Proceedings of the

"African Regional Workshop on Electricity and Development" held on 13-14 July 2005 at the UN Complex, Nairobi, Kenya

Organized by

**Global Network on Energy for Sustainable Development (GNESD)
in Collaboration with United Nations Environment Programme (UNEP), United Nations Development Programme (UNDP), and the International Energy Agency (IEA) and the African Energy Policy Research Network (AFREPREN)**

Edited by

Stephen Karekezi, John Kimani, Lugard Majoro and Ayago Wambille

**African Energy Policy Research Network (AFREPREN/FWD)
P.O. Box 30979, 00100 GPO Nairobi, Kenya
Tel: +254 20 566032/571467
Fax: +254 20 561464/566231/3740524
E-mail: afrepren@africaonline.co.ke or skarekezi@form-net.com or Stephenk@africaonline.co.ke
Website: www.afrepren.org**

August 2005

1. Introduction

1.1. Background and objectives of the workshop

An estimated 57% of the world's poor (about 1.6 billion people) about a quarter of the world's population, do not have access to electricity and a significant portion have limited or no access to cleaner and more modern fuels such as kerosene, LPG and natural gas. Without major policy action and increase in investment in the electricity sector, it is projected that by 2030, 1.4 billion people will still lack electricity. A significant proportion of this number is expected to be in sub-Saharan Africa.

It is for this reason that the GNESD in collaboration with UNEP, UNDP and the IEA organized a series of regional engagements and workshops focused on the role of electricity in promoting sustainable development. The workshop series aimed at bringing together the best minds in economic development, energy infrastructure and technology, finance and public policy from developed and developing countries to forge new and cost effective approaches that can lead to a sustainable energy future.The challenge of providing increased access to the poor parts of the population was the key theme for the workshops.

This workshop held in Nairobi, Kenya was the third of three regional workshops (two other regional workshops held in Rio de Janeiro, Brazil 13th – 14th April 2005 and Bangkok, Thailand 28th – 29th April 2005) focusing on the role of electricity in promoting sustainable development after the "Electricity & Development" global workshop held at the IEA headquarters in Paris on 17-18 January 2005.

The main objective of the Nairobi workshop co-ordinated by AFREPREN was to inform regional policy makers of the GNESD energy access recommendations and how they could apply them in their respective countries. The workshop brought to the attention of the policy makers, the role of increased electricity access in national development as well as the need for enhancing electricity access among the poor.

This report summarises the workshop proceedings and conclusions. The full workshop presentations and background information can be accessed through the GNESD and AFREPREN websites using the following links:
http://www.afrepren.org/gnesdworkshop.htm and
http://gnesd.org/regional_workshop.htm respectively.

The following section summarises the workshop structure, participants of various stakeholders and the range of institutions represented at the workshop.

1.2. Details of the Regional Workshop

The workshop was held at the UNEP Headquarters Complex in Gigiri, Nairobi on 13 - 14 July 2005. The two-day workshop was broadly divided into 2 parts: presentations and working groups.

1.2.1 Participants at the Workshop

About 150 participants from 20 countries attended the workshop. The participants included Executive Director, UNEP, Executive Director, IEA, Permanent Secretary, Ministry of Energy, Kenya, Directors of national power utilities, regulators, representatives of key bilateral and multilateral funding agencies, and banking institutions, experts in energy, electricity, environment, engineering, technology, finance, economics, regulatory agencies, private sector, universities and research centres as well as civil society. A detailed workshop program is provided in *Annex I* and the list of participants in *Annex II.*

Figure 1 Participants at the Workshop

Figure 2. Panelists during Session 3

1.2.2 Workshop Format

The Africa Regional Workshop begun with an introductory presentation by the GNESD Director that provided an overview of the post-WSSD GNESD Partnership Initiative as well as highlighting its key activities and outputs. This was followed by introductory remarks by the Executive Director of UNEP, the Executive Director of IEA, which was followed by the representative of the UNDP Resident Representative. The official opening of the workshop was by the Permanent Secretary, Ministry of Energy, Kenya.

The workshop included four key technical sessions on (i) ***Electricity and Development*** (ii) ***The Dual Challenge*** (iii) ***Energy and MDG Challenge*** and (iv) ***Working Group Presentations***. While there were plenary discussions after each presentation, a significant amount of time was set aside for working group discussions. This was to ensure ample time for in-depth deliberations on the "Electricity Access" question with

special emphasis on the role of electricity access to national economic development. The aim of the group discussions was to propose proven policy options for increasing electricity access, especially among the poor as well as measures for attracting investment to Africa's power sector.

Each of the key presentations was followed by a plenary session. Panellists for each plenary session were drawn from 5 - 6 countries. Each panellist was given 5 minutes to present a statement on experience of his or her respective countries. After the panellists, the audience was then invited to give comments. At the end of each plenary session the moderator would highlight topics/issues that need further discussion in subsequent sessions. The key presentations during the workshop were;

- "Electricity and Development: Key Challenges" by Mr. C. Mandil, Executive Director of IEA (International Energy Agency)
- "Impact of Reforms on Electrification of the Poor in Africa"- Key findings of GNESD Study by Mr. S. Karekezi, AFREPREN
- "Increasing Electricity Access While Ensuring Financial Viability: Perspective from the African Electricity Distribution Industry" by Eng. S.E. Mangwengwende
- "The Role of Policy and Regulation in Attracting Investment and Ensuring Increased Electricity Access: The SME Perspective" by Mr. M. Tse
- "The Role of Energy in Achieving Millennium Development Goals" by Prof. O. Davidson

During the working group sessions, the participants were divided into three groups depending on their expertise, work experience and interests. The working group discussions addressed the following topics:

- **Group 1:** Policy and Regulatory Options for Enhancing Rural Electrification within a Reforming Power Sector

- **Group 2:** Policy and Regulatory Options for Increasing Electricity Access While Ensuring Financial Viability of Electricity Distribution Utilities

- **Group 3:** Policy & Regulatory Options for Enhancing Electrification through Private Investment

2. **Electricity and Development Linkages**

Energy in general is important for development of a nation in all sectors. Though not mentioned exclusively in the MDGs, it is directly or indirectly linked to all the different MDGs because modern energy service provision is crucial for the overall social and economic development of any nation or region in the world. As demonstrated by the various papers presented at the workshop, energy is a major requirement without which MDGs can not be attained, especially in sub-Saharan Africa where poverty level have been increasing over the years.

