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The

# GRID

The Kenya Electricity Transmission Company Newsletter



Continuous Innovation For Efficiency In Transmission Sector



**TRANSMITTING INNOVATION, TRANSFORMING INDUSTRIES**



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**LETTER FROM THE EDITOR**



The transmission sector has had to deal with increased demand for access for renewable energy to the national grid, an increase in consumer energy demands and most recently the transfer of responsibility of grid management and operations from the previous operator to Kenya Electricity Transmission Company Limited (KETRACO).

As a response to the growing demand for access to renewable energy, KETRACO has successfully completed key transmission projects that connect most parts of the country to the national grid.

KETRACO has completed and commissioned the Arthi River Substation, 400kV Suswa – Isinya Transmission Line, 500kV HVDC Ethiopia – Kenya Transmission Line and Converter Substation at Suswa, 132kV Olkaria – Narok Transmission Line, 132kV Mwingi – Kitui Transmission Line, Kitui Substation and 220/400kV Isinya – Namanga Substation among other game-changing projects.

Energy and Petroleum Regulatory Authority (EPRA) designated KETRACO Limited the official transmission Systems Operator, following a task force recommendation that also proposed several implementation gaps and policy directions to be effected while implementing the new development.

By bestowing this crucial responsibility on KETRACO – the regulator confirms the level of trust in the Company’s capacity as an Electricity Transmission Company, to be in the front line in ensuring the reliable delivery of electricity to consumers, businesses and industry. The Company shall be managing the national power grid!

This is a major milestone in the history of KETRACO. Other than success stories in the implementation of the Company’s core mandate, the Company has prioritized research and innovation whose role in the development and

coordination of the market is inalienable.

The Company’s core mandate is to design, construct, own, operate and maintain new high voltage electricity transmission lines and substations that form the backbone of the National Transmission Grid.

This component has led to the adoption and full utilization of technology, research and innovation in our organization, hence the Theme; Continuous Innovation for Efficiency in Transmission Sector. The Company is using the Integrated Location Intelligence Solution (ILIS), a centralized, web-enabled, enterprise-ready Geo-spatial System for Way-leave Management and Engineering Construction.

This is a major innovation that provides a modular, extendible, and scalable software architecture with a robust enterprise geodatabase that ensures automation of key business process and enhances sharing of information across all departments within KETRACO.

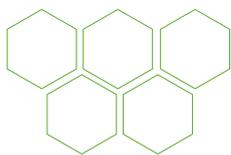
KETRACO has thus digitized its business processes, fully adopted technology, and can today share its success stories after 14 years of existence. The Company has successfully implemented SAP Predictive Maintenance and Service to provide an end-to-end solution to the operations and engineering business.

This technology platform has provided more insight into the life-cycle of our Company’s assets by analysing various key attributes. Some of the benefits include business process improvement opportunities and operational efficiencies.

The arrival of our new Board Chairman Mr. Abdi Bare Duale blends well with the path taken to ensure full absorption and utilization of technology, and furtherance of innovation to deliver on KETRACO mandate.

Mr. Duale is a transformative leader and experienced business executive with extensive technical knowledge in manufacturing, supply chain management, and managing large-scale budgets and operations, with a proven ability to translate strategies into actionable steps is another. He takes over from Brig.(Rtd.) David Ngaira, EBS.

**Raphael Mworira**  
**Editor**



## WORD FROM THE Ag. MANAGING DIRECTOR



**Eng. Isaac Kiva, OGW**

**T**echnology has today become critical to information sharing in both Government and the Corporate World.

Distribution of information is not any more restricted by time but generation and costs. For entities to remain in competition – investments in modification of information and communication technology are recommended.

Kenya Electricity Transmission Company Limited (KETRACO) has, unlike many firms and state agencies, fully embraced technology and has mainstreamed research and innovation in its operations. This has greatly enhanced the Company's ability to meet its core objectives and make great utilization of resources.

Within the short time I have been here, I can confirm that the adoption and full utilization of SAP Ariba in the Company's procurement is a cornerstone in strategic governance and has become a crucial pillar of service delivery in our organization. In tandem with this publication's theme; Continuous Innovation For Efficiency In Transmission Sector, we adopted this technology to enhance our procurement

capabilities to meet regulatory commitments and leverage the power and scale of the largest network in the World.

I am happy that this has resonated well with our vision to be the leading interconnector in Africa, and to achieve this we needed access to World class procurement capabilities that would unlock greater automation, control, consistency, and scale.

It is worth noting that KETRACO has also developed a cloud-based platform called Extranet on SharePoint (an internal online site with restricted access) for securely sharing project-related data with consultants, contractors, and other relevant external parties. The platform also allows collaboration with members within the organization.

Not forgetting that our transmission infrastructure is reinforcing and upgrading the power system towards increasing electricity access throughout the country as well as promoting power exchange and trade in the Eastern Africa Region.

In this respect, the last few months have been very busy for us at KETRACO as we worked round the clock to have some of our strategic Transmission Line projects either completed, commenced or brought to their final stages of completion.

We successfully completed and energised the 220/66kV Athi River Substation on 13th October 2022, just days after the 400kV Suswa -Isinya Transmission Line was energized, to be operated at full capacity.

The Athi River Substation will enhance power supply security, stability and reliability to the Athi River Industrial Zone including the Export Processing Zone (EPZ).

Another project of great importance in the growth of the energy sector is the Bi-national 500kV HVDC Eastern Electricity Highway Project (EEHP) that was commissioned on 1st November 2022, where Kenya is importing 200MW

of hydro electric power.

The project, also known as Ethiopia – Kenya Interconnector, involved the construction of 612km bipolar power Transmission Line, a Converter Station and 400kV substation at Suswa with the objective to facilitate power exchange between Ethiopia and Kenya.

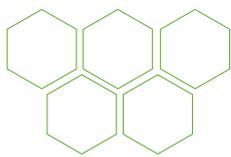
Energization of Olkaria – Narok Transmission Line on July 19th 2022 provided an alternative evacuation path for geothermal power via Olkaria 1AU to Narok. Narok town and its environs will now enjoy reliable, stable power supply. Four 33kV substation feeders to Narok town, Ololunga, Mara and Suswa were also energised.

The 400kV Mariakani substation is in its final stages of completion. Once completed, it will link to the Isinya substation via an upgraded 400kV Mombasa – Nairobi Transmission Line, which is currently operating at 220kV. This will improve the power transfer capacity and reduce losses.

As remedy to the runaway incidences of vandalism of our transmission infrastructure, KETRACO has jointly with Kenya Power launched a toll-free phone number -991 to forestall the rising cases of the vice targeting the electricity grid. Calls through this number are channelled through a joint control room hosted by KETRACO and Kenya Power before being forwarded to the respective agencies for immediate action.

Rise in grid infrastructure theft disrupts operations and further costs the sector agencies substantive amounts of money in expensive repair. We appeal for your partnership to fight the vice and help us scale the heights through integrated innovation that will unlock our full potential as electricity transmitter of distinction.





KETRACO NEWS

# ENERGIZATION OF 400kV SUSWA – ISINYA TRANSMISSION LINE PROJECT BOLSTERS KENYA’S POSITION IN THE REGIONAL POWER POOL

By Sharon Sitienei

**K**enya’s electricity transmission sector has made a breakthrough in the provision of reliable power with the complete energization of the 103km 400kV Suswa – Isinya Transmission Line Project, to be operated at full capacity.

The project was initially energized in 2018 but operated at 220kV due to phased financing models by different development partners such as World Bank, French Development Agency (AFD) and African Development Bank (AFDB).

The implementing agency, Kenya Electricity Transmission Company (KETRACO) Ltd, which is Kenya’s transmission system operator, completed and energized the Transmission Line Project to operate at it’s designed voltage rating of 400kV, placing the Country in pole position as a transmission giant within the East and Southern Africa power pool.

The project seeks to inject stable power into the grid thereby enhancing grid stability and security resulting into improved positive impact on pricing model and positions Kenya as a major gateway in regional power trade.

This, in addition to being a key component of the Nairobi Ring Project meant to re-enforce, stabilize, and strengthen power supply within Nairobi and its environs, encompassing Kajiado, Machakos and Kiambu Counties.

The development coincides with the entry into bilateral and multilateral power trade agreements by African governments that necessitates the need for integration of Africa’s power grids into regional power pools through their respective regional economic communities (RECs). This arrangement promises to address the continent’s energy challenges.

“As Republic of Kenya we may want to export power to Republic of Tanzania once they complete their side of the project. Suswa – Isinya Transmission Line



*The 400kV Suswa - Isinya Energization team pose for a photo soon after they energized the line to operate at 400kV*



*The Suswa - Isinya Transmission Line*

becomes the first Transmission Line to be operated at 400kV in East Africa. It will stabilize and secure our grid as well enhance our capacity within the East Africa and Southern Africa Power pool,” KETRACO General Manager for design and Construction, Eng. (CPA) Antony Wamukota said.

As a member of the Common Market for Eastern and Southern Africa (COMESA), this development, places Kenya at a vantage position to play critical role in connecting the Eastern Africa Power Pool to the Southern Pool. A power pool is a system that interconnects two or more power systems that generate and transmit electricity in the most reliable and economic manner determined by their load center requirements.

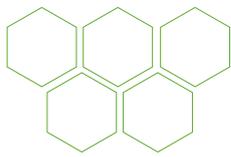
The Suswa – Isinya Transmission Line makes it possible for Kenya, through the Kenya-Tanzania Transmission Line, to connect its power grid to Southern Africa Power Pool through the Tanzania-Zambia power link that will

move further south to Zimbabwe and finally into South Africa. From Suswa, the power is transported over 103km to Isinya through the 400kV Suswa-Isinya Transmission Line and at Isinya, the double circuit Kenya-Tanzania Transmission Line runs Southwards to Arusha through Namanga border.

Suswa substation evacuates power from Ethiopia to Kenya. The substation currently evacuates geothermal power generated from the Olkaria complex and the 300 megawatts wind energy from Loiyangalani in Marsabit county.

