

Africa Electrification Initiative: A forum for electrification practitioners from Sub-Saharan Africa

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1. Context of the Africa Electrification Initiative - AEI

Sub-Saharan Africa's (SSA) low level of household electrification is well documented. Less than 10% of Sub-Saharan rural households have access to electricity and the overall access rate is below 25%. The causes are multiple and range from economic impediments and lack of funding to sub-optimal policies and electrification program designs. One major obstacle is that it is difficult for SSA practitioners to obtain practical and timely knowledge on how to overcome existing economic, technical, institutional and political barriers to electrification in their day-to-day work. Even where laws, regulations and necessary institutions are in place, relevant and recent operational experiences and techniques are not easily accessible.

The objective of AEI is to Create and sustain a living body of practical knowledge and network of Sub Saharan Africa (SSA) practitioners in the area of design and implementation of rural, peri-urban and urban on-grid and off-grid electrification programs. The underlying idea is to activate the immense knowledge of electrification practitioners on SSA national electrification markets, real-life implementation success and challenges on the ground. To do so, we have chosen a novel approach by assembling a (hopefully growing) initial group of about 150 SSA electrification champions: these are practitioners who have been working on implementing electrification in their country for a long time, often in the second or third tier of a Ministry, regulator, utility. They are the ones most often faced with day-to-day challenges and decisions such as informing a new Minister on electrification strategy options or a new law, drafting regulations or specs, drawing up new tenders, or deciding between electrification models and technologies.

AEI Target Audience: Africa Electrification Practitioners

Government Ministries

Electrification agencies and funds

State, community or privately-owned

Think tanks, Academia and others

*AEI Sponsors: AFREA; Energizing
Development; EUEI Partnership
Dialogue Facility; ESMAP; GIZ;
FEMA*

To this end, these national electrification champions have to adopt international good practice to their specific local conditions. They often have immense knowledge about their national path to increased access and on things that worked and didn't in the past. However, their knowledge is frequently "locked out" of the ongoing international and inter-country knowledge exchange on electrification, because (i) the international conferences and workshops are often catering exclusively to high-level politicians (who change office more frequently); (ii) the typical local practitioner is often simply too busy with ongoing projects and programs (championing electrification is often a very hard task, as transaction costs are really high compared to access achieved and investment volumes) to participate in international knowledge exchange, and (iii) exchanging success stories (and even more so all these important lessons on what can go wrong in diverse electrification approaches, which we all have assembled over the last decades) openly and formally with colleagues from other countries may sometimes have negative effects on future project performance (and on civil servant careers). To unlock this immense potential, we apply a mix of web-based as well as traditional methods. Together with a growing mix of African as well as multilateral institutions, we want to: identify as many of these local champions, bring them together (physically as well as virtually), build trust and illustrate the benefits of AEI exchange to the practitioner panel, ask them what the most important topics and tasks for AEI would be, foster exchange between them on sufficiently narrow topical issues – and initiate spin-off work on the most important topics they have identified.

2. The Three Phases of AEI – and what has happened to date

Phase I: Maputo Practitioners' Workshop (2009)

- i. Shared practical information on ground level implementation issues in a first of its kind event
- ii. Created a network of electrification practitioners - 170 practitioners from 42 countries, including 32 African nations
- iii. Refined the topic areas where SSA practitioners face the most constraints – for further work in Phase II.

Phase II: Long-term knowledge dissemination mechanisms (2010+)

- i. AEI website created: www.worldbank.org/afr/energy
- ii. The following AEI Discussion Groups have been started and will soon be opened to a wider range of SSA practitioners:
 - Regulating Small Power Producers (SPPs)
 - Small Scale PV ("PicoPV") including SHS and solar lanterns or torches
 - RE Hybrid Mini-grids
 - Grid Electrification and Connection Charges
 - Carbon Finance
 - Micro Finance
 - More groups to follow in 2011-II: productive uses; subsidies; SSA data analysis; nexus between RE finance and access; web-based methods to involve more SSA practitioners; etc.
- iii. Technical research papers on the issues identified as urgent needs in Phase I.

