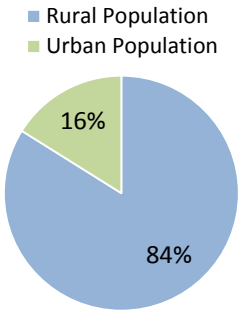
Country: Uganda

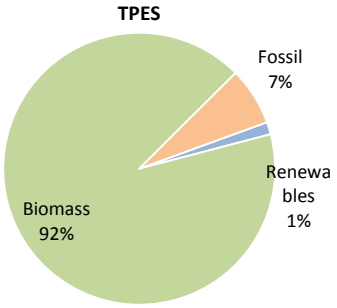
Socio- economic framework

	Year	Unit	Value
Population	2014	million	37.78[1]
Demographic growth	2014	%	3.3%[1]
Surface	2014	km2	241 550[1]
GDP	2014	M US$	26310[1]
GDP per capita	2014	US$ per cap	696[1]
GDP growth	2014	% /year	4.5%[1]
Fragile country status	2014	Index	No [2]
Governance	2014	Index	54.6[3]
Governance variation over 5 years	2014	Index	0.3[3]
Human development	2013	Index	0.484[4]

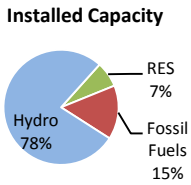


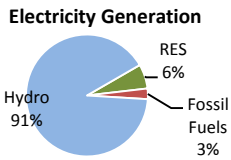
Consumed Energy (million toe=11.65 MWh)

	Year	Unit	Value
Total Primary energy Supply (TPES)	2014	Million toe	17.79[5]
Primary energy Supply - Biomass	2014	Million toe	16.29[5]
Primary energy Supply - Fossil	2014	Million toe	1.23[5]
Fraction of Non-Renewable Biomass	2009	%	62%[6]
Primary energy Supply - Renewable (incl..hydro)	2014	Million toe	0.26[5]
Primary energy - Net Import electricity	2014	Million toe	0.00[5]
Primary energy - Net import hydrocarbon	2014	Million toe	1.23[5]
Total Final Energy Consumption	2014	Million toe	12.29[5]
Final energy - Modern BLEN(*)	2014	Million toe	0.21[5]
Final Energy - Electricity	2014	TWh	2.42[5]



Electricity





	Year	Unit	Value
Peak demand	2014	MW	548[7]
Installed connected capacity	2015	MW	895.5[8]
Thermal installed capacity (fossil fuels)	2015	MW	136[8]
Hydro installed capacity	2015	MW	695[8]
Renewable installed capacity (ex.hydro)	2015	MW	64.5[8]
IPP/installed capacity	2015	%	100%[8]
Total Electricity production	2014	GWh	3127[8]
Electricity generation from fossil fuels	2014	GWh	88[8]
Electricity generation from hydro	2014	GWh	2836[8]
Electricity generation from renewable	2014	GWh	203[8]
Electricity consumption including self-consumption and losses	2014	GWh	3157[9]
Average consumption per capita	2014	kWh per cap	84[9]
Total losses (technical and non-technical) as a production % (**)	2014	%	25%[9]
Total losses (technical and non-technical)(**)	2014	GWh	781[9]
Imports (+) exports (-)	2014	GWh	30[9]
Global electrification rate	2012	%	18%[1]
Urban electrification rate	2012	%	71%[1]
Rural electrification rate	2012	%	8%[1]
HV lines(+)	2014	km	1592[10]
MV lines(+)	2014	km	35[10]
LV lines(+)	2014	km	To be confirmed
Renewable energy/global electricity production (incl. hydro)	2014	%	97.2%[8]
Connections to the LV network	2015	Thousands	731[11]
Average tariff/social	2015	US$c/KWh	21[12]
Ratio cost/tariff	2015		To be confirmed

The EU's Technical Assistance Facility for the Sustainable Energy for All initiative–Eastern and Southern Africa
Project financed by the European Union and implemented by a consortium led by Atkins