Hence, through the Suswa-Isinya line, a mix of hydro, geothermal and wind energy will be available for use in the country or exported to our neighbouring countries in need of clean, sustainable, and affordable electricity.





## 991 TOLL-FREE NUMBER LAUNCHED TO REPORT ELECTRICITY INFRASTRUCTURE VANDALISM CASES

By Eva Kibicho

**K**enya Electricity and Transmission Company Limited (KETRACO) and Kenya Power have jointly launched a toll-free number – 991 as part of the heightened anti-vandalism campaign.

The toll-free number was launched as one of the measures to forestall the rising cases of vandalism targeting the electricity grid.

Calls will be channelled through a joint control room hosted by

KETRACO and Kenya Power before being forwarded to the respective agencies for immediate action. The two agencies operate more than 7,204 kilometers of the transmission network, with Kenya Power managing a further 51,638 kilometers of the distribution network.

The rise in grid infrastructure theft disrupts operations and further costs the two agencies substantive



“Whenever power is interrupted due to grid unavailability, it is the public that pays the price. It is for this reason that we are calling on you to partner with us to protect these important installations because they belong to you, the people of Kenya,” he added.

There have been incidences of vandalism of KETRACO transmission infrastructure in the recent past, that have disrupted power supply and affected the national economy.

Electricity tower along Kiambere - Embakasi high voltage Transmission Line collapsed causing a nationwide power disruption following incident of vandalism.

There have since been other incidences affecting Loiyangalani - Suswa Transmission Line, Olkaria - Lessos - Kisumu Transmission Line, Olkaria - Narok Transmission Line, among others.

amounts of money in expensive repairs.

“We are calling upon members of the public to partner with us and help curb this menace by reporting any cases of vandalism through this number-991 at no cost,” said Eng. (CPA) Antony Wamukota, General Manager Design and Construction

## KETRACO ENERGIZES ITS ATHI RIVER SUBSTATION TO BE A MAJOR ECONOMIC ENABLER WITHIN THE REGION

By Joy Ashioya

**K**enya Electricity Transmission Company (KETRACO) Ltd continues a positive trajectory with the energization of the 220/66kV Athi River Substation.

This is a major milestone to the Kenyan electricity grid, coming just days after the 400kV Suswa -Isinya Transmission Line was energized, to be operated at full capacity.

The Athi River Substation will enhance power supply security , stability and reliability to the Athi River Industrial Zone including the Export Processing Zone (EPZ).

The project is part of the Nairobi Ring that will expand the electricity transmission network around Nairobi National Capital Region thus reducing technical losses while improving the voltage profiles.

An enhanced electricity transmission



General Manager, Dr. Eng. John Mativo (in red tie) with delegation from Korea Eximbank & their Knowledge Sharing Program technical consultants at Athi River Substation.

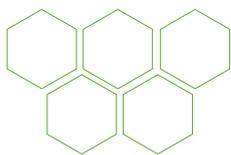
new 220/66kV Malaa substation offers a redundant electricity supply path into the Capital city and its environs while increasing the transformation capacity. This will relieve the existing, already strained electricity infrastructure.

This will increase reliability of power supply and create an attractive and conducive environment for investors in the region thus spurring economic growth and employment.

grid will cope with growing demand which will in turn post a positive impact on electricity pricing model.

Nairobi Metropolitan Ring project which consists of construction of new 220kV Isinya Substation, new 220/66kV Kimuka Substation and

Athi River substation will reinforce the much-needed power supply stability within Nairobi, Machakos and Kajiado counties with the immediate beneficiaries being the mining and cement factories located within the vicinity of the substation.



## EPRA DESIGNATES KETRACO THE OFFICIAL TRANSMISSION SYSTEMS OPERATOR (SO)

*Task force recommends policy directions on implementing new development*

By Jack Nduri

**E**nergy and Petroleum Regulatory Authority (EPRA) has designated Kenya Electricity Transmission Company (KETRACO) Limited the official transmission infrastructure operator.

The appointment follows a task force recommendation that also proposed a raft of implementation gaps and policy directions to be affected while implementing the new development.

This means KETRACO will oversee system operation, transmission infrastructure planning, budgeting, and development.

A Transmission System Operator is an entity entrusted with transporting energy in the form natural gas or electric power on a national or regional level, using fixed infrasture.

The task force also recommended to the Company to consider implementing PPP in transmission infrastructure development to reduce reliance on the already burdened exchequer.

The implementation of the PPP transmission lines, they noted, should be phased over time such that there is minimal impact to the end user tariff.

This, however; will require EPRA to develop a policy on a cost reflective tariff to compensate investors under PPPs, following lack of guidelines on compensation of investors under PPP Projects.

To effectively attain the transfer of operation and maintenance aspects of KPLC transmission system to KETRACO and address implemen-

tation gaps in the short term through an operations and maintenance contract the task force recommended the execution of the O&M and SLA agreement between KPLC and KETRACO, approval from PSC/SCAC to increase the approved staff establishment and EPRA to give policy guidelines on transfer of financial resources

The government will be required to

develop a National Resettlement Action Plan Framework for energy related projects, including livelihood restoration in the event of physical displacement of communities in line with National Energy Policy 2018.

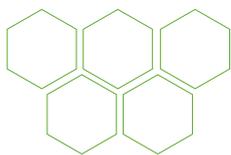
More initiatives need to be introduced in the reviewed policy to cover all wayleave and compensation related issues to reduce risk of delay in project implementation.

#CelebrateService

# STEPS FOR RESOLVING A COMPLAINT

- Complaint is received, acknowledged, assessed and if found to be within KETRACO's jurisdiction, it is logged in the register.
- The registered complaint is then forwarded to the relevant office for resolution in accordance with the set timelines.
- Once resolved, it is recorded as such, and feedback given to the complainant.

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## KETRACO TOWERS ABOVE PEERS IN ELECTRICITY SECTOR OVER INNOVATION

By David Kariuki

A break through in technological innovation and full adoption of the same to deliver its mandate places Kenya Electricity Transmission Company (KETRACO) ahead of her peers in the energy/transmission sector.

The Company has made a leapt into leadership as a transmission systems operator and technology giant in the last few years.

The innovations , propelled by the Company’s ICT directorate aligns KETRACO with globalization and rapidly changing technology trends.

This has made engagements with suppliers, vendors, contractors, and consultants more efficient, simple and worker friendly.

The enterprise mobility, an innovation used for managing handheld devices for capturing project data in the field and extranet, an online internal site on Microsoft SharePoint with restricted access created to let external partners have access to specific content, and to collaborate with members within the organisation have been developed and adopted by KETRACO.

To invite users to a SharePoint extranet site, the ICT Admin configures the site, allows external access, and sets a site owner. The user then creates a shared folder within their site and selects Share. The user enters the email address of the external user(s) he/she wishes to share the site with and click Share to start the seamless collaboration.

The site can be accessed from anywhere there's Internet connection though not publicly



Source: CanStock.com - csp 13247397

accessible like KETRACO Website. It is also separate from the company intranet so that external parties do not have access to staff and employee information.

There are three steps in this process, which is creating a site, providing external access, and inviting people you want to have access to the site.

This new development has led to seamless workflow from field data mapping to payment stage. This includes crops enumeration app used by project clerks/wayleave officers to collect data on crop damages. It helps in capturing data in crops mapping and CDR verification.

The Land Economists also use Household Mapping App to map data on affected household along the wayleave corridor, Structure Mapping and Structures Verification.

In Addition to RAP household

mapping used by Social safeguard team and Tower WPR used by engineering team for towers construction progress report.

**“There are three steps in this process, which is creating a site, providing external access, and inviting people you want to have access to the site.”**



400/220kV MARIAKANI SUBSTATION SET TO BE COMPLETED IN JUNE 2023



By **Diana Kemunto**

**M**ariakani substation, a part of the Mombasa – Nairobi Transmission Project – 400/220kV is set to be completed in June 2023.

The Substation will step up power to ensure it is transmitted over long distances (over 400km) thus reducing transmission losses

Kenya Electricity Transmission Company Limited (KETRACO) Board Chairman Mr. Abdi Bare Duale said the Mariakani substation project will soon be commissioned.

During an inspection tour at Mariakani substation in the Coast Region, the Chairman said overall work completion at the substation project stood at 94 percent, noting that construction work was 90 percent, procurement 99 percent, engineering and design 99 percent and test and commissioning 30 percent complete.

The Chairman who was flanked by Ag. Managing Director, Eng. Isaac Kiva, OGW was on a projects inspections visit to the Coast Region.

Mariakani Substation is an essential part of the 482km 400/220kV Mombasa – Nairobi Transmission Line as it steps up the power to ensure it is transmitted over long distances (over 400km) thus reducing transmission losses.



*KETRACO Chairman Mr. Abdi Bare Duale (left), confers with Ag. Managing Director Eng. Isaac Kiva (right), GM Design and Construction Eng. (CPA) Antony Wamukota (on Eng. Kiva's right), project officers and contractor at Mariakani substation*

The project falls under the system strengthening/capacity enhancement projects that aim to improve the transfer capacity of electrical energy as well as address the challenge of low voltages, high transmission losses, and unreliability of supply and network security.



*KETRACO Chairman Mr. Abdi Bare Duale (left), Ag. Managing Director Eng. Isaac Kiva, General Managers Lydia Sitienei and Eng. (CPA) Antony Wamukota at Mariakani substation*

According to Mr. Duale, the project scope involved Design, Supply,

Installation, Testing and Commissioning of 400/220kV Mariakani Substation with two 200MVA Power Transformers.

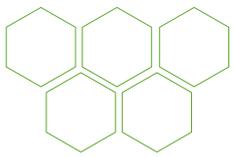
It is jointly financed by African

Development Bank and Government of

Kenya at a cost of USD 28,090,014.23 and KES 142,447,267.00 respectively. China CAMC Engineering CO., Ltd. (CAMCE) is undertaking the construction works with a target completion date of 30th June this year. Contract Commencement Date was 9th February 2019.

