

The Ugandan Power Sector

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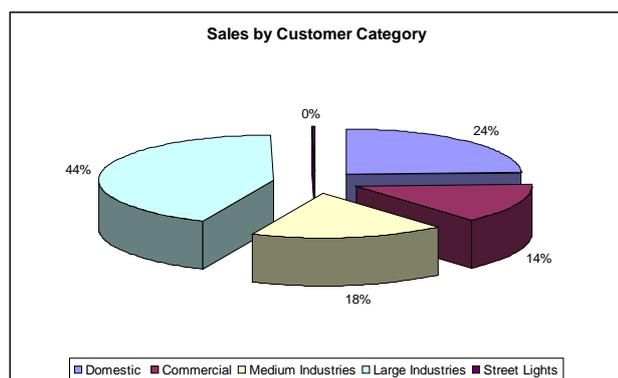
1. Country Context

	Uganda	SSA	Low Income
Population million (2007)	30.9	800	1296
GNI per capita (2007)	340	952	578
Population growth (01-07)	3.2%	2.5%	2.2%
Human Development Index (2005)	0.505	0.51	

- Real GDP Growth Projections: 6% (2009/10); 7% to 2012, 6% thereafter
- Budget deficit 8% of GDP;
- 30% of budget funded by international community
- Major exports: Coffee / Cotton / Tea;
- Tourism major sector;
- Democratic government (election due in 2011), but with increasing international concerns over corruption and governance.

2. Current State of Sector

Overview:

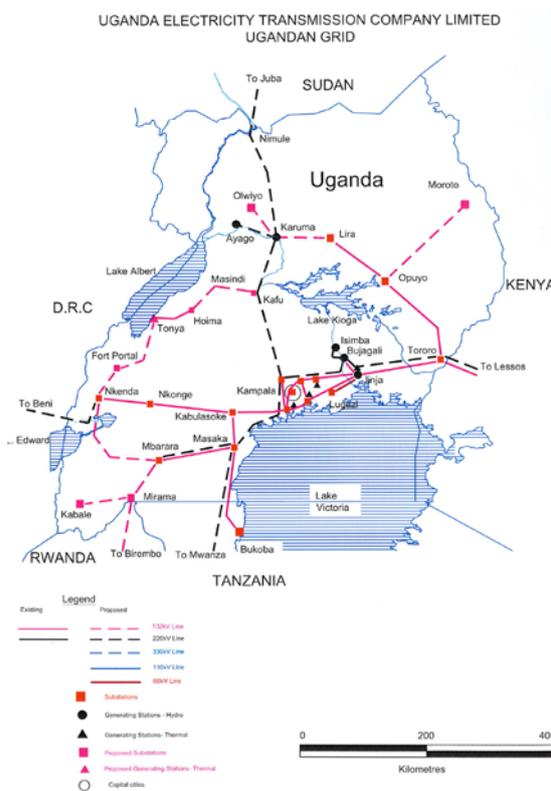


- % of population with access to electricity: 9%
- Electricity tariffs: Domestic 11.3 US¢/kWh, Commercial 18.0 US¢/kWh, Large Industry 15.3 US¢/kWh
- System losses (2007) 38% of which technical losses are 18.7%
- Estimate of unserved energy (2007): 150 GWh (8% of total generation)

Structure:

- Unbundled into Generation (UEGCL), Transmission (UETCL) and Distribution (UEDCL);
- Existing hydro generation at Jinja (Kiira 240 MW installed and Nalubaale 180 MW installed) operated by Eskom under 20 year O&M agreement;
- Hydrological limitations have had severe impact on hydro output;
- Bujagali (200 MW) – hydro IPP with multilateral funding - scheduled to be commissioned by 2011;
- Thermal generation from short term rented Aggreko (100 MW, expensive diesel fuel) till commissioning of Bujagali and longer term IPP at Namamve (50 MW, cheaper Heavy Fuel Oil);
- Small additional hydro and co-gen plants;
- UETCL government owned monopoly with responsibility for all purchases from generators, imports / exports and sales to distribution company;
- Umeme (wholly owned by CDC / Actis) operating under a 20 year concession from 2005;
- Independent regulator (ERA), with powers to approve contractual terms for IPPs and wholesale / retail electricity tariffs

