

Volume 1 | Issue No. 8 | December 2020

The

GRID

The Kenya Electricity Transmission Company Newsletter

**400 kV Olkaria - Lessos - Kisumu
Transmission Line Project to light up
Western Kenya**

**KETRACO shines at KISM
Awards Gala for adopting
E-Procurement in the region**

Know your Manager

Mr. Johnson Muthoka shares his experience
in wayleave acquisition and management



KETRACO O & M Team patrol transmission lines to identify faults and undertake remedial work to avert breakdown. Craftman Johnson Kapsowe (Above) poses for a photo atop 400 kV Suswa - Isinya TL during maintenance works on the line.



“Suswa High Voltage Direct Current (HVDC) Converter station is in the final stages of construction at 99% complete. The converter station is a component of the 1045Km 500KV HVDC Ethiopia - Kenya transmission line which is also in its final stages of construction at 98% .”

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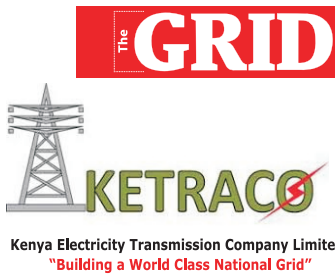
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Editors' note

The eighth edition of your favorite official and authoritative quarterly journal; The Grid is here! True to our words, we have reviewed our page layout, improved in content quality and diversity, and expanded on our network of contributors.

In this issue we share our experience working under the new normal, occasioned by the devastating impact of the Novel Corona Virus Disease 2019 (COVID-19) that has adversely affected work and paralyzed the World economy – placing many nations on an auto-pilot mode.

We share with you stories of some of our game changing transmission projects that are nearing their final stages of completion and the impact they shall have on the national electricity grid and the economy in general.

The appointment of a member of our Board of Directors, Mr. Joakim Kamere as Deputy Head of Mission in Kenya's high Commission in London became our highest point this season.

We share the joy of winning the highly coveted Kenya Institute of Supplies Management (KISM) Best ICT adoption in Supply Chain Award of the year 2020 for being the first government parastatal to fully go digital in her procurement processes. We also celebrate our electrical engineer Winfred Mwendu Mutinda for being the 2020 Philanthropy Award Winner at Africa Queen of Energy Awards Conference 2020, sponsored by the Ministry of Energy. The following colleagues have also been awarded the National Honors, Ag. GM Design and Construction Eng. Anthony Wamukota Tawayi (OGW), Winfred Mutinda Mwendu (HSC -Civilian Division),

Systems Administrator Mr. Lawrence Kirui (HSC – Civilian Division) and Electrical Engineer Ms. Carol Ofafa Awuor (HSC – Civilian Division)

Our Managing Director FCPA Fernandes Barasa, OGW gives a brief on the work environment during COVID-19 disruption.

He delves into the 300km 400/200kV Olkaria – Lessos – Kisumu transmission project and the 612km 500kV Eastern Electricity Highway Project (Ethiopia – Kenya interconnector).

The Olkaria – Lessos – Kisumu transmission project will strengthen the link between the South Rift, where there exists massive geothermal potential and Western parts of the grid where demand is fast growing and has insufficient supply while the Ethiopia – Kenya interconnector will enable power trading within the East African region and eventually the Southern Africa Power Pool.

Chairman of KETRACO Board of Directors, Hon. Eng. James Rege, CBS unearths the vast potential of Fiber Optic (OPGW) as a source of revenue to the electricity transmission utilities, explaining the rising demand for higher bandwidth and faster speed connections for a variety of industrial and residential purposes. He says fiber optic transmission is becoming more and more common in modern society, where optical fibers are used as a medium for telecommunication and networking because it is flexible and can be bundled as cables.

Senior Health, Safety and Environment Officer Winstone Audi explores how organizations can improve their operations without sacrificing worker safety. KETRACO's Senior Manager Wayleave Acquisition Vlr. Johnson Muthoka shares his wealth of experience and gives insight into the challenging work of wayleave acquisition and surveys which is the pillar for transmission line construction. His career path as shared in our page "Know Your Manager" gives admirable background and experience many young employees could find useful.

The editorial team is open and always ready to note your experiences for action. Please share your comments and suggest ways you think we could instill further improvements to our journal and which stories you would like captured in the future. Enjoy your read!

Raphael Mworira

WORD FROM MANAGING DIRECTOR, FCPA FERNANDES BARASA, OGW
RELIABLE POWER GRID KEEPING PEOPLE CONNECTED AT HOME AND
RUN LIFE-SAVING EQUIPMENT IN HOSPITALS DURING AND AFTER COVID



Pandemics have characteristics of exerting pressure on every part of a country's economy and disrupting the way of life in societies. The upsurge of Coronavirus disease (COVID 19) placed many nations on an auto-pilot mode without clear indicators on when the situation could possibly take a downward curve to

pave way for resumption of normal way of living.

As the virus continues to spread, the most commonly preferred preventive measures are an experience many countries have not been comfortable implementing. Social distancing and stay-at-home measures, remains some of the most effective primary protocols in controlling the disease spread and have been adopted in many countries.

The authorities in Kenya promote the “stay-at -home policy” where possible, based on the reality that populations have access to reliable and efficient electricity to stay connected and continue to communicate with one another and access public services remotely.

This development re-affirms that our country's capacity in terms of power transmission network is sufficient, not just in the COVID-19 viral era, but at all other times. The nation has enough electrical power and energy to supply all connected Kenyans.

Attaining this level of effectiveness in national grid is a major milestone that we have achieved in line with our mission at the Kenya Electricity Transmission Company (KETRACO) - to provide reliable, efficient and effective transmission and promote power trade for sustainable socio-economic development.

KETRACO has made significant stride in lowering losses that translate into system efficiency, thereby lowering the risk and chances of total national black-outs. Indeed, as we strengthen the transmission grid, the total national blackouts frequency has been getting lower.

Technically, with lower national power demand (large power consumers such as manufacturers scaled down due to high operational costs), the system becomes harder to manage with rising system voltages over higher voltage lines.

Our technical and other teams have been on standby to tackle any challenge that may arise to make work possible for hospitals and health services providers as they attend to critical patients with equipment that rely entirely on electricity.

Our relentless efforts have ensured medical services remain uninterrupted whereas cold chain and refrigeration have enabled rural, vulnerable populations get access to vaccines. This progress clearly distinguishes the electricity sector as a critical player (electricity being an enabler) in efforts to flatten the COVID – 19 curve and enable Kenyans to resume normalcy.

In spite of the strides made, there is still need to hasten extension of grid in an optimal manner to reach more Kenyans and increase reliability of the commodity.

KETRACO is making progress in terms of ongoing projects during and after COVID-19 era. There are massive technical undertakings to ensure existing infrastructure is sound (minimize power interruption through effective and efficient Operation and Maintenance activities).

There is however need to peep into the post COVID-19 era and position the company to support economic and social recovery. This calls for fast-tracking ongoing projects such as Olkaria-Lessos-Kisumu transmission line project (OLK), Olkaria – Narok and Sondu-Ndhiwa so that customers in regions like Western Kenya, including Southern Nyanza have a well powered recovery season.

Effective and reliable evacuation of power generated to the bulk distribution centers (for the distributing agencies to take it further to the end users at lower voltages) remains an integral component of our mandate. This specifically includes Loiyangalani's Lake Turkana Wind Power Project (LTWP) and Garissa Solar power evacuation, Olkaria Geothermal evacuation to Nairobi and Coast.

KETRACO sub-system ensures that cheaper and cleaner energy continues to flow un-interrupted to customer bulk supply points. A stable grid backbone ensures bulk supply continuity and availability.

KETRACO sub-system has been designed to improve system stability in terms of improving the extent of N-1 contingency criteria requirement. This means the system has been designed and operated in such a manner to ensure that during normal operation the loss of one segment (a line or transformer) does not cascade into an emergency situation.

We have put in place measures to ensure urgent completion of Western oriented projects to ensure stability of the post COVID-19 recovery especially OLK displacing the expensive diesel powered system at Muhoroni substation.

This project will improve voltage profiles, solve the overloading on transmission lines from Naivasha-Lanet, Lessos-Muhoroni and Muhoroni-Chemosit and improve Western Kenya system resilience during system disturbance.

Speed of deployment for such solutions is critical in the eye of a pandemic. Off-grid decentralized renewable power can also provide an answer to this challenge for many vulnerable communities.

FIBER OPTICS AS IMPORTANT REVENUE SOURCE FOR POWER TRANSMISSION UTILITIES

Dark fibers and communications services are beneficial to customer beyond provision of electrical power.

By Hon. Eng. James Rege, CBS

Many electricity utilities are installing high capacity fiber optic cables and wires on their high voltage lines to satisfy their own internal communication needs and to gain additional revenue by leasing excess capacity to the telecommunication network providers (telcos).

For about three decades now, electrical utilities have been installing optical fiber to monitor and control the diverse elements of their transmission and distribution networks as well as provide for their communications needs.

Within the power utility industry, reliable internal communications are vital to ensure protection and control of the power system.

The grid - the simple term used to describe the complex network of power generating stations, substations and alternative-energy sources connected on transmission and distribution wires - requires management.



These electrical energy solutions can not only allow people in the affected areas to access the healthcare they need now, but can also be an investment into the clean, sustainable energy infrastructure for the future.

The experience gained from the COVID 19 outbreak calls for strengthening electrical energy solutions to power health facilities. The medical facilities need to deal with emergencies during the pandemic, distribute and administer safe therapeutics and when approved, vaccines for the virus, requiring uninterrupted cold chains.

Increase in reliable, uninterrupted and sufficient electrical energy supply in preparation for a more sustainable economic recovery will also ensure Kenya makes use of affordable electrical energy sources that can help the economic recovery in the aftermath of the corona virus pandemic.

This could allow the country to recover better and create a whole-economy approach to ensure universal sustainable electrical energy access – in turn helping place the national economy on a trajectory in line with the Sustainable Development Goals (SDGs), Millennium Development Goals (MDGs) and the government's Big Four Agenda.

The growing supply of alternative-energy sources, such as solar, wind, geothermal and battery storage, complicates the grid-management problems due to their variations in supply of electricity over time.

With the advent of digital fault protection systems, integrated power systems automation signal densities are increasing; and fiber optics can offer a unique solution to the ever increasing demand for bandwidth because of its remarkably high capacity for carrying data – single pair of fibers can carry nearly 8,000 simultaneous voice channels.

The realization that the electrical grid is vulnerable to hacking and sabotage has increased the desire to develop secure, fiber-based management networks.

Synchronization and management of electrical generation and distribution are complex functions that require comprehensive communications networks.

Those networks are a combination of copper, fiber and wireless that have developed over more than a century of increasingly complex electrical grids.

Electric utilities also have extremely valuable resources, the rights-of-way that allow them to install fiber optic cables to connect and manage their grid.

They also offer dark fibers and communications services to others and use the fibers for the benefit of their customer beyond providing electrical power.

This has become an important source of revenue for utilities seeing a loss of profit because of conservation and the growth of alternative-energy sources.

The immunity of the fiber optics to the electromagnetic interference is another advantage for its use in power delivery systems as long as care is taken to shield any terminal and repeater stations.

Typically, there are no radiation or frequency assignment difficulties as commonly experienced with power line carrier, intra-bundle, and microwave communications systems.

Also fiber optics increase the security of the transmission systems since the technology virtually eliminates the unauthorized monitoring of vital communications.

