

**Growth Week 2016**

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Perspectives on Energy Supply, Access,  
Efficiency and role of renewables

Uganda's Case

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# Country Profile

## ❖ Geography

Uganda is a landlocked country located in Eastern Africa that borders the countries of Democratic Republic of the Congo, Kenya, Rwanda, South Sudan, and Tanzania.

## ❖ Population

34.9 million, 70% in rural areas. Growth rate: **3.4%**.

## ❖ Economy

GDP growth stands at an average of 5%, reducing to poverty from 56% in 1992/93 down to 19.7% by 2012/13.

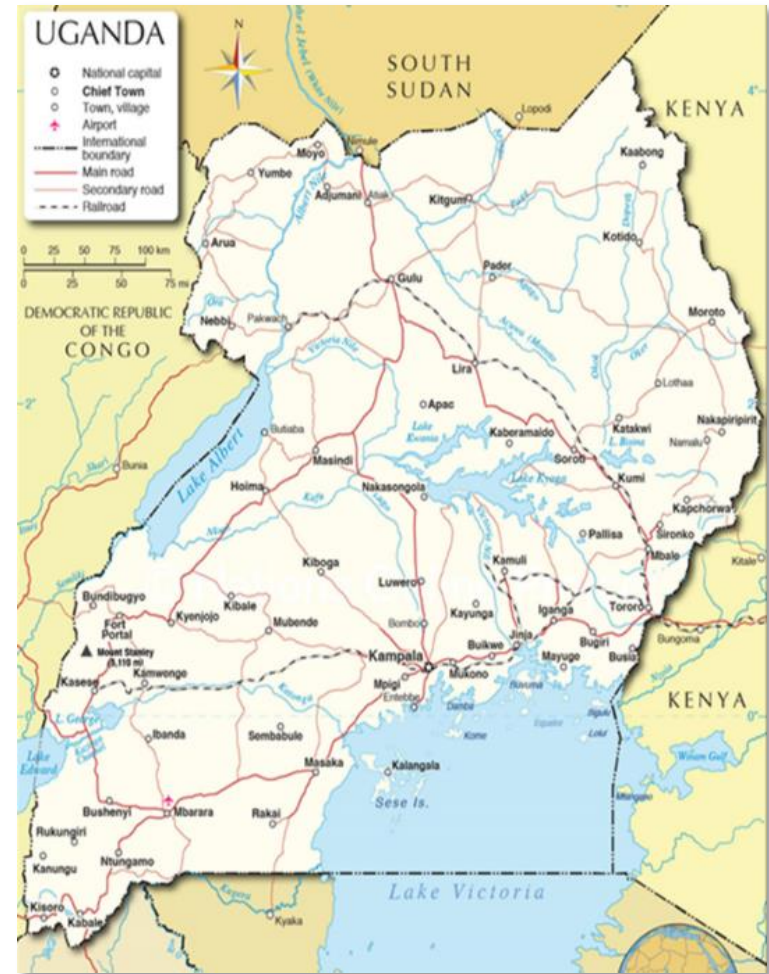
- Average GDP growth is about 5%.
- GDP per capita is **570 USD**.

