ELECTRICITY REGULATORY AUTHORITY

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DEVELOPMENTS AND INVESTMENT OPPORTUNITIES IN RENEWABLE ENERGY RESOURCES IN UGANDA

June, 2012

1. INTRODUCTION

1.1 Government's Policy Objective and Goal for Renewable Energy Resources

The overall Government Policy Vision for the role of renewable energy in the national economy is to make modern renewable energy a substantial part of the national energy consumption.

In pursuit of that vision, the goal of Uganda's Renewable Energy Policy is to increase the use of modern renewable energy, from the current 4% to 61% of the total energy consumption by the year 2017.

1.2 Renewable Energy Potential

Uganda has considerable unexploited renewable energy resources for energy production and provision of energy services. These resources include biomass, geothermal, large scale hydro, mini/micro/pico hydro, wind and solar energy. The renewable energy potential of Uganda is shown in Table 1.

Table 1: The Renewable Energy Power Potential

Energy Source	Estimated Electrical Potential (MW)
Hydro	2,000
Mini-hydro	200
Solar	200
Biomass	1,650
Geothermal	450
Peat	800
Wind	-
Total	**5,300**

Source: The Renewable Energy Policy for Uganda, November 2007

1.3 Institutional Framework

In order to achieve Government of Uganda's policy objective for renewable energy resources, a number of institutions, each with its own mandate, are involved. Key institutions that are involved in the development of renewable energy projects for power generation are highlighted hereunder:

- ***The Ministry of Energy and Mineral Development***

  The overall responsibility for the Renewable Energy Policy lies with the Ministry of Energy and Mineral Development (MEMD) which is the Government of Uganda lead agency in the energy sector. The mandate of MEMD is to establish, promote the development, strategically manage and safeguard the rational and sustainable exploitation and utilization of energy and mineral resources for social and economic development.

  Contact: *Permanent Secretary*
  Tel: *+256-414- 323355/234733*
  Email: psmemd@energy.go.ug
  Website: www.energyandminerals.go.ug

- ***Electricity Regulatory Authority***

The Electricity Regulatory Authority is a body corporate established by the Electricity Act, 1999, Cap. 145, to regulate the generation, transmission, distribution, sale, export and import of electricity in Uganda.

Contact: *Chief Executive Officer*
Tel: *+256-414- 341852/341646*
Email: *info@era.or.ug*
Website: *www.era.or.ug*

- ***Electricity Disputes Tribunal***

Part XIII of the Electricity Act 1999 provides for the Electricity Disputes Tribunal. This is a mechanism through which any of the entities regulated by ERA or other persons can appeal the decisions of the Electricity Regulatory Authority.

Contact: Chairman, Electricity Disputes Tribunal
4th Floor Amber House
Kampala
Uganda

- ***Rural Electrification Agency***

Rural Electrification Agency (REA) is the Secretariat of the Rural Electrification Board (REB) which manages the Rural Electrification Fund (REF). REA is responsible for developing and promoting rural electrification. The Rural Electrification Board (REB), as the governing body of REA, provides subsidies to support rural electrification projects.

Contact: *Executive Director*
Tel: *+256-312- 264095*
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Website: *www.rea.or.ug*

- ***Uganda Electricity Transmission Company Limited***

The Uganda Electricity Transmission Company Limited (UETCL) is the System Operator and owns transmission lines above 33kV. UETCL is the bulk supplier and single buyer of power for the national grid in Uganda. It is the purchaser of all independently generated power in the country that is fed into the national grid. Generators of electricity are expected to sign a Power Purchase Agreement with UETCL.

Contact: *Managing Director/Chief Executive Officer*
Tel: *+256-414- 233433/4*
Email: *transco@uetcl.com*
Website: *www.uetcl.com*

- ***Uganda Electricity Distribution Company Limited***

Uganda Electricity Distribution Company Limited (UEDCL) is the owner of the electricity distribution network, which was leased to UMEME Ltd. for a twenty-year period, effective 2005.

Contact: *Managing Director*
Tel: *+256-312- 330300*
Email: *contact@uedcl.co.ug*
Website: *www.uedcl.co.ug*

- ***Uganda Electricity Generation Company Limited***

Uganda Electricity Generation Company Limited (UEGCL) is the owner of Kiira and Nalubaale Hydropower Stations in Jinja, which were concessioned to ESKOM to manage and operate for twenty (20) years effective 2003.

Contact: *Managing Director*
Tel: *+256-434- 120891*
Fax: *+256-434-123064*
Website: *www.uegcl.com*

- ***Uganda National Bureau of Standards***

The Uganda National Bureau of Standards (UNBS) is a statutory organization established by an Act of Parliament of June 1983 and became operational in 1989. The main objectives of UNBS are to formulate and promote the use of national standards and to develop quality control and quality assurance systems that will enhance consumer protection, public health and safety, industrial and commercial development and international trade, among others. In this context, UNBS is responsible for developing and monitoring standards for renewable energy technologies in addition to bio fuels technology.

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Website: *www.unbs.go.ug*

- ***National Environment Management Authority***

National Environment Management Authority (NEMA) is a semi-autonomous institution established in May 1995 under the National Environment Act Cap. 153 as the principal agency in Uganda charged with the responsibility of co-ordinating, monitoring, regulating and supervising environmental management in Uganda. In this context, NEMA is responsible for regulating the impact of renewable energy investments on the environment. NEMA awards certificates of environmental clearance, following review and approval of Environmental Audits, Environmental Impact Assessment (EIA) Reports and Resettlement Action Plans (RAP).

Contact: *Executive Director*
Tel: *+256-414- 251064/5/8*
Email: *info@nemaug.org*
Website: *www.nemaug.org*

- ***Directorate of Water Resources Management***

The Directorate of Water Resources Management under the Ministry of Water and Environment is responsible for managing the water resources of Uganda in an integrated and sustainable manner in order to secure and provide water of adequate quantity and quality for all social and economic needs for the present and the future. It is the agency that issues Surface Water Abstraction and Construction Permits to Project Developers.