Fiber optics do not require coupling devices or other specialized connectors and can easily and cost-effectively be integrated into any digital network.

With the development of high strength-top-weight ratio insulating materials, all-dielectric self-supporting (ADSS) cables are currently becoming available that are suitable for overhead power lines with span lengths of up to 1000 meters.

Already most transmission companies use optical fiber cables interfaced on their power lines to forward data related to the operation of their power transmission network; telephony, remote information, remote control etc.

In some cases, the bunched optical fibres are integrated in the guard wire that links each transmission tower top to the next one, to protect the power line against lightning and discharge fault currents into the earth.

In other cases, the bunched optical fibres are wrapped around the lightning protection wire or one of the line's power cables.

Optical fibers have largely replaced copper wire communications in core networks in the developed world, because of its advantages over electrical transmission.

According to a report by Global Newswire, global fiber optics market was valued at around USD 2.75 billion in

2016 and is projected to reach approximately USD 3.72 billion in 2022.

These statistics show fiber optic transmission is experiencing its prime time and will change telecommunications greatly.

Driven by the rising demand for higher bandwidth and faster speed connections for a variety of industrial and residential purposes, fiber optic transmission is becoming more and more common in modern society.

Optical fibers are used as a medium for telecommunication and networking because it is flexible and can be bundled as cables. It is especially advantageous for long-distance communications, because light propagates through the fiber with little attenuation compared to electrical copper cables.

Installing fiber optic cable along transmission lines using current towers is quite common among electrical utilities.

There are many ways to install fiber optic cables on these towers. One choice is optical power ground wire (OPGW). This conductive cable is run at the top of the tower or pole to be the ground conductor and protect the power cables from lightning.

OPGW is simply a metallic power cable with a stainless tube in the center that contains a number of fibers. The fiber, being a dielectric, is nonconductive and immune to electrical interference. OPGW is an obvious choice when installing a new transmission line.

Usually, a fiber optic communication system consists of three main components: optical transmitter, fiber optic cable and an optical receiver.

The optical transmitter converts electrical signal to optical signal; the fiber optic cable carries the optical signal from the optical transmitter to the optical receiver; and the optical receiver reconverts the optical signal to electrical signal.

The most commonly used optical transmitter is semiconductor devices like LEDs (light-emitting diodes) and laser diodes. Photodetector is the key part of an optical receiver. It converts light into electricity using photodetector effect.

Fiber optic transmission is widely used for data transmission and is increasingly being used in place of metal wires because of its efficiency and high transmission capacity. We have seen the fiber optic cables replace traditional copper twisted-pair cable or coaxial cable.

As the use and demand for great bandwidth and fast speed grows, there is no doubt that fiber optic transmission will bring more opportunities and be continuously researched and expanded to cater for future demands.

KETRACO TRIO ATTAIN HUMAN RESOURCE PROFESSIONAL CERTIFICATION AFTER COMPLETING COURSES

By Ivy Nyangara

As professionals, one is required to undertake various professional certification courses in their careers to enhance their competencies in the execution of their roles at the workplace.

Human Resource professionals are not unique to this requirement. As outlined in the Human Resource Management Professional (HRMP) Act, 2012, it is a requirement for professionals who practice in this field to take the Certified Human Resource Professionals (CHIPR) examination.

This helps in assessing their HR knowledge, practical skills and required attitudes for effective delivery of human resource management services at the workplace.

It is against this background that KETRACO's Human Resource officers Dr. Joshua Amwayi, Mr. Gershon Ochieng and Mr. Rashid Kangwana Gituura chose to pursue the two-year certification course. The course takes at least six months for students with approved exemptions.

It took Dr. Amwayi and Mr. Gituura six months to complete the course while Ochieng took one and half years for the same course.



KETRACO Ag. General Manager, Human Resource and Administration Ms. Reginah Kemboi, when she received three Human Resource officers; Dr. Joshua Amwayi (Left), Gershon Ochieng (2nd left-) and Rashid Kangwana Gituura (Right) who became Certified Human Resource Professionals (CHIPR-K) upon graduating on 25th February 2020.

Dr. Amwayi and Mr. Gituura got exemptions in 19 units out of the mandatory 22 units while Mr. Gershon was exempted in twelve units. The cluster allows one to undertake two units per semester, which runs for six months. Students are examined twice a year in two series of June/July and November/December.

The Certified Human Resource Professionals examination is divided into three parts: CHRP I, CHRP II and CHRP III. CHRP I is for entry level into the HR profession with no prior background. It comprises of levels one and two, with a total of ten units; five at each level.

CHRP II provides a transition from the basic level to the intermediate level. It consists of levels three and four, with a total of eight units, four in each level. CHRP III prepares the candidates for the topmost management level and comprises of levels five and six, with a total of six units, three in each level.

While pursuing the certification course, Joshua, Gershon and Rashid learnt that upon successful completion of the CHIPR examinations and presentation of the certificate to Kenya Electricity Transmission Company Limited (KETRACO), they would receive a seventy-five percent reimbursement of their tuition fee.

This is because they had followed the recommended company procedure by notifying the company's Human Resource Advisory Committee (HRAC) of their intentions to pursue the professional certification which was then approved.

However, completing the course was not a walk in the park as the trio experienced several challenges to qualify as Certified Human Resource Professionals.

The biggest challenge was travel logistics between KETRACO offices in Nairobi's South C and the college - Kenya College of Accountancy (KCA) - in Survey area along Thika Road. The classes would begin at 5:00 pm while official working hours at KETRACO end at 4:30pm.

KETRACO DIRECTORS INSPECTS WORK PROGRESS

By Elizabeth Oriago

Phase four of our Board of Directors inspection and benchmarking tour of the transmission projects under implementation took place from 17th to 21st February 2020. The directors visited the transmission line projects traversing Western Kenya and the Rift Valley region which include; the 500kV 612km Ethiopia-Kenya interconnector, the 220kV 138kmTurkwel-Ortum-Kitale line, the 400/220kV 300km Olkaria-Lessos-Kisumu line and the132kV 100km Sondu Homa-Ndhiwa-Awendo line.

Led by the Chairman, Hon. Eng. James Rege, CBS the directors present for the tour included Dir. Lizzie Chongoti, Dir. Grace Ndugu, Dir. Kariuki Muraya, Dir. Joseph Kariuki, Dir. Joachim Kamere and Dir. Philip Mong’ony.

At Maai Mahiu, the directors appreciated the parcel of land set aside for the construction of a substation to power the Special Economic Zone (SEZ) in Naivasha.

They were informed that a feasibility study was currently underway before the construction works for the said substation could be undertaken. They called for a speedy conclusion of the preliminary stages of the project to pave way for the construction works of the substation.

They also visited earthing ground works for Ethiopia-Kenya transmission line project.

They recommended for enhanced protection of the underground copper at the electrode site. They also called for installation of Satelite Communication (SATCOM)for system stability.

The directors appreciated ongoing works at the converter substation which is nearing final stages of construction. The contractor in his brief to the Board gave April as the probable date for completion of work.

They also visited the Marula Ranch sections of the Olkaria-Lessos-Kisumu transmission line project that have been cleared for survey works, where they were informed that negotiations were still on for the remaining section subject to flower firm's and Kenya Wildlife Service (KWS) concurrence on route adjustments.

At Kedong’ ranch, along the Olkaria-Lessos-Kisumu transmission line project, it was reported that negotiation was at an advanced stage, as wayleaves continue with compensation process.

Directors called for speedy payment process towards all aspects of the wayleave process.

It was also noted that delay in approval of loan extension by the Financier, JICA, since last year August has affected LC, whose validity directly affects manufacture and shipment of materials to site. This has mainly impacted on Lot 1 contractors (KPTL-KINDEN JV). This has slowed down work along O-L-K. KETRACO is currently implementing projects totalling about 2,500km of transmission lines and substations that comprise approximately 1,014km of 132kV, 140km of 220kV, and 2,064 km of 400kV High Voltage Aternating Current (HVAC) lines as well as 612km of 500kV High Voltage Direct Current(HVDC) line and associated substations.



KETRACO Board Chairman Hon. Eng. James Rege, CBS (Right), Managing Director FCPA Fernandes Barasa, OGW (2nd left) and Director Arch. Muraya Kariuki (2nd right) confer with a KWS officer during a Board Tour of OLK Transmission Line Project

KETRACO'S 400kV OLKARIA – LESSOS – KISUMU TRANSMISSION LINE TO EVACUATE GEOTHERMAL POWER ,LIGHT UP WESTERN KENYA

By Jack Nduri

Anticipation is high as traders and communities living in and around the Western Kenya region ready themselves for the first ever 400kV electricity power supply to the region.

The Kshs 12.47 Billion Olkaria-Lessos-Kisumu high voltage transmission line project is expected to herald the birth of a new dawn and completely alter the economy of Western Kenya region where manufacturing, hospitality and domestic sectors have suffered serious fluctuations and unreliable electricity supply.

The high voltage transmission line project being undertaken by the Kenya Electricity Transmission Company (KETRACO), according to the Company's CEO FCPA Fernandes Barasa, is expected to stabilize power grid and radically turn around the local economy once and for all. It will evacuate power from Olkaria to Western Kenya and facilitate power exchange between Ethiopia, Kenya, Uganda and Rwanda.

The 400kV 290km line dubbed Olkaria-Lessos-Kisumu (OLK) transmission line project which entails the construction of a double circuit transmission line between Olkaria II and Kisumu (Mamboleo) substations via Lessos substation together with the associated substations, says Barasa, is one of the major undertakings expected to be a game changer in the targeted region and play pivotal role in the regional power pool upon completion.

The line, he says, evacuates reliable geothermal power which, apart from being associated with many environmental benefits like reduction of carbon emissions and environmental pollution, brings along numerous direct gains to both national and regional economies. It is designed to re-enforce supply system from Eastern to Western parts of Kenya.

“This project, when completed and commissioned, will take the region by storm, increasing power supply reliability and capacity to meet the requirements of energy demand for social and economic development of the region and the entire country,” says Eng. James Rege, chairman of KETRACO Board of directors.

“The line is expected to transmit clean, renewable energy generated from Olkaria thereby enabling a stable distribution of electric power to Kenya's Western region and allowing power interchange from/to Uganda,” Rege says.



Energy CS Hon. Charles Keter, EGH when he carried out inspection on the ongoing stringing works on Olkaria - Lessos - Kisumu line at Naivasha area. The project is scheduled for completion end of January 2021.

Farmers, manufacturers, welders, service providers and even domestic consumers are upbeat about the high voltage transmission line project that's expected to fix the incessant power dips and enable the stabilization of businesses thereby expanding opportunities for employment.

According to Mr. Israel Agina, the chairman of Kisumu branch of the Kenya National Chamber of Commerce and Industry (KNCCI), the project would be a major milestone as potential and existing investors would reap from reliable and available power, substantially lowering the costs of production.

“We look forward to having this reliable power as soon as it can be available to us. Its completion and eventual commissioning would be a great relief to the business community and area residents in equal measure,” Agina says.

He says the exodus of several manufacturers to a neighboring county and others to foreign countries due to the persistent unreliable electricity supply leading to high costs of operations has adversely affected the region's economy.

“Most of the time our small-scale traders and big-time manufacturers have had to run on diesel which is so expensive and this has made it difficult for them to keep afloat in business. Most traders have relocated to Eldoret in the Rift Valley while some have gone to Uganda and Rwanda,” says Agina.

Agina is optimistic that with reliable electricity supply investors would troop back and create opportunities for employment. He believes revenues for provision of essential services would improve when the line finally joins the grid.