### GDP COMPOSITION

Industry  
27%

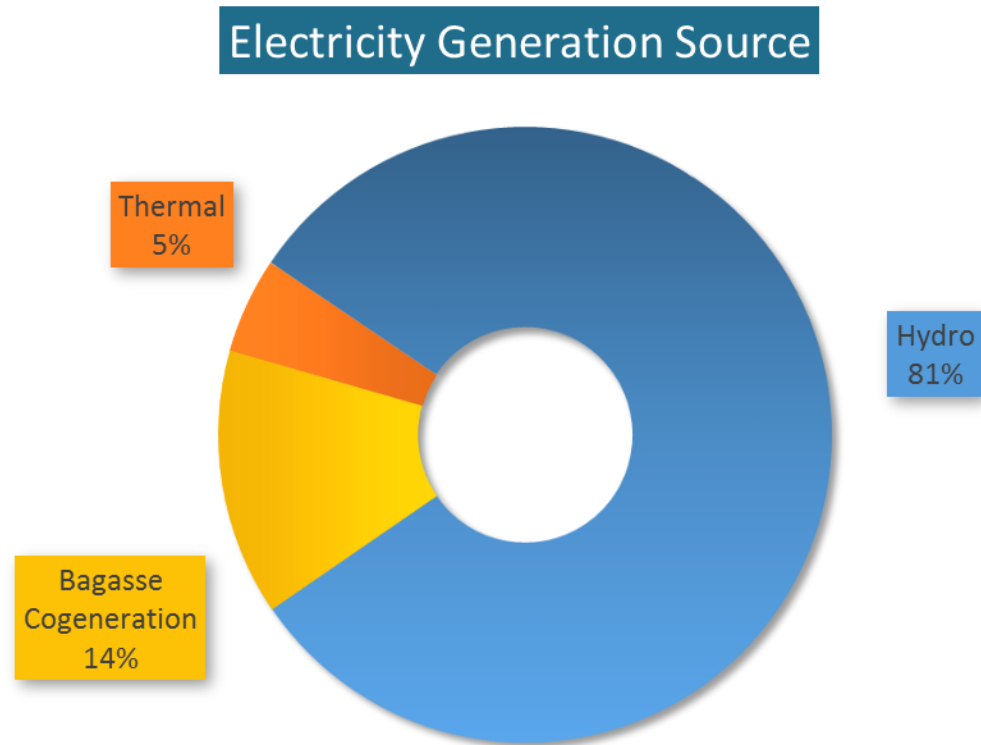
Services  
50%

Agriculture  
23%



# Electricity Supply

- ❖ Installed power generation capacity up to 873.7MW – mainly by hydro.
- ❖ Access to electricity is one of the lowest in Africa – National 20%, Rural 7%.
- ❖ Per capita electricity consumption low at 100 kWh p.a. (Kenya: 155 kWh, Ghana: 300 kWh, South Africa: 4,694 kWh).



# Strategies for increasing Power Supply

- Development of the large hydropower plants
  - Karuma Hydroelectric Project (600MW) and Isimba HPP 183 MW are under construction.
  - Ayago 840 MW, Kiba 290 MW and Orianga 400 MW to be developed in the medium term.
- Renewable Energy Generation Projects.
  - Over 160 MW small hydros being developed.
  - There is good solar radiation 5.1 kWh/m<sup>2</sup> of solar energy with Solar PV of 20 MW under construction and off-grid applications both home systems and institutional systems.
  - Cogeneration using bagasse Kinyara Sugar Limited 30 MW and Sugar Corporation of Uganda Ltd 16 MW.
  - Geothermal, 200 MW still under investigation.
- Generation of power from Peat 33 MW in Kabale.
- Use of indigenous petroleum resources for thermal generation. (50 MW).

# Role of Renewable Energy Cont'd

**Renewable Energy is key to addressing some of the challenges in the sector in the country.**

- ❖ Diversifying the energy mix.
- ❖ Mitigating climate vulnerabilities.
- ❖ Meet the country's energy needs.
- ❖ Improve energy access especially off grid systems since the RE is distributed through out the country.
- ❖ Reduce environmental pressures.
- ❖ Create of “green” jobs.

# Strategies for Increasing Energy Access

- Rural Electrification fund was established
- Rural Electrification Agency put in place to carry out work related to increasing access to electricity.
- A Rural Electrification strategy and Plan has been developed.
  - Goal: To achieve a rural electrification access of 26% by 2022 from the current level of 7%.

Using the Rural Electrification fund, several Projects are implemented. These are categorized as follows:-

- Large and medium scale grid extension projects.
- Small community schemes within proximity of service provider footprints where communities contribute about 30% of the project cost.
- Independent grids for closely settled communities which cannot access the grid in the near future
- Provision of solar Photo voltaic systems for dispersed households or buildings.

# Power Loss reduction in Distribution network

- Power losses in the distribution network have been reduced from 30% in 2010 to 19 % in 2016.
- This has been achieved through the implementation of a loss reduction strategy which includes:
  - tackling issue of power theft,
  - introduction of prepaid meters,
  - replacement of bare conductors with Aerial Bundle Cables (ABC),
  - Introducing Automated Meter Reading (AMR) for large customers and
  - eliminating unmetered customers.

# Energy Efficiency/DSM Strategies

- Introduction of the energy management standard such as ISO 50001 among high energy consuming facilities.
  - this is based on the management system model of continual improvement also used for other well-known standards such as ISO 9001 or ISO 14001.
  - with this it easier for organizations to integrate energy management into their overall efforts to improve quality and environmental management.
- Consumer education to raise awareness regarding efficient utilization of energy.
- Mandatory Minimum Energy efficiency standards
- Labeling of equipment with an energy rating label
- Promote use of efficient technologies such as efficient lamps.
  - Government first distributed 1,000,000 CFIs this reduced peak demand by 30MW.
  - Now distributing Light Emitting Diode (LED) lamps. May reduce demand by 25 MW.