Regional Interconnections



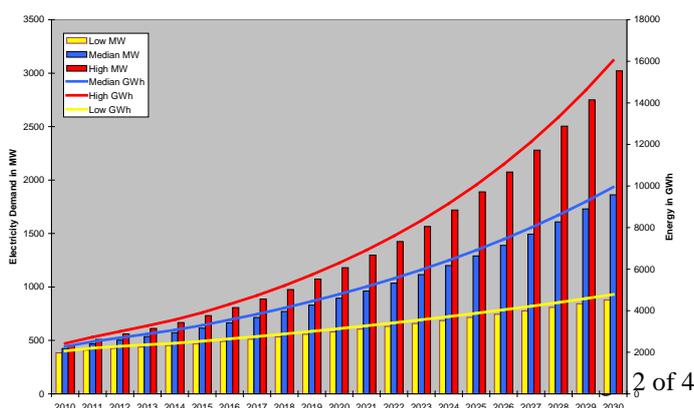
- Kenya will be significant importer of electricity next decade (no indigenous supplies) with potential supplies from Ethiopia (hydro) or Uganda;
- Existing interconnector Kenya / Uganda existing since 1950s now being upgraded to significantly increase potential transfer;
- Transmission links also being funded between Uganda and Eastern DRC / Rwanda / Burundi;
- Potential for significant exports from Uganda to NW Tanzania (which is separate from main system);
- Eastern African Power Pool at early stages of development, rules and basis for operation not yet agreed;
- Broader potential interconnections with SAPP (via Tanzania) and Egypt (via Ethiopia);

- Huge hydro potential in DRC (Inga > 60 000 MW), but this likely to be exported to Southern Africa

Issues

- High levels of distribution losses (>35%);
- Significant hydrological fluctuation;
- Oil / gas discoveries in Lake Albert area by Tullow and Heritage, for which power only significant offtaker of heavy fractions, but price and timing complications;
- Lead time associated with development of new hydro plants (> 5 years from Financial Close);
- High levels of suppressed demand for electricity constraining economic growth;
- Strong level of Government involvement in sector prejudices independence of regulator;
- New hydro projects will continue to face environmental pressures, particularly if international funding involved;
- Exports to Kenya may be in competition with Ethiopian hydro.

Uganda Demand Side Projections:



- Envelope indicates range of uncertainty;
- Current (2009) effective capacity approximately 410 MW;
- Supply shortfalls may continue until commissioning of Bujagali;
- Potential for export will depend on hydrology.

3. What DFID / IFC has done in the past / lessons learnt

Support

- Substantive IDA support from IBRD with wrong investment decision making (Nalubaale);
- Restructuring of electricity sector (IBRD);
- Rehabilitation of Nalubaale dam / power station (DFID / IBRD);
- Utility support to previous vertically integrated utility (DFID);
- Funding of emergency generation (IBRD);
- Funding for Bujagali (IFC)

Lessons

- Substantial delays experienced in the development of Bujagali (> 10 years);
- Power sector restructuring / private sector funding not a panacea;
- Countries look after own electricity needs during time of shortage.

4. What Government, other donors and private sector are planning

- Government wish to accelerate development of next major hydro project (Karuma) through possible PPP, but with unrealistic timescale (2014);
- Hydro development options:
 - Isimba (100 MW) with Indian participation (?), 2015 earliest
 - Karuma (250 MW +?), no developer selected, 2016 earliest.
 - Ayago (550 MW), no developer selected, 2017+
 - Other potential large Nile based projects
- Thermal development options:
 - Mputa (50 MW), HFO fuelled diesel plant, as soon as possible, originally 2010 now probably later. Government considers this to be committed project, but financial / economic rationale not yet agreed;
- Need for bankability of solutions (private sector solutions will need to have bilateral / multilateral agency support);
- Continued regional development (NELSAP), with more interconnections (and sharing of new generation capacity?)

5. The most important problems to solve

- Uganda faces energy and capacity shortfall in 2014 / 2015 under probable hydrological scenario in absence of new generation, therefore need to accelerate the development of new generation projects, shortening developmental period including time to Financial Close;
- Ensure that the sector remains attractive to international investors;
- Ensure that electricity sector is protected from hydrological risk;
- Balance the need for cheapest available electricity generation with the need to develop the oil potential in the country (which will necessitate use of HFO, for which power generation only realistic option with higher marginal cost than hydro);
- Increase electrification rate;
- Minimise subsidies to the richest sector of the community (urban consumers), whilst ensuring that IPP developers can achieve an acceptable return.