- iv. Archive of operational documents started (tender documents, electrification regulations and standards, etc.)
- v. Thematic mini-workshops planned for 2011 and 2012:
 - Experience of Rural Electrification Agencies and Funds in SSA (2011)
 - EUEI Productive Uses Manual (2011)
 - Innovative Financing for Access and for RE (2012)

Phase III: Test Exit Strategies (tbd)

- i. Identify partners (preferably public partners such as universities or appropriate NGOs in SSA) who would be willing and able to take over parts of the knowledge and networks created under AEI Phase I and II.
- ii. Test transfer of AEI elements to these “exit strategy partners”
- iii. Initial World Bank task management exists when appropriate

3. AEI Phase I in more Detail

The Maputo Workshop and feedback from practitioners

AEI's Phase I was a “Practitioners’ Workshop” in Maputo from June 9-12, 2009, where ground level techniques related to rural, peri-urban and urban electrification were presented and discussed. More than 170 individuals from 42 countries attended the workshop. Included among the attendees were 130 representatives from African ministries of energy and power, local and national utilities, energy and electricity regulatory entities, rural electrification agencies, research centers and non-governmental organizations representing 32 African nations. The content and format of the workshop were developed over a six month period with the active assistance of an Advisory Committee consisting of electrification practitioners from seven African countries. The workshop was unique in that it was not limited to standard 20-25 minute power point presentations by outside experts followed by brief periods for audience questions. Instead, it used a mix of formats to maximize discussions among participants. These different formats included: 50 presentations by experts and practitioners given in 12 plenary sessions, 17 breakout discussion sessions designed to allow participants to pursue follow up questions and 3 structured half day clinics for hands-on and in-depth follow up activities. In addition, more than 20 participants took the time before the workshop began to create posters which described the successes and failures of their own electrification projects. These posters were displayed and discussed informally in the hallways outside the workshop meeting rooms.

The workshop achieved the following: (i) share practical information on ground level implementation issues relating to rural, peri-urban and urban electrification; (ii) create a network of electrification practitioners; (iii) refine the topic areas where SSA practitioners face the most constraints and that are of greatest interest to them; and (iv) define the Africa Electrification Initiative (AEI) follow up activities and the most appropriate long-term information dissemination mechanisms.

The attendees were almost all electrification practitioners. The rationale for limiting attendance to practitioners was to ensure that the focus would be on “day-to-day” real world implementation issues. Or as one participant put it: “most conferences fly at 35,000 feet but here we were down at ground level.”

As the agenda of the event shows (see below), the number of issues and topics covered was intentionally broad. The workshop was intentionally designed to be the equivalent of an “intellectual buffet.” The rationale for “going wide” was to give participants an opportunity to sample from a large number of implementation issues. This allowed them to choose issues that were genuinely relevant for their own work as well as new and unfamiliar issues so as to be able to give informed recommendations on possible follow-up activities of the AEI project in years 2 and 3. On their own initiative, a number of participants convened and conducted unscheduled follow up sessions after the formal workshop ended on access subsidies, microfinance, carbon finance, prepaid meters, and alternative service and maintenance models for ongrid/offgrid electrification.

The impact of the workshop was perhaps best summed up in the words of one individual participant: “The topics discussed touched on issues that relate to most of the projects being implemented in Africa today. The workshop was very enlightening. Sharing experiences with other practitioners “opens” up one’s mind, such that as we plan/execute projects, we can have reference based on experience from other practitioners.”

14 Sessions on SSA Electrification

Session 1: Grid Extension: An institutional overview of the challenge of rural electrification and how progress has been achieved in SSA and other developing countries. Several illustrative cases were presented by practitioners, including an analysis of lessons learned.

Session 2: Offgrid Business Models: Many national utilities in SSA are unable to expand their grid fast enough, due to financial, technical and capacity constraints. Even where this is not an issue, social fairness sometimes requires solutions for remote regions with dispersed users who cannot be reached by the grid. The session presented working technology solutions and business models for low-cost offgrid alternatives for such cases, often based on PPPs.

Session 3: Hybrid Electrification Models: This session focused on alternatives to government-led electrification undertaken by ministries, state-owned enterprises or combinations of the two which were the focus of Session 1. These alternatives included private sector operators bidding for large regional concessions, electricity cooperatives buying at wholesale from a national utility and local and regional power companies working with a national utility.

Session 4: Rural Electrification Agency and Rural Electrification Fund: Many countries in SSA have established a new institutional framework supporting rural electrification through establishing rural energy agencies and funds. The session analyzed the experiences with this model, compared different institutional approaches for REA and REF and identified key lessons learned, and challenges. The main question remains: what are the key drivers of successful REA/REF programs?