Lack of access to electricity as indicated by the Executive Director of IEA and by the participants, remains the clearest indicator of Energy Poverty – and, indeed, of poverty in general. Yet, analysis indicates that by 2030 there is a very real likelihood that in the absence of strong policy changes, the picture could remain the same, stifling economic development, and resulting in lower quality of life which would condemn billions of people to continued poverty.

At present, about one quarter of the world's population, have no access to electricity. Without such access to electricity, it is virtually impossible to carry out productive economic activity or improve health and education. As a result, poverty becomes inescapable. If current trends persist as highlighted by the UN Secretary General's report on the progress towards the MDGs, by 2015 MDGs will not have been achieved.

This is being attributed to lack of proper policy guidance that could foster investment in the electricity industry and improve access of electricity among the majority poor. For example, according to a recent review carried out by UNDP, all PRSPs in sub-Saharan African countries recognize energy issues as an important development topic, and almost all of them emphasize increased investment in large-scale energy supply infrastructure as a priority. However, very few, if any, have treated increasing access to energy services for the poor as a priority.

The next part of this report discusses policy options and regulatory measures that would enhance electricity access to the poor under 3 issues; namely, financing, governance, and sustainable development.

3. **Financing**

In developing countries, the challenge of increasing electricity access in a sustainable manner is a problem of balancing the need to set prices to cover cost while keeping them low enough for the poor majority to afford. These are not easy objectives to achieve because they are inherently contradictory where the achievement of one objective is often at the expense of the other. And as a result, enhancing electricity access among the low-income groups often jeopardises the financial performance of electricity utilities in developing countries.

To achieve the aforementioned dual challenge, several policy options were proposed by the African Regional Workshop based on practical experiences from African countries and other developing countries like India and Asia. The workshop proposed, innovative options that could enable increased electricity access among the poor without adversely affecting the power industry's financial performance. These include low-cost technical and non-technical options suitable for rural electrification.

Examples of low-cost technical options include, use of longer distances between transformers; single wire earth return; shorter, smaller poles; smaller conductors; pre-fabricated wiring systems (e.g. ready boards); high mast community lighting systems; load limiters, equipment standardization, etc.

Non-technical options include: "Ring-fencing" the funds meant for the electrification of the poor; flat-rate tariffs; appropriate credit schemes; community electricity service points; review of costing of rural electrification projects.

Policy options that could enhance electricity access as well as provide innovative financing mechanisms for the development of the power sector or reduce the cost of rural electrification were also proposed. The policies are described below.

Policies for enhancing electricity access

Participants at the workshop highlighted that priority given by power sector reforms to increasing electricity access among the poor, especially in rural areas, vis a vis to that given to other objectives such as enhancing financial performance of the national utility was very low.

The workshop proposed the following policies if electricity access among the poor is to be realized in African Countries:

- Provision of electricity at commercial and community load centres e.g. in Zimbabwe
- Social tariffs e.g. in Mozambique
- Promotion of mini-grids based on local resources e.g. in Tanzania
- Provision of electricity at the district centres e.g. in Tanzania
- Creation of Rural Electricity Agency (REA) mainly to extend subsidies to ESCOs e.g. in Tanzania

Policies for strengthening financial viability of the utilities

Rural electrification will not be possible unless the right policy options are put in place. The following are some of the policy options that can be put in place to enhance rural

electrification levels without adversely affecting the financial performance of the electricity industry. The proposed policies are based on examples drawn from developing countries where such policies have been successfully implemented.

- Cost-recovery based tariffs, surplus ploughed back into Rural Electrification Fund (REF), given on competitive biding e.g. Uganda
- Generation levy (i.e rural electrification levy) to fund Rural Electrification Programme e.g. Uganda, Kenya
- Locally developed and aggressively marketed low-cost electrical appliances to facilitates demand creation e.g. Zimbabwe
- Parallel lines (HT, LT) for the same village, HT for agriculture and LT for domestic, small enterprises e.g. India
- Franchisee, for billing and revenue collection as well as bulk purchaser and hence participating in up gradation of distribution network e.g. India
- Flat rate tariffs- India (drawbacks)
- Financing (or subsidising) internal wiring to ensure recovery on otherwise dead investment
- Credit to consumers to pay connection fee in instalments

In addition, Governments and regulatory bodies responsible for regulating the electricity sector need to put in place measures that could lead to increased electricity access to the poor majority without adversely affecting the financial performance of the electricity industry. The workshop therefore proposed the following regulatory measures that can be implemented to enhance rural electrification levels without adversely affecting the financial performance of the electricity industry.

- *Auditing/ monitoring of activities of distribution companies by regulators*
- *Ensuring ring fencing of RE funds*
- *Mechanisms for cross-border sale of electricity with tariff harmonisation*
- *Encouraging small scale generation/ distribution entities*

Box 1: How Zimbabwe's utility increased electricity access while ensuring financial viability.

Increasing electricity access to the poor, means attempting to service low-income consumers whose incomes are usually irregular and often live in isolated rural areas that are difficult to access. To provide services, electricity companies have to cover their operating and investment costs (required by market oriented reforms) as well as maintenance, billing and collection costs in a market where return on investment is far from assured.

