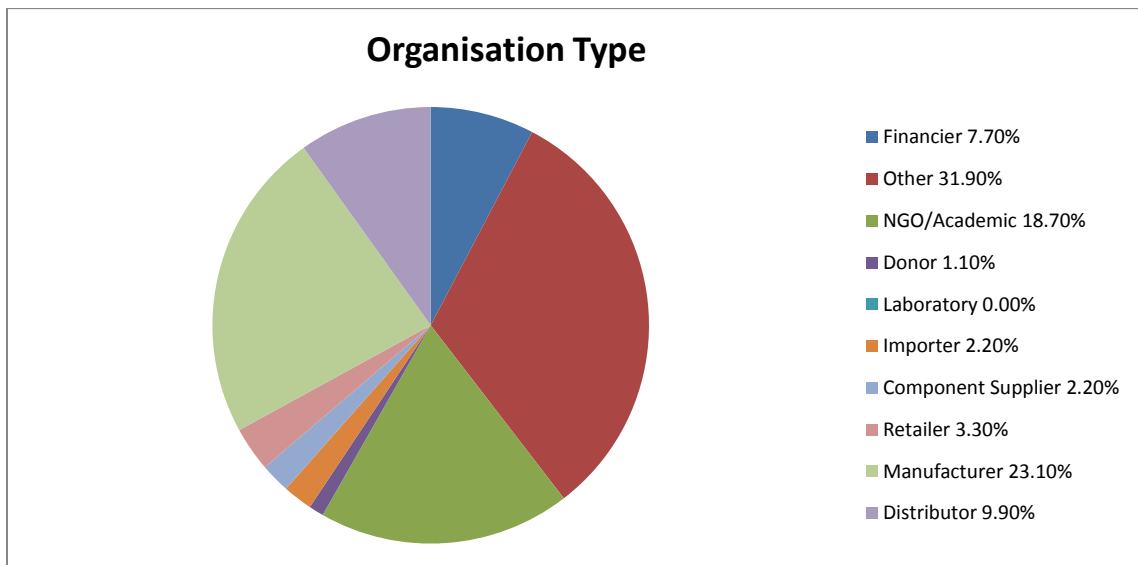
Appendix 3. Conference Feedback Report

Conference & Trade Fair Feedback

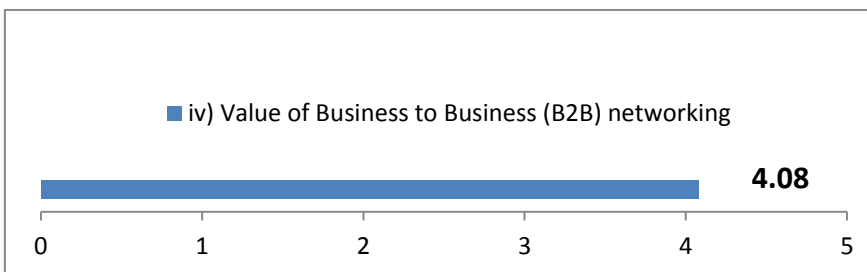
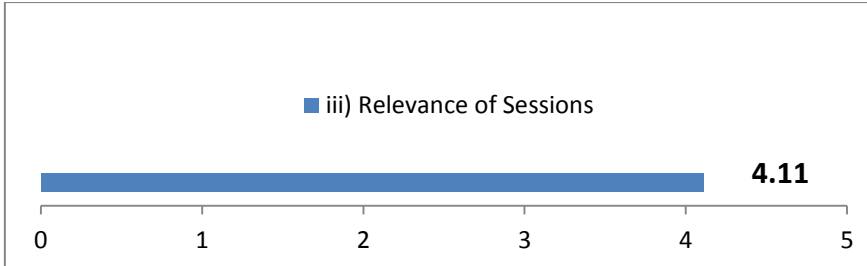
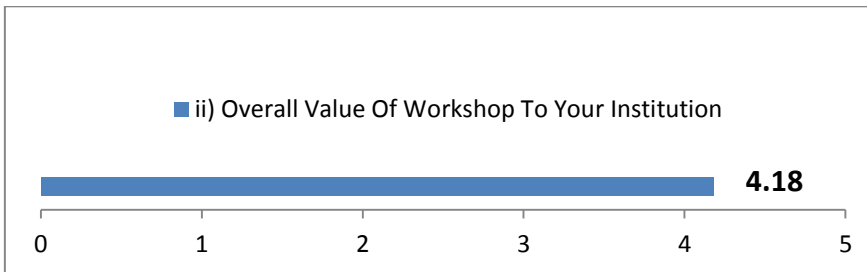
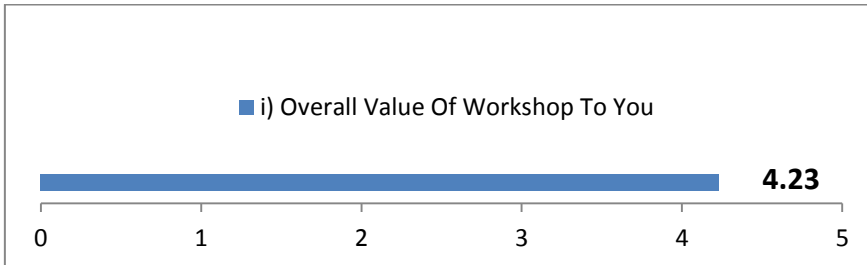
The purpose of this questionnaire is to obtain information about the 3rd International Conference and Exhibition on off-grid lighting and more widely on the Lighting Africa program.

