



Country Assessment Report

Country/Region Name- Uganda:

Uganda is situated in East Africa; bordered by Kenya, South Sudan, DR Congo, Rwanda and Tanzania. It has a population of 43 million and GDP over \$27 billion, with a growth rate of 6.1%.

Economic structure and activity

Uganda has a mixed-economic system, combining market freedom and private enterprise with centralised economic planning and regulation. The service sector accounts for 47.59% of the nation's GDP and is dominated by telecommunications, finance, insurance, public administration and education. Growth in the industrial sector has stagnated over the last decade, failing to overtake agriculture as the second largest contributor to Uganda's GDP (19.87%). Uganda hosts vast mineral deposits including rich reserves in oil, copper and gold. The main manufacturing services include sugar processing, brewery, tobacco, textiles, cement and steel production. Agriculture accounts for a significant share of the nation's GDP (24.21%), employing up to 80% of the population. Its main produce includes coffee, tea, cotton, tobacco, potatoes, corn, beef, goat meat, milk poultry and fish.

(Statista 2018; PWC 2018)

Top private companies with RE commitments:

Generation and demand: (e.g. type, MW, TWh)

The vast majority of Uganda's electricity generation emanate from large hydro, with hydro contributing 85% of grid power overall. The largest hydro facility was installed in 2012 known as the 250MW Bujagali plant, which almost doubled the nation's installed capacity at the time.

Electricity production	GWh
Large Hydro	2771
Small Hyrdro	311
Co-generation (mainly bagasse)	353
Thermal Heavy Fuel Oil)	78
Hybrid (Solar/Diesel)	0,311
Electricity production	3513,311

Source CIA Factbook 2015 (EST)
No IEA Statistics available

Figure 1. Electricity generation per technology.

Electrical Interconnection and import/export:

Uganda has electrical interconnection with neighbouring nations Tanzania and Kenya through its 132 kV power network. There are also lower capacity transmission lines (33 kV) connecting to Rwanda and DR Congo. In 2016, Uganda imported 50,000 MWh of electricity and exported a total of 165,000 MWh.

(Worldometers 2016)

Market Structure:

Uganda's power sector was restructured from 1999 after the government dissolved the monopoly obtained by the UEB (Uganda Electricity Board). Private investment followed, establishing a regulatory framework in the process. The market structure is organized into three separate entities. The Uganda Electricity Generation Company Limited (UEGCL), manages the electricity generation, Uganda Electricity Transmission Company Limited (UETCL), manages electricity transmission and Uganda Electricity Distribution Company Limited (UEDCL) manages electricity distribution. All the three companies are licenced and regulated by ERA.

(Vagliasindi and Besant-Jones 2013)

Responsible Government Department: (include key contacts)

Ministry of Energy and Mineral Development (MEMD) is responsible for promoting and manage the sustainable exploitation of Uganda's energy resources. It also steers policy development to ensure a favourable enabling environment for investment opportunities. Irene Muloni is the current minister.

<http://www.energyandminerals.go.ug/>

Electricity Regulatory Authority (ERA) is a statutory body which is responsible for regulating the entire power sector. regulating the generation, transmission, distribution, sale, export and import of electricity in Uganda. It also manages the licensing, electricity rates, compliance, safety, and other matters related to the electricity sector. <http://www.era.or.ug/>

Uganda Electricity Generation Company Limited (UEGCL) is responsible for the generation of electricity, and its sale within Uganda or as exports to neighbouring nations. <http://uegcl.com/>

Uganda Electricity Distribution Company Limited (UEDCL) owns the nation's electricity distribution network. It is charged with administering lease and assignment agreements and overseeing the completion of rural electrification projects. <http://www.uedcl.co.ug/>

Umeme – established in 2004 to take over the management responsibilities of UEDCL, now representing Uganda's main electricity distribution company. It sells electricity to energy consumers and improves efficiency within the overall distribution system. <http://www.umeme.co.ug/>

Uganda Electricity Transmission Company Limited (UETCL) is owned by the Ministry of Finance, Planning and Economic Development and acts as the only operator of the transmission system. <http://www.uetcl.com/>

Existing/Planned Energy Legislation: (is there a CPO)

Electricity Act- passed in 1999 defines the powers and corresponding funding for each subsector of the electricity industry. Its main features include the liberalisation of the sector, dissolution of Ugandan Electricity Board and the formulation of the ERA, Rural Electrification Fund and Electricity Dispute Tribunal.

Renewable Energy Policy – passed in 2007 to provide a framework to expand the share of renewable energy in the nation’s power mix energy mix, particularly from large hydro. It also mandated the continuous development of the legal and institutional framework supporting the renewable energy, reasonable financing and fiscal policy towards renewable technologies

Feed-in tariff (FiT) - introduced in 2007 to support the development and use of renewable energy sources for power plants up to 20MW. It states that IPPs enter a Purchase Power Agreement (PPA) with the UETCL.

(Mokveld and von Eije 2018)

Environmental Legislation for RE:

Existing/Planned Certificate Systems: (purpose, extent)

RE market potential:

Uganda is endowed with rich renewable energy reserves. Hydropower contributes the largest share of the nation's electricity generation, but there remains significant potential to be exploited. Large-scale sites with a potential of more than 1,500 MW have been identified as well as 59 mini hydropower sites with a potential of 210 MW. The effective capacity of hydro depends on the river Nile, which is suffering from variability induced by climate change. Droughts in recent years have caused a reduction in Uganda's hydropower production from 340 to 140 MW.

Uganda's large agricultural sector bequeaths the power sector with significant biomass potential. Uganda possesses a standing stock of biomass of 284.1 million tons, with a sustainable biomass supply of 45 million tons. The major contributors are eucalyptus, pine trees and cypresses. Currently, the sugar industry is the only agricultural sector producing electricity

Uganda is exposed to rich solar resources given its positioning along the equator. Average solar irradiation is over 5 kWh/m² /day, receiving between 1,825 kWh/m² and 2,500 kWh/m² per annum. Small PV systems are already in use across the nation's electrification projects. The Ugandan government intends to build a 500 MW utility-scale solar plant, separated into four separate parks worth 125 MW each.

Uganda's positioning in the East Africa Rift also gives them access to significant geothermal resources. Assessment studies are lacking but current estimates suggest potential could be converted into an installed capacity of around 450 MW (Bahati 2012)

(Mokveld and von Eije 2018)

Market risks and challenges:

Several NGO's and private companies have provided low quality PV products without sufficient post sales service.

In the past quite a few NGO's and companies have been active in Uganda and have provided low quality pv products without providing sufficient after sales service. This has harmed the image of solar products in Uganda which could affect companies offering pv products

Extent of Engagement with Government: (brief summary of any contact already made with the national government regarding certification in general and I-REC)

Expected response from Government:

Current Environmental Reporting in Energy:

Any other Relevant Information:

In 2013, the GET FiT programme was launched by the UN's advisory group on Energy and Climate Change and Deutsche Bank's Climate Change advisors focused on driving renewable energy investments in low to middle-income countries. It aims to assist Uganda "in pursuing a climate resilient low-carbon development path resulting in growth, poverty reduction and climate change mitigation by facilitating private sector involvement and improving the framework conditions for private investments in renewable energy" (GET FiT 2019).

Report Prepared by	Travis Caddy
Contributors	
Preparation Date	

Code Manager Observation

Copyright I-REC Services B.V.