In the majority of sub-Saharan African countries, these contradictory demands have proved to be irreconcilable. It is, therefore, not surprising that electricity companies have tended to "cherry pick" the most lucrative markets, and ignored the poorer consumers especially in rural areas.

The case example of Zimbabwe's electricity presented by Eng. S.E Mangwengwende during Session 3 of the Workshop, demonstrate how the aforementioned dual challenge could be talked.

Increased political interest in the rural population of Zimbwabwe resulted in 3 key events; namely, increase of the rural electrification levy from 1% to 6%; the enactment of the Rural Electrification Fund Act; and establishment of a dedicated Rural Electrification Agency (REA) in 2002.

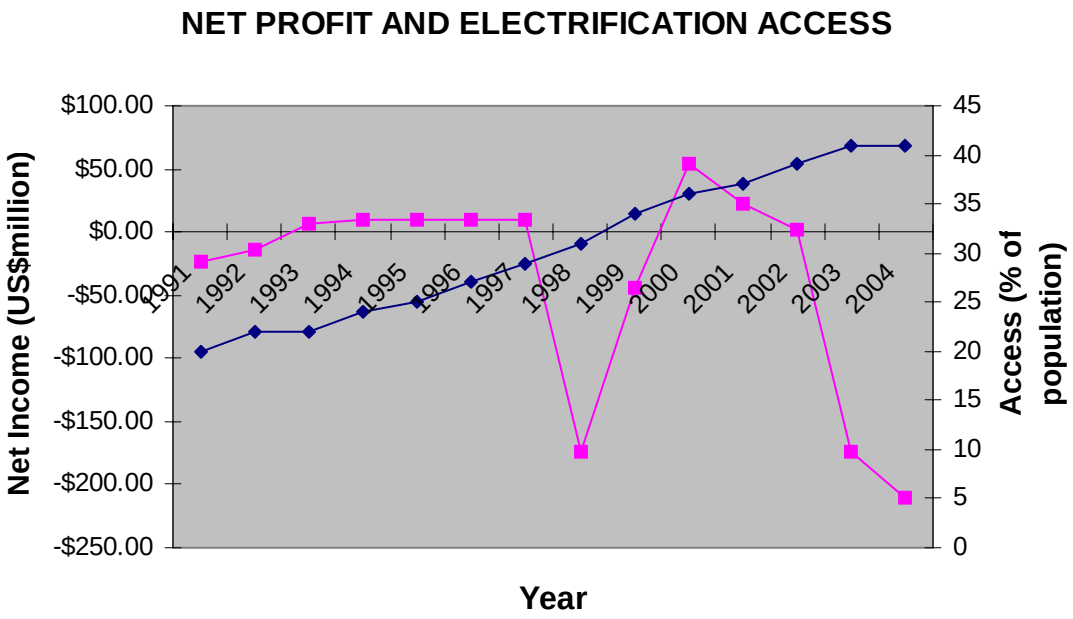
An expanded electrification programme was launched in which a total of 9906 rural institutions, irrigation and village schemes were identified for electrification by the end of 2005. A unique feature of the expanded programme was the financing of both electricity and end-use infrastructure, mainly irrigation equipment, by the REA. Although the 2005 target is unlikely to be achieved the rate of connection of rural institutions has increased dramatically. As shown in table 2 below by the end of June 2005, a total of 3,992 institutions had been electrified.

TABLE 2: Electrified Rural Institutions as at 30 June 2005

Institution	**Average installed capacity kVA**	**Total number completed**	**%**
Business and Government Administration Centres	100-200	901	22
Rural health Centres	50	331	8
Primary Schools	25	944	24
Secondary schools	50	589	15
Small Farms/Irrigation Schemes	25-300	593	15
Village s/other Schemes	10-300	634	16
TOTAL		3992	100

Figure 1 presents the financial viability in terms of the net profit and electrification access as a percentage of the population living in houses connected to the grid. There has been a steady growth in access from 20% in 1991 to 41% in 2004. During the same period the financial performance has been mixed depending on the electrification phase. With the exception of one year the utility had positive operating profits until 2002.

Figure 1



The rural electrification experience in Zimbabwe shows that electrification access is ultimately a pricing and financing problem. The success in balancing access and financial viability during the masterplan phase was achieved due to the following factors:

- Successful marketing of the project selection based on economic and financial criteria;
- Efficient revenue collection ensured that funds were available for rural electrification;
- Increased use of private contractors helped in reducing the cost of grid extension;
- Explicit capital subsidies for rural electrification supplemented by the mobilisation of community contributions removed the burden of financing from the utility;
- Cross subsidies to support lifeline tariffs for the poor helped to encourage use of electricity as an energy source for the poor households.

An extract from a paper by Eng. S.E. Mangwengwende on "Increasing Electricity Access While Ensuring Financial Viability: Perspective from the African Electricity Distribution Industry" presented during the Workshop.

4. **Governance**

Many sub-saharan African countries have been undergoing reforms partially targeting restructuring the electricity sector to improve performance (increase access to electricity, reduce technical and financial losses, etc) and attract private sector investment. The changes have mainly been two-pronged, namely structural and ownership changes.

The structural changes have concentrated on the functional unbundling of the utilities, to enhance transparency while ownership changes were mainly designed to increase private sector investment and involvement. In practice reforms in most SSAn countries have been largely designed to facilitate foreign private investors. Wider access to electricity was often treated as a lower order objective. Although local private investors, particularly SMEs could be effective in improving electricity access to the poor, most reforms have not attempted to involve local SMEs. One of the options for involving local private investors is to outsource some of the activities/services of the power utility to small and medium-scale enterprises (SMEs)[1, 2].

The involvement of SMEs could strengthen local support for power sector reforms. In Africa, indeed like in most developing countries, the private economy is almost entirely comprised of SMEs which are frequently the only realistic employment opportunity for the majority poor. Involvement of local SMEs in reforms has the potential of not only expanding access in a cost-effective fashion but could also yield substantial job generation and poverty reduction benefits.