Mr. Duale said the project will also improve the quality and reliability of power supplied to the Coast region, ensure efficient utilization of the 500kV Ethiopia-Kenya HVDC link and the imported power through the Suswa-Isinya Transmission Line and supply reliable power to the Special Economic Zone in Dongo-Kundu.

The 400kV Mariakani substation will also link the 400kV Isinya Substation via an upgraded 400kV Mombasa-Nairobi Transmission Line currently operating at 220kV that will improve the power transfer capacity and reduce power losses.



### THIRD KETRACO ANNUAL RESEARCH CONFERENCE HELD AT A NAIROBI HOTEL

By Ndwiga Patrick

**K**enya Electricity Transmission Company Limited (KETRACO) held its third annual research conference on 1st July 2022 at the Radisson Blue Hotel in Upper Hill, Nairobi.

The conference was themed “Enhancing Efficiency & Effectiveness in Development and Operation of Electricity Transmission Infrastructure in Kenya.”

The novelty of the conference theme was motivated by the need to consider entrenching sustainability in the development, maintenance and operations in so far as electricity transmission infrastructure in concerned.

It is evident that the energy sector at large and more specifically electricity sub- sector has recorded unprecedented growth and development over decades.

The theme in hinged on the fact that energy sector has been identified as a key enabler towards the realization of Kenya’s Vision 2030 as well as the then Government’s Big Four Development agenda.

Under the theme there were 4 thematic areas that the company sought to explore. These included: analysis of lessons learnt (2009-2021), analysis of key success factors, project management issues, and technical aspects.

A total of 112 participants attended the conference. The conference participants were drawn across the practitioners in the energy sector at large, the academia as well as individual practitioners. During the conference two research papers were presented which included co-optimized Generation & Transmission Expansion Planning in Kenya; a Drive Towards Realization of Affordable Quality Electricity Supply by Eng. Julius Kilonzi Charles (KPLC), Dr. Peter Musau Moses & Prof. (Eng.) Jackson Mwangi Mbuthia (UoN)

The novelty of this paper was anchored on the premise that in the recent past, the separation of Generation Expansion Planning (GEP) and Transmission Expansion Planning (TEP) optimization processes has caused many challenges which have forced



Delegates attending KETRACO Annual Research Conference

network planners and researchers to reconsider going back to the integrated planning approach.

The scenario is not different in Kenya. The three objectives of the papers were to highlight the benefits of GEP and TEP co-optimization in Kenya, perform a detailed analysis of current GTEP co-optimization trends with the aim of recommending a feasible way-forward for Kenya’s Power System Expansion Planning and lastly was to formulate and solve an AC-based GEP & TEP co-optimization problem on a simple network to investigate the impact of GTEP co-optimization.

An analysis based on a simple GTEP co-optimization algorithm developed by the authors showed that AC power flow based GTEP co-optimization results to a total cost savings of between 2% and 10% when compared to DC power flow-based results considering penalties due to load flow constraint violations.

The research paper ends by recommending a phased-out adoption process for co-optimizing GEP and TEP processes in Kenya.

The other presentation was on improvement of transmission of active energy efficiency by Eng. Charles Ndung’u of Kenya Power and Lighting Company Limited (KPLC).

This paper was motivated by the fact that regardless of the transmission voltage, all transmission lines incur energy losses as electricity moves from generation stations to the load centers. When the loss between generation sources and load centers

is low, the electricity output needed to transport power and meet national demand is reduced.

Because of the bulk volume of energy carried by transmission lines, any small increase in efficiency can yield significant energy savings.

Therefore, the paper aimed at reducing transportation of reactive power from

the source to the load centers by increasing the large power consumers’ system utilization efficiency.

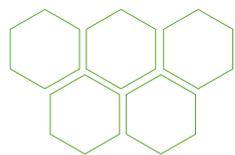
This was anchored on the understanding that there are usually technical losses associated with transmission of active power. Further, high reactive power reduces system capacity hence new infrastructures are required to cater for ever growing energy demand.

Therefore, any efforts that aim to improve the efficiency of electrical power transmission is worth exploring.

The three objectives of the papers were: To analyze and evaluate Transmission Line loading: To investigate large power consumers’ system utilization efficiency and lastly, to determine the effects of increasing large power consumer’ system utilization efficiency on power Transmission Line.

From analysis and evaluation of the data obtained, it was established that when the large power consumers’ system utilization efficiency is increased from the current 90 % to 95 %, the transmission lines will be less loaded thus creating an additional capacity of approximately 5 MVA at peak demand time as well as improving receivable voltage.

It is strongly therefore, advocated to review the current system utilization efficiency for large power consumers to boost energy transport efficiency via transmission lines to enhance robustness and reliability of the power system as well as creating an additional system capacity.



## ABDI BARE DUALE NAMED KETRACO BOARD'S SIXTH CHAIRMAN

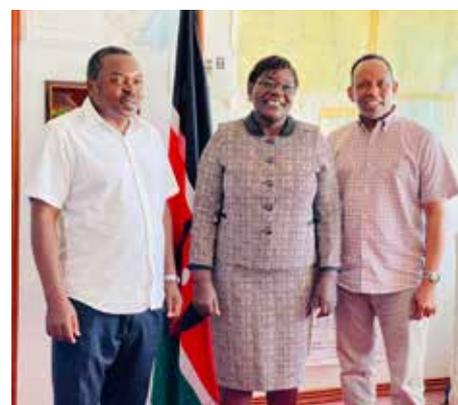
By Joy Ashioya



KETRACO Board Chairman Mr. Abdi Bare Duale (left) with Ag. MD Eng. Isaac Kiva, OGW (Centre) and Manager Security Services Mr. Godfrey Imanene, HSC (right) at Mariakani substation



Mr. Duale



KETRACO Board Chairman Mr. Abdi Bare Duale (right), Coast Regional Commissioner Ms Rhoda Onyancha (middle) and Ag. MD Eng. Isaac Kiva, OGW (left) during a courtesy call on the administrator in her office

**P**resident William Ruto has appointed Mr. Abdi Bare Duale to chair the Kenya Electricity Transmission Company Limited (KETRACO) Board of Directors effective Friday January 20, 2023 for a period of three years.

President Ruto revoked the appointment of Brigadier (Rtd.) David Azangu Ngaira in a gazette notice dated January 19th, 2023 and named Mr. Duale as the new chairman of the electricity transmission parastatal.

"In exercise of the powers conferred by paragraph 3 (a) of the Articles of Association of the Kenya Electricity Transmission Company Limited, I, William Samoei Ruto, appoint Abdi Bare Duale to be the Chairperson of KETRACO for a period of three years with effect from January 20, 2023. The appointment of Brig (Rtd) David Azangu Ngaira is revoked," reads the notice.

Currently the Managing Director of Medina Chemicals Limited, Abdi has a strong record of developing staff and building empowered and diverse teams to achieve change. Prior to this appointment, Abdi served as a Board Chairman of Kenya Leather Development Council, Board Member of Kenya Revenue Authority and Board Member of Kenya Bureau of Standards.

Abdi has an MBA (International Trade) from Edith Cowan University, Australia, and a Bachelor of Business Management from Swinburne University of Technology.

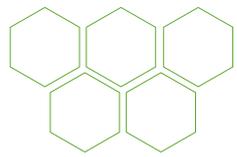
He is a transformative leader and experienced business executive with demonstrated experience in starting up and running successful enterprises. He has extensive technical knowledge in manufacturing, supply chain management, and managing large-scale budgets and operations, with a proven ability to translate strategies into

actionable steps.

Meanwhile, Energy Cabinet Secretary Mr. Davis Chirchir has reconstituted Kenya Electricity Transmission Company Limited (KETRACO) Board and appointed four new members.

The CS appointed Jane Gatwiri Gatobu, Michael Maloba, Ashif Kassam and, Maryline Chepkirui, to be KETRACO board members for a period of three 3 years, with effect from the 24th February 2023. The CS revoked previous appointments.





## KENYA'S E-MOBILITY READINESS

By Diana Kemunto

**K**enya Power in conjunction with the German Agency for International Cooperation (GIZ) organized for an E-Mobility stakeholders conference on February 7th and 8th 2023 at Safari Park hotel in Nairobi, to develop a consultative framework that will support a coordinated approach towards the implementation of electric motorization in the country.

E-mobility has become an increasingly important topic in Kenya, as the country works to make its transportation systems more efficient, convenient, and environmentally friendly.

Kenya government has taken steps to promote e-mobility in the country, such as launching initiatives to make electric vehicles more affordable and accessible. The potential benefits of E-Mobility in the country, and the challenges that must be addressed in order for E-Mobility to be successful.

E-mobility is the use of electric vehicles to provide transportation services. Electric vehicles are powered by electricity, rather than fossil fuels, making them more efficient and environmentally friendly.

In Kenya, the government has launched several initiatives to promote E-Mobility, such as the Electric Vehicle Subsidy Program, which provides a subsidy of up to 50% of the cost of electric vehicles. The government has also established a network of charging stations and has enacted policies to



make it easier for businesses to purchase electric vehicles.

The potential benefits of E-Mobility in Kenya are numerous. Electric vehicles are more efficient than traditional vehicles and require less maintenance, making them more cost-effective. They also emit fewer pollutants, making them better for the environment.

However, there are also a few challenges that must be addressed in order for E-Mobility to be successful in Kenya. One of the biggest issues is the lack of infrastructure for electric vehicles.

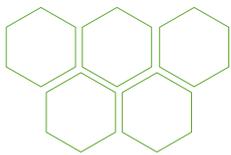
There is currently a limited network of charging stations, making it difficult for electric vehicle owners to charge their vehicles. Additionally, electric vehicles are still relatively expensive compared to traditional vehicles, making them less accessible to the average

consumer.

The introduction of E-Mobility is an important milestone to Kenya, and the government is taking steps to make electric vehicles more accessible and affordable.

While there are a number of potential benefits of project, there are also challenges that must be addressed in order for it to be successful. It is important that the government continues to invest in infrastructure and policies to make electric vehicles more accessible and cost-effective, as this will be essential for the successful adoption of E-Mobility.