A juakali artisan in Kondele, Mr. Robinson Owino is a large consumer of electricity in his welding yard.

Owino says the frequent power disruptions that has become the norm has often adversely affected his business as they have had to close down for days on end to wait for electricity.

His earnings, he believes, would improve when the area is connected to a reliable power grid as he would be working 24 hours to meet his customer demands. At the moment, he says, he has to disrupt his work schedules many times due to frequent and unpredictable power black-outs.

The region is known for sugarcane farming / manufacturing, fishing industries and well established juakali sector among other big-time electricity users. The local Kisumu International Airport, the Kenya Breweries, Equator Bottlers and other private and public service providers are some of the institutions set to benefit from stable electricity supply.

The region also has quite a substantial stake in the hospitality industry with facilities strategically positioned in the Western Kenya tourism circuit.

By improving efficiency of transmission and using renewable energy, the project will also help mitigate negative impact on the environment.

“Unlike wind and solar resources, which are more dependent upon weather fluctuations and climate changes, geothermal resources are available 24 hours a day, 7 days a week,” says Rege.

Geothermal energy is the heat of the earth. Medium and/or high temperature geothermal systems are classified either as hydrothermal systems (low or high enthalpy), which are encountered in specific locations associated with the presence of fluids and permeability within the earth, or as enhanced geothermal systems, which can be engineered everywhere.

For implementation purposes, the project is subdivided into three lots under different contractors. Lot one (KETRACO/PT/005/23014/Lot1) involves the construction of approximately 400kV 213km double circuit transmission line between Olkaria II Substation and Lessos Substation.

Lot two (KETRACO/PT/005/2014/Lot2) takes care of works involving the construction of approximately

73.5km 220 kV double circuit transmission line between Lessos substation and the proposed new substation at Kisumu East and approximately 3.5km 132 kV double circuit transmission line between the proposed new Substation at Kisumu East (Kibos) and Kisumu (Mamboleo) Substations.

Lot three (KETRACO/PT/005/2014/Lot3) is substation works, encompassing extensions at Olkaria, Lessos and Kisumu (Mamboleo) and the new 220kV/33kV Kibos substation.

KPTL-KINDEN JV, both of China are handling Lot one (Olkaria-Lessos 400kV line), NARI-CCCE JV, both of China is working on Lot two (Lessos – Kisumu 220kV line) and SIEYUAN-NEIE JV, both of China is taking lot three (Substations at Olkaria, Lessos, Kibos and Kisumu). A joint venture of NIPPON KOEI Co. LTD, Japan and GIBB Africa LTD, Kenya are consultants.

Funding for the project's contract works as well as supervision consultancy services has been secured from JICA. The Government of Kenya is responsible for all other costs including wayleave acquisition all totaling to Kshs 12.47 billion.

The contract had an initial duration of 24 months and was due for completion by mid-February 2018 but this did not materialize as per the original plan due to a number of challenges, the major one being wayleave related – attributed to inadequate budgetary allocations.

Lot one for example had an initial signature date of 10th March, 2015 with effective date being February 2, 2016. Its initial date for completion was fixed on February 23, 2018 but had to be reviewed to December 31, 2019 owing to the challenges. Lot two now has the same date of completion as lot one having been revised from February 15, 2018. For lot three a new date was fixed for June 30, 2019 and is now awaiting commissioning of Kibos and Kisumu substations.

This is just one of the various projects KETRACO is currently implementing. A total of about 2,500km of transmission lines and substations comprising approximately 1,014km of 132kV, 140km of 220kV and 2,064km of 400kV HVAC lines as well as 612km of 500kV HVDC line and associated substations are currently being constructed.

EMBRACE THE POWER OF MENTORSHIP, URGES KETRACO'S YOUNG WOMAN ENGINEER

Transmission System Planning Engineer Winfred Mutinda Underscores need to embrace best practices in mentorship

By Winfred Mutinda

In a rapidly evolving world where each one of us is working hard to discover, develop and deploy the potential within ourselves, the power of mentorship can neither be underestimated nor undervalued. Meaningful conversations on the role of mentorship have become more rampant across all sectors of the economy. Mentors contribute positively to the personal and professional growth of a mentee by offering educational and career guidance that helps unlock the potential of the mentees hence playing a vital role in igniting the desire to grow to greater heights.



Winfred (holding the notice board) at a mentoring session. She has mentored many young girls

There is need to embrace best practices in mentorship. The key ingredients in any form of mentorship are: the mentor, the mentee and the relationship between the two. An effective mentor-mentee relationship involves having pre-determined goals, objectives and targets as well as a means to measure achievement of the objectives.

Most successful mentorship relationships have adopted good qualities such as: the desire to inspire by the mentor, the commitment to succeed by the mentee, dedication of

time and effort to mentorship, a growth mindset and learning attitude, accountability and responsibility to each other, active listening, asking questions, self-reflection and providing feedback.

Mentorship can be one-on-one or

educating (sharing of knowledge, skills and expertise), mentoring by cheerleading (celebrating mentee milestones and wins to boost self-confidence) and mentoring by ideating (helping the mentee to brainstorm new ideas).

group mentoring. E-mentoring has also been highly embraced during this modern age where the mentor and the mentee leverage on the digital technologies for the mentorship sessions.

There is no standard way for mentoring and this gives room for the adoption of different mentoring styles by the mentor. These styles can be: mentoring by challenging (pushing the mentee to unleash his/her full potential), mentoring by connecting (introducing the mentee to the right networks), mentoring by

For organizations such as KETRACO, organizational mentorship is a great platform to offer professional and career guidance. Organizational mentorship can be either supervisory or peer mentoring.

It is key in order to foster tapping into existing knowledge, skills and experiences of more experienced employees hence enhancing career growth. It is a key professional development resource to upgrade skills and enhance employee satisfaction and motivation.

Organizations that embrace mentorship are rewarded with high levels of employee engagement, retention and knowledge sharing. An effective mentoring relationship provides new employees as well as interns with someone that will share

their personal experiences, professional knowledge and expertise in the field of interest.

As I always say, mentorship is a two-way-street since it benefits both the mentor and the mentee. It is a win-win relationship. It is an opportunity to learn from each other.

Mentorship is a great platform to give back and is an act of servant leadership. We are empowered to empower others. Career plays a huge role towards a meaningful and successful life. By taking the opportunity to offer career guidance to a mentee, you are impacting

him/her positively in life!

As professionals, let us step up and heed to the call to mentorship. As you heed to the call, remember this “The delicate balance in mentoring someone is not creating them in your own image but giving them the opportunity to create themselves”- Steven Spielberg.

KETRACO DIRECTOR, KAMERE HEADS TO LONDON IN NEW DIPLOMATIC APPOINTMENTS

CORPORATE GOVERNANCE EXPERT APPOINTED DEPUTY HEAD OF MISSION AT KENYA'S HIGH COMMISSION IN LONDON

By Jack Nduri



The appointment of one of KETRACO Directors, Mr. Joakim Kiarie Kamere, to the plum post of Deputy Head of Mission in London was no mean achievement to the management and staff of the transmission Company.

His Excellency President Uhuru Kenyatta appointed Mr. Kamere via a Kenya gazette notice of Thursday, 15th October 2020 to be the country's 2nd in command in Kenya’s High Commission in London.

Mr. Kamere now joins the Diplomatic Corps thereby lifting the image of KETRACO where he has served with diligence and a lot of dedication high.

The appointment re-affirms the confidence the head of state has on the leadership of the Company which is a hundred percent owned by the government with a mandate to plan, design, own, operate and maintain the country's high voltage electricity grid and regional power interconnectors.

Mr. Kamere joined KETRACO Board on 17th April 2015. He is a corporate commercial lawyer with a wealth of over 16 years experience in corporate governance, structuring companies, drafting commercial agreements, perfection of bank securities and legislative drafting. Mr. Kiarie is managing partner at Kiarie & Co. Advocates. He holds a Bachelor of Laws degree from the University of Nairobi, is Advocate of the High Court of Kenya; Notary Public; commissioner for oaths, and certified public secretary -CPS (K).

KETRACO EMBEDS CUSTOMER CONFIDENCE THROUGH TRANSPARENT PROCUREMENT PROCESS

By Jack Nduri

The Kenya Electricity Transmission Company (KETRACO) has fully complied with the government's directive on transparent and efficient public procurement processes through the adoption of digital procurement platform.

KETRACO developed and implemented mechanism through which all procurement services at the agency are done online – long before the recent presidential directive through an executive order -thereby enhancing highest level of scrutiny throughout all areas of administration and management of public resources for the public good.

Powered by e-procurement platform SAP Ariba, KETRACO struck peak level performance in service delivery as witnessed in the just concluded bids for used



Some of the KETRACO vehicles that were sold through competitive bidding at the company's Isinya Sub station

Company vehicles and other accessories. The platform has also previously been used to procure cleaning services for the company.

The system puts KETRACO well ahead of other government agencies and departments in implementing government directives and improving on service delivery.

The concept in KETRACO was informed by the SAP roadmap and part of this was to fully digitize end to end procurement processes. These includes sourcing to award as well as onboarding of suppliers and giving them ownership of their own data through SAP airbase supplier management.

The SAP ARIBA e-procurement process is programed to send for quotation, proposal, information to bidders and suppliers, receive responses of these requests from bidders/suppliers. It does the evaluation of these responses before an award is done according to the evaluation criteria.

This process can either end by creation of a purchase order (in the case of request for quotation) or proceed to contract creation thereby eliminating any physical contacts with KETRACO staff and ensuring absolute transparency.

The Company took seriously a 2018 executive order that procurement of public goods, works and services by public entities be published for scrutiny by members of public and went a notch higher to invest in paperless systems. The recent presidential directive that government agencies adopt the digital procurement platforms to curtail possible graft did not take KETRACO by surprise as it already got her systems rolling.

KETRACO's Senior Manager, Supply Chain Department Peter Njehia is confident the momentous process exposes bidders to open competition – unrestricted and universal access to the procurement system and necessary information.

“In addition, the procurement process we have put in place the selection of bidders and the award of contracts is open to public examination and review, thus making it a completely transparent process,” says Njehia.

The Company, in strict conformity to the president's directive that all government entities digitize their procurement processes first had a stint with the SAP ARIBA digital platform during a tendering process for cleaning services, where the most qualified service provider was picked through the system and contracts signed without any physical contacts with the procurement office.

The interested bidders for the just concluded tenders were advised to view details of the vehicles on sale and the obsolete furniture through a link provided on KETRACO website and also to physically visit the Company's substation in Isinya and KATKO Godowns on Mombasa road to view the boarded vehicles and motor cycles, used tyres and obsolete furniture items respectively before submitting their bids.

“Complete bid documents should be electronically submitted through SAP ARIBA platform on or before Tuesday 21st July 2020 at 10.00 am East Africa Time. Bids will be opened electronically promptly thereafter in the presence of the tenderers or their representatives who choose to attend in KETRACO Supply Chain Management Offices located at Kawi Complex, South C, Nairobi,” read the advert in part.

This development now puts KETRACO in a complete distinctive position among her peers and compounds public trust and confidence in her procedures and undertakings.

SUSTAINABILITY DURING PENDING PANDEMICS

By Staff Writer

As we settle for the stay-home realities of the global COVID-19 pandemic, we have learnt to contend with first-hand experience of the sudden universal change on virtually all aspects of life.

The pandemic has completely shuttered the usual way of doing things thereby giving forth to many new normals, especially in the field of communications, management and social relations.