Contact: *Director*
Tel: *+256-414-505942*
Email: mwe@mwe.go.ug
Website: *www.mwe.go.ug*

- ***Uganda Investment Authority***

The Uganda Investment Authority (UIA) is a semi-autonomous government agency operating in partnership with the private sector and Government of Uganda to drive national economic growth and development. The Authority was set up by an Act of Parliament with the aim of promoting and facilitating private sector investment in Uganda.

Contact: *Executive Director*
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Website: *www.ugandainvest.go.ug*

1.4 Role of Electricity Regulatory Authority

The Electricity Regulatory Authority (ERA) was set up following the enactment of the Electricity Act 1999, Cap. 145, Laws of Uganda.

The functions of ERA are as follows:-

a) To issue licenses for i) The generation, transmission, distribution or sale of electricity; ii) The ownership or operation of transmission systems;

b) To receive and process applications for licenses;

c) To prescribe conditions and terms of licenses issued under this Act;

d) To modify licenses issued under this Act;

e) To make and enforce directions to ensure compliance with licenses issued under this Act;

f) To establish a tariff structure and to investigate tariff charges, whether or not a specific complaint has been made for a tariff adjustment;

g) To approve rates of charges and terms and conditions of electricity services provided by transmission and distribution companies;

h) To review the organization of generation, transmission and distribution companies or other legal entities engaged in the generation, transmission and distribution of electricity to the extent that that organization affects or is likely to affect the operation of the electricity sector and the efficient supply of electricity;

i) To develop and enforce performance standards for the generation, transmission and distribution of electricity;

j) To encourage the development of uniform electricity industry standards and codes of conduct;

k) To establish a uniform system of accounts for licensees;

l) To advise the Minister regarding the need for electricity sector projects;

m) To prepare industry reports and to gather information from generation, transmission and distribution companies;

n) To prescribe and collect licence fees;

o) To provide for the procedure for investment programmes by transmission and distribution companies;

p) To approve standards for the quality of electricity supply services provided;

q) To approve codes of conduct in respect of the operation of transmission and distribution systems;

r) To acquire information and carry out investigations relating to any of its functions; and

s) To perform any other function that is incidental or consequential to its functions under this section, or as may be conferred on it by any other law.

2. DEVELOPMENTS IN RENEWABLE ENERGY GENERATION IN UGANDA

2.1 Hydropower Development

2.1.1 Large Hydropower Development

a) Nalubaale & Kiira Complex

Currently the two largest operational hydropower plants namely Nalubaale, in Mukono District, has been in operation since 1954, while Kiira, in Jinja District, has been in operation since 2002.

The installed capacity of Nalubaale Hydropower Station is 180MW while that at Kiira is 200MW.

Owing however to the prolonged drought and the associated low water levels in Lake Victoria, the effective generation from this complex currently lies between 130MW-180MW.

b) Bujagali

Located along the Nile River, Bujagali hydropower plant is a 250MW complex comprising of five units, each with installed capacity of 50MW. The station is already generating and feeding power into the national grid 100MW from two of its five units. Full plant commissioning is expected by the end of June 2012.

c) Karuma

Karuma Project, with installed capacity of 600MW, is one of the other prospective projects along the Nile River that is scheduled to improve electricity supply and reliability in Uganda in the medium term. The process of procuring a Contractor to undertake project construction is in advanced stages. Government of Uganda will implement this project under a Public Private Partnership arrangement.

2.1.2 Small Hydropower Development

A number of small hydropower plants with total installed capacity of slightly over 28MW are in operation in various parts of the Country as indicated in Table 2.

Table 2: Small Hydropower Plants in operation

SITE	DISTRICT	INSTALLED CAPACITY (MW)	STATUS
Bugoye	Kasese	13	In operation by **TRONDER POWER LTD.**
Mobuku 3	Kasese	10	In operation by **KASESE COBALT COMPANY LTD.**
Mobuku 1	Kasese	5.4	In operation by **KILEMBE MINES LTD.**

Mpanga	Kamwenge	18	In operation by **AFRICA EMS MPANGA LTD.**
Ishasha	Kanungu	6.595	In operation by **ECO POWER UGANDA LIMITED.**

In addition, Electricity Regulatory Authority has issued a number of Permits and Licenses for generation of electricity from hydropower plants of capacity less than 20MW.

Five independent power producers are currently in possession of licenses for generation of electricity from small hydropower projects. These small hydropower projects, with a combined installed capacity of 36.5MW, are at various stages of development as indicated in Table 3.

Table 3: Sites for which licenses have been issued but not yet operational

SITE	DISTRICT	INSTALLED CAPACITY (MW)	STATUS
Buseruka	Hoima	9	▪ Project is being developed by **Hydromax Ltd.** ▪ Construction is ongoing. ▪ Commissioning is expected in the third quarter of 2012.
Nyagak	Nebbi	3.5	▪ Project is being developed by **WENRECO.** ▪ Construction works are underway. ▪ Commissioning is expected in the third quarter of 2012.
Kikagati	Mbarara	10	▪ License was granted to **Kikagati Power Company Limited**. ▪ Construction has not yet commenced.
Nyamwamba	Kasese	14	▪ License was granted to **South Asia Energy Management Systems LLC.** ▪ Project construction is expected to commence in June 2012.

A couple of other small hydropower sites indicated in Table 4 exist for which Electricity Regulatory Authority has issued exclusive Permits.
Feasibility studies are currently being undertaken for these project sites.