Some questions below require a note: a score of 1 to 5 has been assigned, with 5 being the highest and 1 the lowest.

1) Organizational Representation



2) Overall

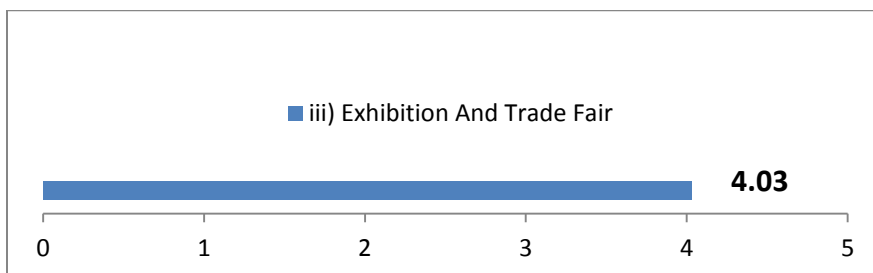
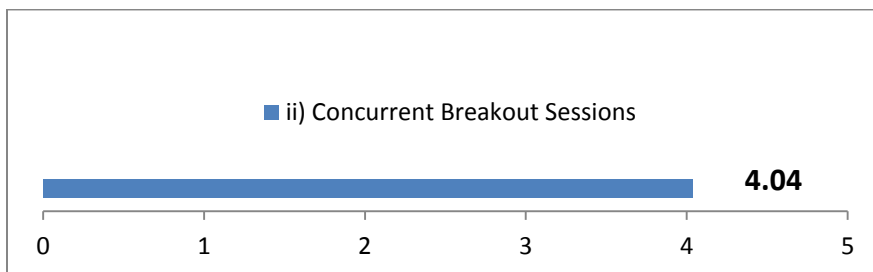
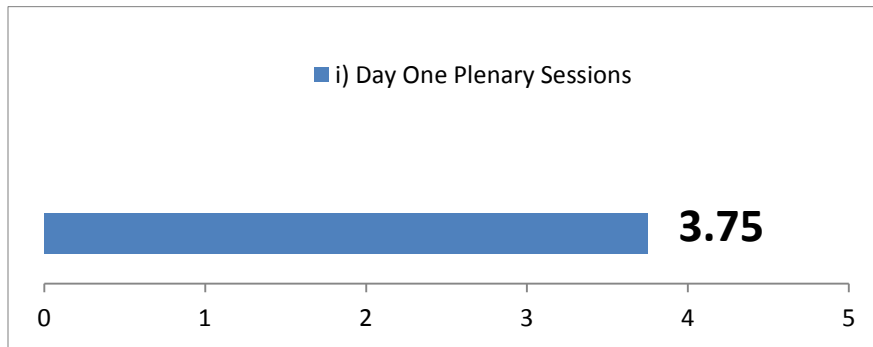