ATKINS

Version dated 18/12/15

Legal, regulatory and institutional framework

Energy policy	- Uganda Energy Policy, Ministry of Energy and Mineral Development (2002). - Renewable Energy Policy, Ministry of Energy and Mineral Development (2007). - Rural Electrification strategy and plan 2013-2022, Ministry of Energy and Mineral Development (2012). - Biomass Energy Strategy, Ministry of Energy and Mineral Development (2013). - Nuclear Power Roadmap Ministry of Energy and Mineral Development (2015).
Energy laws	- Electricity Act 1999. - National Forestry and Tree Planning Act 2003, regulating woody biomass issues. - Atomic Energy Act 2009. - Petroleum Exploration, Development and Production Act 2013. - Biofuel Bill 2015.
Enforcement texts	Electricity Tariff Code Regulations, 2003. Electricity application for permit, license and tariff regulation 2007 Electricity installation permits regulations, 2003. Electricity Primary grid code regulations, 2003. Electricity license exemption-Isolated Grid Systems order, 2007.
Electricity/energy regulator	Electricity Regulatory Authority established in 2000 under mandate of the Electricity Act 1999.
Electricity operators	Uganda Electricity Generation Company Ltd (UEGEL), Uganda Electricity Transmission Company Ltd (UETCL), Uganda Electricity Distribution Company Ltd (UEDCL). Distribution Operators: Uneme Ltd, West Nile Rural Electrification Company, Ferdsult Engineering Services Ltd, Kilemme Investments Ltd, Bundidugyo Electricity Co-operative Society, Pader Abim Community Multipurpose Electricity Cooperative Society, Kyegegwa Rural Electricity Co-operative Society.
Rural electrification body	Rural Electrification Agency (REA) established in 2002 and administering the Rural Electrification Fund.
Renewable energy body	The Rural Electrification Agency is the only body that deals with renewable energy projects. The MEMD is responsible for RE policy.
Energy conservation body	The Ministry of Energy and Mineral Development is responsible for energy conservation strategy.
Energy objectives	SE4ALL Action agenda aims at more than 98% electricity access and more than 99% access to modern cooking solutions, improvement of efficiency of electricity use by 20%, reduction of electricity losses to 15% and more than 95% renewables in power and 36% in thermal uses by 2030. Renewable Energy Policy (2007) has as a main objective to increase the use of modern renewable energy, to 61% of the total energy consumption by 2017. The Rural electrification Strategy and Plan 2013-2022 aims at a rural electrification rate of at least 22% by 2022.
Feed-in tariff policy	According to the electricity Act (1999) feed in tariffs for renewable energy systems of a capacity of up to 20MW were developed by the ERA and are implemented. The REFiTs are valid for 20 years and have different values for hydro (with three steps 0.5MW-1MW, 1MW – 9MW and 9MW-20MW), bagasse, biomass, biogas, landfill gas, geothermal and wind. The GETFiT programme offers premium payments as additional payments per kWh, above the regulated REFiT tariff levels on a grant basis, following an open and transparent tender process.
Metering policy for billing	Yes. Prepaid meters are used in most new residential connections.
Public procurement (auctions)	No.
Unbundling	Yes. The electricity sector is fully unbundled. Generation and distribution is fully privatised.

Private sector environment

Sector private bodies	Uganda Small Scale industries association, Association of microfinance institutions of Uganda, Federation of Uganda Employers, National Union of Coffee Agri-business and farm enterprises, Uganda Manufacturers association.
Public incentives	Uganda Investment Authority a governmental agency to facilitate private sector investments in Uganda.
Financial grants	The Rural Electrification Fund offers grants for public investments and subsidies for private sector investments in rural electrification projects.
IPPs	All the power plants are operated by IPPs. There are thirteen independent power producers. The two hydro power plants owned by UEGEL are also operated under concession (for 20 years starting from 2003) by a private company.
PPPs	The Public Private Partnership Act was adopted in August 2015. A PPP policy has been developed by the Ministry of Finance, Planning and Economic Development stating the scope, principles and aim of PPPs. UEDCL transferred management of the electricity distribution in a PPP through a 20 year concession with Umeme. Two hydro sites are being developed on a PPP basis. A call for a waste-to-energy PPP in Kampala has been launched in July 2015.
Business index	Listed 122 out of 189 countries by the WB “Ease of doing business” index in 2015[13]

International Cooperation in the energy sector

Joint Declaration EU-country	No.
Energy as a focal sector for 11th EDF	No. Better access to RES is included among others in the Food security and Agriculture Focal Sector.
Donors active in the country	EU, World Bank, JICA, UNEP, ICEIDA, NORAD, KfW, GIZ, AfDB, AfD.
Coordination among donors	A donor coordination group for private sector development works in collaboration with active government participation to identify strategies for creating an enabling environment.

Main issues and opportunities[14]

- Low access to modern energy sources. Low access to electricity.
- High share of the use of woody biomass for cooking which leads to deforestation.
- Lack of a legislative framework to support and enforce the implementation of energy efficiency.
- High hydro potential to be exploited (estimated at 2GW along River Nile), geothermal potential estimated at 450MW and high solar potential.
- Hydrocarbon deposits have been identified in the Albertine Graben and are currently in the exploration phase.

Version dated 18/12/15

(*) BLEN includes **B**iogas, **L**PG, **E**lectricity and **N**atural Gas.

(**) The data in the UN Statistics include only technical losses.

(+) For the interconnected system only where HV is 220kV and 132kV, MV is 66kV, LV is 240V for domestic and 415/240V for commercial and industrial.

Sources:

1 World Bank; Available: http://data.worldbank.org/country/uganda, [Accessed on 11/11/2015]. The source of the share of rural and urban population is the CIA World Factbook available at: https://www.cia.gov/library/publications/resources/the-world-factbook/geos/ug.html [Accessed on 11/11/2015].

2 Uganda is not included in the list of fragile countries of the World Bank Country Policy and Institutional Assessment (CPIA) Score; Available: http://www.worldbank.org/content/dam/Worldbank/document/FragilityandconflictFY14FragileSituationList.pdf, [Accessed on 11/11/2015].