On how SMEs in the electricity sector could assist in reaching the poor, there are useful lessons to learn from reforms of the telecommunications sector in SSA which appear to have contributed to dramatically increasing access to telephone and internet services among the poor. This is unlike reforms in power sector which have not led to increased electricity access among the poor. While the increased access to telecommunication services among the poor can be attributed to increased competition among service providers and the introduction of pro-poor tariffs, the success of the telecommunications sector in reaching this target group is largely due to the mobilization of SMEs to play a substantial role in the provision of key services such as vending the telephone and internet services.

Involvement of the private sector, especially local SMEs, to enhance electricity access among the poor is vital. To facilitate their involvement, it is necessary that SMEs have a one stop shop for licensing, creation of local dispute resolution mechanism and enforcement of regulations and empowerment e.g. to allow them cut-off defaulters and skills development. The workshop, therefore, proposed the following measures to ensure involvement of SMEs in the electrification of the poor.

---

[1] Generally, 'an enterprise' refers to any income-generating activity. 'Micro enterprises' usually have up to 10 employees, 'small enterprises' have 11 – 50 employees, while the 'medium enterprises' have 51 – 100 employees.

[2] World Bank's SME department defines micro-enterprises as those entities with up to 10 employees, total assets of up to US$100,000 and total annual sales of up to US$100,000; small enterprises – up to 50 employees, total assets of up to US$3million and total sales of up to US$3million; and medium enterprises – up to 300 employees, total assets of up to US$15million and total annual sales of up to US$15million.

- Provide model contracts\Agreements specifying minimum performing criteria, penalties etc
- Employ alternative delivery mechanisms e.g. electricity co-ops., community projects, local companies.
- Develop flexible, technical and environmental standards without compromising safety.
- Encourage SME entrepreneurial and other relevant capacity building
- Promote pre-payment options
- Facilitate vending electricity and sub-retailing
- Introduce flat-rate tariffs e.g. India
- Bundle electricity supply and other commercial services for viability e.g. Kenya (micro-hydro)
- Explore alternative funding arrangements for non-conventional electrification

The workshop proposed the following policy options to ensure involvement of SMEs in the electrification of the poor.

1. Encourage large investors and SMEs to invest privately or through Public Private Partnership (PPP) in electrification of the poor through (this has been attempted in Mauritius, Tanzania, South Africa, and India):

    - Co-generation projects which maximize the use of indigenous energy resources
    - Merger of small projects that bring economies of scale
    - Co-operative arrangement

2. Create an enabling environment for private investment by providing
    - Legal framework
    - Institutional framework
    - Access to adequate and accurate information.
    - Security

The above policy options have been successfully implemented in Senegal, Mauritius, South Africa, Uganda, and Ghana

3. Introduce incentives for investors (local & foreign) in form of (this has been tried in Kenya, Uganda, India, and Mauritius)

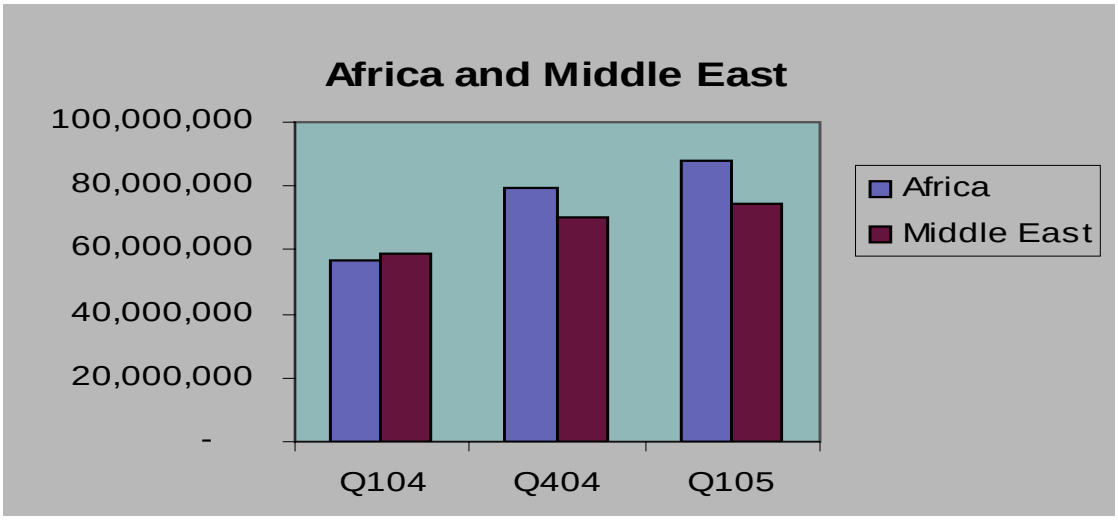
    - Fiscal, legal (e.g. information status), infrastructural and other incentives

4. Promote electrification of special areas (difficult rural) through;
    - Smart subsidies
    - Ring fencing of electrification funds
    - Differential tariffs

Box 2: Lessons from Telecoms Sector in Africa - Case of Ghana

As shown by Mr. Mawuli Tse during his presentation in session 3 of the workshop, Africa has fastest growth rate of telecom penetration in the world, at over 100% since 2001. This is mostly fueled by cellular growth. However, the fixed line growth is less spectacular. As shown in the figure 2, Africa has more subscribers than the Middle East. This is partly attributed to the fact that all the countries in the region have mobile phones.

Figure 2: Growth in Telecoms in Africa and Middle East



Most of the countries are in the process of deregulating the operations of telecoms, but most are still state-controlled. The trend in most countries is towards full liberalization. As shown in the table below, the telecom industry in Ghana has twice the customer base, the electricity industry has. In addition, the subscriber base is growing at close to 7 times that of the electricity industry. The experiences of the telecoms in the region can be applied in the power sector.