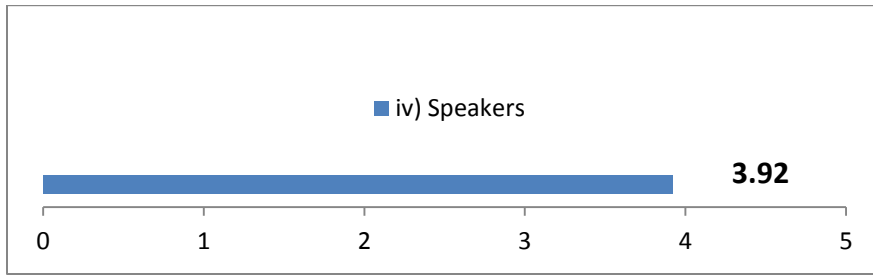
Select comments:

- ~ Would have been good to have more Asia players
- ~ Would like more government to government networking potential
- ~ Excellent conference and platform for knowledge sharing and relationship building

-
- ~ Good insights into new products/designs, good discussions on challenges, solutions
 - ~ Struggle to balance time between presentations (excellent) & direct networking (also excellent)
 - ~ Recommend making a directory of countries and activities for companies
 - ~ It is a good conference and should be organized every 2/3 years in different regions of Africa
 - ~ One of the goals of this conference should be to encourage B2B contacts to identify needs
 - ~ Statistics and the legal aspect on some issues should be better highlighted

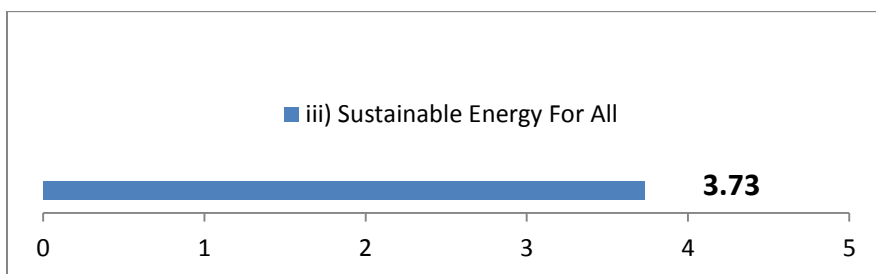
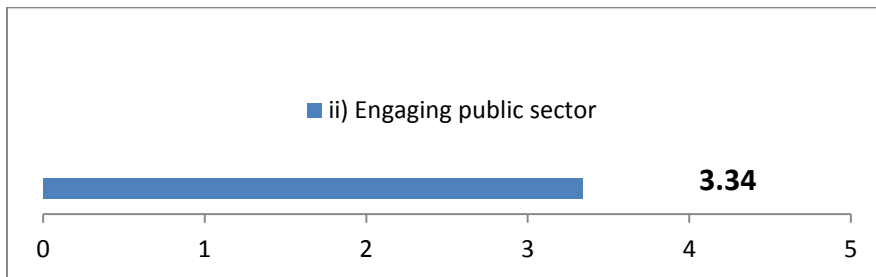
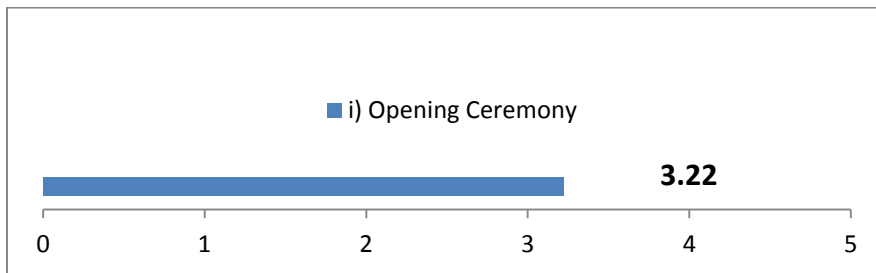
3) Overall Quality of Sessions/Speakers?