## FOREIGN DIASPORA AFFAIRS CS, DR. MUTUA TOURS SUSWA CONVERTER STATION

By Jack Nduri



Foreign and Diaspora Affairs Cabinet Secretary Dr. Alfred Mutua (2nd left), PS State Department for Energy Mr. Alex Wachira (2nd right) and KETRACO Board Chairman Mr. Abdi Bare Duale (right) when they visited Suswa Converter Station.

Dr. Mutua was accompanied by Principal Secretary, State Department for Energy Mr. Alex Wachira, KETRACO Board Chairman Mr. Abdi Bare Duale, KETRACO General Manager for Projects Development Services Dr. (Eng.) John Mativo, General Manager Systems Operations and Power Management Dr. (Eng.) Joseph Siror among others.

The Converter station will offer alternate power supply to Kenya and Ethiopia in the dry season when hydro generation is dismal. It is a key component of the bipolar 500kV HVDC Ethiopia – Kenya Transmission Line with a power transfer capacity of 2000MW which originates from Wolaita Sodo in Ethiopia and terminates at Suswa.

**F**oreign and Diaspora affairs Cabinet Secretary Dr. Alfred Mutua visited the massive Suswa Converter Station on Friday March 31st, 2023, to familiarise with the state of work at the multi-billion project.

The Minister's visit comes on the heels of President Ruto's visit to Germany, home to multinational conglomerate corporation and the largest industrial manufacturing Company in Europe.

The President had during his visit invited German businessmen to invest in Kenya's micro, small and medium-sized enterprises. The two states agreed on the approaches to bringing more German and international Companies to Kenya.

Kenya Electricity Transmission Company Limited (KETRACO) signed the USD 230 Million contract with Siemens AG-Isolux Inginieria Consortium for the construction of the Suswa High Voltage Direct Current (HVDC) Converter substation,



KETRACO General Manager Projects Development Services Dr. (Eng.) John Mativo (center) explains a point to Foreign and Diaspora Affairs Cabinet Secretary Dr. Alfred Mutua (left) at the Suswa HVDC Converter Station. On Dr. Mativo's left is General Manager System Operation and Power Management Dr. (Eng.) Joseph Siror

a component of the Ethiopia- Kenya Interconnector on 26th October 2015.

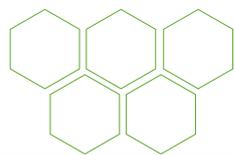
The Cs's visit was significant in fostering bilateral ties with the development partners and also to appreciate the extent of the work undertaken by the European conglomerate in the push for affordable access to electricity by Kenyans.

The total length of the Transmission Line is approximately 1045km out of which approximately 433km is in Ethiopia and 612km in Kenya.

The routing from Ethiopia is in a Southerly direction along Lakes Abaya and Chamo, via Konso to the Ethiopia – Kenya border. The line crosses the border at Forole, approximately 90km West of Moyale town and traverse Marsabit, Samburu, Isiolo, Laikipia, Nyandarua and Nakuru Counties of Kenya.

The project was undertaken in lots, with lot one comprising the installation and commissioning of a 2000MW HVDC bipolar Converter Station at Sodo and Suswa with associated 400/220kV substation extensions. Installation of Ground Electrodes ; and Repeater Stations along the lines for the Fiber Optic Communication System. Siemens AG undertook this component.

The Converter substation is funded through the World Bank



# National Grid energise world's first T-pylons

21st March 2023 - Press release : [www.nationalgrid.com](http://www.nationalgrid.com)

**N**ational Grid has successfully energised 36 of the world's first T-pylons between Bridgwater and Loxton in Somerset. The new shaped pylons have been constructed as part of the £900 million Hinkley Connection Project, a new 57 km high-voltage electricity line that will connect six million homes and businesses to new sources of home grown, low carbon energy and help the UK to meet its net zero by 2050 target.

High-voltage electricity – up to 400,000 volts – is now passing through the T-pylons, a newly constructed electricity substation at Sandford and 8.5km of underground cables through the Mendip Hills Area of Outstanding Natural Beauty. A further 80 T-pylons will be completed and energised by 2024.

Construction of the first T-pylons began in September 2021, with all the conductors or wires that transmit the energy between Bridgwater and Loxton installed by March 2022. The conductors are now energised and transporting electricity around the National Grid's electricity network.

The T-pylon design, the first major UK redesign since 1927, has a single pole

and cross shaped arms, and is around a third shorter than traditional high-voltage pylon design with a smaller ground footprint. The new design was selected from over 250 designs entered into an international competition run in 2011, organised by the Royal Institute of British Architects and government (the then Department of Energy and Climate Change). With a need for new energy infrastructure to enable progress towards net zero, the competition sought a new design to reduce impact on the local environment and surroundings.

Along with offshore routes, underground cabling and continued use of traditional lattice pylons, the new T-ylon design is a potential technology choice for future projects. Each new transmission network project is assessed on a case-by-case basis, with the technology used by National Grid based on planning policy and regulations set by Ofgem as well as engineering, environmental and cost considerations.

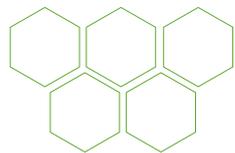
Steven Haskayne, Project Director for National Grid said: "We're extremely proud to have reached this significant milestone on the Hinkley Connection Project.

"The T-pylons are now reinforcing and strengthening the network in the South West and are ready for the connection of low carbon energy when Hinkley Point C starts generating.

"This new design forms part of our significant investment in the network in England and Wales, adding capacity onto the grid to deliver low carbon electricity to millions of people across the UK to use for years to come, and helping the UK's journey towards net zero."

Minister for Nuclear and Networks, Andrew Bowie, said: "As the Minister for Networks, I am delighted to see National Grid reach this impressive milestone. The world's first T-ylon design will connect millions of homes with reliable, low carbon electricity.

"I look forward to visiting National Grid's world-leading Hinkley Connection project this week to see first-hand their innovative network infrastructure that is placing the South West at the heart of the UK's plans to deliver green growth and energy security."



## KETRACO OPGW DATA CAPACITY OFFERS UNIQUE SOLUTION TO DEMAND FOR BANDWIDTH

By Executive Writer

**K**enya Electricity Transmission Company (KETRACO) Ltd. incorporates Optical Ground Wire (OPGW) in the construction of its high voltage electricity transmission lines.

Like many electric utilities Worldwide, KETRACO installs high-capacity fibre optic cables on its high voltage lines to satisfy its own internal communication needs via Supervisory Control and Data Acquisition (SCADA) and to gain additional revenue by leasing excess capacity to telecommunication network providers.

Fiber-optic cable is an assembly similar to an electric cable but contains one or more optical fibers that are used to carry light. Different types of cable are used for different applications, for example, long distance telecommunication, or providing a high-speed data connection between various locations.

It is important to note that within the electricity utility industry, reliable internal communication is vital to ensure protection and control of the electricity system.

With the digital technology taking over operational communications (OT) mainly system protection, SCADA systems, access and CCTV requirements, bandwidth requirements are increasing and thus the need to utilize high-capacity media which is offered by fiber optic.

The immunity of fiber optics to the electromagnetic interface is another advantage OPGW type of cable offers, unique physical protection of the fibre and thus very high availability.

Overhead electricity Transmission Line corridors provide the telecommunications industry

with cost-effective alternative routes to expand fiber footprint and at the same time benefit the electric utilities by generating additional revenue



using existing facilities.

With the fibre optic installation being overhead, reliability and security is guaranteed as opposed to those installed underground which are prone to dig ups, theft, and vandalism.

KETRACO was granted the network facilities provider tier two license by Communication Authority of Kenya in 2014 to commercialize its fibre optic. This enables KETRACO to lease out excess fibre on wholesale basis as either dark or lit fibre.

KETRACO's completed electricity transmission lines offer connection across the country and regionally thus availing ubiquitous fiber optic capacity.

KETRACO has, so far, strung 3000kms of G652 and G655 OPGW fibre. There are forty-eight cores with six reserved for KETRACO and forty-two available for lease.

Plans are at an advanced stage to

commercialize fiber on the 612km 500kV HVDC Transmission Line from Suswa to the Ethiopia border, part of the larger Ethiopia – Kenya Inter-connector.

The fibre optic link through Ethiopia - Kenya inter-connector will provide terrestrial redundancy protection to the submarine cable landing stations in Mombasa, Djibouti, and Port of Sudan.

Further, the link will also offer an alternative route for fibre optic to Ethiopia, hence increasing redundancy. This will promote network diversity and resilience in the region since underground cables are prone to cuts.

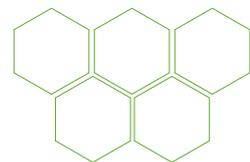
KETRACO has leased its fiber optic to several telecommunication companies. Safaricom PLC has leased fibre optic under Rabai – Galu, Rabai – Malindi – Garsen - Lamu, Mangu – Juja, Kegati – Awendo and Sondu Miriu – Mamboleo Transmission Lines. Jamii Telecom Ltd has leased fibre optic under Kisii – Chemosit, Mangu – Juja, Eldoret – Kitale and Kamburu – Meru Transmission Lines.

Liquid Telecom has leased fibre optic on the Rabai – Isinya - Embakasi Transmission Line.

