

EXECUTIVE SUMMARY

Brief Overview of Key Sector Framework

Over the past fifteen years, Uganda has carried out and continues to carry out major reforms in the energy sector. Starting with the liberalisation of the petroleum sector to major structural change in the electricity sector in the mid-to-late-1990s, Uganda has **transformed its energy sector** substantially. With the enactment of the Electricity Act in 1999 (which is now under review), the unbundling of the former Uganda Electricity Board (UEB) and the creation of the Electricity Regulatory Authority (ERA), established in 2000, the way has been paved for **increased private sector investment** in the electricity sector especially in generation and distribution subsectors.

The current Energy Policy was adopted in 2002¹. The establishment of the Rural Electrification Board (REB), the Rural Electrification Agency (REA) and the Rural Electrification Fund (REF) is an important element of **intensified rural electrification**. The uptake and adoption of renewable energies was set out and strengthened in the Renewable Energy Policy of 2007. The Woody biomass energy is regulated under the National Forestry and Tree Planting Act of 2003. An Energy Efficiency and Conservation Bill has been developed by the Ministry of Energy and Mineral Development (MEMD) and it awaits approval by Cabinet before presentation to Parliament.

MEMD is responsible for the reforms in the energy sector while the Ministry of Water and Environment (MWE) drives forestry biomass policy. In addition, the Ministry of Finance, Planning and Economic Development (MoFPED) plays a key role in the forestry and energy sectors. Since MEMD still has **a challenge in terms of local reach**, the Ministry of Local Government remains critical.

Despite the above, the gaps in policy and the need for investment in the energy sector are huge. Nearly **90% of the population does not have access to electricity and to modern energy services**. Generation capacity, recently substantially increased by the entry in operation of the new Bujagali Hydropower Station (250MW), will be insufficient to meet demand within two to three years due to both **substantial suppressed demand** and by an **average annual increase** in demand of 10%.

Summary of Sector Achievements to Date

The changes in the energy sector in terms of policies and institutional setup, particularly and primarily the grid-based electricity sector, have led to **significant financial, economic and social benefits** for Uganda over the past decade. The unbundling of the UEB has led to **increased private (both domestic and international) and development partner interest** and substantial investment into the sector, leveraging Government's limited resources in a major way. This has culminated in one of the **largest hydropower project developments in Africa** in this century, significant investments and improvements in the national transmission grid, and growing efficiency, performance and economic improvements in the country's distribution network.

Recognising that renewable energy resources offer the major source for the countries expanding and accelerating investment in generation, the Government has been a pioneer in innovative support mechanisms for renewable electricity. The **renewable energy feed-in-tariff (RE-FIT)** represented a major milestone towards providing support for the use of the country's major renewable energy resources. Unfortunately, for many reasons, the RE-FIT has not yet resulted in the anticipated expansion of investment in grid-connected renewable electricity generation in Uganda.

¹ National Energy Policy, MEMD, 2002.

Key Recommendations Supporting Potential Sector Interventions

To address the issues that have continued to hinder investment in the energy sector, the MEMD is in discussion with a section of development partners to **expand the RE-FiT** in its current framework to a much wider programme. If implemented, this programme could lead to hundreds of millions of dollars in new investment in the commercial biomass and hydropower sectors. This would lead to a major expansion of renewable electricity supply at a time when Uganda needs every kilowatt of electricity it can get.

In order to increase the efficiency of energy utilisation, the MEMD continues with the **energy efficiency and demand side management (DSM) campaigns** for different categories of consumers. **Energy audits** are conducted in industry, institutions/SMEs. Advice and support on reducing energy wastage is provided to industries and households. **Awareness campaigns** on energy efficient best practices have been held regularly. Policy formulation in this subsector is also underway.