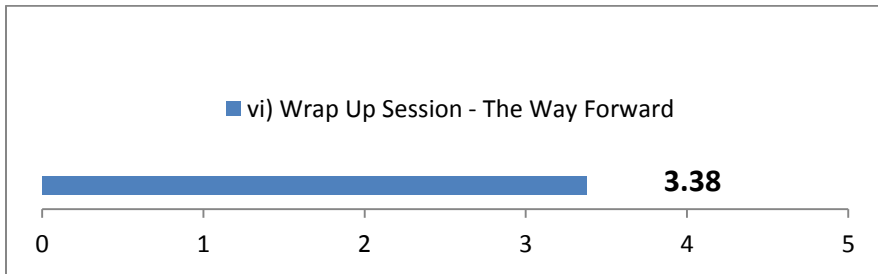
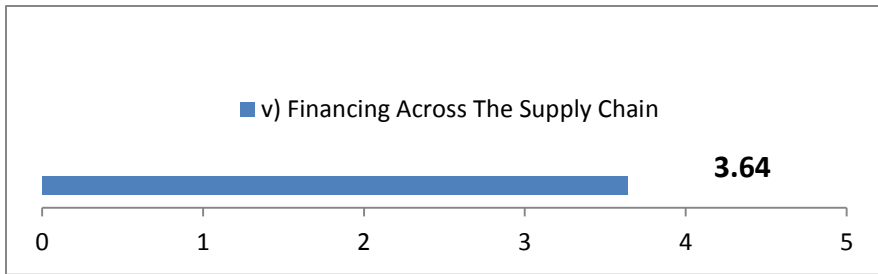
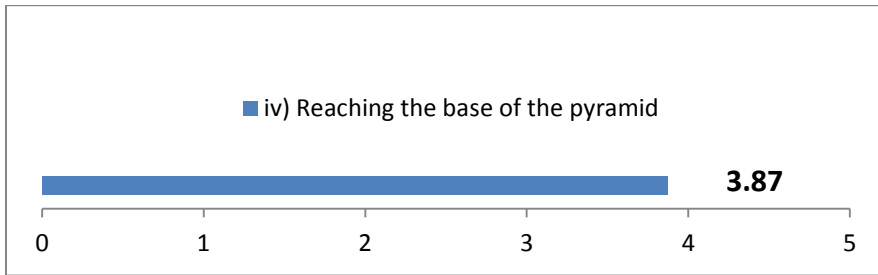




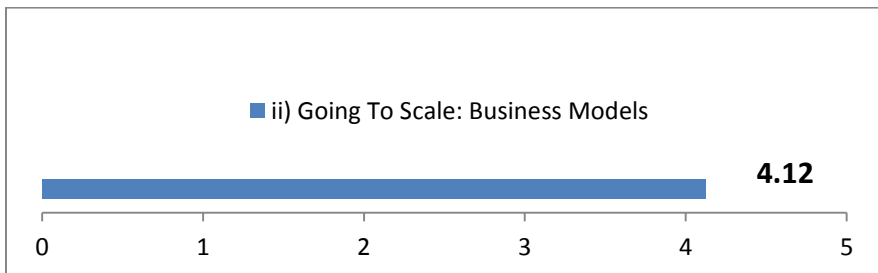
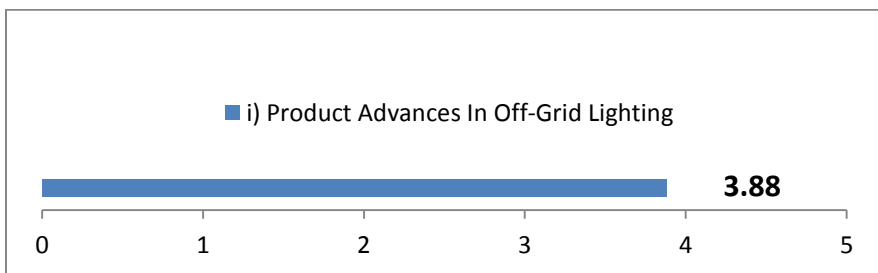
4) Please rank 1-5 the importance of the knowledge on the following topics for your activity:

