Electricity transmission: From 730 to 3,220km

19 SUBSTATIONS

Currently, UETCL operates 19 substations; sixteen of which are of 132kV capacity, while three are 220kV capacity. The 220kV capacity substations are Masaka, Mbarara, Kawanda and Bujagali switch yard.

Currently, the company is currently developing three projects under the Karuma interconnection project and one of them, the Karuma-Kawanda line, is expected to be of 400kV capacity, the first of its kind.

Other prospective lines are Bujagali-Tororo-Lessos, Mbarara-Mirama, Tororo-Opuyo-Lira, Opuyo-Moroto and Nebbi-Gulu-Arua lines

Once completed, the lines are expected to foster reliability in supply and aid the country interconnect with neighbouring countries; evacuate power from generation plants, extension of the grid to support government programmes and reinforcement of capacity to meet the increasing demand.

BY BENON OJIAMBO

Going down the memory lane in 1948, the former Uganda Electricity Board (UEB) was formed.

A year later, the contract for development of Owen Falls Dam, Uganda's first hydro-electricity generation plant, was awarded to M/S Christiani and Nielsen at a cost of £3.6m (about sh17.33b today).

The dam was commissioned by Queen Elizabeth in April 1954 and this marked the start of renewable energy in Uganda.

UEB went on to operate and maintain the electricity value chain from generation, transmission to distribution segments until 1999, when it was unbundled.

By this time, UEB was generally characterised by inefficiencies, including unreliable and poor quality power supply, lack of adequate internal capacity to manage its large generation, transmission and distribution portfolio, low customer numbers amidst high losses.

The board was also operating under a period of political turbulence that curtailed the economic performance.

The coming to power of the NRM government after a five-year guerilla war ushered in a period of relative peace, security and a number of reforms that were aimed at reviving economic activities and growth.

REFORMING THE ENERGY SECTOR

Specifically to the electricity sub-sector, many African countries, Uganda inclusive, undertook energy reforms that, among others, led to privatisation of the state-led agencies.

In the 1990s, Uganda was operating only three electricity lines that were evacuating power from Nalubaale, covering a distance of about 730km

Uganda also had three substations of 132 kilovolts (kV), from where power would be distributed to different areas.

"The country had only three 132kV transmission lines on wooden structures. These would connect to the substations of Tororo, Mulago and Mutundwe," says Pamela Byoruganda, the Uganda Electricity Transmission Company Limited (UETCL) principal communications officer.

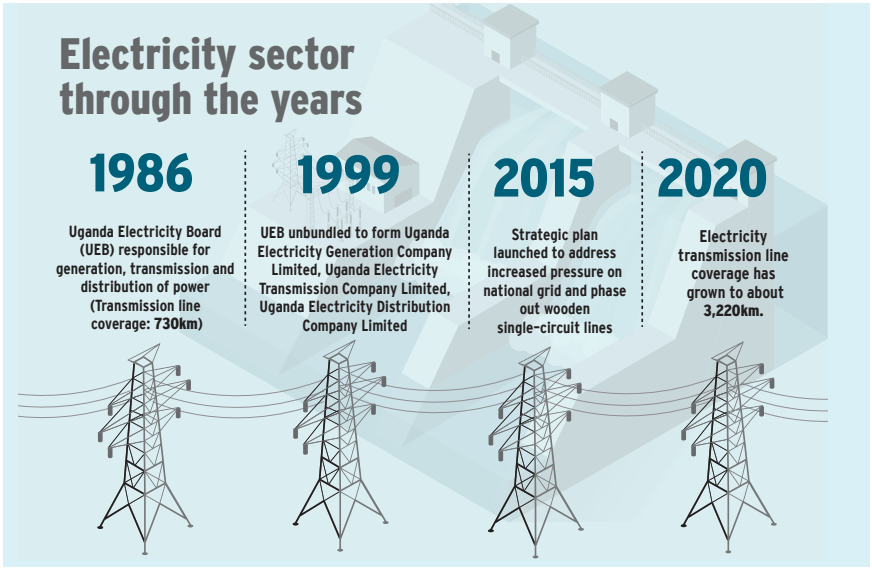
Byoruganda adds that there were also 19 substations of 33kV capacity and a single switch yard at the Nalubaale plant in Jinja.

Some of the 33kV substations at the time included Port Bell, Masaka, Mbarara, Queens Way and Lugogo

From the 132kV substations, electricity would be stepped-down to reduce its voltages to those that could be used in homes and factories, before supplying different regions of the country.

At Tororo, power would be stepped-down to 33kV to supply both the northern and eastern regions of the country through areas of Mbale, Soroti and Lira, as well as Kenya through regional trade.

At Mutundwe, electricity would be stepped-down to supply areas of Masaka, Mbarara and other western regions.



Using the Government money from the Energy Fund, we have supported the expansion of generation of power in Nyagak, said President Yoweri Museveni

THE REFORMS

The 1999 Electricity Act that unbundled the former UEB paved way for the formation of three sequential companies to handle generation, transmission and distribution segments of the electricity supply industry in the country.

The Act established UETCL as the sole buyer of all electricity generated at wholesale price and sell it to different distribution companies who sell it to final consumers.

Contextualising this in a retail business setting, generation plants like Isimba, Nalubaale, Bujagali and among others are the manufacturers of electricity.

They sell power to UETCL, who is the wholeseller in the electricity distribution chain that transports the utility to different substations (load centers) in bulk.

UETCL then sells the electricity to distribution companies like Umeme, Uganda Electricity Distribution Company Limited (UEDCL) and others that sell it to the final consumers.

The company operates the country's transmission system network that is commonly known as the grid.

STRATEGIC PLAN

Faced with growing generation capacity and increasing pressure on the grid due to rising demand that could not be sustained by the old wooden structures, the company in 2015 launched its five-year corporate business plan, through which it sought to phase out wooden single-circuit lines.

The plan also intended to double the then transmission line coverage from 1630km to over 3,000km.

Byoruganda says today the grid network has grown to about 3220km of the grid and so has the number of substations.

She attributes this to the Government that has been crucial in securing funding for the projects through loans, grants and counterpart funding for compensation.

"Investment has increased tremendously through the years with implementation of new projects," she said.

The electricity subsector, like other sectors like works, have been prioritised by government to unlock its fortunes for economic development.

"Using the Government money from the Energy Fund, we have supported the expansion of generation of power in Nyagak, where, the licensed developer could not complete the project. Our support has mainly been in the area of building transmission lines," President Yoweri Museveni said during the State of the Nation Address in 2017.

"Using Uganda Government money, we have extended transmission lines to the following areas: Kakumiro, Kibaale, Kagadi, Muhorro-Muziizi tea factory to Kyenjojo; Kanungu-Rugyeyo tea factory; Rukungiri-Kanungu and many other areas," Museveni added.