3 Ibrahim Index of African Governance (IIAG), Available: www.moibrahimfoundation.org/interact, [Accessed on 11/11/2015].

4 UNDP - Human Development Reports, Available: http://hdr.undp.org/en/countries/profiles/UGA, [Accessed on 11/11/2015].

5 MEMD 2014 Statistical Abstract available at http://www.energyandminerals.go.ug/downloads/2014StatisticalAbstract.pdf [Accessed on 19/11/2015]. Original data are in toe.

6 Bailis,R., Drigo, R., Ghilardi, A. & Masera,O. "The carbon footprint of traditional woodfuels", Nature Climate Change 5: 266-272, 2015.

7 UETCL Demand Trends, available at http://www.uetcl.com/index.php/sample-sites/system-performance, [Accessed on 19/11/2015].

8 ERA generation statistics available at http://era.or.ug/index.php/statistics-tariffs/2013-11-27-16-54-30/overview/cat_view/21-statistics/23-electricity-generation-statistics [Accessed on 19/11/2015].

9 MEMD 2014 Statistical Abstract available at http://www.energyandminerals.go.ug/downloads/2014StatisticalAbstract.pdf [Accessed on 19/11/2015].

10 Electricity Regulatory Authority - UETCL statistics available at http://era.or.ug/index.php/statistics-tariffs/2013-11-27-16-54-30/transmission-statistics [Accessed on 19/11/2015].

11 ERA Electricity Distribution statistics available at http://era.or.ug/index.php/statistics-tariffs/2013-11-27-16-54-30/distribution-statistics, [Accessed on 19/11/2015].

12 ERA Domestic Tariff (667Ush/kWh weighted average for UMEME, exchange rate 3103.5 shi/$ taken from the UETCL Transmission statistics excel file) available at http://era.or.ug/index.php/statistics-tariffs/tariffs/distribution-tariffs/2014-10-14-10-24-55 [Accessed on 19/11/2015].

13 World Bank, Available: http://data.worldbank.org/indicator/IC.BUS.EASE.XQ, [Accessed on 11/11/2015].

14 The main issues and opportunities are extracted from the SE4ALL Action Agenda developed in the framework of the TAF for SE4All-Eastern and Southern Africa.

Country: Uganda

ANNEX 1 – PRIMARY DATA STATISTICS AND ACCESS TO MODERN ENERGY SOURCES

SE4ALL Objectives	*Indicators*	*Unit*	*Statistics*						*Target*
			Total				Rural	Urban	Total
			1990	2000	2010	2012	2010	2010	2030
Universal access to modern energy	Electricity access	% of population	7	9	15	18	5	67	>98%
	Non-solid fuels access	% of population	2	3	3	3	<5	11	>99%
			1990		2010	2012	1990-2010	2010-2012	2030
Doubling energy efficiency	Improvement rate of Primary energy intensity	CAGR %					-4.51	-2.76	Reduce wood fuel by 40% EE for electricity 20% Power distribution losses at 15%.
	Cumulated energy savings	PJ					1284	422	
	Ratios primary energy/final energy		-		-	([1])			
	Primary energy intensity level	MJ/$2011 PPP	24.4		9.7	9.1			
			1990	2000	2010	2012			2030
Doubling the renewable energy share	Total final consumption	PJ			390	403			36%
	RE share in the total consumption	%	96.1	94.6	88.8	90.0			
	RE share in the total electricity generation	%			58.6	42.9			>95%
	RE share in the total electricity production capacity	%			68.5	91.2			

Sources:
SE4ALL Progress towards Sustainable Energy 2015, Global Tracking Framework (GTF), Available: http://www.se4all.org/tracking-progress/ [Accessed on 24/8/2015]
SE4ALL Global Tracking Framework 2013, Available: http://www.se4all.org/tracking-progress/ , [Accessed on 24/08/2015].
Targets for 2030 are taken from Uganda's SE4All Action Agenda, July 2015

Note: Figures used in this annex are those of the GTF which uses the same definitions for all countries. However, these definitions are not always those used in the other parts of the fiche.

[1] This indicator is not available in the GTF 2015 publication and values for Uganda do not exist in the GTF 2013 publication.