Table 4: Sites with valid exclusive Permits in force

SITE	DISTRICT	INSTALLED CAPACITY (MW)	PERMIT EXPIRY DATE	STATUS
Kakaka	Kasese	7.2	31-May-2012	▪ Permit was issued to **Greenewus Energy Africa Ltd.** ▪ Feasibility studies are ongoing.
Waki	Hoima	2-8	31-Oct-2012	▪ Permit was issued to **Hydromax (Nkusi) Ltd.** ▪ Feasibility studies are ongoing.
Kanyampara	Kasese	7.2	19-Apr- 2013	▪ Permit was issued to

SITE	DISTRICT	INSTALLED CAPACITY (MW)	PERMIT EXPIRY DATE	STATUS
				Hayleys Kanyampara (U) Ltd. ▪ Feasibility studies are ongoing.
Achwa, Agago	Pader, Gulu& Kitgum	88.8	14-Sept- 2012	▪ Permit was issued to **P.A.C.S.P.A Ltd.** ▪ Feasibility studies are ongoing.
Lubilia-3	Kasese	5.0	30-Nov- 2013	▪ Permit was issued to **Red & White Energy Limited.**
Muvumba	Kabale	4.5	30-Nov- 2012	▪ Permit was issued to **Muvumbe Hydro (U) Limited.** ▪ Feasibility studies are ongoing.
Nyamabuye	Kisoro	2.2	14-Sept- 2012	▪ Permit was issued to **Elemental Energy Limited.**
Muyembe-Sirimityo	Sironko	3.1	30-Nov-2012	▪ Permit was issued to **Mt. Elgon Hydropower Company Ltd.** ▪ Feasibility studies are ongoing.
Nshungyezi	Mbarara	35	15-Sept-2012	▪ Permit was issued to **Nsongezi Power Company Limited**.

For the sites listed in Table 5, the Authority has received requests for Permit extension from the previous Permit Holders. These requests are currently under consideration by the Authority.

Table 5: Sites for which requests for Permit extension are under consideration

SITE	DISTRICT	INSTALLED CAPACITY (MW)	PERMIT EXPIRY DATE	STATUS
Rwimi	Kasese/Kabarole	9.6	31-Mar-2012	Permit previously issued to Eco Power (U) Ltd.
Bundibugyo	Bundibugyo	7.5	31-Mar-2012	Permit previously issued to **Butama Hydro Electricity Company Ltd.**
Nengo Bridge	Rukungiri	6.0 - 7.5	31-Apr-2012	Permit previously issued to **Jacobsen Elektro AS.**
Kyambura	Bushenyi	8.3	31-Mar-2012	Permit previously issued to **Ziba Ltd.**
Nyamagasani Kyarumba	Kasese	3.0	30-Apr-2012	Permit previously issued to **LTL Holdings (Pvt) Ltd.**
Nyamagasani	Kasese	15.0	30-Apr-2012	Permit previously issued to **Tyax Holding Incorporated**

2.2 Biomass

Electricity Regulatory Authority has so far issued electricity generation licenses to three companies to generate electricity using bagasse, a by-product of the sugar manufacturing process. These Companies include Kakira Sugar Works (1985) Limited, Kinyara Sugar Limited and Sugar Corporation of Uganda Limited.

Kakira Sugar Works (1985) Limited is licensed to generate a total of 18MW, of which 12MW is for sale to the grid while the rest is for own use.

Kinyara Sugar Limited is licensed to generate 7.5MW of which 2.5MW is for own use while 5MW is sold to the national grid.

Sugar Corporation of Uganda Limited (SCOUL) in Lugazi, is licensed to generate 9.5MW for own use.

In addition to the above, Electricity Regulatory Authority has issued two feasibility study Permits to private companies for other forms of biomass generation, namely biogas and solid waste. PH Industrial Farms (U) Limited was issued a Permit in November 2011 to undertake detailed feasibility studies leading to possible development of a 16MW biogas plant in Gulu and Pader Districts.

Sesam Energetics 1 Limited has also been granted a Permit to explore the possibility of generating 33MW using solid waste generated in Wakiso District.

2.3 Peat

Electricity Regulatory Authority issued a Permit to Kabale Energy Limited in November 2007 to undertake studies necessary for generation of approximately 33MW using peat resource in Kabale District. Feasibility studies are in advanced stages.

2.4 Geothermal

So far, no developer has formally expressed interest to Electricity Regulatory Authority to generate electricity utilizing geothermal resources. The Ministry of Energy and Mineral Development is pursuing exploratory studies in the East African Great Rift Valley south of Lake Albert (Katwe- Kikorongo, Buranga and Kibiro areas) and results to date show potential in the region of 400MW.

2.5 Solar

The Electricity Regulatory Authority has engaged a Consultant to review modalities of implementing the Renewable Energy Feed-In-Tariff Guidelines with particular emphasis on solar photovoltaic development.

2.6 Wind

Electricity Regulatory Authority is currently processing two notices of intended applications for licenses for prospected wind projects in Uganda.

Available information indicates that wind speeds in the North-eastern part of Uganda (Karamoja) and on the shores of Lake Victoria are adequate for some level of electricity generation. Wind speeds of between 1.5m/s and 5m/s have been recorded for reasonable length of time in these areas, justifying more detailed studies.

3. AVAILABLE INVESTMENT OPPORTUNITIES IN REWERABLE ENERGY GENERATION IN UGANDA

3.1 Hydropower

3.1.1 Large Hydropower

The potential for development of large hydropower projects along River Nile is estimated at about 2,000 MW. With only 380MW developed at Kiira and Nalubaale, and 250MW under development at Bujagali, the unexploited potential is well over 1300MW.

Table 6 shows the potential capacity of the identified large hydropower sites along the Nile River which have potential for development.