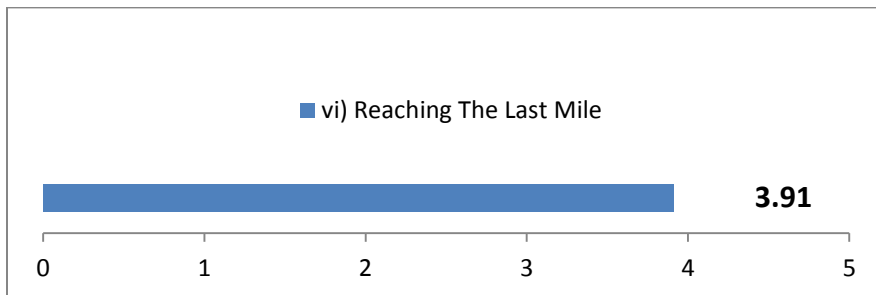
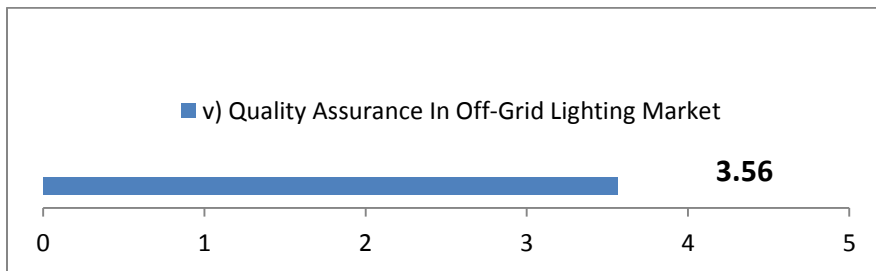
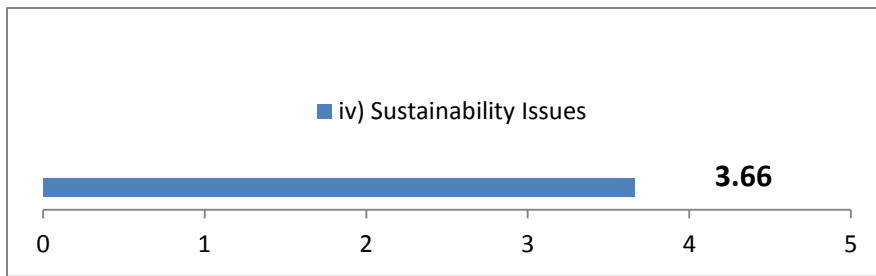
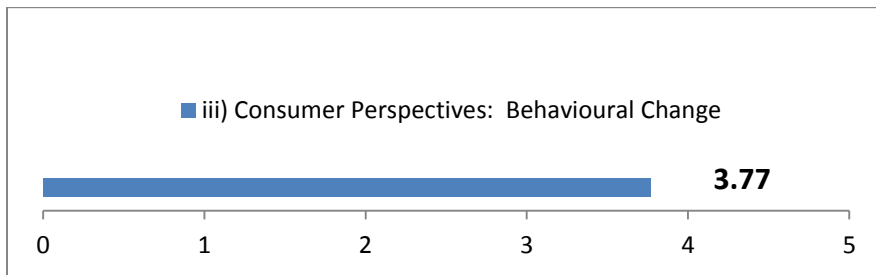
PLENARY SESSIONS