In the ensuing melee we have encountered anxiety and new ways to cope with the new normals. We have also found a learning moment to observe, reflect and come to a deeper understanding of the unfolding scenarios.

The pandemic experience has adversely affected the way society sees the world and the sustainability of our communications and other systems have nose-dived to embrace technology and remain observant to time.

We depend on the local and global web of one another for goods, services and social support. These interconnections inspire us to bring forward courage and creativity to support our fellow humans and communicate effectively on underlying issues both at individual, corporate or government levels.

As Kenya Electricity Transmission Company (KETRACO) we have fully entrenched the use of tele-detailing, email, social media and video/teleconferencing among other channels of communication to employees and various stakeholders. Since person-person communication has become risky in the circumstances, emails, telephone calls, text messages, WhatsApp messaging have also become some

of the best options.

Social media platforms have proved to yield clearest benefits due to health concerns and has allowed individual officers to work with various departments within the company and other professionals to help stakeholders understand what we do as an electricity transmission company.

The emerging trend shows that there is increased interest in the social media outputs currently. However, during this period, it has become even more important for communications officers to think critically and be sure before posting of information.

Today, we find ourselves in one of the most disruptive periods in modern history. Governments and even companies need to accept and adopt new approaches to attracting, developing and retaining talent as well as their leaders and to building strong cultures that empower employees and drive performance.

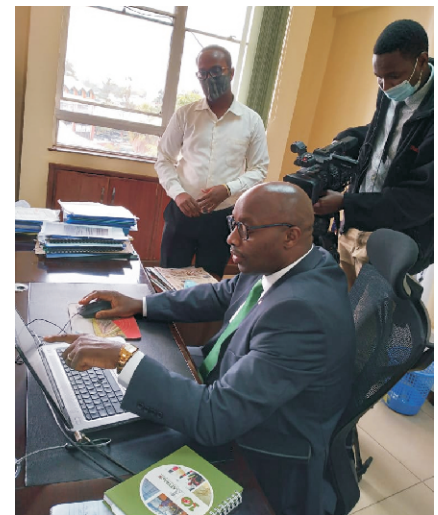
KETRACO, just like many other companies has responded to the soaring impact of COVID-19 by shifting to virtual mode to drive her key operations. Significant sustainable communication approaches that do not favour physical contacts with clients has to a great extent relayed positive feedback from media and peers.

This has been noted in successful Board of Directors meetings, staff meetings and directorate / departmental consultations. Also, the new normal in the system of communication has increased efficiency for staff working from the field/home as correspondences are done real time.

In the current crisis, the company has effectively managed to handle the

critical aspect of communication on how the health, safety and job security of her employees are protected through available digital channels.

These include introduction of such policies as introducing work shifts to allow for social distancing, performing temperature checks as they report to work and stressing the importance of handwashing and sanitation.



KETRACO Senior Manager Supply Chain Management Mr. Peter Njehia demonstrates to the media how the digital procurement platform works. The platform has been instrumental in enforcing social distancing during the COVID-19 era.

The Corporate Communication staff are constantly on standby to monitor the conversation around both Covid-19 and sustainability in the lead up to the intended communication so that even if it is decided not to talk about the emerging issues during the corona virus crisis, it is important that any sustainability actions, commitments and communications plans stay on track within the organization to ensure we can hit the ground running in the future.

MY COVID – 19 TESTING EXPERIENCE

By Ivy Nyangara

Having your sample collected for Corona Virus Disease 2019 (COVID-19) testing is no joke. It is no fun having a cotton swab a few inches up your nose!

I say this not to scare potential patients for testing, but to prepare them psychologically for the ongoing voluntary mass Covid-19 testing the Government is conducting in various towns.

The Kenya Electricity Transmission Company (KETRACO) partnered with the Ministry of Health (MOH) to carry out random testing on her staff and service providers stationed at its headquarters at KAWI house on 8th June 2020.

After much deliberation with my family, I finally mustered up the courage to go for voluntary COVID-19 testing.

We were first required to fill a questionnaire to check out the general status of our health. This process was meant to help in contact tracing.

While filling in my questionnaire together with my workmates in the open field located outside the office complex, in order to keep the MoH's recommended social distance. While observing social distance we encouraged each other that the results would be favorable. My colleagues who had already taken the test before gave us an assurance us that the process was fast enough and that we could endure the brief discomfort.

Once I had filled the form and the first health worker confirmed my details, she gave me the nasal swab used to detect the novel Corona virus with name on it.

She also wrote my serial number which matched the one on my questionnaire form and directed me

to two of her colleagues who were collecting the specimen from the nose and throat.

They were dressed in personal protective equipment that included medical hazmat suits, gloves, masks, breathing equipment and visors to shield themselves against droplets from coughs, sneezes or other body fluids from patients being tested and contaminated surfaces that might infect them.



A medical personnel extracts specimen for COVID test from a KETRACO staff during a mass testing exercise organized for the Company's staff at KAWI house

One of the medical officers sanitized himself and requested me to open the nasal swap and take a seat. While seated, he asked that I lift my chin up to enable him to look into my nose and throat. What followed caught me by surprise!

I was under the assumption that he would insert the nasopharyngeal swab a couple of centimetres up my nose but it ended up going in several inches. He gently twirled it to get a sample from my nasopharynx; the upper part of my throat behind the nose.

I immediately felt a sharp pain that I can only compare to the feeling you experience when you are accidentally pricked or breathing in water through your nose.

Then I felt a sudden urge to sneeze and suddenly, my eyes watered quite a bit. These sensations happened in quick succession and faded minutes after the completion of the process. However, some of my colleagues did not wince. Dr. Boru, who was leading the Ministry of Health team explained that it is because people differ in their ability to detect, tolerate and respond to pain.

Once I had cleared my eyes of tears, the health official requested that I open my mouth, stick my tongue out, and say "Ahh" in preparation for the oropharyngeal swab.

This enabled him to collect samples from my oropharynx; the part of my throat at the back of my mouth behind the oral cavity. Unlike the earlier process, I had no reaction to this one though some of my co-workers gagged and coughed.

Dr. Boru explained further that unlike the throat, the nose has very sensitive nerve endings to keep away any foreign objects. "Deep in our noses, there are tiny hairs called cilia that constantly move back and forth to catch dangerous particles in mucus. This sensitivity is a double-edged sword because it helps protect the lungs," he said.

All in all, the entire testing process took less than five minutes. As I eagerly wait for my results, I would wish to urge everyone to take advantage of the voluntary testing being undertaken by the Government through the Ministry of Health in various facilities countrywide.

This is because many people are asymptomatic (of a condition or a person producing or showing no symptoms) and are therefore unaware that they have the virus that causes Covid-19 thereby facilitating its spread more rapidly within the community.

SAP ARIBA CLOUD SOLUTION MAKES KETRACO TOP NOTCH IMPLEMENTER OF E-PROCUREMENT IN THE REGION

Electricity Transmission Company shines at KISMA Awards Gala

By Isaac Rotich

The Kenya Electricity Transmission Company (KETRACO) shone at the Kenya Institute of Supplies Management Excellence (KISM) Awards after emerging top among her peers as a company that has fully adopted e-procurement in the supply chain functions.

According to the judges, KETRACO's SAP Ariba cloud solution has a robust potential for transparency and efficiency in supply chain.

It was song and dance as KETRACO Senior Manager Supply Chain Management Mr. Peter Njehia rose to receive the highly coveted award during a ceremony hosted at Nairobi's Carnivore Restaurant on 4th December, 2020.

KETRACO has also effectively demonstrated its full commitment in realizing the presidential directive on e-procurement adoption.

The platform has also made it convenient to engage with the clients online greatly helping in mitigating the spread of COVID-19 as there are no direct contact between officers and customers.

“All our tenders are submitted online, evaluated, awarded and results published online. We have created links through our website so that our suppliers are able to attend opening and view results online at the comfort of their offices or homes,” says Njehia.

The company, he says, has adopted an e-procurement solution with a capability to seamlessly integrate

with IFMIS as per regulations put in place by the government to safeguard both transparency and accountability.

KETRACO developed and implemented a mechanism through which all procurement services at the agency are done online – long before the recent presidential directive through an executive order, thereby enhancing highest level of scrutiny throughout all areas of administration and management of public resources for the public good.

Powered by SAP Ariba platform, KETRACO struck peak level performance in service delivery as witnessed in the recent Asset Disposal tender that attracted the largest number of bids ever received in the organization. The platform has also previously been used to procure cleaning services for the company.

The system places KETRACO well ahead through an effective and efficient processing of tenders with little interruptions even in the midst of a global pandemic such as COVID-19. The concept in KETRACO was informed by the SAP roadmap and part of this was to fully digitize Procure to pay processes. These includes sourcing to award as well as on boarding of suppliers and giving them ownership of their own data through SAP Ariba supplier management choice.

The SAP ARIBA platform is programmed to request for quotations/proposals/bids to bidders and suppliers and receive responses of these requests from bidders/suppliers. It gives a summary of the responses to facilitate proper opening and detailed evaluation based on the set instructions to tenderers and the evaluation criteria.



KETRACO Senior Manager Supply Chain Management Mr. Peter Njehia displays an Award won at the inaugural KISMA Awards for embracing e-procurement

The process has enabled seamless creation of purchase orders and/or contracts through an already existing enterprise resource planning system with centralized management of tender documents that ensures absolute transparency.

Through Executive Order number 2 of 2018 on procurement of public goods, works and services by public entities – the President directed that all public entities migrate to e-procurement solutions as a stop-gap measure to the runaway wanton corruption that has engulfed the country.

Through this network – applications, services or resources are made available to users on demand via the internet from a cloud computing provider's server, in this case, SAP Ariba global servers.

The technology has made it simple to accelerate the procurement process throughout a procurement life cycle by integrating the entire KETRACO's buying process across the entire organization and offering an end-to-end automated system that removes complexity and allows buyers and suppliers to manage everything from

contracts to payments all in one place. The company (KETRACO), in this case the “buyer” ask suppliers to join SAP Ariba Network via a registration link so that they can work together more efficiently and effectively on all the shared aspects of commerce automation for example proposals, contracts, orders, invoices and final payments.

In 2016-2017, KETRACO implemented SAP ERP and went live with modules that include Materials Management (MM), Finance and Controlling (FICO), Human Capital Management (HCM) and Project Systems (PS) in Phase I and Business Intelligence, Employee Self Service/Manager Self Service, Travel Management, Document Management, and e-Recruitment in phase II.

KENYA ELECTRICITY TRANSMISSION COMPANY (KETRACO), SHAPING A WORLD CLASS OPERATION AND MAINTENANCE (O & M) TEAM

By Sulea Naliaka

The Company's Operations and Maintenance (O&M) team is fully enhanced to ensure supply of reliable and stable (uninterrupted) electricity within the country.

The team has been carrying out aerial surveys, inspections, repairs for critical Transmission assets. The team involved include the Transmission Engineers, Technicians, Craftsmen, and drivers.

In the month of May and June, the O&M team carried out works on the 400kV Suswa- Isinya as well as the 220kV Turkwel- Ortum- Kitale transmission lines. For Suswa-Isinya line, the main works involved patrolling the line to identify any faults then undertake the necessary remedial works so as to avert any breakdown.

Suswa-Isinya is a critical link in the National Grid, hence any faults identified on this line have to be

Materials Management Module (MM) automated the manual procure-to-pay process from raising of purchase requisition to creation of purchase orders. However, a gap existed where the supply chain tendering process was being done manually. This was inefficient and time consuming as opening and evaluation teams had to manually go through many bids during the tendering process.