Key Remaining Challenges

Despite major improvements in the policy and institutional framework, major challenges in the Ugandan energy sector persist:

- The most significant challenge to Uganda is **the increase of access to modern energy services for the 94%² of the population still excluded**, in particular in the country's rural areas that remain unserved, but also urban and peri-urban regions of Uganda. Although Uganda has made enormous strides in the electricity sector, **the access and coverage remain low by international and even regional standards**. The enormous potential for generating electricity from renewable resources remains largely untapped. Given the rapid growth in electricity demand (5-10% per annum) and substantial suppressed demand that comes from decades of insufficient investment in electricity generation, neglect of the country's extensive hydropower (mainly small and mini) and biomass energy resources for power production, the Government has traditionally focused most of its limited managerial, financial and technical resources on the development of large hydropower schemes.
- This has resulted in **insufficient attention on key policies and investment supports** (licensing, financing, among others) for smaller-scale renewable resources, particularly in the **biomass cogeneration sub-sector** and in the **smaller hydropower sub-sector**. Such investment would make a significant difference in meeting the country's shortfalls in generating capacity. Further, developing these resources would substantially increase grid stability by placing generation in different areas of the grid. Investment in this renewable electricity generation would stimulate local economic growth, and offer new opportunities to expand grid-based electricity to new rural areas. Uganda has hundreds of megawatts of small to medium scale hydropower sites that have already been identified and partly assessed, but so far remained undeveloped.
- With the Energy Efficiency and Conservation Bill only in development, **the lack of a legislative framework to support and enforce the implementation of energy efficiency and conservation** interventions has so far undermined efforts undertaken through audits and trainings, and thus prevented more substantial achievements against energy wastage and costs for energy consumers that would in turn lead to

² NRECA report, 2011

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gains such as reduced national energy consumption and lower costs for energy consumers.

- Although off-grid electrification has better opportunities, primarily through the formation of the REA and its focus on rural electrification (both grid and off-grid), with significant potential to develop and support solar PV, **the government has yet to expand the jurisdiction of REA** in order for it to independently raise capital and to co-invest with other local/international investors. This limits REA's ability to scale up rural electrification eg through innovative approaches involving private sector.
- The other major and worrying challenge to Uganda is in **the woody biomass energy / household cooking energy sub-sector**, which is and will remain at least in the medium term the country's most relevant energy sector in terms of access, energy efficiency, environmental impact, rural livelihoods, lost government revenues, etc. From covering an estimated 40% of the country's land mass in 1960, to 25% in 1990, the country's forest cover has reduced to some 18% today, with the bulk of that reduction taking place on private land. This is clearly evident from numerous surveys of the sources of charcoal over the past two decades, and aggravated by **the rapid population increase**.
- Commercial woody biomass energy, which remains **unregulated**, probably accounts for more rural revenues than any crop or rural activity, generating at least €100 million per year in rural revenues, primarily to subsistence farmers. This accounts for one of the most important sources of rural livelihoods and is a major income source during times of drought, and other agricultural and livestock disasters. Yet, the biomass energy sector remains the **most decentralised, least efficient, least regulated, least managed** and one of the **least economically and environmentally sound sub-sectors** in the energy sector. On the supply side, lines of policy and political responsibility are blurred with a proliferation of actors, from local governments, to police and tax authorities, to the MEMD and the MWE and other ministries having some authority in the sector, and effectively **no co-ordinated policy, regulation, technical support and or management in the sector**.
- The demand-/ consumer side is even more confusing, with a **wide range of actors and no concrete policy or policy framework** to support the efficient utilisation of biomass energy (or production, transformation and supply of biomass energy) whether that be in industries, small and medium enterprises (SMEs), institutions (particularly schools) and commercial establishments (particularly bakeries, hotels and restaurants) and to **offer more sustainable and in a longer term less expensive alternatives or efficient end-user devices** (i.e. development of small scale gas distribution network, among others).

Key Recommendations Supporting Potential Sector Interventions

PROPOSED FIRST ROUND OF PROJECTS CONCEPTS UNDER SE4ALL

The SE4ALL Initiative in Uganda will be most effective by supporting either ongoing or well-developed pipeline activities that fit in to the SE4ALL objectives, rather than start from a clean slate. SE4ALL efforts should be concentrated to reinforce, strengthen and accelerate those activities whether in the policy or in the investment areas. Taking this approach, a list of key focal areas is presented below that:

- Meet SE4ALL objectives, and;
- Would reinforce and accelerate progress of projects and programmes in the sector.