Session 5: Grid Intensification, Innovation and Cost: This interactive session discussed technical and management innovations for grid expansion, with a special focus on peri-urban electrification, low-cost technologies and densification of existing networks (also known as intensification). What

technical solutions, innovations and business models can be deployed to make access expansion more affordable and sustainable for users and utilities?

Session 6: Offgrid Technology and Lighting Africa: Currently 500 million people in Sub-Saharan Africa are without electricity; 90% of the rural population has no access. Among the poorest of the poor, lighting is often the most expensive item among their energy uses, typically accounting for 10% of total household income. New "breakthrough" advancements in lighting technologies (such as LEDs, chapter solar home systems, etc.) promise to deliver lower-cost, clean, durable and higher-quality lighting for areas not served by the utility. The session explored the latest technological advancements in offgrid electrification and lighting solutions, as well as the opportunities -and challenges- for marketing strategies, electrification policies and quality control.

Session 7: Can Masterplans work? What is the application reality of master plan planning approaches? Are Masterplans appropriate at all, given that PPI follows price signals and master plans are often outdated by the time they are published? Could there be quicker, more flexible, less expensive or more participatory alternatives for rural electrification (RE) planning? This session reviewed cases from different countries and explored the planning processes and subsequent implementation.

Session 8: Pro Access Regulation: How can regulation help, rather than hinder, electrification? The two universal tasks of economic regulation are setting maximum and minimum prices and establishing minimum technical and commercial quality of service standards. Since the economics of rural electrification are often precarious, it is generally agreed that regulatory systems applying to electrification activities must be "light handed." This session presented case studies on different approaches to light handed regulation.

Session 9: Effective M&E: Electrification scale-up in Africa will require rigorous, yet low-cost and practical monitoring and evaluation (M&E) to guide the programs, plan and measure impacts, and collect lessons learned for improvements. The session presented M&E tools and components that work and typical conclusions that can be drawn from evidence-based evaluation.

Session 10: Enhancing impacts: Electrification programs should pay special attention to the uptake, usage and impacts of new electricity access and include socially and economically productive uses as integral program elements. Complementary services such as access to roads, information technologies, finance or training may increase electrification impacts and demand density in specific cases. The session presented practical ways in which electrification projects have fostered productive uses or complementary services and identified lessons and limitations.

Session 11: Financing (and Subsidies) for Utilities: This session looked at specific cases of utilities and their financial and subsidy issues. The presentations were very short and straight forward to allow for more contrasting cases.

Session 12: Financing (and Subsidies) for Small Providers: Small providers face specific challenges: financial and technical capacity is often low, and regulation frequently overlooks their needs. On the other hand, they are close to the customers and sometimes more flexible than large utilities. At the same time, they often operate minigrids, charge batteries or sell solar home systems - and these technologies have specific requirements. Finally, their customers are usually poor while investment and managing and operating (M&O) costs are usually higher than for grid extension. Thus,

commercial funding is hard to obtain and subsidies are practically always needed to close the affordability gap for new users. How to improve the access of small providers to financing and subsidies?

Session 13: User Financing via MFI and Utility Bills: Affordability of electricity service is a key issue in Sub-Saharan Africa. How to close the gap between high costs of the service and low capacity to pay? This session presented promises and limitations of microfinance solutions and utility pre-finance schemes for electrification. It covered grid extension as well as different offgrid technologies as the design of successful user financing schemes differs from technology to technology.

Session 14: Climate Change and Access: The purpose of the session was: (i) demonstrate the existence of CDM/carbon finance opportunities in Africa; (ii) explore some of the recent approaches and methodologies which could facilitate Africa's greater participation in CDM (e.g. Program of Activities approach), with some emerging examples in Africa and worldwide; and (iii) explore other financing opportunities for electricity access arising from the increased global focus on climate change.

Session 15: A Subsidy Clinic: How to design and improve access subsidies: This interactive 3.5 hour session discussed the practical steps involved in designing and evaluating subsidies in real cases, using a new tool – the Subsidy Matrix. Specific cases for grid and offgrid subsidies were presented and discussed. In addition, participants had the opportunity to start presenting their own subsidy design questions, for ongoing or future access programs.

4. AEI Invites You

If You Are an Electrification Practitioner from Sub-Saharan Africa, please send us an email to rgolubeanu@worldbank.org to find out if our discussion groups fit can help you with your daily work!



Africa Electrification Initiative

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Share practical information on ground level implementation issues relating to rural, peri-urban and urban electrification.

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