Table 6: Large Hydropower Sites along the Nile River

No.	Site	Location	Potential Capacity (MW)	Status
1	Ayago	Nwoya/Masindi	600	• Detailed feasibility studies by MEMD-commissioned Consultants commenced in February 2012. • The studies are expected to take two years.
2	Isimba	Kamuli	188	• Detailed feasibility studies by MEMD-commissioned Consultants are in advanced stages. • The studies are expected to be completed in June 2012.
3	Murchison Falls (Uhuru)	Nwoya/Bulisa	642	• Preliminary studies available with MEMD. • Project located in a national park.
4	Oriang	Nwoya/Kiryandongo	395	Preliminary studies are available with MEMD.
5	Kiba	Nwoya/Masindi	295	Preliminary studies are available with MEMD.

3.1.2 Small Hydropower

Small hydropower sites are mainly not on the Nile and although they possess potential resources, they have not been fully exploited. These are potential sources of electricity for areas not covered by the national grid. Even though the cost per unit of electricity from isolated small hydropower plants may be higher than that from the national grid, they present a category of energy which could sustainably contribute to poverty reduction in households in isolated areas. The table below shows small hydropower sites that are available for development.

Table 7: Small Hydropower Sites Available for Development

SITE	DISTRICT	ESTIMATED CAPACITY (MW)	REMARKS
1. Ela	Arua	1.5	No Studies
2. Ririma	Kapchorwa	1.5	No Studies
3. Rwigo	Bundibugyo	0.48	No Studies
4. Nyarwodo	Nebbi	0.4	No Studies
5. Agoi	Arua	0.35	No Studies
6. Kitumba	Kabale	0.2	No Studies
7. Tokwe	Bundibugyo	0.4	Preliminary technical studies carried out under AERDP by MEMD
8. Amua	Moyo	0.18	No Studies
9. Ngiti	Bundibugyo	0.15	Preliminary technical studies carried out under AERDP by MEMD
10. Leya	Moyo	0.12	No Studies
11. Nyakibale	Rukungiri	0.1	No Studies
12. Miria Adua	Arua	0.1	No Studies
13. Manafwa	Mbale	0.15	Preliminary technical studies carried out under AERDP by MEMD
14. Nchwera	Bushenyi	1.97	Preliminary studies carried out by Igara Growers Tea Factory Limited

3.2 Biomass

With the escalation of oil prices, biomass based power generation is increasingly becoming competitive and considerably cheaper than thermal power based on fossil fuels. The need for modern biomass energy has become more tenable due to increased electricity demand, coupled with unfavourable weather changes that have resulted into decreased water levels in Lake Victoria.

Co-generation is convenient in situations where there are excess agricultural residues such as bagasse, coffee and rice husks. In the case of sugar industries, there is often excess bagasse after the factory requirement, which can be used to generate electricity for local sale or for feeding into the national grid. Figure 7 shows the biomass distribution in Uganda.

3.3 Peat

Peat is not technically a renewable energy source. However, a theoretical peat volume of about 250 Mton (million oil equivalent tonnes) exists in Uganda (Source: *The Renewable Energy Policy for Uganda, November 2007*). Taking into consideration, the varying quality of peat, rather strict wetland policy in Uganda and the impossibility to use conventional peat production methods, some 10% could probably be used for

power generation. This peat resource volume would be adequate for generation of about 800 MW for the next 50 years. Available peat resources are dispersed mainly to Western and South-Western Uganda, where the desired characteristics are better than in other regions.

3.4 Geothermal

Geothermal energy is one of the possible alternative renewable energy sources in Uganda, which could supplement other sources of energy.

More than 40 geothermal sites were studied for their prospects parameters like temperature, chemistry of reservoir, natural heat transfer and fluid characteristics to identify specific project areas and prioritize those for more detailed investigation. These investigations have so far revealed three major potential areas for detailed exploration, namely, Katwe-Kikorongo, Buranga and Kibiro. These are all situated in or near the Western Rift Valley of Uganda (zone of most recent volcanic activities). According to the Renewable Energy Policy of Uganda, 2007, the combined geothermal potential from these three major areas is 450MW.