Key Recommendations Supporting Potential Sector Interventions

SE4ALL possible interventions in Uganda

| Nr. | Priority Initiative | Possible Project(s) |
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| 1. | More renewable electricity generation | <ul style="list-style-type: none"> - Support for the GET FiT programme, with focus on the “premium” framework (which initially prioritises “ready to go” projects, and can also include other elements, such as rural grid extension, reinforcing interconnections); - Provide TA to support the streamlining of regulatory requirements to accelerate investments in, and operations of, medium and small scale renewable electricity IPP projects; (harmonise with existing tools); - Provide support for geothermal resource exploration (through data gathering) and drilling, complementing and drawing upon, where appropriate, on-going activities (some supported by the KfW and ITF-supported Geothermal Risk Mitigation Facility, among others), in order to confirm the potential at specific sites and accelerate project development by the private sector. |
| 2. | Access to electricity | <ul style="list-style-type: none"> - Support solar PV for rural productive enterprises and institutions, and the commercial dissemination of solar lanterns for isolated rural households and institutions through micro-financing (including Rural Electrification Agency activities in this area, learning from “Lighting Africa” and complementing ERT 2 and other programmes); - Promote Solar Power and mini hydro projects (or hybrid systems) for generation (e.g., mini-grids); - Support grid densification in urban and peri-urban areas through UMEME (and other distribution companies, where relevant); - Support activities to accelerate electricity connections, whether through the REA, or the UEDCL (supporting Umeme and other distribution companies) to substantially reduce connection costs, whether through “readiboards”, or other technologies and approaches; - Support ongoing efforts (e.g. “Uganda Accelerated Rural Energy Project”) to incentivize either the developers or REA to implement additional rural grid extensions around existing projects. |
| 3. | Improved Biomass Energy Management (including Cooking Energy, industrial, commercial and institutional energy) | <ul style="list-style-type: none"> - Support national biomass energy sector co-ordination through technical assistance, awareness raising, surveys, research and the development of a comprehensive Biomass Sector Energy Strategy (through ongoing support by EUEI PDF, UNDP and GIZ); - Promote ongoing and new biomass energy management activities in traditional industries (e.g., brick production, lime production, fish smoking, etc), in other biomass consuming industries (e.g., |

Key Recommendations Supporting Potential Sector Interventions

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| | | <p>cement and timber), and in institutions (schools, hospitals, academies, prisons, etc);</p> <ul style="list-style-type: none"> - Support piloting fuel wood alternatives to substitute for charcoal and fuel wood, particularly in urban households, and in rural and urban industries, SMEs, commercial enterprises (e.g. biomass waste utilisation in energy, biomass briquettes, biogas and LPG). |
| 4. | Continued policy, regulatory and institutional reforms | <ul style="list-style-type: none"> - Support the extension of REA's mandate in order to facilitate its financing of rural electrification as well as to take on new projects and activities; - Undertake a holistic energy institutional review, with the objective of verifying REA and other institutions' mandate in terms of "energy" and not only "electrical energy". |
| 5. | Capacity Building in Uganda's unbundled electricity sector | <ul style="list-style-type: none"> - Support the strengthening of the capacities of UEGCL, ERA, UEDCL and UETCL to play their mandated roles (in line with the results of the World Bank's sector report); - Work through the MEMD to provide technical training and to improve collaboration amongst the electricity sector's key players to improve efficiency and accelerate growth of, and access to, the electricity sector; - Support capacity building in Uganda's domestic energy project construction sector. |
| 6. | Energy Efficiency | <ul style="list-style-type: none"> - Support Uganda power distribution companies efforts to reduce both technical and commercial electricity losses; - Provide support to implement the energy efficiency and conservation key interventions especially through the labels, standards and regulations of electrical equipment; - Support improved energy management in the industrial sector through partnership between Ugandan, regional and international industry associations (including the Uganda Manufacturers Association/UMA, the Uganda Cleaner Production Centre, supported by UNIDO and the power distribution companies) to undertake energy audits, and finance DSM activities; - Support consistent well-packaged awareness multimedia campaigns. |