BREAKOUT SESSIONS



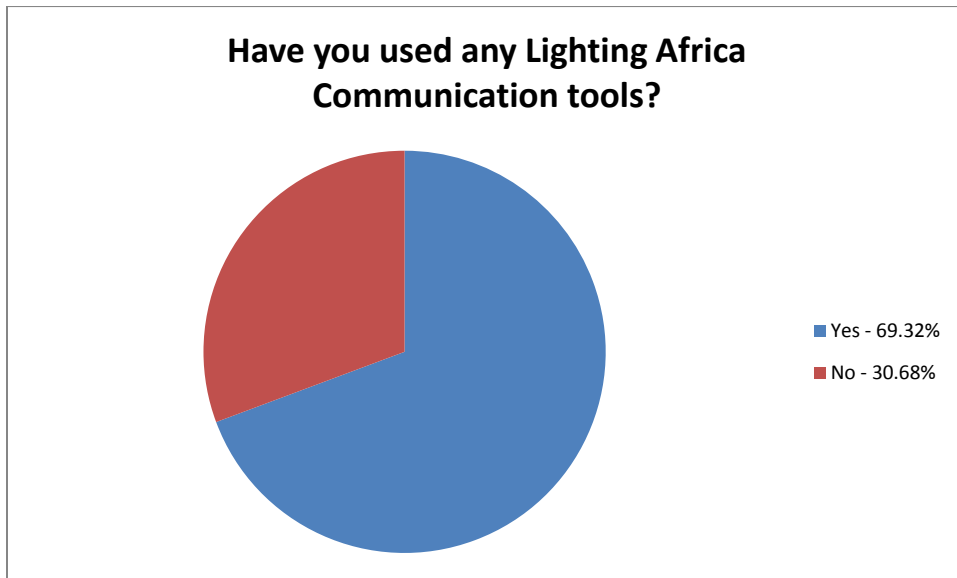


Select comments on the workshop sessions and suggestions for future Lighting Africa thematic activities:

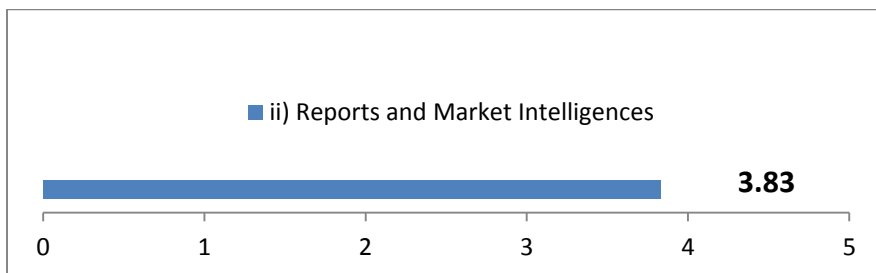
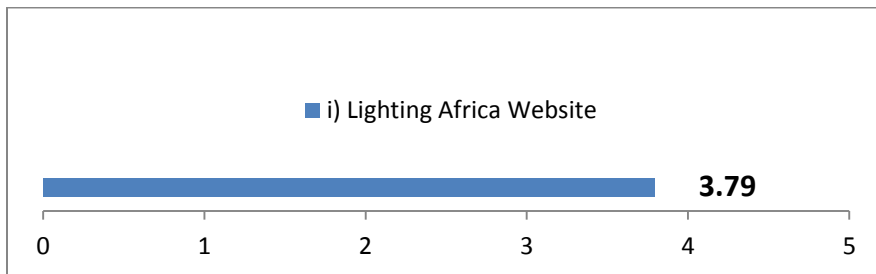
- ~ More sessions on product quality
- ~ More sessions on distribution models and financing
- ~ More interactive breakout sessions between panelists and the audience
- ~ More time to case studies and lessons learned
- ~ More information on industry trends, research and reaching target markets
- ~ More specific guidance on partnering with on-the-ground businesses and organizations