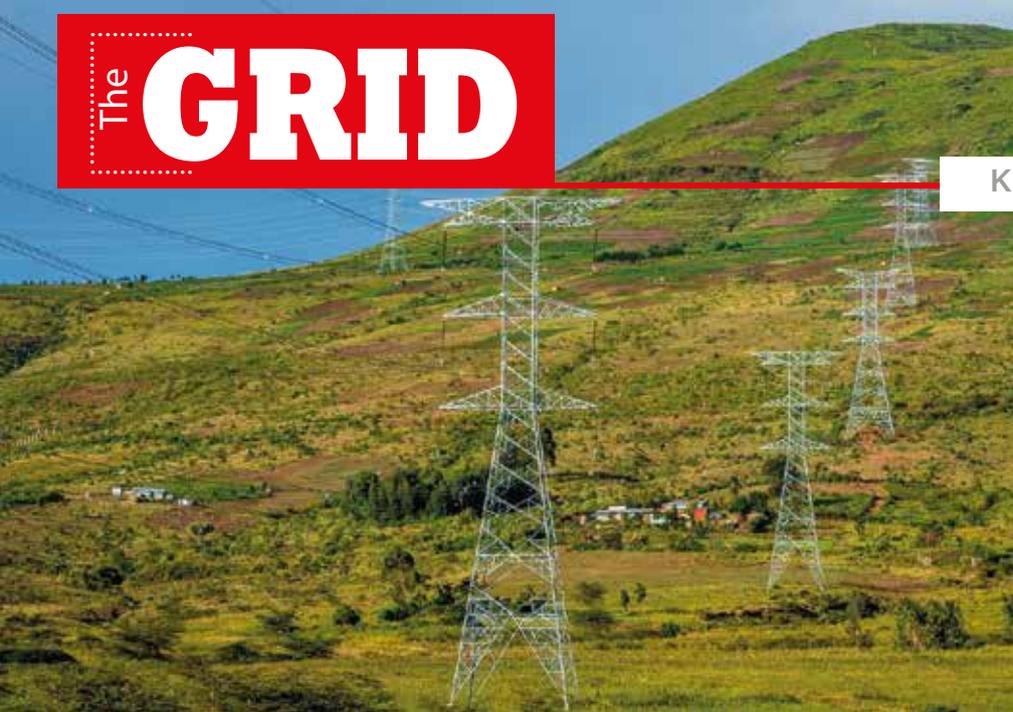
Wananchi Telecom has leased fibre on the Chemosit-Kegati Transmission Line. Bandwidth and Cloud Services Group are leasing fibre on the Kamburu-Meru route.

There are even greater prospects for KETRACO fibre optic cables with all the current and prospective clientele showing interest in other KETRACO fibre optic routes.

*The writer, a registered Engineer, is Ag. Managing Director, Kenya Electricity Transmission Company Ltd*



**NATIONAL ENERGY CONSERVATION DAY: FAMOUS QUOTES**



This day is observed every 12 th December each year to spread awareness about the importance of energy and the need for conserving energy by using less energy.

1. "Our dependence on fossil fuels amounts to global pyromania, and the only fire extinguisher we have at our disposal is renewable energy." - Hermann Scheer

2. "Fire made us human, fossil fuels made us modern, but now we need a new fire that makes us safe, secure, healthy, and durable." - Amory Lovins

3. "The truth is, as most of us know, that global warming is real and humans are major contributors, mainly because we wastefully burn fossil fuels." - David Suzuki

4. "Let's nurture nature so that we can have a better future." - Anonymous

5. "A true conservationist is a man who knows that the world is not given by his fathers but borrowed from his children." - John James Audubon

6. "I feel more confident than ever that the power to save the planet rests with the individual consumer." - Denis Hayes

7. "Earth provides enough to satisfy every man's needs, but not every man's greed." - Mahatma Gandhi

8. "Nature provides a free lunch, but only if we control our appetites." - William Ruckelshaus

9. "What we are doing to the forests of the world is but a mirror reflection of what we are doing to ourselves and to one another." - Chris Maser

10. "Look deep into nature, and then you will understand everything better." - Albert Einstein.

Source: [jangranjosh.com](http://jangranjosh.com)

**POWER IN THE GRID**

Gather round Ye countrymen,  
Fair ladies and fine gentlemen,  
Of shallow and deep acumen,  
Just as around fish gather fishermen,  
And hear about Power In The Grid!

Have ye near thee spotted a tower,  
Of immense steel posing in power,  
Making wooden and concrete ones to cower,  
By its cross arms like a long shower?  
If not, come and hear about Power in The Grid!

That KETRACO causes power to fly,  
Is a fact to deny ye can't dare try,  
For you'll delude yourselves to cry,  
And ultimately agree albeit shy,  
When you experience Power in The Grid!

O'er hills and valley meanders a Line,  
Tracing cute profiles that glitter and shine,  
To transmit power: the mineral we mine,  
On lattice towers cuter than the Pine,  
Just to bring Power in The Grid!

No line is orphan for a long duration,  
For it finds abode in a sub-station,  
A marvel of engineering combination,  
To power Kenya and any neighbor nation,  
By putting Power in The Grid!

With vision and mission to surpass the border,  
KETRACO's mandate grows ever broader,  
To impact even the rider of a Boda Boda,  
'Till the West concurs with a 'Yes, My Broda!  
'Cause we shall always put Power in The Grid!

The ink in this pen must now run dry,  
But to deliver, KETRACO must ever try,  
The flag of our corporate colors to fly,  
Until the globe can in chorus cry,

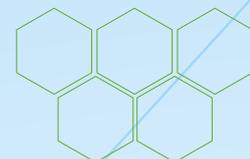
KETRACO indeed adds Power in The Grid!

By: Eng. M.D. Busolo  
+254 (0) 726 365 430  
[busolomuhadi88@gmail.com](mailto:busolomuhadi88@gmail.com)

**CONSERVE ENERGY**

Conserve energy it is my advice,  
It is limited you have no choice.  
Wasting energy is never be nice,  
When you are not using device!  
Switch off lights and get rejoice.  
Make your habits, be in practice,  
While misusing energy think twice.  
Either ready to pay for its price.  
Do your duty don't make compromise,  
Save energy for your future crisis,  
Make people aware and spread voice.  
people must do some sacrifices.  
It helps to make your present bright,  
Which leads your future in safe sight.  
Cut the size of green gas might,  
New generations live in delight.

Source: [Allpoetry.com](http://Allpoetry.com)



## PSYCHOLOGICAL SAFETY AND HEALTH IN THE WORKPLACE

By Winstone Audi

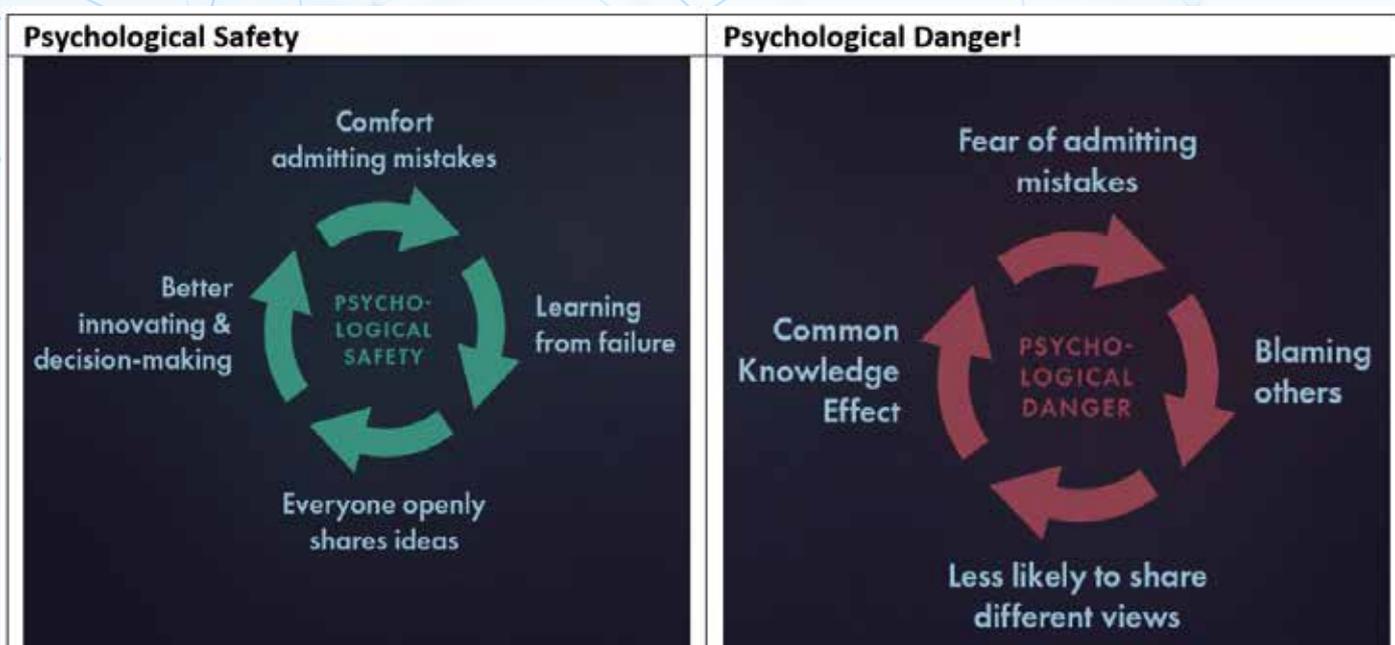
The concept of “psychological safety” involves preventing injury to the mental well-being of workers. A psychologically safe and healthy workplace is one that promotes workers' mental well-being and does not harm employee mental health through negligent, reckless, or intentional ways. For example, a psychologically safe workplace would be free of excessive fear or chronic anxiety.

### Mental Health

Mental health is a state of well-being in which a person

### Difference between a mentally healthy workplace and a psychologically healthy workplace

There is no difference - psychologically healthy workplaces and mentally healthy workplaces both describe the same **high-functioning, respectful and productive workplace**. The term “psychologically healthy workplace” is often used when talking about preventing psychological injuries (e.g., stress-related emotional conditions resulting from real or imagined threats or injuries). The term “mentally healthy workplace” is often used within the context of mental



understands his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to contribute to his or her community.

Both physical and mental health are the result of a complex interplay between many individual and environmental factors.

When the demands placed on someone exceed their resources and coping abilities, their mental health will be negatively affected. Two examples of common demands are working long hours under difficult circumstances and caring for a chronically ill relative or friend. Economic hardship, unemployment, underemployment, and poverty also have the potential to harm mental health.

health promotion and is viewed as a strategy used to reduce risk factors for developing mental illness.

### Why employers should be concerned about mental health.

The overall health of a workplace includes both the physical and psychological well-being of its workers. By treating mental health and its psychological component equally with the physical environment, a workplace can support their workers' overall well-being. Poor mental health not only hurts the individual, but it also reduces corporate profits. It is important that all levels of the workplace – including the Board of Directors and the Management Committee get involved to incorporate mental health at the workplace. It is also necessary to engage the health and safety committee and workers – we all have a shared responsibility for health and safety, including mental health.'