SAP's solution to e-procurement was either SAP SRM (Supplier Relationship Management) Module or SAP Ariba Cloud Solution. Through a compelling business case, KETRACO chose the latter as the new innovative cloud platform for end-end supply chain process. With technological advancements, SAP will stop supporting SRM in the next five (5)

years and customers will be required to migrate to SAP Ariba, hence KETRACO was justified in choosing SAP Ariba.

addressed immediately to allow no chances of a breakdown that is likely to plunge the country into a national blackout. On the 400kV Suswa- Isinya, maintenance works carried out involved replacement of spacers as well as repair of conductors which had been damaged as a result of heavy winds blowing around Ngong' area.

The first shutdown involved maintenance on circuit no. 1 while the second one facilitated maintenance on circuit no.2. The maintenance activities took a total of five days. KETRACO's truck-mounted crane (HIAB), as well as conductor trolley were used by linesmen to access the working points on the conductors.

Inspection of 220kV Turkwel- Ortum-Kitale transmission line was to facilitate the handover by contractor KEC International. For this line, the O&M team together with the Safety Unit are carrying out post construction inspection.

The line is 138km long with a total of 348 steel lattice towers. The safety unit

KETRACO is seeking to deploy the best in class procurement cloud solution to remove reliance on inefficient processes. This is through the elimination of paper-based communication with suppliers, improving supplier relations through electronic communications and enabling order management feature like electronic confirmation which allows procurement to gain quick insight into suppliers ability to deliver. There is also the aspect of enabling e-invoicing which allows suppliers to invoice promptly and gain visibility into invoice processing.

is involved to ensure safe work practices are strictly adhered to during inspection and to monitor application of measures recommended for reducing the risk of contracting the virus that causes COVID-19.

Post-construction inspections are done just before a contractor hands over the project to the Company and



KETRACO O&M engineers at work.

finally to O&M. It involves the linesmen climbing tower by tower while checking that all components of the Transmission Line have been correctly installed as per design specifications.

During inspection, the following components are checked: right of way clearance (trace), tower steel work, Conductors including vibration dampers, jumpers etc., OPGW including joint boxes (splicing points), insulator strings including hardware fittings, tower foundations including backfilling, tower earthing, housekeeping, tools & discharge wires.

The defects/anomalies noted during inspection are categorised as either major or minor. A major defect is a safety risk which affects the functionality and security of the line. The lines cannot be energized if any snag categorized as a major defect is still present.

A minor defect is an omitted item that affects the longevity and resilience of

the line. The line may be energized with minor snags still present. However correction work is advised to be undertaken at the earliest date possible. A tower that has no defect is normally declared to be sound (ok).

Safety in this process is key and all the technicians are required to put on the right PPEs including safety harnesses. Climbing is done step by step while hooking on the tower members.

During bad weather conditions like rain, fog, mist and strong winds, work is normally suspended to avoid associated risks to the linesmen. A key safety precaution to note during this inspection is that the linesmen don't come in physical contact with the conductors. This is to avoid the risk of induced currents from the nearby/crossing energised lines.

Whereas the design span normally adopted between any two adjacent towers are 350m for 220 kV line, 350m to 400m for 400 kV lines, the 220kV Turkwel-Ortum-Kitale transmission line is unique.

It has one of the longest spans between any two adjacent towers i.e. 945m between towers 245 & 246, 784m between Towers 141&142, 737m between towers 173 & 174 and 707m between Towers 132 & 133.

Of all the lines constructed so far by KETRACO, this is the line with the longest spans. The terrain and site conditions on this line are unique



Transformer Maintenance work ongoing at Rang'ala Substation. The company attaches a lot of seriousness on maintenance works on her transmission line projects.

MY FIRST VISIT TO A SUBSTATION

KETRACO intern's account of her first experience at a substation

By Joan Kamau

Ordinarily I would have had a sleepless night, but this time I knew I would need my beauty sleep, so I woke up the next day with a to-do list so that I don't miss anything along my journey.

I arrived at KETRACO's Corporate Communications Office in time to make sure everything was in order since I was tasked with ensuring that the equipment required for the assignment were available.

We started off our journey at about 8 o'clock in the morning in the company of journalists from Ebru Television Station. They were so practical and alluring, which gave me a nostalgic feeling when back in the day, I was so

passionate about news anchoring. It took us about one and half hours to reach our destination. I utilized the occasion to rejuvenate and ignite a conversation with the journalists, but before then I had thought of getting lost in deep thoughts being an introverted empath I am.

We finally reached the substation and my first impression was OMG! "I have never been to a power plant before... this is so fascinating," I said to myself. I got out of the vehicle, so eager to put on my headgear and the green reflector, then I strapped the camera over my shoulder and got ready for the tasks ahead.

We had a quick introduction with the technicians/ engineers who were at the substation and the journalists carried out an interview and took photographs of the substation. The engineers/technicians demonstrated utmost competence as they fielded questions from the media.

I learnt that the the power line we visited originates from Isinya, in Kajiado County, about 58 kilometres (36 min) south of Nairobi and runs in a southerly direction for approximately 98 kilometres (61 mi) to the border with Tanzania at Namanga.

PHILANTHROPY, PROFESSIONAL DILLIGENCE OPENS DOORS TO EMINENCE FOR YOUNG KETRACO ELECTRICAL ENGINEER



By Jack Nduri

KETRACO's electrical engineer, Ms. Winfred Mwende Mutinda, booked her ticket to "professional eminence" KETRACO staff after winning the Philanthropy Award 2020 in this year's Africa Queen of Energy Awards that seeks to recognize women who have selflessly committed their time and/or resources to develop energy solutions that have had impact in the society.

Winfred formally joined the team of "eminent persons" for her selflessness and professional diligence both as an engineer and community leader through her philanthropic work that has transformed many lives.

The Africa Queen of Energy Awards is designed to inspire, recognize, and reward women who have made strides in the energy sector across Africa.

The award aims at developing an authentic community of women who are putting their best foot forward and going above their call of duty to influence the landscape of the energy sector in Africa.

Beaming with joy and freely sharing her experience during an interview with *The Grid*, Winfred attributed her win to sheer dedication to mentorship, women empowerment, and eradication of poverty.

She has been transforming communities and helping improve livelihoods through her philanthropic initiative – The Blessed – To – Bless Community Initiative.

Winfred at the same time shone among other KETRACO staff awarded the National Honours by President Uhuru Kenyatta during the recent Jamuhuri Day Celebrations. She was conferred with an HSC – Civilian Division alongside Ag. GM Design and Construction Eng. Anthony Wamukota Tawayi OGW, Systems Administrator Mr. Lawrence Kirui – HSC and Electrical Engineer Ms. Ofafa Carol Awuor – HSC.

The team now places KETRACO's image on the national map as a company of formidable workers with a focused vision and clear mission to provide efficient and effective electricity transmission and promote power trade for sustainable socio-economic development.



Electrical engineer Winfred Mwende, HSC (left) with fellow engineers on a project inspection visit



KETRACO MD FCPA Fernandes Barasa cuts the cake to mark the company's 12 years in extending the national grid to every corner of the country and regional interconnectors.

Cheering him are Ag. GM, HR & Amin Ms. Reginah Kemboi (2nd left), Ag. Company Secretary & GM Legal Services Ms. Lydia Sitienei (3rd left) and Ag. GM Project Services Dr (Eng.) John Mativo (extreme left).



KETRACO was among Gold Mark Award winners in 2020 CIO 100 symposium and awards ceremony held on 19th-20th November, 2020. Theme - Celebrating IT leadership in an accelerated digital age



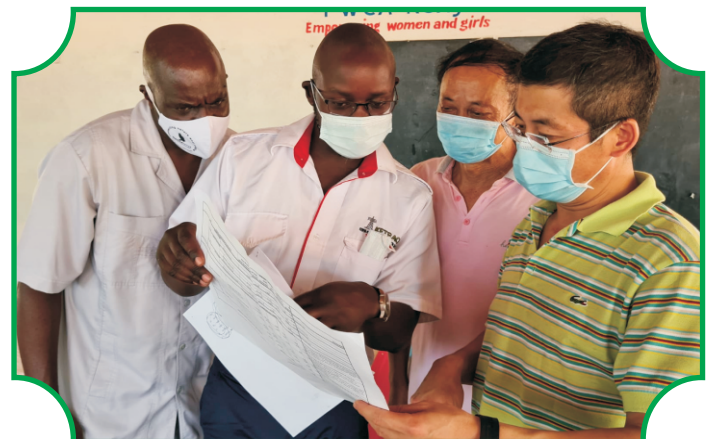
KETRACO Communications Officer Mr. Calvin Nyagudi, MPRSK awarded by Public Relations Society of Kenya's Council member Tim Kamuzu Banda during #PRSKSummit2020 for emerging winner of the most active twitter user with highest tweets and interactions with tweets tagging #PRSKSummit2020 and @prskkenya.



KETRACO's Senior Manager, Supply Chain Management Mr. Peter Njehia (right) presents Best ICT adoption in Supply Chain Award of the year 2020 to Managing Director FCPA Fernandes Barasa, OGW. The award by the Kenya Institute of Supplies Management (KISM) places KETRACO above her peers.



Chairman of KETRACO Board of Directors Hon. Eng. James Rege, CBS in discussions with OLK's resident engineer James Kairu regarding the status of the ongoing construction works during a Board inspections tour.



Project Manager for the 220kV Garsen-Hola-Bura-Garissa line, Eng. Brian Muchilwa (2nd left) hands over documents containing coordinates from Garsen Sub-Station to the end of Kalkacha Sub-Location to Eng. Tang Jing the CAMCE Site Manager (extreme right) and Eng. Ma Kun (Michael - 2nd right) both representing CAMCE.

THE EASTERN ELECTRICITY HIGHWAY PROJECT, A REGIONAL POWER GAME CHANGER.

By Sulea Naliaka



Nairobi North substation, part of the System Reinforcement Component of Eastern Electricity Highway Project, has an improved capacity after a 90MVA transformer T6 was added and energised.

The development of regional power system **interconnection projects** is important for most African countries as they have smaller generation capacities to fit the economies of scale. In light of the present world energy crisis, interconnection of the regional electric energy networks is the best alternative to displace expensive thermal generation in regional as well as international power markets.

In this light, The Kenya Electricity Transmission Company (KETRACO) and Ethiopia Electric Power Company (EEP) are in the final stages of construction of an electricity interconnector, the Eastern Electricity Highway Project also known as Ethiopia- Kenya Project.

The project involves construction of a total of 1045km 500HVDC bipolar Transmission Line from Woloyta Sodo in Ethiopia to Suswa in Kenya. The Ethiopian side carries a total of 433km and 612km of the transmission line is in Kenya. Other components of the project include a 2000MW bipolar converter, new 400kV substation and extensions of the existing 220kV substation in Suswa and installation of ground

electrode and repeater stations for the fiber optic communication system along the HVDC transmission line route.

The project will provide reliable and affordable energy from a regional resource base and facilitate access to considerable clean regional energy resources, reducing pollution and vulnerability to climate change, thus strengthening environmental resilience. Consumers in Kenya will also benefit from the project through the reduction in the cost of electricity supply.

The Eastern Electricity Highway Project is part of a program to integrate the Eastern Africa region. The program supports the integration of power systems of five countries with a combined population of over 200 million. Within the framework of the Eastern Africa Power Pool (EAPP), the program has three phases for connecting the power grids of Ethiopia, Kenya, Tanzania, Uganda and Rwanda.