Ghana Regulatory Overview

	Energy	Telecoms
Distribution	State-owned monopoly	Majority state-owned incumbent, minority state-owned SNO, 3 private mobile operators
Number of operators	2 state-owned distributors for southern and northern Ghana respectively	2 fixed line operators, 4 mobile operators
Customer base	1,100,000	2,080,000
Main Operator Staff level	4,484	4,800
Subscriber Growth rate (2003/2004)	13%	89%

Nature of interventions
To penetrate the market the following interventions have been implemented in Ghana's telecom industry.

- Reduce state control by deregulating, divesting and liberalizing
- Put policy functions in government ministries, and regulatory functions in independent bodies
- Retain major state ownership of basic infrastructure (pipes and cables)
- Introduce competition
- Promote universal access

Role of SMEs in Telecom
Small and micro enterprises in the telecom industry are providing the following services:

- Communication Centers (call shops)
- Fixed wireless resellers
- ISPs
- Voice over IP and SIP providers
- Equipment dealers, installers and repairers
- Prepaid card distributors and retailers
- Generated thriving industry for carpenters, signwriters, and umbrella dealers

The above list demonstrates that the telecoms industry has been efficient in utilizing SMEs something which the power sector has not been able to do effectively. For example, prepayment meter system installed by Electricity Company of Ghana (ECG) has not been successful because they centralized the system i.e. credit can only be bought from ECG office which is open during the working hours only.

In contrast, in Tanzania where they have been able to use SMEs, the use of prepayment meters is successful.

5. Sustainable development of the power sector

In developing countries, particularly in sub-Saharan Africa the challenge of increasing electricity access in a sustainable manner as earlier described is a problem of balancing the need to set prices to cover cost while keeping them low enough for the poor majority to afford. Many people can not afford the connection cost for grid electricity. It is therefore important to consider other off grid options. Developing a sustainable power sector, therefore, requires a balanced approach that can address three key energy challenges:

- Reliance on biofuels that harm human health and the environment.
- Inadequate access to cleaner energy services, such as electricity, for productive purposes and institutional applications.
- Incomes that are too low (as well as limited access to appropriate financing schemes) to allow the poor to procure cleaner and more sustainable energy services, such as electricity, that are more expensive[3].

In the last two decades, sub-Saharan African (SSA) countries have implemented a wide range of energy sector reform initiatives, which were expected to, inter alia, address some of the above concerns. Initial indications from a wide range of SSA countries, however, seem to indicate that few of these reform initiatives have resulted in significant improvement in the provision of electricity services to the poor.

What is particularly worrisome about the above challenges is the deterioration in some countries in quality and reliability of energy services available to the poor in spite of numerous energy reform initiatives. The reliance on traditional biofuels is increasing and the proportion[4] of unelectrified people continues to grow.

The workshop, proposed the following possible policy options and regulatory measures that can improve electricity access to the poor, especially in rural areas.

Policy options to enhance rural electrification levels

- Legislate creation of master plan of rural electrification and making it public to prevent hijacking by politicians.

- Open the generation and transmission plus distribution sector accompanied by institutional and legal frameworks. Countries are at various stages in this. For example, Kenya is still to implement privatization of distribution and sale of power.

- Establish strict time lines to be monitored or evaluated

[3] Up-front costs of associated devices and appliances for cleaner and renewable energy options are often prohibitive for the poor.

[4] In other words, although the absolute number of people with electricity is increasing, the rate of electrification is outpaced by population growth (Radka, 2002). In many sub-Saharan African countries electrification rates are below population growth rates.

- Set clear targets of using rural electrification to spur economic activity or enhance what is already in place.

- Ensure rural electrification targets economic activities. Do not focus on households at first.

The regulatory measures proposed that can be implemented to enhance rural electrification levels include:

- Regulations that recognize the low economic power of the rural population. Hence need to be flexible in fee for licence and quality of service/supply. But minimum safety standards have to be maintained.

- Need for regulator to delegate some of the regulatory duties to agents near the communities to be able to judge each power situation on a case by case basis.

6. Conclusion

Provision of modern energy service is crucial to the overall social and economic development and as such it forms a platform without which the MDGs cannot be attained. Lack of access to electricity in itself remains the clearest indicator of Energy Poverty – and, indeed, of poverty in general. It is, therefore, important that governments in developing countries and indeed in Africa address policy options that can be implemented to enhance rural electrification levels without adversely affecting the financial performance of the electricity industry.

Local private sector (especially SMEs) involvement could strengthen local support for power sector reforms. Their involvement in reforms has the potential of not only expanding access in a cost-effective fashion but could also yield substantial job generation and poverty reduction benefits. Policy makers and other stakeholders in the power sector need to implement the innovative measures that would ensure the involvement of the small-micro enterprises (SMEs) in the electrification process.

Annex I: Workshop Agenda

Regional Workshop
Electricity Access and Development Challenge in Africa

13-14 July 2005
UNEP Headquarters Complex, Nairobi, Kenya

Organised by
AFREPREN/FWD, Nairobi, Kenya

Sponsored by
United Nations Environment Programme (UNEP)
United Nations Development Programme (UNDP)
International Energy Agency (IEA)

Day 1 - 13th July 2005

09.00am – 09.30am Arrival and Registration of Participants

Session 1: Opening Speeches
Session Chair: John Christensen, Head of GNESD Secretariat, Denmark

09.30am - 10.30am Opening ceremony presided by Ministry of Energy, Kenya (invited) Executive Director of UNEP and the Executive Director of the International Energy Agency (IEA).