ANNEX 2 – INSTITUTIONAL AND POLITICAL FRAMEWORK

N : not achieved **F**:foreseen **D** : drafted **AP** : Approval national process **A**: adopted **I** : implemented **S** : Success story

POLICY ASPECTS	N	F	D	AP	A	I	S	COMPLEMENTARY ASSESSMENT ELEMENTS
1 *Energy sector*								
Political objectives Energy laws					✓			The "Uganda Energy Policy" was published by the Ministry of Energy and Mineral Development (MEMD) in 2002 setting strategic goals and has not been revised since. A Renewable Energy Policy was adopted by MEMD in 2007 and a Rural Electrification strategy and plan 2013-2022 in 2012. Biomass Energy Strategy MEMD (2013). Nuclear Power Roadmap MEMD (2015). Electricity Act 1999. National Forestry and Tree Planning Act 2003, regulating woody biomass issues. Atomic Energy Act 2009. Petroleum Exploration, Development and Production Act 2013. Biofuel Bill 2015.
Energy regulation authority						✓		Electricity Regulatory Authority (ERA) established in 2000 under mandate of the Electricity Act 1999. There is no regulatory authority for all energy commodities.
Partnership agreement with the EU					✓			The Cotonou Partnership Agreement regulates the relations between Uganda and the EU. The 10th and 11th EDF do not have energy as a focal sector.
Fragile country status								No. Uganda is not included in the list of fragile countries of the World Bank Country Policy and Institutional Assessment (CPIA) Score. Uganda is classified as resilient in the IMF report[2] on Sub-Saharan Africa. However, Uganda is included as a fragile state in the "States of Fragility 2015" report[3] of the OECD and is listed in the "Alert" group of countries in the Fragile States Index of the Fund for Peace[4].
2 *Engagement and preparation for SE4ALL*								
Opting-in						✓		Uganda opted-in and was one of the 14 early movers for Africa[5].
Gap analysis					✓			The Energy Rapid Assessment and Gap Analysis were produced in 2012.
Action Agenda			✓					Uganda's Action Agenda was drafted in June 2015[5]
NREAP	✓							
NEEAP	✓							
Investment Prospectus		✓						The development of the Investment Prospectus is delayed[7].

[2] "Building Resilience in Sub-Saharan Africa's Fragile States", IMF 2015, available at https://www.imf.org/external/pubs/ft/dp/2015/afr1505.pdf [Accessed on 25/08/2015].

[3] "States of Fragility 2015, Meeting post-2015 ambitions" OECD, 2015 available at http://www.oecd-ilibrary.org/development/states-of-fragility-2015_9789264227699-en [Accessed on 11/11/2015].

[4] Fragile States Index 2015, Fund for Peace, available at http://fsi.fundforpeace.org/ [Accessed on 11/11/2015].

[5] Uganda's SE4ALL Action Agenda, EU TAF for SE4All – Eastern and Southern Africa July 2015

SE4ALL Secretariat		✓						There is an SE4All Secretariat which is understaffed and the existing staff is not 100% dedicated to its duties[6]. The EU TAF for SE4ALL is providing technical advisory services to the secretariat[7].
3	*Private sector participation*							
Investment and concession laws					✓			Uganda is a member of the World Trade Organization. Uganda is open to foreign investment and provides tax incentives for medium and long-term foreign investors. The Investment Code (2000) allows foreign participation in any industrial sector except those touching on national security. Concessions exist for generation companies and distribution companies under the Electricity Act (1999).
Private sector activities						✓		The electricity generation sector is completely privatized. There are thirteen IPPs and thirteen Distribution companies licensed by ERA. In the oil sector exploration concessions are given by MEMD under the Petroleum Exploration, Development and Production Act 2013.
Investors protection					✓			The country is ranked 98 out of 189 countries in the "protecting investors" topic according to the World Bank "Doing Business" analysis[8] for 2015.
National financial incentives						✓		The current investment law allows investors to deduct from their net income certain percentage of the investment capital and duty and tax free import of plants and machinery. Feed-in tariffs exist for small hydro, biogas, bagasse, biomass, wind and geothermal installations. The feed-in tariffs are defined in consultation with the Electricity Regulatory Authority.
Institutional support to private sector					✓			The Ugandan Investment Authority assists foreign investments.
4	*Energy access*							
Energy access policy and targets					✓			SE4ALL Action agenda aims at more than 98% electricity access and more than 99% access to modern cooking solutions by 2030.
Agency / Rural energy fund					✓			Rural Electrification Agency (REA) established in 2002 and administering the Rural Electrification Fund (REF).
Rural electrification master plan					✓			Rural Electrification Strategy and Plan 2013-2022 (RESP), Ministry of Energy and Mineral Development (2012).
Increasing EA investment plan					✓			The Rural Electrification Strategy and Plan (2012) includes a list of required projects and investments in order to reach its objectives. There are more than nine donor funded projects aiming at increasing the number of connections. The SE4All Action Agenda (2015) foresees a specific number of connections and the related costs. Uganda Electricity Transmission Company (UETCL) has a plan for network extension and upgrades of lines. Regarding clean cooking the Uganda National Alliance for Clean Cooking (a public private partnership) seeking to integrate all the activities of stakeholders on clean cooking related matters.
EA decentralized initiatives					✓			REF finances off-grid electricity generation plants (mainly PVs). RESP set off-grid electrification targets.

[6] Kick start of the implementation phase of the Sustainable Energy for all Initiative in Uganda Inception Report, EU TAFF for SE4All – Eastern and Southern Africa, June 215.

[7] Uganda's SE4ALL Action Plan Implementation and Support to the SE4ALL Secretariat at Uganda's MEMD, Second Mission Report, 30th August 2015.