The EAPP's Master Plan, endorsed by the Governments of the EAPP member countries, has designated the transmission interconnections

among these countries as priorities for the development of the Eastern Africa power market. These interconnections will create the transmission backbone for the region. Kenya is expected to become the central node of the integrated system. On the supply side, Ethiopia initially will provide much of the electricity traded in this network.

In the future, power will be also exported from Kenya, Tanzania, and Uganda. In addition, the program will facilitate a much larger regional integration through linking with the ongoing interconnections among Kenya, Uganda, Rwanda, Burundi and eastern DRC, which are part of the Nile Equatorial Lakes Subsidiary Action Programme (NELSAP) under the Nile Basin initiative. Also, once the planned Tanzania-Zambia interconnection is built, the EAPP power systems will be linked to the Southern Africa Power Pool.

Initially power will flow southwards from Ethiopia to Kenya. However, the direction of the flow may change seasonally, depending on the availability of generation capacity in both countries and relative supply costs. Full integration of the regions' power systems in the future from the Southern African Power Pool to Egypt, will allow the optimization of power generation at regional level, with the utilization of least-cost regional energy resources, and a change in the direction of the power flow from south to north. In such a scenario, a multitude of lower-cost generation plants in the south will feed the interconnected system to help meet demand in the region. Kenya's large geothermal resources and the region's other renewable energy will be part of the energy mix traded on the line.

Some of the reasons in favour of the Ethiopia-Kenya interconnector are that the regional integration is critical to East Africa's transformation for greater economic opportunities to overcome poverty. East Africa has huge regional energy resources but the region consists of countries with relatively small economies and low levels of electricity access and the regional integration of East Africa's

power systems will facilitate large-scale development of the region's cost-effective and clean energy sources.

Other reasons include the economic benefits of integration in East Africa outweigh concerns about reliance on power imports from neighbouring countries; a regionally integrated transmission network is necessary for power trade in East Africa and for

leveraging investments in regional generation projects, power trade favours the introduction of more efficient institutional models in the power sectors of participating countries and a wider electricity market will help in stabilising and reducing electricity tariffs in the region.

Map showing the Eastern Electricity Highway Project.



MEET MR. JOHNSON MUTHOKA - KETRACO SENIOR MANAGER, WAYLEAVE ACQUISITION

Top valuer has transformed the transmission company's wayleaves acquisition segment into a vibrant, admirable department

By Jack Nduri

An astute and hands on manager – Mr. Johnson Kitamange Muthoka has transformed the wayleaves department at Kenya Electricity Transmission Company (KETRACO) from scratch to a vibrant, credible and admirable segment of the transmission infrastructure.

Mr. Muthoka joined KETRACO in 2010 as a Land Economist, bringing a wealth of experience gained from both public and private sectors.

Born in 1968 in Kitui County, Mr. Muthoka went through Kitungati Primary School and Matinyani Boys High School (Form 1-4) before joining the prestigious St. Charles Lwanga school –Kitui for A-levels. He proceeded to the University of Nairobi where he graduated with an honors degree in BA-Land Economics. He also holds a Master in Urban and regional planning from the same university and a post graduate diploma from the Institution of Surveyors of Kenya (ISK).

Mr. Muthoka is duly registered and licensed as a valuer by the Valuers Registration Board with over 26 years continuous hands on professional experience. For 14 years he worked in the private sector, starting with Mbagaine Karanja mbuu Ltd, then Mwaka Musau consultants before joining the insurance sector as the property manager at Occidental Insurance Company LTD (2000-2008).

In 2008 he joined the then Rural Electrification Authority (REA), a

government agency in the energy sector now known as Rural Electrification and Renewable Energy Corporation (REREC) where he became the pioneer head of the wayleaves team and managed the first 1,200 rural electrification projects in the country. It is at

REA



where he honed his land acquisition skills before joining KETRACO in February 2010,

He led the team that worked on the first projects – Kilimambogo-Thika-Githambo and Thika-Gatundu Transmission Lines. The team also initiated and has implemented the historic 436km 400kV Loiyangalani-Suswa Transmission Line Project, 483km 400kV Mombasa-Nairobi transmission line, the 328km 220kV Rabai-Malindi-Garsen-Lamu transmission line, the 257km 132kV Kindaruma-Mwingi-Graisa Transmission Line Project, the 44km 132kV Kisii-Awendo line, the 66km

132kV Eldoret-Kitale line, the 90km 220kV Turkwel-Ortum-Kitale transmission line as well as the ongoing 620km Ethiopia-Kenya 500kV HVDC and the 300km 400/220kV Olkaria-Lessos-Kisumu Transmission Lines among many others.

Since 2014 Mr. Muthoka has been the Senior Manager in charge of wayleaves acquisition in the company. This encompasses the environment, land economics, land survey and social economists professionals.

As a frontline department in the transmission line construction process, Mr. Muthoka and his team are normally involved from the onset to completion of all projects, strategically placing him as the fulcrum against which the company gravitates.

“Wayleave acquisition begins immediately the surveyors and planning engineers come up with the project line route from the source to the termination point. Once determined, surveyors map out the line route, followed by a resettlement action plan study which is spearheaded by the social economists and normally establishes the wayleave compensation budgetary estimates—a key requirement by the financiers,” says Mr. Muthoka. This is followed by an Environmental and Social Impact Assessment study which is a requirement under our environmental laws and regulations.

Mr. Muthoka adds, “Surveyors then prepare cadastral data, schedules and other details required for application for creation of a

wayleave by the National Land Commission through a gazette notice under the Land Act 2012.

The land economist, he says, then engages the services of a licensed private valuer mainly for land affected by the wayleave corridor. Once the line is gazetted, the land economist uses the independent valuer's valuation report to prepare a schedule indicating compensation amounts to be offered to respective land owners for limited loss of use of their land parcels. The Company does not however purchase parcels of land.

“In Kenya, we are only restricting people from building houses and planting trees that might exceed 12ft in height at maturity. In essence we are paying 30% of the value of the affected area as the basic rate but, of course it can go up depending on the impact of the corridor on the affected parcel,” says Mr. Muthoka.

The CEO/MD then approves the schedule containing amounts of monies to be paid to the land owners, paving way for the land economists to prepare offer letters. In the mean time sensitization /stakeholder engagements go on throughout the project cycle.

There is normally a series of public sensitization meetings in the various villages traversed by the transmission line's corridor. In between, the company also pays/compensates for structures affected by the project.

Normally structures are compensated in installment of 70% to enable the Project Affected Persons (PAP) to relocate away from the corridor and 30% once it is confirmed that the PAP has demolished the old structures. The basis of structures valuation in Kenya is the gross replacement cost plus 15% for social disturbance.

“We use the installment payments for

structures to encourage owners to demolish them and retain re-usable materials because if these structures are left on the wayleave corridor. KETRACO will be forced to allocate funds for demolishing the abandoned structures which can be highly costly. It is also a way of ensuring that the PAP builds a new home for his/her family to avoid creating cases of homelessness,” says Muthoka, his face beaming with confidence.

KETRACO undertakes the construction of 132kV, 220kV, 400kV and 500kV transmission lines which require wayleave corridors of 30 meters (for 132kV), 40 meters (for 220kV) and 60 meters (for 400/500kV).

Experience, says Mr. Muthoka, has shown that to a great extent, a majority of project affected persons in Kenya do accept the offers while a small minority turned. Where the offers have been turned down, his team quickly engages the PAPs in negotiations with the assistance of the National Land Commission and if no agreement is arrived at they can resort to arbitration which can lead to litigation with the assistance of the legal team.

Crops and trees falling within the corridor are likely to be damaged during construction works. Rates adopted for trees are normally those from the Kenya Forest Services (KFS) while for crops the rates adopted are based on data provided by the various directorates of County agricultural offices.

Challenges

“Sometimes there is low or late funding of the wayleaves budgets which can delay implementation of projects. We also have stubborn land owners who will decline the offers and stop works expecting higher compensation. There are speculators

buying land along the corridors and subdividing the land into small parcels expecting higher compensation. Others obtain court orders stopping construction which can at times take months or even years to resolve,” says Mr. Muthoka.

In some instances, courts have issued orders stopping construction works in utter disregard of section 148 of the land Act 2012 which stipulates that in the case of a stalemate the PAP should apply to the court to determine the amount and method of compensation.

“Some of our transmission lines traverse highly insecure regions. This was mainly experienced during the construction of Loiyangalani-Suswa transmission line project. The Company had to go an extra mile to employ the services of Kenya Police Reserve (KPR),” says Mr. Muthoka adding “We also had to make friends with the hostile communities to be able to traverse their territories.”

Devolution has also created several additional centers of power to be consulted. All these offices come with different interests, leading to serious political interferences, as they come with different opinions and demands that more often than not have caused serious delays in project implementation.

“Land being a very emotive issue plus the fact that it is the main aspect that we handle, it requires one to be able to listen, be ready to learn and continuously equip self with materials by reading regularly to acquaint themselves with contemporary issues on land laws (knowledge),” he says.

He adds that “Modern technology has enabled us to carry out our work with high levels efficiency and accuracy. For instance, With GIS and drones we have managed to survey

areas where we are blocked from accessing the land on the ground. Technology has also made it easy to compute affected areas per parcel along the corridors which makes handling of bulk data quite easy. I can assure you we shall soon be virtually walking along an entire line from the office.”

Muthoka has been married for the past 26 years and has three children; the eldest a son and second a daughter both at the university and the last-born son in form three at a local national school.

He spends most of his free time either in the gym, with his network of friends from all sorts of professions

or attending to his farming activities in the village. He is also a faithful worshiper at the Redeemed Evangelical Fellowship—Utalii.

He believes KETRACO has a promising future as a leader in transmission infrastructure construction and maintenance and a key player in the communications industry having now entered the fiber optic network market.

“You can imagine what will happen once we connect Nairobi to Mombasa and all county headquarters to our fiber optic network which is a component of the transmission lines. Picture these extending to neighboring countries like Uganda, Tanzania, South Sudan,

Ethiopia, Eritrea, Rwanda,” he says with a smile on his face.

The company will play a central role in providing strong regional power grid interconnections-through lines like Ethiopia-Kenya, Lessos-Tororo, Kenya-Tanzania-Zambia among others. This is the big dream!

Finally, KETRACO is carrying a huge pool of knowledge in her professionals in such disciplines like Land and social economy, land survey, environment, engineering, project management, communication, law, IT, procurement, safety etc which we can easily tap to empower the rest of the world with knowledge. We can easily impact the world by starting and running an institution of learning.

IMPROVING OPERATIONS

WITHOUT SACRIFICING WORKER SAFETY



By Winstone Audi

Having served as an Occupational Safety and Health Officer in the Directorate of Occupational Safety and Health Services (DOSHS) prior to joining KETRACO, I encountered many situations that depicted workplace safety and health successes and failures, often involving workers being killed or suffering various levels of permanent incapacities.

I had the opportunity to engage many companies and meet with executives of firms of almost every type and size, from CEOs of large multinationals to owners of companies with a few dozen employees. Sometimes the engagement was taken positively and employees enjoyed the fruits of such engagements.

Sometimes I had to prosecute a case to bring about the desired effect. At times I would come across rough patches in the call of duty and do a tactical retreat to plan my approach, wary of gusts of wind capable of pushing me to land off the runway, with catastrophic consequences.