10.30am - 11.00am Tea/Coffee Break

Session 2: Electricity and Development
Session Chair: Patrick Nyoike, Permanent Secretary, Ministry of Energy, Kenya

11.00am - 11.30am "Electricity and Development: Key Challenges" by Mr. C. Mandil, Executive Director of IEA (International Energy Agency)

11.30am - 12.15pm *Panel/plenary discussion*
Panellists:

Derek Fee, Head of EU Delegation, European Union

Emmanuel Nyirinkindi, Director, Utility Reform Unit, Uganda

Charles Kafumba, Director, Ministry of Energy, Malawi

12.15pm - 12.45pm "Impact of Reforms on Electrification of the Poor in Africa"- Key findings of GNESD Study by Mr. S. Karekezi, AFREPREN

12.45pm - 1.30pm *Panel/plenary discussion*
Panellists:

Gao Hu, GNESD Member, Energy Research Institute, China

Ram Shrestha, GNESD Member, Asia Institute of Technology, Thailand

Standford Mwakasonda, GNESD Member, Energy Resource Centre, South Africa

Akanksha Chaurey, GNESD Member, The Energy and Resources Institute, India

1.30pm - 2.30pm Lunch Break

2.30pm - 2.40pm Working Group discussion guidelines by Mr. J. Kimani, AFREPREN

2.40pm - 3.30pm Working group discussions

Group 1: Policy and Regulatory Options for Enhancing Rural Electrification within a Reforming Power Sector (***Moderator:*** *Dr. Irene M. Nafula-Muloni*)

Group 2: Policy and Regulatory Options for Increasing Electricity Access While Ensuring Financial Viability of Electricity Distribution Utilities (***Moderator:*** *Mr. Batalatsang Kanetsi*)

Group 3: Policy & Regulatory Options for Enhancing Electrification through Private Investment (***Moderator:*** *Dr. Brij. Kishore Baguant*)

3.30pm - 4.00pm Tea/Coffee Break

4.00pm - 4.45pm Working group discussions

4.45pm - 5.00pm Plenary session - Closing Remarks

Day 2 - 14th July 2005

Session 3: The Dual Challenge

Session Chair: Hon. Eng. Albert Butare, Minister of State in charge of Energy and Communications, Rwanda

09.00am - 09.05am Opening Remarks by Session Chairman

09.05am - 09.35am "Increasing Electricity Access While Ensuring Financial Viability: Perspective from the African Electricity Distribution Industry" by Eng. S.E. Mangwengwende

09.35am - 10.20am *Panel/plenary discussion*
Panellists:

Bright Bratso Kumwembe, Deputy Secretary, Ministry of Energy, Malawi

Irene Margaret Nafuna- Muloni, Managing Director, Uganda Electricity Distribution Company Ltd., Uganda

Fredrick Nyang', Power Economist, Electricity Regulatory Board, Kenya

10.20am - 10.50am "The Role of Policy and Regulation in Attracting Investment and Ensuring Increased Electricity Access: The SME Perspective" by Mr. M. Tse

10.50am - 11.20am Tea/Coffee Break

11.20am - 11.50am *Panel/plenary discussion*
Panellists:

Batalatsang Kanetsi, Chief Executive, Lesotho Electricity Authority, Lesotho

Vincent B.A. Kasangaki, Member, Electricity Regulatory Authority, Uganda

Brig Kishore Baguant, Chair Person, Central Electricity Board, Mauritius

Session 4: Energy and MDG Challenge

Session Chair: Mr. Matere Keriri, Executive Chairman, Electricity Regulatory Board, Kenya

11.50am - 12.20pm "The Role of Energy in Achieving Millennium Development Goals" by Prof. O. Davidson

12.20pm - 12.50pm *Panel/plenary discussion*
Panellists:

Ivone Manganhela, Deputy National Director of Energy, Mozambique

Libasse Ba, Programme Coordinator, ENDA-TM, Senegal

Gustavo Nadal, GNESD Member, Fundacion Bariloche, Argentina

12.50pm - 1.00pm Working Group discussion guidelines by Mr. J. Kimani, AFREPREN

1.00pm - 2.00pm Lunch Break

2.00pm - 3.30pm Working group discussions

Group 1: Policy and Regulatory Options for Enhancing Rural Electrification within a Reforming Power Sector (***Moderator:*** *Dr. Irene M. Nafula-Muloni*)

Group 2: Policy and Regulatory Options for Increasing Electricity Access While Ensuring Financial Viability of Electricity Distribution Utilities (***Moderator:*** *Mr. Batalatsang Kanetsi*)

Group 3: Policy & Regulatory Options for Enhancing Electrification through Private Investment (***Moderator:*** *Dr. Brij. Kishore Baguant*)

3.30pm - 4.00pm Tea/Coffee Break

Session 5: Working Group Presentations
Session Chair: Prof. Ogunlade Davidson

4.00pm - 4.45pm Working group presentations

Group 1: Policy and Regulatory Options for Enhancing Rural Electrification within a Reforming Power Sector (***Moderator:*** *Dr. Irene M. Nafula-Muloni*)

Group 2: Policy and Regulatory Options for Increasing Electricity Access While Ensuring Financial Viability of Electricity Distribution Utilities (***Moderator:*** *Mr. Batalatsang Kanetsi*)

Group 3: Policy & Regulatory Options for Enhancing Electrification through Private Investment (***Moderator:*** *Dr. Brij. Kishore Baguant*)