[8] World Bank available at http://www.doingbusiness.org/data/exploreeconomies/uganda/ [Accessed 11/11/2015]

Traditional fuels replacement					✓			The Uganda National Alliance for Clean Cooking (a public private partnership) integrates all the activities of stakeholders on clean cooking related matters. The Uganda LPG Association is working towards reaching 20% of households using LPG for cooking by 2020.
Independent distribution networks		✓						The SE4All Action Agenda and the RESP foresee the development of solar based mini-grids.
Electricity distribution master plan			✓					The Grid Development Plan 2014-2030 of UETCL includes part of the distribution system expansion.
Specific measures for the poor		✓						The residential tariff structure is based on consumption blocks. The lowest block (up to 15kWh per month) has a price of almost one quarter of the average residential tariff[9].
Microfinance instruments					✓			FINCA-Uganda has implemented a number of micro-finance programmes mainly for solar products (solar lamps) through donor's support. There are a number of companies using microfinance instruments for solar products and renewable energy.
Pre-electrification					✓			There is growing market for Solar Home Systems (SHS) exclusively served by the private sector[5]. The RESP has a target of installing 1.7million SHS by 2030.
5	*Renewable energy (RE)*							
RE Policy					✓			The "Renewable Energy Policy" of MEMD (2007) has as a main objective to increase the use of modern renewable energy, to 61% of the total energy consumption by 2017. The targets set for 2012 were not achieved. The SE4ALL Action Agenda aims at more than 95% renewables in power and 36% in thermal uses by 2030. The main issue is the diversification of RE sources since only hydropower is extensively developed until now.
Agency / RE Fund		✓						The Rural Electrification Agency is the only body that deals with renewable energy projects and the Rural Electrification Fund covers RE investments. The MEMD is responsible for RE policy.
RE master plan		✓						The Renewable Energy Policy (2007) of MEMD in the only relative document.
Biofuels regulatory frameworks				✓				The Biofuels Bill was adopted in July 2015 setting minimum requirements for blending of biofuels in transport fuels.
Wood energy regulations				✓				The National Forestry and Tree Planning Act 2003 is regulating woody biomass issues.
Solar/wind regulations	✓							
RE resources mapping		✓						There are no overall RE resource assessments and mapping to support investment promotion, decision making and energy planning. This is foreseen as part of the SE4All Action Agenda. Studies for the hydro potential of specific sites have been performed.
RE Promotion					✓			RE is promoted for electricity generation (large and small hydro, PVs for on-grid and off-grid applications, Solar Home Systems).
RE long-term funding					✓			The renewable energy feed in tariffs offer guaranteed prices for 20 years.
Green Energy Fund	✓							The only relevant fund is the Rural Electrification Fund.
Network connection studies		✓						All power plants (and RE installations) require Network connection studies.

[9] ERA available at http://era.or.ug/index.php/statistics-tariffs/tariffs, [Accessed 21/11/15]

Country: Uganda

6	*Energy Efficiency (EE)*							
EE Policy			✓					Uganda has drafted an Energy Efficiency Strategy (EES) for 2010-2020 but it is not implemented. The Energy Efficiency and Conservation bill has been drafted and is to be tabled before Cabinet and Parliament for approval. SE4ALL Action agenda aims at improvement of efficiency of electricity use by 20% and reduction of electricity distribution losses to 15%.
EE national action plan	✓							
EE Standards and labels		✓						Minimum Energy Performance Standards (MEPS) have been developed for 5 appliances,
EE Promotion			✓					MEMD carries out public awareness through media campaigns, events and the dissemination of materials to promote energy efficiency and conservation. A successful campaign has been the Energy Week which started in 2005. Awareness & Information is foreseen in the draft Energy Efficiency Strategy.
Electricity losses reduction programme			✓					UMEME has reduced distribution losses from 26% in 2012 to 21.3% in 2014 with a target for 2015 to further reduce them at 18.3%.
Improved stoves programs					✓			The major existing plan by UNACC is to provide 5 million households with clean and efficient stoves by 2020 but funds are still to be raised. Uganda LPG association (ULPGas) is targeting to achieve 20% of households using LPG by 2020.
Ban on non-efficient appliances	✓							
Incentives for efficient appliances	✓							
Demand-side management		✓						There are “time of use” electricity tariffs, but wider campaigns are missing. Actions are foreseen in the SE4All Action Agenda.
7	*Electricity sector*							
Legal definition of the institutional players						✓		The Electricity Act (1999) set the mandate for the establishment of the Electricity Regulatory Authority (ERA) and the unbundling of the Uganda Electricity Board. There are thirteen licensed IPPs and thirteen licensed distribution companies and a single licensed operator of the transmission system (UETCL).
Tariff policy						✓		The ERA established the structure for the distribution, generation, feed-in and bulk supplier tariffs according to the Electricity (Application for Permits, License and Tariff Review) Regulations, 2007 and the Electricity Act, 1999. The tariffs are regularly reviewed to mirror the relative costs.
Interconnection rules					✓			Technical interconnections rules are implemented by UECTL described in the Electricity (Primary Grid Code) Regulations (2003). The power system of Uganda is interconnected to Tanzania and Kenya. There are plans for future interconnections with Rwanda, DR Congo and South Sudan.
Isolated networks rules		✓						Isolated network licensing issues are covered by the Electricity (License Exemption Isolated Grid System) Order of 2007.
Feed-in tariff policy						✓		Feed in tariffs were developed by the ERA and are implemented. The REFiTs are valid for 20 years and have different values for hydro (with three steps 0.5MW-1MW, 1MW – 9MW and 9MW-20MW), bagasse, biomass, biogas, landfill gas, geothermal and wind. The GETFiT programme implemented by KfW, offers premium payments as additional payments per kWh, above the regulated REFiT tariff levels on a grant basis, following an