### Legislative Requirements

Whereas the Occupational Safety and Health Act, 2007 does not have specific section(s) dealing with psychological health in the workplace, the general duty clause {Section 6. (1)} would apply. 'Every occupier shall ensure the safety, health and welfare at work of all persons working in his workplace.

The Ministry of Health is implementing the Kenya Mental Health Policy 2015-2030 with a goal to attain the highest standard of mental health. Priority actions will include, workplace programmes to assist workers in handling stressful work life situations, strategies to ensure no stigma and discrimination to persons with mental health problem in workplace and alcohol and substance abuse prevention and management.

### Specific issues in the workplace that affect employee mental health.

Research has identified several workplace factors – known as psychosocial risk factors (PSR) – that can have an impact on organizational health, the health of individual employees, and the financial bottom line. The way work is carried out and the context in which work occurs can have a significant impact on an employee's mental health – positively or negatively.

When employees have a negative exposure to these factors, there is potential for the development of stress, demoralization, depressed mood, anxiety, or burnout.

**Work-life balance** is a state of well-being that allows a person to effectively manage multiple responsibilities at work, at home and in their community. Work-life balance is different for everyone, and it **supports physical, emotional, family and community health** and does so **without grief, stress, or negative impact.**

### What happens when it is lacking?

When work-family role conflict occurs (that is, roles within the workplace and outside it is overwhelming to a person or interfering with one another), health and well-being are undermined by accumulating home and job stress.

These effects can lead to additional stress-related illness, as well as higher cholesterol, depressive symptoms, and overall decreased health. The impact on the organization can include increased costs due to benefit payouts, absenteeism, disability, and turnover.

### Civility and Respect

A workplace where employees are **respectful** and considerate in their interactions with one another, as well

as with customers, clients, and the public. Civility and respect are based on showing esteem, care, and consideration for others, and acknowledging their dignity.

A civil and respectful workplace is related to greater job satisfaction, greater perceptions of fairness, a more positive attitude, improved morale, better teamwork, greater interest in personal development, engagement in problem resolution, enhanced supervisor-staff relationships, and reduction in sick leave and turnover.

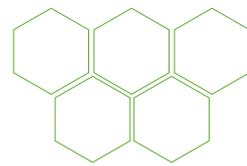
A workplace that lacks civility and respect can lead to emotional exhaustion amongst staff, greater conflicts, and job withdrawal. A work environment that is uncivil and disrespectful also exposes organizations to the threat of more grievances and legal risks.

### Growth and Development

**A workplace where employees receive encouragement and support in the development of their interpersonal, emotional and job skills.** This type of workplace provides a range of internal and external opportunities for employees to build their repertoire of competencies. It helps employees with their current jobs as well as prepares them for possible future positions.



Image source: Freepik.com



## ESTHER NDUMIA ATTAINS HIGHEST STANDARDS IN SERVICE DELIVERY TO KETRACO CUSTOMERS

*Systems Operations And Power Management Staff Voted Power Transmission Firm's Best Employee During Customer Service Week Marked in First Week Of October Each Year*



KETRACO Board of Directors and Management Team.

KETRACO Manager, Human Resource Services Nancy Mumo while presenting the appreciation letter to Esther, urged all staff to emulate her footsteps and always strive to achieve the best in service delivery and attainment of the Company's core mandate.

"Customer Service is more of an attitude than a department and your can-do it attitude has paid off. Keep up the good work," said Nancy during the brief ceremonies at the Company's ground floor reception.

She added "Your customer management skills are fantastic and your commitment for ensuring efficient services to our customers is highly commendable. Thank you for making our customers love us!"

She said good customer service was cornerstone to successful attainment of Company's objectives noting that it was in the interest of KETRACO to always explore opportunities for improvement.

She reminded the staff that everyone in the Company had the obligation to

make an impact to the overall customer experience, even the most backstage worker who, seemingly interacts with no one.

"Thank you all for taking the time to respond to our survey. Let's all strive to serve our customers with high standards in service delivery to ensure that their needs and expectations are met and exceeded," said Nancy.

Customer Service Week is an international celebration of the importance of customer service and of the people who serve and support customers on daily basis. It is celebrated annually first full week in October each year.

During Customer Service Week, KETRACO celebrates individuals and teams that are doing this demanding work, and inspiring others to do the same.

It is KETRACO's belief and understanding that such is perfect time to boost morale, motivation, and teamwork, reward frontline reps for the important work they do all year long, raise companywide awareness of the importance of customer service, thank other departments for their support and remind customers of the Company's commitment to customer satisfaction.

Customer service is core means of building brand loyalty and encouraging customer satisfaction – and KETRACO service team plays a leading role.

**E**sther Ndumia – Secretary, Systems Operations and Power Management – has been awarded for attaining the highest standards in Service Delivery to KETRACO stakeholders.

Ndumia emerged the Company's top employee after the recently concluded online nomination for Best Customer Service Staff.

"We appreciate the extra effort that you put in serving our customers to ensure that their needs and expectations are met and exceeded in line with one of our own values," read the appreciation letter signed by then Managing Director Eng. (CPA) Antony Wamukota, OGW on behalf of

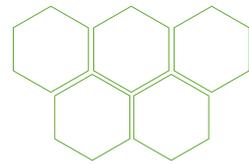


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## KETRACO PICTORIAL



Energy PS Alex Wachira (gesturing) chats with new KETRACO Board Chairman, Mr. Abdi Bare Duale after attending a board induction meeting



KETRACO General Manager, Projects Development Services Dr. (Eng.) John Mativo shares his experience with young Engineers at a 3Es Experience workshop



Acting KETRACO MD Eng. Isaac Kiva, OGW (2nd right) and General Managers, Dr. (Eng.) John Mativo (Right) and Dr. (Eng.) Joseph Siror (Left) with 2 newly registered Professional Engineers



KETRACO Board Chairman Mr. Abdi Bare Duale, OGW (center), Ag. Managing Director Eng. Isaac Kiva, OGW and General Manager Design & Construction Eng. (CPA) Antony Wamukota, OGW appreciate the switch yard at Mariakani Substation



KETRACO General Manager Finance CPA Tom Imbo (in black suit), General Manager, Human Resource & Administration Regina Kemboi (3rd Left) and Company Secretary & General Manager Legal Services Lydia Sitienei (Left) lead staff in marking International Customer Service Week



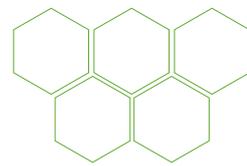
KETRACO Project Development Services Directorate Members led by General Manager Dr. (Eng.) John Mativo bid Farewell to colleague Daphine Juma



KETRACO General Manager, Human Resource & Administration Reginah Kemboi (front row - middle) with outgoing Benevolent Fund Committee members led by chairman Eng. Henry Odedeh during a past AGM at KAWI Complex



PS Ministry of Energy Alex Wachira (front row 3rd from left) when he toured 400/200kV Mariakani Substation



## KETRACO Powers Procurement Prowess with SAP Ariba

By The Grid Staff Writer

Public sector procurement is considered a cornerstone of strategic governance and a crucial pillar of service delivery.

When one of Kenya's leading state corporations, Kenya Electricity Transmission Company Limited, needed to enhance its procurement capabilities to meet its regulatory commitments, it adopted SAP to leverage the power and scale of the largest procurement network in the world.

"Our vision is to be the leading interconnector in Africa, and to achieve that we needed access to world class procurement capabilities that would unlock greater automation, control, consistency and scale," says David Kariuki, ICT Manager at KETRACO.

He added, "We chose SAP Ariba to automate and enhance our procurement processes and ensure our vital work continues even during the most disruptive times of the pandemic."

KETRACO is a fully government-owned state corporation with a mandate to plan, design, construct, operate and maintain Kenya's national transmission grid. Since it was incorporated in 2008, the Company has made efforts to strengthen and extend the national power transmission grid to enhance the quality, reliability and security of electricity supply in Kenya.

The company's SAP journey began in 2016 after it implemented SAP ECC with best-practice modules. The implementation won KETRACO gold at the SAP Quality Awards for both Africa and the greater EMEA region.

"Part of the award involved a team from our company visiting the SAP headquarters in Waldorf," says Kariuki, adding, "here we were introduced to SAP Ariba for the first time, and saw the exciting product innovation road-map for Ariba. We knew that this is where our technology road-map would lead."

In 2018, a Presidential Directive compelling all state-owned corporations to migrate their procurement platforms to an e-procurement solution with integration to an IFMS portal was issued. This was one of the catalysts for KETRACO's adoption of SAP Ariba, which Kariuki and his team implemented in two phases.

The first phase involved the deployment of SAP Ariba Commerce Automation, a cloud service that enables the electronic exchange of procurement documents between buyers and suppliers through the SAP Ariba Network, the largest procurement network in the world.



*A team from SAP Ariba led by SAP East Africa's Managing Director, Mr. Hardeep Sound, paid a courtesy call to KETRACO to thank the team for their significant contribution in the procurement and supply chain collaborative journey.*

In the second phase of the project, the team implemented the SAP Ariba Sourcing Suite.

"We identified three modules that would add the most value to our organisation, namely Supplier Lifecycle, Contract Management, and the main Sourcing module," explains Kariuki.

The implementation was supported by SAP Customer Success Services, who led the technical and functional deployment and enabled continuous knowledge-sharing and training to ensure a successful and sustainable solution post go-live.

KETRACO went live with the solution just as the pandemic arrived. "By automating our processes in Ariba, we were able to completely eliminate paper-based processes," says Kariuki.

He added that "our suppliers were able to receive purchase orders, invoices and other procurement documents electronically. This enabled us to continue more or less with business-as-usual despite not having physical contact due to lockdown restrictions."

The electronic invoicing also allowed KETRACO to centralise all its invoicing and have one repository for receiving invoices.