4.45pm - 5.00pm Concluding Remarks by Mark Radka and J. Christensen, GNESD

5.00pm - 5.15pm Closing Ceremony

Annex II: List of Participants

Participants: GNESD Regional Workshop (13th - 14th July 2005)				
#	Name	Title	Institution	Country
Government Representatives				
1	Patrick M. Nyoike (Mr)	Permanent Secretary	Ministry of Energy	Kenya
2	Bright Bratso Kumwembe (Mr)	Deputy Secretary	Ministry of Mines, Natural Resources and Environment	Malawi
3	Bernard Mworiah	Statistical Officer	Central Bureau of Statistics	Kenya
4	Charles Milama Onyango (Mr)	Senior Inspector - Electrical	Ministry of Energy	Kenya
5	Dison Bosco Okumu (Mr)	Director, Planning & Development Coordination Office	The Parliament of Uganda	Uganda
6	Harry Wilson Chitenje (Mr)	Deputy Director	Department of Energy, Ministry of Mines, Natural Resources and Environment	Malawi
7	Ivone Manganhela (Mrs)	Deputy National Director of Energy	Ministry of Energy	Mozambique
8	James Isingoma Baanabe (Mr)	Senior Energy Officer	Ministry of Energy and Mineral Development	Uganda
9	Justina P. Uisso (Mrs)	Senior Research Officer	Ministry of Energy and Minerals	Tanzania
10	Mengistu Teferra (Mr)	Head, Strategic Planning Department	Ministry of Infrastructure	Ethiopia
11	Paul Mbuthi		Ministry of Energy	Kenya
12	Peter Koome (Mr)	Planner	Ministry of Energy	Kenya
13	Peter Opio (Mr)	Senior Statistician	Uganda Bureau of Statistics	Uganda
14	Wangari Githii		Ministry of Energy	Kenya
Regulatory Agencies and Electricity Utilities				
15	Batalatsang Kanetsi (Mr)	Chief Executive	Lesotho Electricity Authority	Lesotho
16	Brij Kishore Baguant (Dr)	Chairperson	Central Electricity Board	Mauritius
17	Emmanuel Nyirinkindi (Mr)	Director	Utility Reform Unit, Ministry of Finance, Planning and economic Development	Uganda
18	Francis Gachuri	Chief Power Engineer & Consumer Affairs Manager	Electricity Regulatory Board	Kenya
19	Fredrick Nyang (Dr)	Power Economist	Electricity Regulatory Board	Kenya

20	Irene Margaret Nafuna-Muloni	Managing Director	Uganda Electricity and Distribution Company Limited.	Uganda
21	Jensen Shuma (Mr)	Project Economist/ Information and Networks Coordinator	Tanzania Traditional Energy and Development Organisation (TaTEDO)	Tanzania
22	Kenneth Ndegwa Chege	Engineer	Kenya Power & Lighting Co. Ltd.(KPLC)	Kenya
23	Makala E. Kingu (Mr)	Manager - Rural Electrification	Tanzania Electricity Supply Corporation (TANESCO)	Tanzania
24	Matere Keriri (Mr)	Executive Chairman	Electricity Regulatory Board	Kenya
25	Mawuli Tse (Mr)	Managing Director	Solar Light Co. Ltd.	Ghana
26	Naima Abdallah (Ms)	Community Relations Coordinator	Songas	Tanzania
27	Mariita Bw'Obuya (Dr)	Senior Geophysicist	Kenya Electricity Generating Company (KenGen)	Kenya
28	Maurice Makomere (Mr)	Engineer	Kenya Power & Lighting Co. Ltd.(KPLC)	Kenya
29	Pauline Kathambana		Kenya Power & Lighting Co. Ltd.(KPLC)	Kenya
30	Peter Kinuthia (Mr)	Engineer	Kenya Power & Lighting Co. Ltd.(KPLC)	Kenya
31	Richard Carl Kapile (Mr)		National Electricity Council	Malawi
32	Silas Simiyu (Dr)	Geothermal Development Manager	KenGen	Kenya
33	Simbarashe Mangwengwende	Chief Executive	Zimbabwe Electricity Supply Authority (ZESA)	Zimbabwe
34	Vincent B.A. Kasangaki (Dr)	Member	Electricity Regulatory Authority	Uganda
Embassies, Donor and Development Agencies				
35	Derek Fee (Mr)	Head of EU Delegation	European Union	Kenya
36	Claus Darmstadt		European Union	Kenya
37	Antti Erkkila (Dr)	Forest Advisor	Embassy of Finland	Kenya
International Bodies				
38	Klaus Töpfer	Executive Director	UNEP	Kenya
39	Claud Mandil (Mr)	Executive Director	IEA	France
40	Christopher Gakahu (Dr)	Focal Point	UNDP	Kenya
41	Desta Mebratu	Programme Officer	UNEP	Kenya
42	Mohamed Ali Hamid (Eng)	National Project Manager	UNDP Photovoltaic Project	Sudan
43	Murenzi Ephrain		UN	Kenya
44	Njeri Wamukonya (Dr)	Energy Programme Officer	UNEP, Nairobi	Kenya
Indepedent Research Institutions				

45	Akanksha Chaurey (Dr)	Working Group Member	The Energy and Resources Institute (TERI)	India
46	Gao Hu (Dr)	Working Group Member	Energy Research Institute (ERI)	China
47	Gustavo Nadal (Mr)	Researcher	Fundacion Bariloche	Argentina
48	Libasse Ba (Mr)	Programme Coordinator	ENDA-TM	Senegal
49	John Christensen (Dr)	Head of Secretariat	GNESD Secretariat	Denmark
50	Mark Radka	Energy Programme Coordinator	United Nations Environment Programme (UNEP)	France
51	Ogunlade Davidson (Prof)	Co-Chair Steering committee	GNESD Secretariat	Sierra Leone
52	Per Kolbeck (Mr)	Information and Outreach Officer	GNESD Secretariat	Denmark
53	Ram M. Shrestha (Prof)	Professor	Asian Institute of Technology	Thailand
54	Stanford A. J Mwakasonda (Mr)	Working Group Member	Energy Research Centre (ERC)	South Africa
NGOs and CBOs				
55	Daniel Theuri (Mr)	Programme Manager	Intermediate Technology Development Group (ITDG)	Kenya
56	Geofrey Nansove Kamese	Incharge-Bio diversity conservation	National Association of Professional Environmentalists (NAPE)	Uganda
57	May Christine Sengendo (Mrs)	Chairperson	East African Energy Technology Development Network	Uganda
58	Patrick Thaddayos Balla	Project Research Coordinator	Intermediate Technology Development Group (ITDG)	Kenya
59	Kaniaru Kibiru (Mr)	Executive Director	Forestwatch Environment Network - Kenya	Kenya
Private Companies				
60	Maurice Mulinge	Engineer	Rift Valley Machinery Services	Kenya
61	Shem Arungu Olende		Queconsult	Kenya
Academic Institutions - Lecturers and Masters Students				
62	Aloys Oriedi Akumu (Dr)	Lecturer, Department of Electrical Engineering	Jomo Kenyatta University of Agricultural Technology	Kenya
63	B. M. Taele (Dr)	Senior Lecturer in Applied Physics	National University of Lesotho	Lesotho
64	Benson Okwiri	Masters Student	University of Nairobi	Kenya
65	Bernard Maina	Masters Student	Kenyatta University	Kenya
66	Cecelia Akinyi Okoth	MBA Student	Kenyatta University	Kenya