								open tender process. This premium improves the financial viability of the projects and ensures that the REFiT level is affordable for UETCL but is limited to a five year period and by a capacity factor cap.
RE minimum % imposed to producers	✓							None
RE certificates trade	✓							No
Free access to the domestic network						✓		UECTL is the transmission system operator and operates the single buyer model of the electricity sector. All licensed IPPs have full access to the transmission network.
Net metering	✓							No
Unbundling						✓		The electricity sector is fully unbundled. Generation and distribution is fully privatised. There are thirteen independent power producers. The two hydro power plants owned by Uganda Electricity Generation Company Ltd (UEGEL) are also operated under concession (for 20 years starting from 2003) by a private company. There are thirteen licensed distribution companies.
Decentralized transport networks	✓							
Least cost development plan					✓			The Grid Development Plan 2014-2030 of the UECTL includes a generation expansion plan.
Electricity master plan					✓			The Grid Development Plan 2014-2030 of the UECTL includes a generation expansion and transmission system expansion plan.
Privatization / commercialisation						✓		The electricity generation and distribution is fully privatised. A single buyer model is applied with UECTL being the transmission network operator and single buyer.
Utility management contract						✓		The two hydro power plants owned by UEGEL are operated under concession (for 20 years starting from 2003) by a private company. The distribution grid below 33kV belongs to Uganda Electricity Distribution Company Ltd (UEDCL) and is operated under a concession agreement by UMEME Ltd.
Utility financing plan				✓				The generation and distribution is fully privatised.

ANNEX 3 – ELECTRICITY SECTOR ASSESSMENT

CRITERION	INFORMATION
Electricity sector policy	
Electricity sector laws	Electricity Act 1999. The Electricity (Licence Fees) (Amendment) (No.3) Regulations, 2014, The Electricity (License Exemption) (Isolated Grid Systems) Order, 2007, The Electricity (Safety Code) Regulations 2003.
Unbundling	The electricity sector is fully unbundled. Generation and distribution is fully privatised. There are thirteen licensed IPPs and thirteen licensed distribution companies.
Regulation of the sector	The Electricity Regulatory Authority established in 2000 under mandate of the Electricity Act 1999.
Master Plans / Least cost development plans/ Capacities expansion plan	The Grid Development Plan 2014-2030 of the UECTL includes a generation expansion plan and a transmission grid expansion plan.
Networks and access development	Electricity (Primary Grid Code) Regulations (2003).
IPPs	All the power plants are operated by IPPs. There are thirteen independent power producers. The two hydro power plants owned by UEGEL are also operated under concession (for 20 years starting from 2003) by a private company.
RE based electricity production objectives	The Renewable Energy Policy (2007) foresees for 2017 1200MW of large hydro, 85MW of small hydro, 60MW cogeneration, 45GW geothermal and 30MW MSW. However the achievement of these targets is delayed. The SE4ALL Action agenda aims at more than 95% renewables in power generation by 2030.
Power purchase agreements, feed-in tariffs	UETCL has in place or under development over 20 PPAs with licenced IPPs, mostly small (< 20 MW) hydropower plants. Standardized PPA and Implementation Agreement for bagasse, biomass and solar PV have been developed or are being finalized. According to the electricity Act (1999) feed in tariffs for renewable energy systems of a capacity of up to 20MW were developed by the ERA and are implemented. The REFiTs are valid for 20 years and have different values for hydro (with three steps 0.5MW-1MW, 1MW – 9MW and 9MW-20MW), bagasse, biomass, biogas, landfill gas, geothermal and wind. The GETFiT programme offers premium payments as additional payments per kWh, above the regulated REFiT tariff levels on a grant basis, following an open tender process.
Access to transport networks regulations	Electricity (Primary Grid Code) Regulations (2003).
Sector reforms	The last major sector reform was done with the Electricity Act of 1999 which set the basis for the liberalisation of the sector.