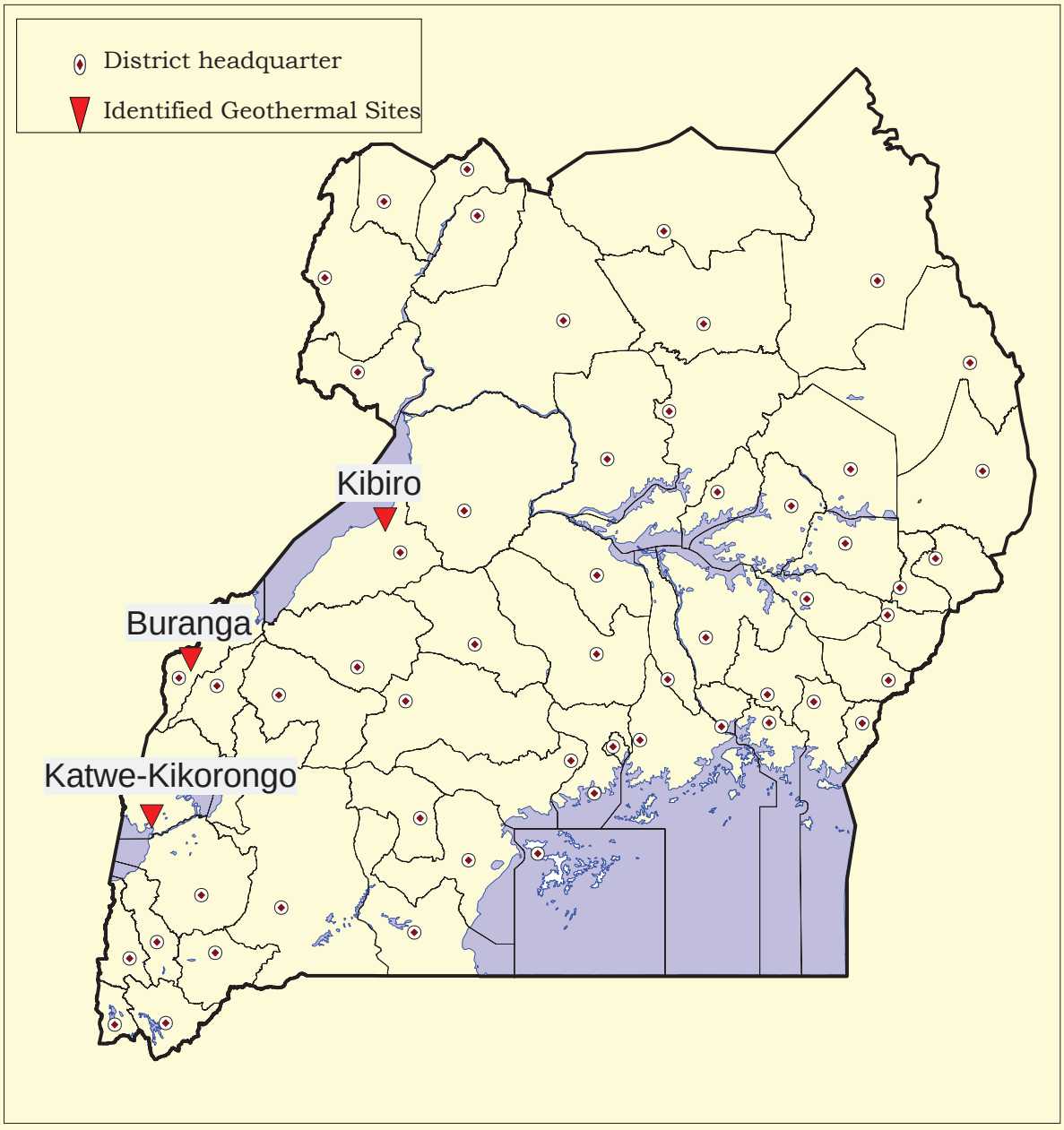

Figure 8: Geothermal Sites in Uganda

Source: *Report on the renewable energy resource information development and capacity building assessment in Uganda by Kamfor Company Limited, January 2007*

Table 8: Major Geothermal Sites in Uganda

District	Site Name	Temperature (ºC)	Remarks
Kasese	Katwe-Kikorongo	Surface temp: 71 ºC Inferred Reservoir temp: 150-230 ºC	The results obtained from surface studies carried out so far have provided sufficient information for development of geothermal energy programme. Katwe-Kikorongo site has been selected for drilling of a first geothermal well in Uganda. The site has occurrence of a medium to high temperature resource.
Bundibugyo	Buranga	Surface temp: 97 ºC Inferred Reservoir temp: 120-150 ºC	The results obtained from surface studies carried out so far indicate that Nyansimbe and Mumbuga in Buranga (Sempaya valley) have the highest surface heat output among the thermal prospects considered, and provided sufficient information for development of geothermal energy programme.
Hoima	Kibiro	Surface temp: 84 ºC Inferred Reservoir temp: 200 ºC and above	The results obtained from surface studies carried out so far indicate that Kibiro site has moderate surface heat output among the thermal prospects considered, and provided sufficient information for development of geothermal energy programme.

Source: *Report on the Renewable Energy Resource Information Development and Capacity Building Assessment in Uganda by Kamfor Company Limited, January 2007*

3.5 Solar

Existing solar data clearly shows that the solar energy resource in Uganda is high throughout the year. With mean solar radiation of 5.1 kWh/m_2 per day on a horizontal surface, the country has a potential of 11.98 x 10^8 MWh gross energy resource. At an estimated conversion efficiency of 10%, the country has available power of 11.98 x 10_7 MWh. Figure 10 shows solar energy availability in Uganda.

Figure 9: Solar Energy Availability in Uganda
Policy for Uganda, November 2007

3.6 Wind

Recent studies indicate that the wind speed in most areas of Uganda is moderate, with average wind speeds in low heights (less than 10 m) ranging from 2 m/s to about 4 m/s. Based on wind data collected by the Meteorology Department, it was concluded that the wind energy resource in Uganda is only sufficient for small scale electricity generation and for special applications, such as water pumping mainly in the Karamoja region. Small industries in rural areas where targets for a mill range from 2.5kVA to 10kVA could benefit from the wind resource.

4. RENEWABLE ENERGY FEED IN TARIFFS

In a bid to jump start the renewable energy sub-sector, Uganda has adopted a comprehensive Feed-in Tariff (FiT) Policy.

Feed-in-Tariffs (FiT) are an internationally recognized regulatory mechanism used to promote and increase the amount of electricity generated from renewable sources, by providing a fixed tariff based on the levelised cost of production for a guaranteed period of time. It is a mechanism to promote the deployment of renewable energy that places an obligation on specific entities to purchase the output from qualifying renewable energy generators at pre-determined prices. The overall aim of the Renewable Energy Feed-in-Tariffs (REFIT) is to encourage and support greater private sector participation in power generation from renewable energy technologies, through the establishment of an appropriate regulatory framework.

The FiT policy has proved to be the single most powerful policy to promote renewable energy technologies worldwide. FiTs have numerous advantages and benefits which include:

- Improved energy security,
- Reduced environmental impacts,
- Economic growth and stimulation,
- Diversified electricity supply mix,
- Investment security for developers,
- Industry competition, and,
- Reduced transaction costs.

The Ugandan FIT policy covers a number of technologies and is attractive because it is based on the levelized cost of each technology and not the avoided cost. The second phase of the FIT marks an improvement over the first phase in that:

- It widens the scope of the technologies covered;
- It provides for capacity limits for each renewable energy technology; and,
- It addresses a number of risks that were not fully covered under Phase 1 of Renewable Energy Feed-in-Tariff (REFIT).