"Suppliers were able to track the status of their invoices and see when they could expect payment. Ariba also allowed us to monitor and manage our suppliers from a single point of view and have a 360-degree view of their data and performance," said Kariuki.

Kariuki also points to Ariba's ability to help KETRACO manage the special category of suppliers that include youth, women and persons with disabilities.

"The system allowed us to continuously register this group and categorize them in the system, while giving them the opportunity to participate in bids as required by the PPAD Act," he said.

One of the key highlights since the implementation is KETRACO's ability to continue its procurement processes even during hard lockdown.

"Despite the impact of the COVID - 19 pandemic on our operations, we were able to successfully manage a massive tender event that attracted hundreds of suppliers. With pandemic protocols in place, we would not have been able to handle the bids received were it not for the amazing efficiency of our new Ariba system. The experience made us fully appreciate the value of procurement," Kariuki said.

Hardeep Sound, Regional Sales Director for East Africa at SAP, says: "Public procurement plays a vital role in economic development is a core competency of leading state corporations. KETRACO's superb utilisation of technology through its adoption of SAP Ariba, solid buy-in and support from the leadership team and smart investment in effective change management have helped establish a powerful foundation that will support KETRACO's vital procurement processes and ensure it can meet its critical mandate for years to come."



## LESSONS FROM THE ITALY-KENYA BUSINESS AND INVESTMENT FORUM

CAS State Department for Energy Hon. Mary Seneta addresses the Italy-Kenya business investment forum help at KAWI House.

By *Diana Kemunto*

The Italy-Kenya Business and investment forum on geothermal was held on the 27th March 2023 at Kawi House Auditorium.

The forum was organized by the Ministry of Energy and Petroleum of Kenya in collaboration with Geothermal Association of Kenya and UNIONE geothermal Italian as part of UNIDO ITIPO Italy's mission to Kenya for an Italian business and institutional delegation in the geothermal sector.

The occasion was attended by among others, Principal Secretary, State Department for Energy Alex Wachira who was the chief guest. He was accompanied by Chief Administrative Secretaries (CASs), Ministry of Energy Hon. John Lodepe and Hon. Mary Seneta.

The objective of the forum was to accelerate the pace of geothermal resource development in Kenya and provide an opportunity for Italian enterprise to introduce their innovations that would pave the way for opportunity for investment, business and collaboration.

It also aimed at accelerating inclusive and sustainable industrial development and promoting collaboration in the sector between Italy and Kenya, the initiative is implemented as part of the project "fostering international partnership between companies and /or institutions operating in the energy and environmental sectors.

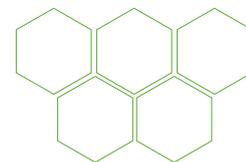
Kenya has prioritized geothermal energy as base load among its vast renewable energy resources. The government continues to create a conducive operational environment for the development of the geothermal sub-sector.



Deputy head of mission, embassy of Italy in Kenya Ms. Gambacorta Lorenza (left) and Ms. Diana Battaglia - Head at UNIDO ITIPO Italy (right) during the forum



A section of delegates attending the Italy-Kenya business investment forum



**KETRACO MANAGER, IN THE DIRECTORATE OF DESIGN & CONSTRUCTION ENG. JUSTIN MUNA INSPIRES TECHNICAL TEAM WITH WEALTH OF EXPERIENCE IN ENGINEERING**

BY JACK NDURI



**W**ith a total of sixteen transmission projects currently ongoing under his watch – Eng. Justine Muna is an extremely busy man.

Eng. Muna is the Manager Design in Kenya Electricity Transmission Company’s (KETRACO) Design and Construction Directorate. This is the Directorate that undertakes contract documentation, project designs, design reviews and ensures that specifications presented during planning and procurement stages are fully complied with during construction.

He coordinates activities of the project Implementation Teams comprising members of KETRACO staff from within Design and Construction and other Directorates to ensure properly coordinated project implementation.

“We are engaged in building environment and the ultimate end is to bring on board successful projects that are fully aligned to the employer’s requirements, contract specifications and adhere to engineers’ best practice,” he said when he granted us opportunity for

an interview in his office on fifth floor, Kawi Complex, Block B.

Their work, he says, involves referring to standards and professional guides in matters Electrical, Civil and Structural Design, works supervision , commissioning, and acceptance of completed projects.

According to Eng. Muna planning and implementation of projects revolves around three constraints namely, budget, quality and scope that are controlled as guided by existing frameworks such as change management control, cost control, procurement management, among others.

The three factors, he says, are overarching factors that influence most of the other factors and therefore remains of high priority during the entire cycle of projects under implementation.

“Most of the time we are guided with scope and quality of the project, however we have to work with available funds,” he says.

Eng. Muna graduated with BSc. (Civil) Engineering from the University of Nairobi and later MSc (GIS) Geographic Information System from the same institution. He has in addition acquired skills in project management, especially in implementation of projects where he got involved immediately after his graduation.

He recently developed interests in strategic leadership skills and has undergone several trainings on the same.

He previously worked for Telecommunications giant, Safaricom Ltd as Senior Design Engineer, Supervisor and was heavily involved in Design and Construction of Base Transceiver Stations (BTS) in network implementations.

He joined KETRACO in the Technical Services Directorate and later re-deployed to Design and Construction as Manager, Design and Construction.

The historic 400kV Nairobi – Mombasa Transmission Line Project – the first ever to be constructed by KETRACO since its conception became his first project. He took the role of project Engineer where he deputised Project Manager on the Transmission Line scope.

Here, he collaborated with international contractors and consultants gaining fundamental experience that shaped his career and skills in Transmission Line construction to become what he is today.

“I am currently a manager in the Directorate of Design & Construction, taking full leadership in a directorate that manages a critical component in KETRACO’s mandate , focussing on design of Transmission Line projects , ensuring construction of the same at costs , quality and within time ,” says Eng. Muna.

*Continues Pg 24...*



He describes the Directorate as overly complex and ideally technical, bearing two departments namely, Design and Construction; Design Department has Electrical Engineering Division which is further broken into control and protection, Scada and Telecoms as well as Electrical Plants Expertise and Civil and Structural Engineering Division which is further into Transmission and Substation.

Construction Department has Project Management, Electrical and Civil Works Departments. The Department has Project Managers, Resident Engineers, Site supervisors and Clerk of Works primarily focussing on contract management and quality control of ongoing projects.

Although the main field is Civil and Electrical, says Eng. Muna, there are other skills that can only be acquired through experience and specialized on job training.

KETRACO, he outlines, has benefitted from his skills and professionalism because of his experience in multi-disciplinary environments.

“Transmission line projects like most linear projects are heavily multi-disciplinary in nature and there are so many professionals involved during implementation of projects. This is unlike normal structural engineering projects such as buildings where we have architects, quantity surveyors and Engineers heavily involved,” he says.

Because of the demanding nature of his office, Eng. Muna starts his day at 5.00 am, prepares for the day and take his breakfast before hitting the road to the office, normally



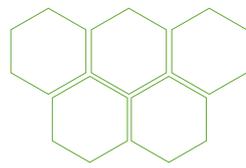
having to brave the heavy traffic.

He prefers getting to office early, at least by 7.00 am so that he can carry about review of the working tasks and prioritise the day to the best that he can control. During his office hours, there are regular on and off meetings, planned while others are ad-hock as guided by work at hand and his supervisor.



“My job also involves reviewing and approving of documents as presented by the staff within the directorate and forwarding some for further approval by the accounting officers as provided by internal procedures,” he says.





Article written by: Melannie Tepenoi Nteti

## MENTORSHIP BEYOND THE OFFICE



Dr. (Eng.) John Mativo in a Mentoring Class

**M**aking a positive change is a priority for most people in the world today and being uniquely different individuals, we have come up with countless methods to do this in the ways that we see fit over the years, one of them being mentorship. Every good leader should seek to replicate his good attributes upon others in his area of influence. **The Greatest Act of Leadership is mentorship.**

Today we interviewed one passionate man, Dr. (Eng.) John Mativo who through his experience, skillset and passion has mentored different groups of young growing individuals to have better lives both today and in their futures. We had several questions for Dakтари:

### Who is Dr Mativo?

Dr. Eng. John M. Mativo is a Consulting Engineer with the Engineers Board of Kenya and a Fellow Member of the Institution of Engineers of Kenya. He has more than twenty-five (25) years

cumulative working experience in both the public and private sector accumulating extensive experience in research, design, construction supervision and contract management. He holds a PhD. Degree in Civil Engineering from Tokyo Metropolitan University in Japan, Master's Degree in Structural Engineering from Tongji University, Shanghai, China and BSc. Degree in Civil Engineering from the University of Nairobi.

He currently works as the General Manager Project Development Services in the Kenya Electricity Transmission Company (KETRACO), and he is responsible for transmission system planning, conceptualizing new high voltage transmission infrastructure projects, resource mobilization, carrying our Monitoring & Evaluation of ongoing and completed projects, ensuring both environmental and social safeguards are maintained during project implementation. He also chairs the PPP Project Team at

Ketraco that is spear heading the implementation of new project using alternative funding.

Eng. Mativo has served in various position and organizations as follows; Council Member - Jomo Kenyatta University of Agriculture and Technology, Board of Trustees and Moderator- Parklands Baptist Church, Chairman - Kenyan Japan MEXT Alumni and Volunteer Director: Young Jewels Foundation. He is currently serving a Panellist at the Engineers Board of Kenya and Institution of Engineers of Kenya, University of Nairobi Alumni Mentor and 3Es Experience Advisory Director.

### What is mentorship to you and why mentor?

To me, mentorship is a relationship between two people where one is more experienced and more knowledgeable, with more connections and has been able to appreciate a lot of things and they are able to pass this knowledge and experience to junior individual. Similarly group mentorship follows the same principles too.

The reason I mentor is to ensure that whatever I care for can be passed down to future leaders and future generations. Secondly, I believe that my experience can provide an easier way for a mentee to navigate through the life, work, career and professional challenges that I have already gone through. It is basically transferring my skills and knowledge to someone else and seeing them grow. Indeed, your greatest gift to the world is your Mentee.