Country: Uganda

CRITERION	INFORMATION
1Enterprises and services	
PRODUCTION	
Main companies and shareholders	Uganda Electricity Generation Company Ltd (UEGEL),ESKOM, KCCL, Kinyara Sugar , EWSA, Kilembe Mines Ltd, Tronder Power Ltd, Jacobsen Uganda Power Plant Company Ltd, Electro-Maxx Uganda Ltd, Africa EMA Mpanga Ltd, Eco-Power Uganda Ltd, Kenya Power, Hydromax (Kabalega Power station), Electro-Maxx[10].
Production (GWH)	3127 GWh in 2014[11].
Installed capacity (MW)	In 2015 the total installed capacity was 895.5MW of which 695MW hydro, 136MW oil fired power plants and 64.5MW bagasse fired CHP plants[11].
Production mix (GWh)	In 2014 88GWh (3%) were generated from fossil fuels, 2836GWh (91%) from hydro and 203GWh (6%) from other renewable sources (bagasse)[11].
Peak demand (MW)	In 2014 548MW[12].
TRANSPORT	
Enterprises	Uganda Electricity Transmission Company Ltd is the transmission system operator and single buyer.
HV lines length and capacity	In 2014 there were 150km of 220kV lines, 1442km of 132kV[13].
Exports/Imports	In 2014: total exports 32.7GWh and total imports 2.58GWh[14].
DISTRIBUTION	
Enterprises (s)	Uganda Electricity Distribution Company Ltd (UEDCL). Distribution Operators: Uneme Ltd, West Nile Rural Electrification Company, Ferdsult Engineering Services Ltd, Kilemme Investments Ltd, Bundidugyo Electricity Co-operative Society, Pader Abim Community Multipurpose Electricity Cooperative Society, Kyegegwa Rural Electricity Co-operative Society.
MV and LV lines length and capacity	Medium Voltage: 35km of 66kV lines[13]. Low voltage: to be confirmed.
Clients	In 2014 the total number of clients in the distribution was 731 000.
Total sales and tariff categories	The Domestic sales of electricity by the distribution companies were 2304GWh in 2014[11].The ERA approves the tariffs according to the Electricity (Application for Permits, License and Tariff Review) Regulations, 2007 and the Electricity Act, 1999. For residential consumers there is a price for the first block (first 15kWh per month) which is very low and then there is a prices for the

[10] UETCL http://www.uetcl.com/index.php/sample-sites/shop
[11] ERA http://era.or.ug/index.php/statistics-tariffs/2013-11-27-16-54-30/overview
[12] UETCL http://www.uetcl.com/index.php/sample-sites/system-performance
[13] ERA http://era.or.ug/index.php/statistics-tariffs/2013-11-27-16-54-30/overview/cat_view/21-statistics/25-electricity-transmission-statistics
[14] MEMD 2014 Statistical Abstract available at http://www.energyandminerals.go.ug/downloads/2014StatisticalAbstract.pdf

Country: Uganda

CRITERION	INFORMATION
	consumption above this amount. Commercial, small industrial and large industrial consumers have time of use tariffs (peak, shoulder, off peak). Street lighting has a special tariff. The tariffs are defined including an inflation adjustment factor, an exchange rate adjustment factor and a fuel adjustment factor[15].
Demand forecast on the interconnected network (MW)	The Grid Development Plan 2014-2030 of the UECTL foresees a domestic demand of 914MW in 2020, 1272MW in 2025 and 1707MW in 2030. The domestic peak demand in 2014 was 548MW.
Tariff / cost recovery / subventions	
Electricity tariffs	The ERA approves the tariffs according to the Electricity (Application for Permits, License and Tariff Review) Regulations, 2007 and the Electricity Act, 1999. For residential consumers there is a price for the first block (first 15kWh per month) which is very low and then there is a price for the consumption above this amount. Commercial, small industrial and large industrial consumers have time of use tariffs (peak, shoulder, off peak). Street lighting has a special tariff. The tariffs are defined including an inflation adjustment factor, an exchange rate adjustment factor and a fuel adjustment factor[16] and are reviewed quarterly. In the second half of 2015 the weighted average tariffs were different for each distribution company. According to the statistics published by ERA the tariff ranges for the different distribution companies were: Domestic tariffs 524-667Ush/kWh, Commercial tariffs 400.8-604.6 Ush/kWh, Large industrial tariff 316-524.59 Ush/kWh.
Social tariff	The domestic tariff is based on blocks. The first block corresponds to 15kWh per month and the tariff is about one fourth of the average tariff for the consumption above this level.
Cost coverage through tariffs Planned tariffs adjustments	The tariff setting methodology that is applied by ERA covers the costs, and is also taking into account adjustment factors for inflation, exchange rate and fuel. The tariffs are reviewed on a quarterly basis.
Level and subsidies sources	The existing subsidies refer to household's connection costs to the grid and are offered through REA.
Financial situation of the main enterprises	To be confirmed.
Performance: losses / efficiency/ service quality	
Production performance	The largest share of electricity generation in Uganda (91% in 2014) comes from relatively new hydropower plants and another 6% comes from new CHP plants burning bagasse in sugar cane industries. This leads to an overall good efficiency.
Transport losses, evolution and objectives Distribution losses (technical and non-technical)	According to the MEMD Statistical Abstract 2014[17], the transmission losses were 4.82% in 2014 (they ranged between 1.56% until 4.85% in the period 2007-2014). The technical distribution losses reported in 2014 were 21.5%. There is a clear tendency of reducing the losses from 35% in 2007 to 21% in 2014. The target for 2015 is to further reduce losses to 18.3% and the target for 2030 is to reduce distribution losses to 15%.
Revenues	To be confirmed