67	George Kimani (Mr)	Masters Student	Jomo Kenyatta University of Agriculture and Technology	Kenya
68	Kennedy Simiyu Wabwile (Mr)	Lecturer	Kenya Industrial Training Institute	Kenya
69	Livingstone Ngoo (Dr)	Chairman, Electrical Engineering Department	Jomo Kenyatta University of Agriculture and Technology	Kenya
70	Michael Musembi	Masters Student	Jomo Kenyatta University of Agriculture and Technology	Kenya
71	Robert Kiplimo (Mr)	Masters Student	Jomo Kenyatta University of Agriculture and Technology	Kenya
72	Simon Waweru Mugo	Teaching Assistant	Jomo Kenyatta University of Agriculture and Technology	Kenya
Academic Institutions: Undergraduate Students				
73	Agnes Magero		University of Nairobi	Kenya
74	Angella Nyabera		University of Nairobi	Kenya
75	Bernard Kitur		University of Nairobi	Kenya
76	Carolyne Kyalo		University of Nairobi	Kenya
77	Carolyne Onyancha		University of Nairobi	Kenya
78	Catherine Gakenia		University of Nairobi	Kenya
79	Chrispines Oloo		University of Nairobi	Kenya
80	Christine Murakaru		University of Nairobi	Kenya
81	Diana Ngige		University of Nairobi	Kenya
82	Doreen Kedemi		University of Nairobi	Kenya
83	Eddie Kwobah		University of Nairobi	Kenya
84	Enock Omwamba		University of Nairobi	Kenya
85	Evaline Apotaa		University of Nairobi	Kenya
86	Fidelis Muthoni		University of Nairobi	Kenya
87	George Aunga		University of Nairobi	Kenya
88	George Omondi		University of Nairobi	Kenya
89	Habon Abdilahi		University of Nairobi	Kenya
90	Hillary Ogallo		University of Nairobi	Kenya
91	Irene Muthoni Kariuki		University of Nairobi	Kenya
92	Lynette Ojiambo		University of Nairobi	Kenya
93	Jacqueline Njeri		University of Nairobi	Kenya
94	Jane Wanjiku Njoroge		University of Nairobi	Kenya

95	Job Ruiru		University of Nairobi	Kenya
96	John Odero		University of Nairobi	Kenya
97	Joseph Mwita		University of Nairobi	Kenya
98	Julius Mwakisha		University of Nairobi	Kenya
99	Kephar Sabareh		University of Nairobi	Kenya
100	Lucy Luchinga		University of Nairobi	Kenya
101	Lydia Makokha		University of Nairobi	Kenya
102	Mary Anne Mugo		University of Nairobi	Kenya
103	Maureen Ofuyo Ojowi		University of Nairobi	Kenya
104	Maureen Waweru		University of Nairobi	Kenya
105	Moses Sekecha		University of Nairobi	Kenya
106	Nancy Wambui Kiarie		University of Nairobi	Kenya
107	Nelly Atieno Owano		University of Nairobi	Kenya
108	Raphael King'ola		University of Nairobi	Kenya
109	Rosalyn Wachira		University of Nairobi	Kenya
110	Ruth Serem		University of Nairobi	Kenya
111	Samuel Mwaura		University of Nairobi	Kenya
112	Stacy Oyamo		University of Nairobi	Kenya
113	Terry Naserian		University of Nairobi	Kenya
114	Victoria Wasike		University of Nairobi	Kenya
AFREPREN				
115	Stephen Karekezi		AFREPREN	Kenya
116	John Kimani		AFREPREN	Kenya
117	Ayago Wambille		AFREPREN	Kenya
118	Jackson Musembi		AFREPREN	Kenya
AFREPREN Secretraiat				
119	Alex Ndiritu		AFREPREN Secretariat	Kenya
120	Antonnette Mandu		AFREPREN Secretariat	Kenya
121	Derrick Okello		AFREPREN Secretariat	Kenya
122	Dorothy Mwera		AFREPREN Secretariat	Kenya
123	Isaac Towett		AFREPREN Secretariat	Kenya
124	Jared Atiang'		AFREPREN Secretariat	Kenya
125	Jennifer Wangeci		AFREPREN Secretariat	Kenya
126	Lizzie Chege		AFREPREN Secretariat	Kenya

127	Maryanne Kamoche		AFREPREN Secretariat	Kenya
128	Monica Shio		AFREPREN Secretariat	Kenya
129	Nicholas Owino		AFREPREN Secretariat	Kenya
130	Oscar Onguru		AFREPREN Secretariat	Kenya
131	Samuel Mwakio		AFREPREN Secretariat	Kenya
132	Scoline Ojung'a		AFREPREN Secretariat	Kenya
Media				
133	John Waweru	Photographer		Kenya