**SMART METERS: NEW DIGITAL FRONTIER FOR ELECTRICITY DISTRIBUTION COMPANIES**

A lack of accurate and timely data on electricity use has caused consumers’ uproar on the over-charged bills and has prevented them from monitoring, managing and/or reducing their power consumption. Today, utilities are thus moving to smart meters and grids as part of long-range plans to ensure a reliable energy supply, incorporate distributed generation resources, develop innovative storage solutions, reduce the need to build new power plants and enable customers to have more control over their power use.

**The current state of affairs**

There are reported instances of consumers’ outrage and long queues at Kenya Power’s office as consumers sort clarification on their over-quoted electricity bills. For the company, it has been a hard task to balance between collecting unpaid bills and do meter readings to enable them take actual power units rather than make estimates.

In a move geared towards transparency, accuracy and timely monitoring of electricity bills, outages and supplies, Kenya Power, has already introduced and began the use of smart meters for its commercial customers.

So far, Kenya Power has installed 5,967 smart meters at premises of large power consumers who consume above 15,000 units of power on a monthly basis and in total, 15,736 smart meters have been installed for large and small power consumers.

**Innovation in a stagnant industry**

Governments around the world have already done the cost-benefit analysis and the impact of installing smart meters for consumers. For instance, in Great Britain, every home and small business will be offered a smart meter and will be delivered as cost-effective as possible by the end of 2020.

Remarkably, new technologies in smart meters and smart grids are now providing companies with first-time capabilities for forecasting demand, shaping customer usage patterns, preventing outages and optimizing unit pricing.

The information collected helps draw patterns of usage across networks thus aid network planning and development, including future smart energy systems.

**The underlying driver for smart meter technology**

Smart metering is one way to towards transformation of the way electricity is produced, transmitted, distributed and managed.

Typically, meter readers are required to make rounds on a monthly cycle to collect data from individual meters. First, this contributed to the environmental degradation through continuous emission of carbon dioxide gas from fuel fumes of cars and/or motorbikes used. Secondly, this exercise is time-consuming and is marred by data inconsistency. Sometimes, no meter reading happen at all for many reasons such as closed gates or unfriendly canines.

Unlike the case above, smart meter systems take an instrumented approach, automatically collecting and transmits the reads at regular intervals or on demand. Digital sensors in smart meters collect the data and through an advanced communications networks, transmit that data for analytics.

**Taking the industry to a new level**

This solution is now helping utilities around the world become more interconnected, integrating data across their territories to improve productivity, manage peak demand, meet regulatory responsibilities head-on and empower their customers to conserve energy.

Overall, the solution adds a layer of intelligence throughout the grid to enhance system reliability and efficiency, improve management of supply and demand, and optimize operations whilst streamline costs.

In Kenya, the continued installing and use of these smart meters can be attributed to the advancing technology, internet and network stability.

**What Smart Meters mean for Kenya**

These smart meters will enable Kenya Power effect President Uhuru Kenyatta’s directive on electricity incentives (reduced night tariff) for manufacturers who will be using electricity between 10pm and 6am.

This is the point at which utility and telecommunication companies converge in a bid to provide and optimize technologies such as in smart readers for the benefit of consumers and the utility companies alike. Liquid Telecom is among ISPs in Kenya offering networking capability for smart meters in the country.

Technically, smart meters need some kind of network technology to enable them establish a two-way communication from the meter to utility company and back. This communication can be via fixed wired connections or wireless technology.

Even so, wireless technology is widely preferred and includes cellular communications, Wi-Fi, wireless ad hoc networks over Wi-Fi, wireless mesh networks, low power long range wireless (LORA), ZigBee (low power low data rate wireless) and Wi-SUN (Smart Utility Networks).

Overall, the use and diversification of these technologies in the country is critical especially at this time when the Kenya Power is targeting to increase the rate of electrification in the country and achieve universal electricity access in the country by 2020.