Some of the risks that have been catered for in Phase 2 of REFIT include the following:

i) Automatic grid interconnection and pricing flexibility;
ii) Off take risks - REFIT policy mitigates the off-take risk. The renewable energy generator signs a 20-year Power Purchase Agreement (PPA) with the Uganda Electricity Transmission Company Limited (UETCL);
iii) Price and currency risks - No price risk and currency risk to the renewable energy generator as these are taken by the System Operator in the long-term PPA;
iv) Inflationary risks – it provides escalation factors for inflation;
v) The feed-in tariffs are not adjusted downwards when a renewable energy generator qualifies for Certified Emission Reduction (CERs) or CDM revenues. This provides additional incentives to project sponsors;

vi) Reduced administrative costs – Standardized Power Purchase Agreements have been developed by UETCL. Investors in renewable energy no longer have to go through protracted negotiations.

The following feed-in tariffs apply for Uganda's renewable energy generation projects for the period 2011-2014:

Table 9: Feed-in-tariffs applicable for 2011-2014

Technology	Tariff (US cents/kWh)
Hydro (9-20 MW)	0.079
Hydro (1-8MW)	0.091
Hydro (0.5 -1MW)	0.109
Bagasse	0.081
Biomass	0.103
Biogass	0.115
Landfill Gas	0.089
Geothermal	0.077
Solar PV	0.362
Wind	0.124

Please note that Electricity Regulatory Authority has commissioned a study to appraise the success of the REFIT Phase 2 and develop a Special Incentive Scheme that will increase the uptake and speed at which financial closure and commercial operations are achieved by renewable energy projects qualifying for feed-in tariffs. The outcome of this review process will be made available to the public via our website and up-coming publications during the third quarter of the year 2012.

5. PROCEDURES FOR INVESTMENT IN THE ELECTRICITY SECTOR

The procedures to be followed by any investor wishing to invest in Uganda's electricity sector are provided in Sections 29 through to 38 of The Electricity Act 1999, Cap. 145 Laws of Uganda. These are further illustrated below:

Table 10: Procedures for Investment in the Electricity Sector

Steps	Control	Requirements
1. A person/legal entity who intends to establish a project for which a licence is required shall notify ERA of the intended project.	If the notification does not meet the requirements, the developer will be informed as soon as possible.	a) Financial and legal status, and the technical and industrial competence and experience of the intended applicant; b) A description of the project and the time-plan for the execution of the project; c) A review of the use of land for the project and the relation of the project to local authorities; d) A review of public and private measures necessary to carry out the project; e) Information relating to permissions required from public authorities; (f) A description of the impact of the project on electricity supply, socioeconomics, cultural heritage, the environment, natural resources, wildlife; and (g) Any other relevant information requested by the Authority.
2. If the notification meets the requirements, ERA will publish it in the Gazette and at least one newspaper of wide circulation.		Notification requirements
3. ERA shall invite directly affected parties and affected public agencies to make comments on the notice within a fixed period but not less than 30 days after the publication.		Comments within the specified time Local communities Local Governments NEMA DWRM MAAIF Any other specific to site.
4. ERA may, in not more than 30 days after the receipt of comments, issue a permit allowing the intended applicant to carryout studies and other activities required to prepare an application.		Prescribed form
5. ERA shall through a fair, open and competitive process invite applications for any licence.		Fair, Open, competitive process prescribed by ERA by regulations or any other law. (Notwithstanding above steps)

Steps	Control	Requirements
6. An application for a licence is made to the Chief Executive Officer of ERA	If the application does not meet the requirements prima facie, the applicant will be informed about the missing items within 30 days.	a) The legal and financial status of the applicant; b) A technical and economic description of the project; c) A description of how the project fits in with the existing and planned power supply system; d) The planned time of commencement and completion of the construction of the project; e) A view of the project's adoption to the landscape, including necessary maps and drawings. f) The impact of the project on public interest and possible mitigation; g) The results of assessments, including environmental impact assessments, and studies carried out and reports of those assessments and studies. h) Impacts of the project on private interests, including the interests of affected landowners and holders of other rights; and I) Consents and permits required under any other law. Evaluation by the applicant of all comments made in step 3.
7. ERA shall within 45 days after receiving the application cause a notice of the application to be published in the Gazette and at least one national paper of wide circulation.		Contents of notice
8. Directly affected parties and local authorities shall be invited to lodge with ERA an objection within a specified time being not less than 30 days after the publication.	ERA shall, where it refuses to grant a licence, give the applicant a statement of its reasons for the refusal within 30 days after the refusal, according to S. 39 (1)	Comments within the specified time Local communities Local Governments NEMA DWRM MAAIF Any other specific to site.
9. ERA shall process all applications for licences expeditiously and in any case not later than 180 days after the receipt of a complete application.	A person aggrieved by ERA's decision may appeal to the Tribunal	Factors to be considered for application a) The energy needs of the country, region or community; b) The impact of the operation of the undertaking on the social, cultural and recreational life of the community; c) The need to protect the environment and to

Steps	Control	Requirements
		conserve the natural resources; d) Land use and sitting or route of the project; e) The cost of the project; f) The ability of the applicant to operate in a manner designed to protect the health and safety of users of the service for which the licence is required and other members of the public who would be affected by the operations of the applicant; g) The technical, economic and financial capacity of the applicant to render the service for which the licence is required. h) Energy efficiency; i) Any representations and objections made under section 37; j) Other public and private interests affected by the operation for which the licence is required; and k) The resultant price or tariff offered. l) Policies of the Government and any other matter that the Authority may consider likely to have a bearing on the operations of the applicant. Refusal to grant licence (1) The Authority shall, where it refuses to grant a licence, give the applicant a statement of its reasons for the refusal within thirty days after the refusal. (2) A person aggrieved by the refusal of the Authority to grant a licence may appeal to the Tribunal.