Many organizations have safety policies indicating their commitment to ensuring that nobody gets hurt in the course of work. The consequences of non-adherence to safe work principles and legislations are also well understood – Legal suits, reputational damage, loss of lives and jobs, huge overheads etc. However, despite these threats, many corporate leaders have an implicit but unfounded belief that, while it is necessary to reduce workplace injury risk, there is a trade-off between profits and the expenditures necessary to keep workplaces safe.

Some have that feeling that they will have done their departments or functions justice by avoiding certain expenditures and grin from ear to ear when they look at the 'healthy' bottom line. This invariably leads to needed repairs and upgrades getting delayed, worker training postponed, and risk assessments overlooked.

Companies can be successful and safe at the same time. The reality is that virtually all workplace injuries are preventable and safety management and operational excellence are intimately linked.

Injuries and catastrophic events, in addition to being tragic, are evidence that production is not being

managed correctly. Improved operational performance will result in fewer injuries.

The notion that safety is good for business is not a new concept, but it is one that is gaining increasing traction as more in-depth research is released.

One study puts the return on investment of health and safety spending at 2.2. That is for every shilling spent on safety, you save 2.2 shillings. The researchers said that while occupational safety and health was a statutory obligation for employers that was beneficial to employees, it was also “equally a factor for business success.”

Here are some steps organizations can take to improve operations without sacrificing worker's safety. *(Adopted from article done by David Michaels)*

Start at the top.

From the CEO down, the message should be, “We care about safety because we care about you — doing it right means no one gets hurt.” Take safety as seriously, if not more seriously, than anything else you do.

Don't blame workers for accidents.

Workers are humans and humans make mistakes. No matter the job, at some point a person will get tired, bored, or distracted. Because of this, errors are inevitable. Well-functioning safety programs understand this and have multiple backup systems to ensure that mistakes do not result in injuries or deaths. It's also worth remembering that serious events are almost always caused by multiple factors — not the actions of one person — and that the prevention of these events is most effective when many indicators are considered together. The most effective path to preventing injuries is to consider human errors as the consequences, rather than as causes, of operational failure. As James Reason, the organizational psychologist who authored the seminal book, wrote, “when an adverse event occurs, the important issue is not who blundered, but how and why the defences failed.”

Rethink how you think about injury rates.

Lost Time Injury rates, one of the safety KPIs used in KETRACO are important metrics, in that they reflect the very real experience of our workforce. At the same time,

injury rates and reports of specific incidents are what are known as lagging indicators. While they identify problems that often need immediate attention, they do not adequately evaluate our safety and health management system.

Focus on leading indicators.

To make substantial progress in injury prevention, companies must select a set of indicators that measure progress toward that firm's chosen goals. These are called “leading indicators” because, unlike lagging indicators like recordable injuries, they are predictive of fatalities, serious injuries, or events that may have catastrophic consequences. The measures could involve hazard identification or abatement, incident investigations, employee training or the time it takes to close out on recommendations, among others. As KETRACO, our KPIs involve both leading and lagging indicators. Leading indicators work to complement the outcome-based measures of lagging indicators, and can be used to balance out some of their limitations. Their combination will help provide a solid, bigger picture on what is and is not working in our occupational health and safety program.

Embrace a safety and health management system.

Managing safety requires managers to implement a systemic process to find and fix workplace hazards before workers are hurt. Generically these programs are called **Safety and Health Management Systems (SHMSs) or Injury and Illness Prevention Programs**. They all involve an iterative, continual improvement process that have as their operating principle the Plan, Do, Check, Act cycle. In order to be successful, an SHMS must involve support from leadership; worker participation (including the active involvement of a union if one is present in an organization); hazard identification, assessment, prevention and control; opportunities for education and training; and regular program evaluation and improvement.

SHMSs should also include protocols for investigating incidents. These incident investigations, conducted with the participation of managers, workers, and safety experts, examine the chain or root causes that led to the incident and then develop recommendations for preventing them in the future. KETRACO has started the

journey towards ISO 45001:2018 Occupational health and safety management systems — requirements with guidance for use. This standard has come at a time when our operational safety risks are on the rise.

Welcome a regulator as a “cheap consultant.”

A visit from DOSHS safety inspector, I can attest to this, often triggers fear, if not panic, especially among inexperienced managers. However, many DOSHS

inspections lead to substantial improvements in a firm's operations. Having a DOSHS officer visiting our substation or warehouse is one way of having free safety consultancy services. Not only does it show that we are eager to comply with safety regulations, it also demonstrates the fact that our internal systems are working and we would wish to improve on them by having our 'big brother' peep in.

SAFETY JOKES

Selected by Winstone Audi from online sources

There were 11 people hanging on to a single rope that suspended them from a helicopter trying to bring them to safety. Ten were men; one was a woman. They all decided that one person would have to let go because if they didn't, the rope would break and all of them would die. No one could decide who it should be. Finally, the woman gave a really touching speech, saying how she would give up her life to save the others, because women were used to giving things up for their husbands and children and giving in to men. All of the men started clapping.

A Security Agent stopped at a ranch in Laikipia and talked to an old rancher. He told the rancher, "I need to inspect your ranch for illegally grown drugs." The rancher said, "okay, but don't go into that field over there...", as he pointed out the location. The Security Agent verbally exploded and said, "look my friend, I have the authority of the government with me!" Reaching into his rear back pocket, the arrogant officer removed his ID and proudly displayed it to the rancher. "See this ID?! This ID means I can go wherever I want... On any land! No questions asked, no answers given! Do you understand old man?!"

The rancher kindly nodded, apologized, and went about his work. Moments later the rancher heard loud screams, he looked up and saw the Security Agent running for his life, being chased by the rancher's big bull. With every step the bull was gaining ground on the officer, and it was likely that he'd sure enough get gored before he reached safety. The officer was clearly terrified. The old rancher threw down his tools, ran as fast as he could to the fence, and yelled at the top of his lungs....."YOUR ID! SHOW HIM YOUR ID!"

Two friends were going camping...

Griffin told Jeff not to bring any booze for safety reasons.

When they met, Jeff had two bags with him, at first glance, Godfrey noticed one bag full of Gilbey's Gin.

"I told you not to bring booze"

"It's just in case we get bitten by a snake, that will work as an anaesthesia"

"Oh, ok, but what's in the other bag?"

"Snakes! I thought we might not find any there"

A young executive is leaving the office late one evening, when he finds the CEO standing in front of a shredder with a piece of paper in his hand.

"Listen," says the CEO, "this is a very sensitive and important document here, and my secretary has gone for the night. Can you make this thing work for me?"

"Sure," the young executive says.

He turns the machine on, inserts the paper, and presses the start button.

"Excellent, excellent!" says the CEO as his paper disappears inside the machine. "I just need one copy."

My work log: Changed a lightbulb

My manager's work log: single-handedly managed the successful upgrade and deployment of new environmental illumination system with zero cost overruns and zero safety incidents.

ATOMS 4 CLIMATE: The role of Nuclear Energy in Climate Change

By Emmanuel Wandera



Photo Courtesy of the International Atomic Energy Agency (2019)

Climate change is real! Climate change is the most significant threat to our planet today. According to the latest Intergovernmental Panel on Climate Change (IPCC) special report on the impacts of global warming of 1.5 Degree Celsius October 2018, three years after the Paris Agreement the world is significantly behind in meeting its climate goal of reducing earth temperature. If this goes unchecked the temperatures can rise above pre-industrial levels and even exceed by 2030-2050.

Globally the climate is changing, according to the Intergovernmental Panel on Climate Change, as from 1950 this has caused extreme weather events in Africa. In Kenya, this has resulted to loss of infrastructure, agricultural produce and human life due to floods; community conflicts for land and water due to drought; destruction in coastal areas through erosion and flooding; and coral bleaching on the affecting marine life.

Currently Kenya's greenhouse gas (GHG) emissions represent less than 1% of emissions in the world. In this scenario, the major focus of the country in climate change action would be expected to be adaptation. However, projected economic and population growth require that the country develops mitigation actions. For this reason, Kenya has developed a framework for this including the Climate Change Act, 2016 and strategies such as the National

Climate Change Action Plan (NCCAP).

The NCCAP established that the national baseline GHG emission is projected to be 143 million tonnes of carbon dioxide equivalent (MtCO₂e) in 2030. In this, electricity generation will be the highest emitter of GHG emissions contributing upto 41 MtCO₂e. Much of the increase in electricity generation GHG emission is attributed to planned coal and natural gas power plants. This scenario has got the world thinking on the best options to alleviate the planet from the carbon emissions to save planet Earth.

To mitigate climate change, the most vivid option is adoption of low carbon technologies for energy generation across globe that include nuclear energy. In the NCCAP 2018-2022, Kenya has set Nationally Determined Contributions (NDC) as per the Paris Agreement to mitigate GHG emissions by 30%; an emission potential of 42.9 MtCO₂e by 2030. The emission potential for achieving this target has been distributed in six sectors, amongst them is electricity generation, which makes a contribution of 9.32 MtCO₂e. The key strategy proposed to meet the NDC target under the electricity generation sector is to increase the proportion of renewable energy and minimise the use of fossil fuel.

The solution is low carbon technologies that include:

renewables and nuclear energy. Kenya is currently considering introducing nuclear power to help meet future energy needs while minimizing carbon emissions.

For a moment let us focus on nuclear energy and answer the question why nuclear is a key part of the solution to climate change? Nuclear Power is recognized as a low carbon source energy, according to the 2014 IPCC report. The median lifecycle emissions from nuclear are 12g/kWh, which is similar to wind energy.

Being the second largest source of low carbon electricity after hydropower, nuclear energy has reduced greenhouse emissions globally. With over 450 reactors in operation across 30 different countries, in 2018 global nuclear installed capacity reached 400 GWe, accounting for more than 10% of global electricity production and 30% of global low carbon electricity production.

Shutting down of nuclear power plants in the United States of America and Germany has led to stagnation of and even increase in greenhouse gas emissions. All low carbon technologies: nuclear and renewables will need to be mobilized in order to stop climate change. This is position International institutions (UN, OECD-IEA, EU and OECD NEA) agree on that all low carbon technologies (renewable, nuclear and CCS) need to be implemented in order to achieve significant decarbonization.

Finally, being the second largest low carbon technology, increasing nuclear energy will help to ensure faster and cheaper decarbonization of the planet.

From the above points it is safe to conclude that nuclear is for climate and will save the planet in the wake of climate change threat. Indeed, nuclear energy is a key part of the solution to climate change and Kenya is on the right path of history working towards commissioning its first 1000Mw nuclear power plant. - Emmanuel is a guest writer.

HOW KETRACO FARED IN THE MEDIA DURING THE SEASON

New bid to improve city power supply

Project seeks to reinforce the existing grid and increase reliability of supply

BY IBRAHIM OLUKO
oluko@kenyanation.com

The Kenya Electricity Transmission Company (Ketaco) has commissioned the construction of a new power line that will offer an alternative path for power into the Nairobi Metropolitan Region.

The Nairobi Ring Associated Sub-stations project involves the construction of four sub-stations to increase transmission capacity and removing load from the existing overloaded substations.

The project, according to Managing Director Fernandes Barasa, involves building 220/66kV capacity sub-stations in Isinya, Imuka (Ngong), Athi River and Malaa.

"The Nairobi Ring project will offer an alternative supply path for power into the Nairobi Metropolitan Region and increase transmission capacity removing load from the existing overloaded substations," Mr Barasa told the press in an interview.