*Dr. (Eng.) John Mativo undertaking a Mentorship Program*

**Tell us about your mentorship journey?**

Like I mentioned before, I have been fortunate enough to work for a number of years both in the private and public sector. I've also studied both in Kenya and in two other developed countries abroad so based on these two factors and the multiple opportunities...where I have had the chance to learn, I felt the need to pass these skills to individuals. It's a really awesome experience to see a young person appreciate what you have to share with them and strive to emulate your best practices.

I am really thankful that I got the chance to do it in two major organizations:

**(1) 3Es Experience Organization.**

From the baseline study carried out by the charity organization targeting school children and the general rural community, we were able to note that there was a large group of pupils who have not been exposed to many things besides their routine

schoolwork from Monday to Friday. This provided an opportunity to come out and share with them through mentorship and career talks.

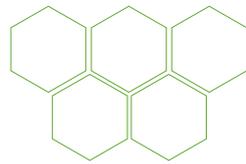
Under Mentorship, we came up with a clear program where we taught them a number of skills such as leadership, time keeping, teamwork, communication skills because they are fundamental in all aspects of our lives and other life skills that will help them to go beyond their studies

These being primary school children level, we use simple methods of learning such as fun games that need them to incorporate the theory that we teach them and their practical life. We have focused on working together as a team, using proper communication cues such as listening attentively, being courteous and asking relevant questions. After each fun session full of games, the pupils were able to give better answers and explanations. It has been fulfilling to see the positive impact these sessions have had on

the pupils.

Hand in hand with the mentorship program is the 3Es Experience career talk. The career talk continuously exposes the students to various careers and professionals available in Kenya and beyond. Previously, most of the children basically knew very little about other career paths besides what they see in their day to day lives such as boda boda riding and small-scale trading. We were able to take them through activities and personnel in construction site, explaining to them what happens there and who does what. The students ended up learning that a construction site has all sorts of professional personnel ranging from carpenters, plant operators, architects and different kinds of engineers.

The organization also plans to take them to physically visit various workplaces such as factories, hospitals, construction site offices



Dr. Mativo mentoring primary school pupils



etc., so that they can learn and see how a workplace operates which will be fundamental in helping them decide their future career paths. Additionally, this experience will help them increase their creativity in writing their compositions and Insha based on their personal life experiences. This will help them excel in their examinations.

### (2) University of Nairobi Alumni Org

I recently volunteered for the University of Nairobi Alumni pilot mentorship program. I have been assigned four students: two engineering masters' students and two engineering undergraduate students. Since the students are studying engineering, I am able to guide them in their journey to becoming future professional engineers besides sharing my personal life and professional experience. I've also been able to listen to them and together we have been able to identify their strengths and weaknesses, explain to them its importance because it determines how you work through certain things. They are preparing their personal development program, where they are able to commit to improving various aspects of their lives. My goal is to ensure that they not only acquire the skills they need but also be able to have an all-round balance in their lives. This mentorship program creates room for them to network with other people in my circles, provide good opportunities for growth and exposure to them to new ideas which plays an important part in shaping their futures.

Recently, I had secondary school students who came for a job shadow in my office to understand what I do from morning to evening and how I organize my office. This experience helped them understand KETRACO and different career choices available to them.

### What is the biggest challenge of being a mentor?

The biggest challenge definitely has been "time available" to optimally manage the number of mentee and therefore I have to plan how to be

available. Secondly mentorship is highly dependent on how proactive the mentee and mentor are. The mentor can only go at the speed of the mentee so finding yourself working with less committed people can be a challenge. Also, sometimes people think you have to be perfect but there are times a mentor can lack some skills or knowledge to pass to somebody else so you have to cross some bridges to be able to mentor adequately. It is important that a mentorship program is not confused with a counselling session.

### Word of encouragement to other mentors?

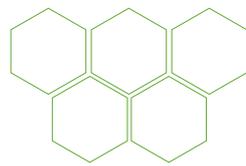
First, let me start with mentees. If somebody is looking for a mentor, they should look for somebody who is more experienced and seasoned in the field of interested. They should pick somebody with a good reputation, somebody who is interested in developing their skills and finally somebody who is genuinely there to support you.

I encourage people, especially senior staff, not to be busy only with a similar schedule from Monday to Friday which is an unhealthy routine - that can go on for years and years. They need to set aside part of their lives to build others. Indeed, you preserve what you build through mentorship.

Mentors should remember that there is more to life than just keeping these skills and experience to themselves. They should strive to share with other people who can benefit from that journey. I believe everybody has something they are able to share, because there is always somebody out there who looks up to you.

It is important in life that somebody has a good mentor or coach because there is always somebody that can push you to be better than you currently are.





## SHIFT IN ENVIRONMENTAL CONSIDERATIONS TO CUSHION AGAINST CLIMATE CHANGE SHOCKS

By Clifford Siocha

In the wake of recurrent climate change shocks such as droughts and floods, there is a clarion call towards a shift from the Business-as-Usual (BAU) scenario in developmental matters, and a serious re-think towards integration of environmental considerations.

The precariousness of the environment, and socioeconomic impacts on animate and inanimate environments due to climate change

are becoming increasingly evident. The COP27 forum presented such a rethink towards adaptation, coupled with a strong commitment from the international community to safeguard vulnerable communities hit by climate disasters. Development projects such as electricity transmission systems are critical assets in the world today. On the mitigation spectrum, they play a major role in offsetting the carbon

loads in the atmosphere by providing clean power for use, diversifying reliance from thermal power generation, and conserving forests which are essential carbon sinks.

Optimal level of service for various sectors in Kenya namely ICT, banking, hospitality, health care, transport, education, among others, is dependent on an efficient and stable grid. Therefore, it is key to safeguard the integrity and optimal performance of these transmission infrastructure within their operational lifespan.

Electricity transmission projects are indeed expensive public investments with an average operational life of 50-60 years if design thresholds

remain constant. Their constituent hardware is designed to run and operate optimally under given climatic conditions.

Changes to the design's climatic thresholds lead to potential transmission interruptions and reduced performance with significant economic footprints. Globally, climate change poses a considerable threat to current and future electricity transmission infrastructure.



Image Source: Getty Images

Extreme temperatures, cyclones, and floods can potentially negate progressive efforts made, leading to prolonged power outages, destruction of physical assets, destroyed livelihoods and even fatalities. Kenya has not been left out of its share of such climate-instigated disruptions. Hitherto, the brunt is minimal in comparison to other areas in the world.

It is not all doom and gloom. Massive development projects such as electricity transmission projects offers us an opportunity to shift and adapt.

Climate change and its impacts provide environmental and climate scientists, engineers, economists,

and planners room to be pro-active. There is an imperative call towards systematic adaptation to ensure resilience in transmission systems, thus sustaining their critical service. By considering worst-case climate scenarios and modelling while planning new assets and re-configuring the existing assets, the vulnerability of these assets can be buttressed ensuring heightened resiliency. In this light, KETRACO

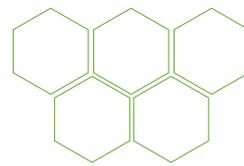
has made commendable and significant gains towards achieving transmission redundancy, optimal route selection and undertaking power demand studies which are key for resiliency.

Opportunities exist for harnessing in enhancing and integrating climate modelling for

worst-case-scenarios, policy realignments, capacity enhancement, strengthening of ESIA processes, and integration of the gender nexus in planning. With this shift, and building of the present stock, we are destined leaders in infrastructural sustainability.

Green is the button and resilience the goal. Let's roll.





By Vivian Kemboi

## WHY KETRACO UNDERTAKES MONITORING AND EVALUATION ON TRANSMISSION LINE PROJECTS

**K**ETRACO has constructed twenty-five Transmission Line projects totaling 2,440 km and 40 new and extension substations since it was formed in 2008. Previously Kenya had approximately 3,300km of high voltage transmission lines.

The Company constructs transmission lines to supply reliable power needed for Kenya to achieve its national development goals and improve the quality of lives of citizens. Adequate and reliable Electricity is needed to facilitate attainment of Vision 2030 targets.

When planning for transmission infrastructure projects, KETRACO's Transmission System Planning Department ensures the country has transmission lines and substations that will reliably transmit generated power to load centers and meet electricity needs.

To ensure attainment of transmission infrastructure objectives, the department has put into place mechanisms to track the objectives before a project starts and compare with the situation after the project is commissioned and operated.

Project Monitoring & Evaluation Division assesses power quality of on-going and completed projects to determine if desired outcomes and impacts have been achieved.

The objective is said to have been attained when frequency of power outages, duration of power outages, poor voltages are reduced. Diesel run generators must also be switched off.

Poor quality power on large power consumers result in manufacturing interruptions, product damage, equipment damage, decreased



*KETRACO General Manager, Project Development Services Dr. (Eng.) John Mativo (2nd Left) when he visited Athi River Steel with Monitoring & Evaluation team from KETRACO to discuss the improved power supply to the region*

equipment life, production losses, idle labour, higher costs in repair and maintenance of machines, wasted energy, profits losses and lost opportunities.

Quality and adequate power supply will increase volumes of production, allow for stretch working hours to create a 24hr economy, increase employment opportunities, maximize distribution capacities and setting up of new manufacturing plants.

Currently, baseline data from nine Transmission Line projects (new and ongoing) for purposes of monitoring and evaluation. Data has also been collected from projects completed before baseline data was collected and projects in which baseline data and post generaliza-

tion data had been collected.

On on-going projects, data collection templates are shared to various large power consumers on the quality of power they receive from the grid to fill over a certain period. The data templates are then submitted monthly.

The data collected comprises of opinions from power consumers on the quality of power before and after the project was energized. This provides a better picture to determine if desirable outcomes and

impacts of our projects are being realized.

The analyzed data and feedback received from various large power consumers on power quality is shared with the financiers of the projects. This allows them to have a good understanding of the transmission infrastructure beyond the physically completed project.

This also informs KETRACO on the prevailing system challenges that require further capital investments and thus allow for securing of funding.



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# ENHANCING GRID RELIABILITY AND NETWORK STABILITY THROUGH INNOVATION