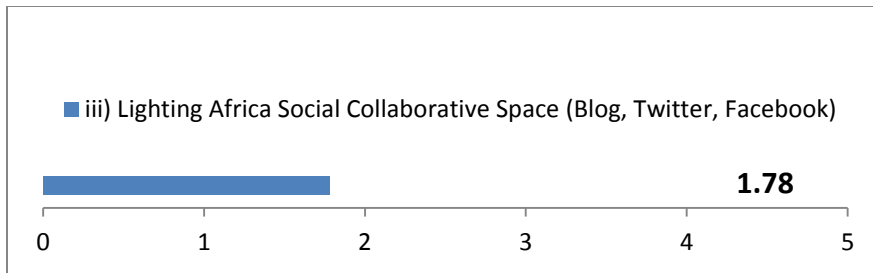
- ~ Increased engagement of Franco-phone and Central African countries
- ~ Engage African retailers specializing in solar energy
- ~ Reinforce local companies' capacity to deliver customer service for imported products, highlighting capacity building programs
- ~ Launch funds in the countries, develop education campaigns and encourage consumer behavior change
- ~ Encourage the participation of the press in different workshops

5) Lighting Africa Communication Tools



If yes, what was your experience?

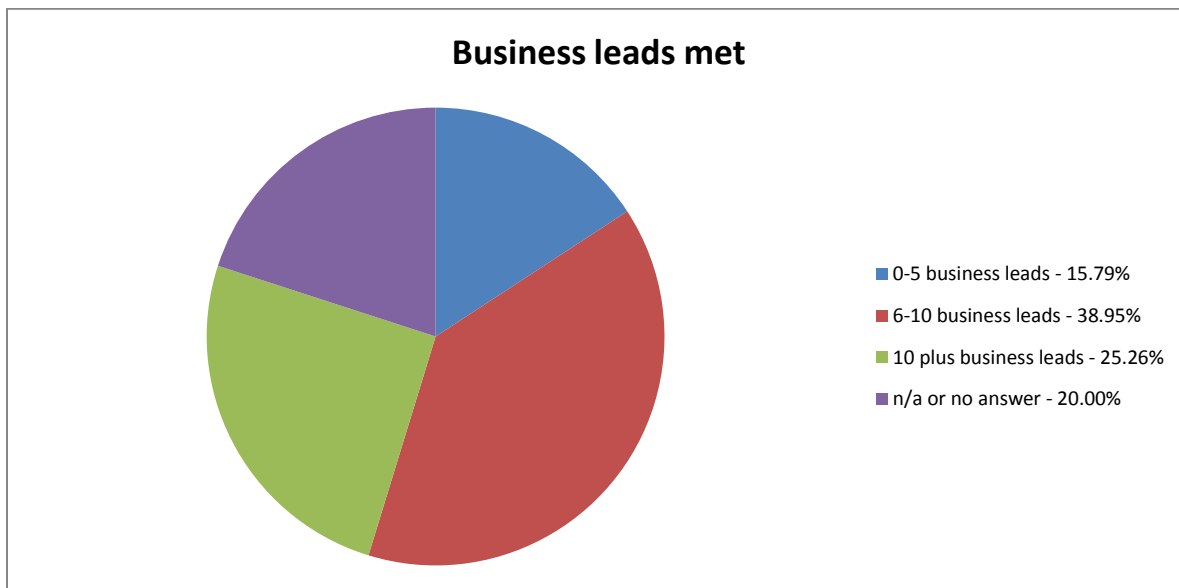




Select comments:

- ~ Make the website more "live"!
- ~ After the conference I will use the outputs of this conference as a main tool
- ~ Need better promotion of LA website to the public and participants
- ~ Translate more documents into French for those who do not speak English
- ~ Keep extending network around Africa

6) How many business leads did you identify during the Conference and Trade Fair?



7) Select comments on the key value/main take away from the Lighting Africa Workshop?