[15] ERA : http://era.or.ug/index.php/2013-12-14-14-58-04/sector-reports#

[16] ERA : http://era.or.ug/index.php/2013-12-14-14-58-04/sector-reports#

[17] MEMD 2014 Statistical Abstract available at http://www.energyandminerals.go.ug/downloads/2014StatisticalAbstract.pdf [Accessed on 19/11/2015].

Country: Uganda

CRITERION	INFORMATION
Shutdowns and improvement objectives	According to UETCL statistics[18], scheduled outages in 2014 corresponded to 8745MWh unserved energy, forced outages to 3546MWh and outages caused by generators were 599071MWh.
Off-grid electrification and electricity access	
Electrification rate (urban/rural)	According to the World Bank data in 2012 the global electrification rate was 18%, the urban electrification rate was 71% and the rural electrification rate was 8%[19]. According to the MEMD Statistical Abstract 2014 the national grid electrification rate in 2014 was 15.2%[14].
Electrification objectives	The SE4All Action Agenda targets more than 98% electricity access by 2030[5]. The Rural Electrification Strategy and Plan 2013-2022 (RESP) targets to achieve rural electrification access of 22% by 2022.
Rural electrification agency	The Rural Electrification Agency (REA) established in 2002 and administering the Rural Electrification Fund.
Off-grid electrification situation and programmes	The RESP foresees and increase of off-grid services by 140000 solar PV installation and mini-grid systems. The SE4All Action Agenda targets about 3.175 million households with off-grid solutions (Solar Home Systems, mini and micro grids).
Off-grid operators	Information to be obtained.
Isolated networks regulations	Information to be obtained.
BoP Policy (Bottom of the Pyramid)	Information to be obtained.
Energy Efficiency (EE)	
Demand-side management	Time of use tariffs exist for the electricity consumption.
EE activities	In 2014 ERA approved a 4.1million USD programme for the distribution of LEDs expected to reduce the demand by 28MW. Minimum Energy Performance Standards (MEPS) have been developed for 5 appliances, which include refrigerators, air conditioners, motors, lighting appliances, and freezers. The MEMD with the support of GiZ is implementing an energy efficiency and management program for high energy consuming industrial facilities including energy audits, training and promotion of ISO50001. MEMD has implemented capacity building and public awareness on energy efficiency through a number of activities such as media campaigns, events and the dissemination of materials.
Other aspects	
Regional electricity market	The power system of Uganda is interconnected to Tanzania and Kenya. There are plans for future interconnections with Rwanda, DR Congo and South Sudan and an increase in the interconnection capacity with Tanzania and Kenya. Uganda joined the Eastern Africa Power Pool in 2012.

[18] Available at http://www.era.or.ug/index.php/statistics-tariffs/2013-11-27-16-54-30/transmission-statistics, [Accessed 12/12/2015]
[19] World Bank; Available: http://data.worldbank.org/country/uganda, [Accessed on 11/11/2015].

ANNEX 4 - NATIONAL TARGETS FOR ENERGY ACCESS, RENEWABLE ENERGY AND ENERGY EFFICIENCY

Country	*Sector*	*Policies and objectives*	*Source*
East African Community EAC[20]	Access	Provide access to modern cooking practices for 50% of the population that currently uses traditional cooking fuels, provide access to reliable electricity for all urban and peri-urban poor, provide access to modern energy services such as lighting, refrigeration, information and communication technology, and water treatment and supply for all schools, clinics, hospitals, and community centres.	Strategy on scaling up access to modern energy services, EAC Secretariat.
	Renewable Energy	No specific targets set yet for EAC.	
	Energy efficiency	No specific targets set yet for EAC.	
Uganda	Oil and gas	Promote LPG: 20% of households using LPG for cooking by 2020.	SE4All Action Agenda (2015)
	RE	Increase the use of modern renewable energy, to 61% of the total energy consumption by 2017 (REP 2007). More than 95% renewables in power and 36% in thermal uses by 2030 (SE4All Action Agenda 2015).	Renewable Energy Policy, Ministry of Energy and Mineral Development (2007), SE4All Action Agenda (2015)
	Access	More than 98% electricity access and more than 99% access to modern cooking solutions by 2030.	SE4All Action Agenda (2015)
	Energy efficiency	SE4ALL Action agenda aims at improvement of efficiency of electricity use by 20% and reduction of electricity distribution losses to 15%.	SE4All Action Agenda (2015)

[20] Uganda is a member state of the East African Community, one of the Regional Economic Communities in Africa. The reference is given to show the objectives of the regional community compared to the objectives of the country under consideration.