6. STATUTORY CONSENTS REQUIRED FOR INVESTMENTS AND THEIR RATIONALE

As a part of the development process, intending developers are required to obtain most or all the permits listed in Table 11.

Table 11: Permits required and their rationale

Permit	*Authority*	*Rationale*
Permit to undertake studies and other activities *[Electricity Act 1999]*	ERA	The permit gives the developer exclusivity to develop the site, the right to do necessary feasibility studies and the knowledge that no conflicting projects are being developed. It provides ERA with information about what projects are in the pipeline at any one time.
Uganda environmental clearance *[The National Environment Act, 1995]*	NEMA	The clearance allows NEMA to ensure that the project and its mitigation plans comply with Ugandan standards for environmental and social impact. Where the project is on a protected river or wetland, NEMA will require the developer to additionally apply for permission to operate on this river/wetland.
Surface Water Permit (also termed Abstraction Permit) *[The Water Statute 1995; Water Resources Regulations 1998]*	DWRM	The permit allows DWRM control over the use of surface water so that no other parties, for example farmers are negatively affected and so that no other negative effects on the surface water system occur. The permit specifies the minimum water flow that should be maintained in the river.
Construction Permit *[The Water Statute 1995; Water Resources Regulations 1998]*	DWRM	The permit allows DWRM control over the impacts on surface water during construction so that no unacceptable negative effects on the surface water system occur – for example significant pollution.
Investment Licence	UIA	The Investment Licence is issued to an investor proposing to make an investment in Uganda.
Licence(s) *[Electricity Act 1999]*	ERA	The Licence(s) gives ERA the necessary control to exercise its duties as Regulator of the electricity sector. Some of the duties include protection of end-users of electricity, enforcement of technical and performance standards, review of the organisation of the electricity industry, etc.
Exemption from a licence *[Electricity Act 1999]*	ERA	For generation projects less than 0.5 MW, no licence is required, but the developer is required to register the project with ERA. For generation projects between 0.5MW and 2 MW, the developer may apply to ERA for an exemption from the requirement to obtain a licence.
Licence/Concession for use of river/land	Uganda Land Commission	For hydropower projects, or projects sited on land held in trust by the Government, the developer is required to obtain a licence or

Permit	Authority	Rationale
[Land Act , 1998]		concession from the Land Commission. Where the land is held by local authorities, then the concession should be obtained from the relevant local authority.
Riparian consents	From Riparian States through Uganda Ministry of Foreign Affairs	Where the project impacts on water flow to other countries, it may be necessary to obtain the consent from these countries.

7. APPLICABLE PERMIT AND LICENSE APPLICATION FEES

The applicable fees charged by Electricity Regulatory Authority for Permits and Licenses are indicated in Table 12.

Table 12: Fees charged by ERA for Applications for Permits & Licenses

Category	Fee
Application for a Permit to undertake feasibility studies & other activities	US $ 3,000
Application for a License to implement an electricity project	US $ 3,500
Application for License Transfer	US $ 3,500
Application for License Amendment	US $ 3,500
Application for Permit Extension	US $ 1,000
Application for License Exemption	US $ 3,000

8. SUMMARY OF ANNUAL LICENSE FEES

Operational Annual License Fees apply once a License is granted by the Authority. The License fees schedule is embedded in Statutory Instruments 2011 No. 24: The Electricity (License Fees) (Amendment of Schedule) Instrument, 2011 and is reproduced below:

A: GRID (NATIONAL) CONNECTED SYSTEMS

GENERATION RELATED LICENCES		
CAT. I	Very large generators 200MW or above	US $ 75,000 per 50MW or part thereof
CAT. II	Large generators up to 200MW 50MW and above but less than 200MW	US $ 47,950 per 50MW or part thereof
CAT. III	Medium generators up to 50MW 10MW and above but less than 50MW	US $ 12,000 fixed plus US $ 6,000 per 25MW or part thereof
CAT. IV	Small generators up to 10MW 2MW and above but less than 10MW	**US $ 12,000**
CAT. V	Very small generators up to 2MW a) 0.5MW and above but less than 2.0MW b) Below 0.5MW	 **US $ 6,000** **US $ 2,500**
TRANSMISSION RELATED LICENSES		
	a) Transmission	**US $ 75,000**
	b) System Operator	**US $ 75,000**
	c) Bulk Supply	**US $ 75,000**
DISTRIBUTION RELATED LICENSES		
CAT. I	Very large distributors 200MW (or 1,600GWh) and above a) Distribution b) Supply	 US $ 175,000 fixed US $ 175,000 fixed plus US $ 25,000 per 100GWh or part thereof
CAT. II	Large distributors 50MW (500GWh) or above 50MW (500GWh) but less than 200MW (1,600GWh) a) Distribution b) Supply	 US $ 125,000 fixed plus US $ 25,000 per 100GWh or part thereof
CAT. III	Medium distributors 50MW 10MW and above but less than 50MW	US $12,000 fixed plus US $ 6,000 per 10GWh or part thereof
CAT. IV	Small distributors up to 10MW 2 MW (15GWh) and above but less than 10MW	**US $ 12,000**
CAT. V	Very small distributors up to 2MW a) 0.5MW but less than 2MW b) Less than 0.5MW	 **US $ 3,500** **US $ 1,500**

B: ISOLATED GRID SYSTEMS COMBINED GENERATION, DISTRIBUTION AND SALES LICENSE

CAT. I	Medium generators up to 50MW 10MW and above but less than 50MW	US $ 12,000 fixed plus US $ 6,000 per 25MW or part thereof
CAT. II	Small generators up to 10MW 2MW and above but less than 10MW	**US $ 12,000**
CAT. III	Very small generators up to 2MW a) 0.5MW but less than 2MW b) Less than 0.5MW	**Exempt**