The project is Ketaco's solution for the ever-growing demand for

electricity in the Nairobi metropolis. It involves the strengthening of the Kenya grid by creating a ring around the Nairobi agglomeration, on the one hand, by reinforcing the existing grid to the east, and by building a 400kV line that will bypass it by the west, on the other hand.

The latter line initially operated at 220kV, will form the backbone of the future 400kV regional grid linking Ethiopia, Kenya and Tanzania.

Mr Barasa said completion of the project will increase reliability of power supply and create an attractive climate for investors thus spurring growth and employment.

Electricity transmission

NAIROBI RING PROJECT

Project involves construction of 220/66kV capacity substations in Isinya, Imuka (Ngong), Athi River and Malaa.

Initially, any interruption in power supply at generation or on the transmission infrastructure in Juja/Dandora substations resulted in a power outage in Nairobi and in some cases a nationwide



Kenya Power workers at the Embakasi Sub-station ahead of the commissioning of an underground cable at the National Park last May. The project is part of the Nairobi Ring project.

"It is expected it will improve uninterrupted supply in Nairobi metropolis and encourage the social and economic development of the city and the country," he said.

The release of energy generated by geothermal power plants in Olkaria, the wind farm at Lake Turkana and thermal power stations near Mombasa and the long-term interconnection of Ethiopia and Tanzania is part of the East Africa Power Pool.

The Suswa-Isinya line will link the Olkaria plants to the national grid from the Coast to the rest of Kenya and neighbouring countries

of Tanzania, Uganda and Ethiopia. Nairobi previously received power from the Tana River Hydro Power Stations through various transmission lines to Juja and Dandora sub-station and the Embakasi station, all located on the eastern side of the capital.

The city was also connected to Juja (Uganda) through the long 132kV line through Lessos and also to Tabai substation—all to Juja substation.

In 2004, the capital city was connected to Olkaria using a line from Olkaria through Nairobi North to Dandora.

Kisumu. Ketaco alarmed by claims

The Kenya Electricity Transmission Company (Ketaco) says compensation demands are frustrating efforts to connect the region to the national grid. Ketaco is currently undertaking the construction of powerlines to distribute 200 kilowatts of power from Sonda Miriu to Ndhwa Sub-station at Ongeng' trading centre. [James Omoro]



KU launches funds drive for research, innovation meet

BY NATION REPORTER

Kenyatta University (KU) yesterday launched a campaign aimed at raising cash to support a major research and innovation conference it plans to hold in October.

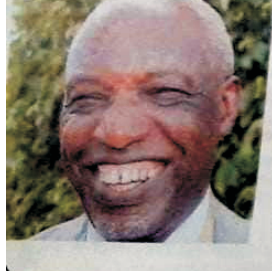
The Kenya Electricity Transmission Co (Ketaco) made the first contribution of Sh1 million towards the Biennial Research and Innovation conference slated for October 22-25.

The Kenya Electricity Generating Com-

pany (KenGen) contributed Sh600,000. KU also entered into a deal with the Nation Media Group, who will be the official media partners for the conference.

Speaking during the partnership deal at the Chancellor Paul Wani Kiambu on corporations to higher education, he said the partnership was for triggering innovation in the country on the one hand and "The mission of provide quality h

training, promote scholarship, service, innovation and creativity and inculcate moral values for sustainable individual and community development," Prof Wainaina said.



national news

Ketraco projects to reduce power costs, blackouts

By Jared Opiyo



Barasa

Airbase and therefore there will be no special additional compensation.

The company offered one of the best wayleave compensation as it does not outright purchase unlike cases of roads and railway.

It has emerged that in projects undertaken by Ketaco; land remains in the hands of the current owner but compensate at the rate of 30pc of the value of the land.

cannot build structures under the line.

However, such land owners can perform farming and planting of crops and trees as they are not more than 12 feet while any structures like homes, cattle sheds among others within the wayleave are also compensated at the current market value plus 15pc disturbance allowance.

The project comes in the wake of completion of a similar one, the 220kv Athi River-Embakasi underground cable which serves as an alternative power supply from Olkaria to Nairobi and its environs with improved reliability and availability.

The cable, which passes through the Nairobi National Park, acts as a bridge through which two major projects (Mombasa-Nairobi and Suswa-Isinya) get access to Nairobi and connect the biggest cities in Kenya with the Ol Karia geothermal fields.

KE TRACO constructs high voltage power lines in Nyanza to boost economic growth

BY SAMUEL OWIDA

Industrialists and domestic power consumers in three counties of Nyanza namely Kisumu, Homa Bay and Migori will no longer suffer

giant Turkana Wind Power electricity project which remains a significant breakthrough in the energy sector that is expected to completely alter the play field.

Ketraco heeds power outage cry from Homa Bay traders

by Novan Owidi

Business in the bus Kaji sector within South Nyanza will receive a boost following plans by the Kenya Electricity Transmission Company (Ketaco) to supply stable power to the area.

Ketraco has hinted at plans to provide constant electrical power to Homa Bay and the neighbouring counties which have in the past been getting intermittent supply due to infrastructural challenges.

Board chairman James Rege announced that the power will be transmitted from Ongeng' substation in Ndhwa sub-county whose construction work is almost complete.

Health research

The substation will draw its power from Sonda Miriu geothermal power plant in Kisumu county.

Rege said the new substation will enhance industrialisation.

"Ongeng' substation will supply

"The fibre cables will speed up internet connection in the region

power to Migori, Kisumu, Siaya and Homa Bay to promote development. The fibre cables will speed up internet connection in the region for improved health research and data storage," said Rege.

Speaking when the company board members paid a courtesy call to Homa Bay deputy governor Hamilton Orata, Rege assured residents whose land will be utilised in the construction of power towers of timely compensation.

Traders from Homa Bay and its environs have in the past decry of getting losses over recurrent power outages.

Homa Bay Giant Traders Association chairman Godfrey Onduso said business operators who depend on electricity to run their premises have

sometimes closed down due to frequent blackouts.

Onduso said some of the traders who are adversely affected by the cuts include welders, barbers, farmers, motorists, cyber operators and some traders.

He said the outages cost traders millions of shillings everyday.

"Traders who use electrical machines are forced to close down their businesses as they cannot do business without power supply," he said.

He said the direct negative effect on the economy of the county, he

ORPHANS TO BENEFIT Ketraco, KU sign Sh1m scholarship agreement

JILBERT KOECH / The Kenya Electricity Transmission Company Limited has donated Sh1 million for the establishment of a new scholarship fund at Kenyatta University.

The Ketraco Scholarship for Orphans and Vulnerable Students will educate two female orphaned and vulnerable students in electrical or civil engineering for five years. Ketraco and KU have also partnered to support the Kenyatta University Biennial Research and Innovation Conference slated for October 22 to 25. Ketraco donated Sh1 million towards the conference. CEO Fernandes Barasa said the move will bridge skills gap.

Transmission Ketraco secures wayleaves to take geothermal power to Kisumu

Supply of geothermal power to western Kenya will begin in April next year, Kenya Electricity Transmission Company (Ketaco) says.

Yesterday, Ketraco's land economist Charles Ogoako said the 220kV/ 400kV Olkaria-Lessos-Kisumu line will be completed and energised by next year, giving the region its first supply of renewable energy.

Mr Ogoako said challenges in

acquiring wayleaves for the Sh18.2 billion project had been the main impediment in completing the line on time. "Lack of grids is what has denied the region cheap, efficient power," he said.

Three rings will deliver 400 kilowatts of power in Kisumu, which will end perennial outages which have left industries starting at losses from having to turn to the more expensive diesel-powered

generators. Ogoako spoke during a tour in which a multi-agency team led by Nyanza regional commissioner James Kianda met property and farm owners to discuss compensation.

The agency is seeking 40 to 60 metre wide wayleaves on the 300-kilometre stretch, with the line to Lessos complete and the one to Kisumu 60 per cent done. The cost of this component of the project is Sh4 billion.

Contractors building the masts, he said are expected on site next week. To safeguard the 60-per-cent investments, police would guard the ongoing project. The line will pass through Timbora forest.

He said there were no fixed rates for compensation and this would depend on the value of a property. Agricultural lands and commercial centres had different rates, he said.

Western Kenya has largely been relying on electricity from the 60-megawatt Sonda Miriu turbine power station fueled by kerosene at Muhoroni, alongside costly imports from Uganda.

The Miriu plant, the major cheap power source in the area, is less reliable as it does not have a reservoir and only generates power during the rainy season.

Low voltages and unreliable

supply have dominated discussions at Kenya Association of Manufacturers' annual meetings, with blame heaped on Kenya Power. The power distributor, Ketaco, will step down the 220kV line from Lessos to 122kV at its Mambole switchyard which is also under construction. This will be stepped down for distribution at the Mambole substation currently operated by Kenya Power. [Dalton Nyabundi]

Kenya Electricity Transmission Company (Ketaco) has secured wayleaves for the 220kV/ 400kV Olkaria-Lessos-Kisumu line. The project involves building 220/66kV capacity sub-stations in Isinya, Imuka (Ngong), Athi River and Malaa. The project is Ketaco's solution for the ever-growing demand for electricity in the Nairobi metropolis. It involves the strengthening of the Kenya grid by creating a ring around the Nairobi agglomeration, on the one hand, by reinforcing the existing grid to the east, and by building a 400kV line that will bypass it by the west, on the other hand.



Kenya Electricity Transmission Company Limited
 "Building a World Class National Grid"

SERVICE DELIVERY CHARTER

The Kenya Electricity Transmission Company and its staff are committed to providing high quality service to all our customers and stakeholders with dignity, professionalism and within the shortest time possible.

VISION STATEMENT

"To be a world-class electricity transmission company and the leading inter-connector in Africa."

MISSION STATEMENT

"To provide reliable, efficient and effective electricity transmission and promote power trade for sustainable socio-economic development."

TYPE OF SERVICE	SERVICE RENDERED	CUSTOMER/STAKEHOLDER REQUIREMENT	RESPONSE TIME	CHARGES
Customer Service & Complaints	Customer Service	Communication of Issue	With 24 hours of receipt of Communication	Free
	Management of Complaints / Compliments	Complaints Compliment	Acknowledge immediately & respond within 14 days	Free
Procurement	Procurement	Prequalification, purchase of tender documents, sealed bids, supply of goods & services	30 days	Not more than Ksh. 5000
	Payments	Relevant documentation	30 days or as per the contract terms	Free
Line Trace & Land Acquisition	Land/Trace Acquisition	Valid ownership documents	90 days	Free
	Crop compensation	Proof of ownership/letter from local administration	90 days	Free
	Resettlement	Ownership & Consent	12 months	Free
	Loss of use compensation	Ownership & Consent	90 days	Free
	Structures compensation	Ownership & Consent	90 days	Free

WE ARE COMMITTED TO COURTESY AND EXCELLENCE IN SERVICE DELIVERY.

Any service that does not conform to the above standards or an officer who does not live up to the commitment to courtesy and excellence in service delivery should be reported to the Managing Director & CEO, Kenya Electricity Transmission Company or any other Senior Officer of the company.

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 Email: info@ketraco.co.ke

or
 Customer Service Officer, Telephone: (+254) 719018021, Email: complaints@ketraco.co.ke

or
 The Commission Secretary, Commission on Administrative Justice: 2nd Floor, West End Towers, Waiyaki Way, Westlands
 P.O. Box 20414-00200 Nairobi, Telephone: (+254) 020 2270000, Website: www.ombudsman.go.ke

**EXPANDING THE NATIONAL GRID EVERY
YEAR EVERY CORNER**