- ~ Very innovative products and attempt by Lighting Africa to provide an enabling environment to make Lighting Africa happen
- ~ Opportunities available to light up Africa to reach millions of households
- ~ Networking, business exchange
- ~ Expanded knowledge of current products and markets

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- ~ Enhanced maturity of Industry and recognition that MFIs are not the sole solution for end-user financing— there are options and models available
 - ~ Contacts
 - ~ Developmental progress within the industry is occurring and will continue with more attention and work
 - ~ Impressive growth of the market; look forward to solutions for scale up
 - ~ Tremendous progress since conference in 2008-2010
 - ~ Product is king, distribution is God and we're all atheists
 - ~ Product trends/availability/affordability/ quality, supply chain financing and business models
 - ~ Engaging the public sector, consumer awareness
 - ~ Insight into last mile distribution
 - ~ After three days of conference we are going to look internally and find out which companies we are going to work with first
 - ~ Better support from the government, the World Bank and other donors
 - ~ Enable better access to funding resources and to technological opportunities around the world
 - ~ The interest to me is to bring Africa people into renewable energy which is the only means to develop the continent

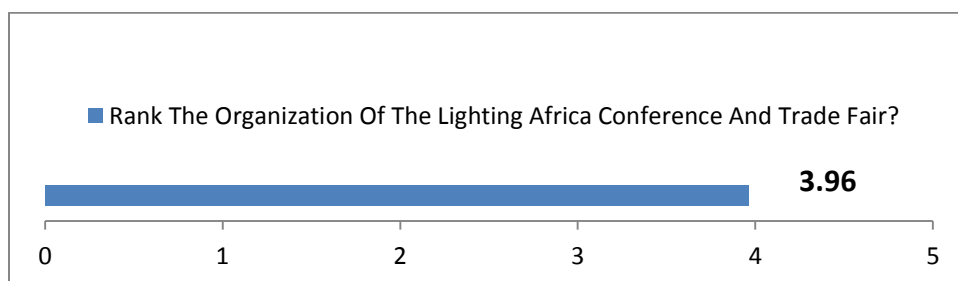
8) Select comments on what is one major follow-up activity for Lighting Africa?

- ~ Communicate to different government agencies on the quality passed products
- ~ Product standardization and expansion
- ~ Improved understanding of the consumers who are buying these products
- ~ Scale up in country presence and access to local LA representatives
- ~ Build tariffs database with Global LEAP
- ~ Identify funding sources
- ~ Consolidate and communicate relevant country-by-country info and facilitate (through GOGLA) cooperation and information/ best practices among members
- ~ Tariffs and regulatory publication by Lighting Africa for transparency and clarity
- ~ Major study on successful supply chains from other sectors
- ~ Value chain financing
- ~ Promote manufacturing in Africa!
- ~ Track conference attendees results after six months time; find out what each participant has done in terms of off-grid lighting expansion
- ~ Create a journalist and media network
- ~ Create a database on the projects to be implemented

9) Select comments on specific examples on how you have used/plan to use the knowledge acquired through Lighting Africa activities

- ~ Communication to policy makers, inspire local entrepreneurs to embrace products already passed by Lighting Africa products
- ~ Partnerships with distributors and other players to finance within the value chain
- ~ Too many to mention
- ~ Factor information into our strategy development process
- ~ Develop visual information tools to convey value of products, use, care requirements etc without words or cultural reference
- ~ Public relation activities
- ~ Re-think corporate strategy for product sales
- ~ Will talk to my government about planning a budget dedicated to off grid lighting
- ~ Increase the awareness of solar lamps in peri-urban and rural zones

10) How would you rank the Organization of the Lighting Africa Conference and Trade Fair?



11) To what extent did this Conference and Trade Fair increase your knowledge of the off-grid lighting market?

- ~ Enabled me to know where materials for further information can be found; also obtained access to crucial data compiled through research
- ~ Broad picture from different target groups/stakeholder engagement was very good
- ~ This will sound overblown, but utterly transformative
- ~ Deeper understanding on already known issues
- ~ Increased knowledge on 1) partnership networks 2) knowledge on well-known manufacturers and 3) more options on how to become a supplier
- ~ Knowledge of the main players, the technologies and the way to sell products
- ~ I learned the position of Senegal in terms of rural electrification
- ~ Not enough African speakers
- ~ Support local initiatives for the most vulnerable populations who are the primary users and encourage an exchange framework
- ~ Very great event: useful, informative and very enriching in the field of new technologies