C) IMPORT / EXPORT OF ELECTRICITY

CAT. I	At a voltage above 33kV Import & Export	**US $ 75,000**
CAT. II	At a voltage 33kV & below a) Import b) Export	 **US $ 12,000** **US $ 12,000**

9. NOTICE OF INTENDED APPLICATION FORM

TO

THE CHIEF EXECUTIVE OFFICER

ELECTRICITY REGULATORY AUTHORITY

P.O BOX 10332

KAMPALA

NOTICE OF INTENDED APPLICATION

(Under S.30 Electricity Act, 1999)

1.0 PARTICULARS OF INTENDED APPLICANT/S

1.1 Names, Physical and Postal Address of Applicant/s

a) Name:_____

b) Physical address:_____

c) Postal address:_____

d) Tel:_____

e) Fax:_____

f) Cell Phone:_____

g) E-mail:_____

h) TIN number:_____

i) VAT Reg:_____

1.2 Name of Proposed Business if Different from above

a) Name:_____

b) Location:_____

c) Postal address:_____

d) Tel:_____

e) Fax:_____

f) Cell phone:_____

g) E-mail:_____

1.3 Name and details of Contact Person

a) Name: _____

b) Physical Address: _____

c) Postal Address: _____

d) Tel:_____

e) Cell phone_____

f) E-mail_____

2 LEGAL STATUS OF APPLICANT/S

2.1 Indicate legal status of Applicant (Tick relevant option)

- ☐ a) Sole proprietorship
- ☐ b) Partnership
- ☐ c) Public Limited Liability Company
- ☐ d) Private Limited Liability Company
- ☐ e) Cooperative Union Society
- ☐ f) Other (please specify)

(Attach Certificate of Registration, Certificate of Incorporation, Memorandum and Articles of Association where applicable)

2.2 **List and Particulars of Directors:**

Name	Address	Nationality	Country of Usual Residence
1.			
2.			
3.			
4.			

3 FINANCIAL STATUS OF APPLICANT

3.1 Share Capital of the applicant (Fully paid)

_____

_____

_____

3.2 Loans

_____

_____

_____

3.3 Please provide Certified Audited Financial Statements and Accounts for the last 3 years (or latest 3 years) prior to application.

3.4 Bankers and Financial References

Bankers

Name and Address of Bankers (including telephone and fax)

a) In Uganda

Name	**Address**	**Contact Person**
1.		
2.		
3.		
4.		

b) Outside Uganda:

Name	**Address**	**Contact Person**
1.		
2.		
3.		
4.		

3.5 Other Important Referees on the Applicants Financial Status

Name and Address	Contact Person
1.	
2.	
3.	
4.	

3.6 **Sources of Funding for the Proposed Project (US $.000)**

a) Share Capital contribution (specify foreign or local)

b) Loan capital (specify source and provide evidence)

c) Others (specify)

4.0 MAIN BUSINESS ACTIVITY OF APPLICANT

Please indicate what business activity the applicant is currently engaged in:

5.0 TECHNICAL CAPACITY AND EXPERIENCE

5.1 Technical and Industrial Competence of Applicant

Please provide detailed statement of applicant's technical and industrial competence and experience to undertake the proposed project. (Use additional sheets if necessary)

5.2 Describe technical and industrial support from external sources:

6.0 DESCRIPTION OF PROPOSED PROJECT

6.1 Please provide detailed description of intended project:

(Use additional sheets or report as appropriate)

6.2 Project site/utilities

Project site (attach relevant map and drawings and state whether there are access roads required):

6.3 Technical aspects/design of the project

6.4 Amount of power to be generated (MW)

6.5 Time Plan for Implementation of the Project

6.6 Land use at the Project Site

_____

_____

_____

_____

6.7 Access roads, generation plant, transmission and distribution required for the project (Attach map):

_____

_____

_____

_____

_____

_____

6.8 Contact/consultations with local authorities: (Attach relevant documents):

_____

_____

_____

6.9 State if there is need to access public and/or private land:

_____

_____

_____

6.10 Specified Consents/Licences required from other public authorities to undertake project and their status (attach relevant documents):

Consent Required and from whom	Description of Activity	Legal Provisions

7.0 COMMERCIAL ASPECTS OF THE PROJECT

7.1 State intended market for generated power

- ☐ a) Domestic
- ☐ b) Export
- ☐ c) Own distribution
- ☐ d) Sales to national grid

7.2 State the regions (areas) to which the power shall be supplied

_____

_____

8.0 IMPACTS OF THE PROJECT

8.1 Impacts on Socio economics

_____

_____

8.2 Impact on cultural heritage

_____

_____

_____

8.3 Impact on environment

_____

_____

_____

8.4 Impact on natural resources:

_____

_____

_____

8.5 Impact on Wildlife:

_____

_____

_____

8.6 Any Other relevant Information (Use additional sheets if appropriate)

_____

_____

9.0 DECLARATION BY THE APPLICANT:

The proposed project is not unlawful or contrary to the interest of Uganda. I/we hereby declare that the details stated above are, to the best of my/our knowledge, true and correct.

Dated this _____ day of _____ 20___

10.0 AUTHORISED SIGNATURE/S AND SEAL OF APPLICANT/S

_____

_____

SEAL

10.1 Witness To Above Signatures

Name	Position	Signature

==========

FOR OFFICIAL USE ONLY

1. Date of submission of Application _____
2. Fees Paid and Receipt Number _____
3. Results of Verification for completeness _____

   _____
4. Dates and Newspapers in which Application is advertised:

   _____

   _____

   _____

   _____
5. Results of Public Hearing _____

   _____

   _____

6. Recommendation ERA Secretariat

_____

_____

_____

7. Decision of ERA _____

8. Issue date of Licence_____

9. Expiring date of Licence _____

10. Other Relevant information _____

_____

_____